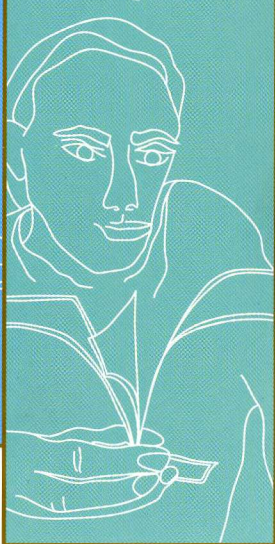
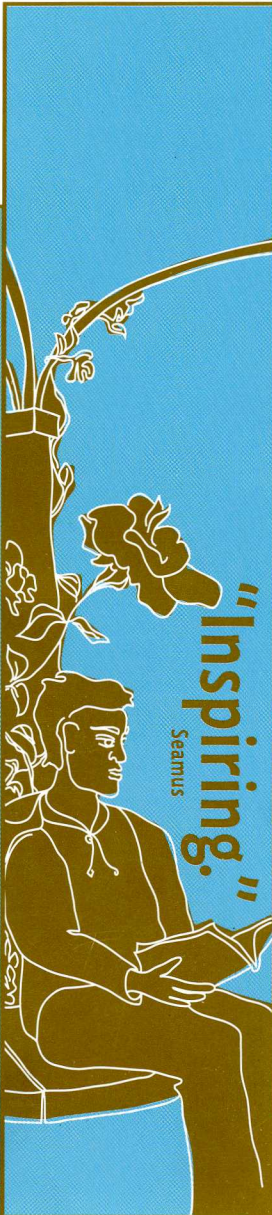



"It was life-changing."
Emily

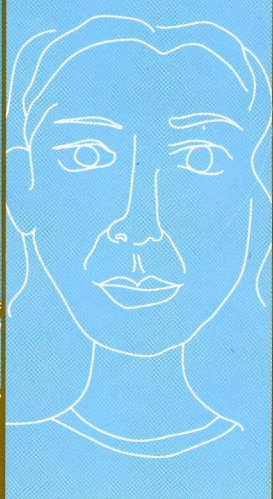
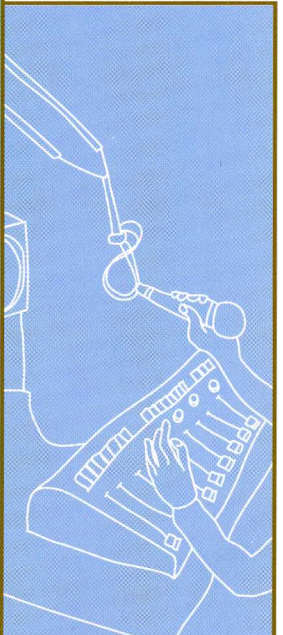
"Our research applies not only locally to our society, but globally as well."
Andrea

"Inspiring."
Seamus



"I used to just close my eyes, but now I have tools to make a difference."
Peggy

"Work Study enhances my campus life."
Seamus

2006/07 VANCOUVER CALENDAR

THE UNIVERSITY OF BRITISH COLUMBIA
CALENDAR 2006/07



2006-07

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Vancouver, BC
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Canada

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2006-07

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2006-07

I Dates and Deadlines

1.1 Application and Document Deadlines 2006/07

These deadlines are the latest dates on which an application or document will be accepted. Processing of applications does begin before these dates and, in some cases, programs may be filled by well-qualified students before the document deadlines. If a deadline falls on the weekend, it will be extended to the next working day.

Generally, undergraduate applications are due February 28 and the documentation deadline is June 30, unless otherwise noted.

The following information applies to both domestic and international students. For Non-Degree Studies (Visitor, Unclassified, Concurrent), the application deadline is June 30; the document deadline is July 15. The deadline to submit interim transcripts for post-secondary transfer students is February 28.

Program	Credential	Faculty/School	Application Deadline	Supplemental Application Deadline	Document Deadline
Accounting ¹	Diploma	Commerce and Business Administration	Mar 31		
Acting ²	B.F.A.	Arts	Feb 28		Jun 30
Agroecology	B.Sc. (Agroecology)	Land and Food Systems	Feb 28		Jun 30
Applied Creative Non-Fiction ²	Diploma	Arts	Feb 28		Mar 31
Applied Linguistics	Diploma	Arts	Feb 28		
Applied Science (Engineering)	B.A.S.C.	Applied Science (Engineering)	Feb 28		Jun 30
Art History	Diploma	Arts	Jul 31		
Arts ³	B.A.	Arts	Feb 28		Jun 30
Commerce	B.Com.	Commerce and Business Administration	Feb 28	May 1	Jun 30
Computer Science	B.C.S.	Science	Feb 28	Apr 15	
Creative Writing ²	B.F.A.	Arts	Feb 28		Jun 30
Dental Science in Dental Hygiene ⁴	B.D.Sc.	Dentistry	Feb 28		
Dentistry ⁵	D.M.D.	Dentistry	Nov 7		
Education ⁶	B.Ed.	Education	Mar 15		
Environmental Design ^{2,7}	B.En.D.	Land and Food Systems and Architecture	Feb 28		Mar 15
Film ^{2,3}	B.A.	Arts	Feb 28		Jun 30
Film Production ²	Diploma	Arts	Feb 28		Apr 1
Film Production	B.A.	Arts	Feb 28		Apr 1
Food, Nutrition, and Health	B.Sc. (Food, Nutrition, and Health)	Land and Food Systems	Feb 28		Jun 30
Forest Operations	B.S.F.	Forestry	Feb 28		Jun 30
Forest Resources Management	B.S.F.	Forestry	Feb 28		Jun 30
Forest Science	B.Sc. (Forestry)	Forestry	Feb 28		Jun 30
Global Resource Systems	B.Sc. (Global Resource Systems)	Land and Food Systems	Feb 28		Feb 28
Human Kinetics	B.H.K.	Human Kinetics	Feb 28		Jun 30
International Dental Degree Completion	D.M.D.	Dentistry	Jun 7		
Law ⁸	LL.B.	Law	Feb 1		
Linguistics ²	Diploma	Arts	Jun 30		Jul 15
Medical Laboratory Science	B.M.L.Sc.	Medicine	Feb 28		
Medicine	M.D.	Medicine	Sep 7		
Meteorology	Diploma	Science	Feb 28		Jun 30
Midwifery	B.Mw.	Medicine	Jan 19	Jan 19	Jan 19
Music ²	B.A., B.Mus.	Music	Feb 28	Mar 15	Mar 31
Natural Resources Conservation	B.Sc. (Natural Resources Conservation)	Forestry	Feb 28		Jun 30

Program	Credential	Faculty/School	Application Deadline	Supplemental Application Deadline	Document Deadline
Nursing (third year) ⁹	B.S.N.	Nursing	Feb 28	Feb 28	
Pharmacy	B.Sc. (Pharm.)	Pharmaceutical Sciences	Feb 28	Feb 28	Feb 28
Science ^{10,11}	B.Sc.	Science	Feb 28	May 1	Jun 30
Social Work	B.S.W.	Social Work and Family Studies	Jan 31		
Theatre Design and Technology ²	Certificate	Arts	Feb 28		Jul 15
Visual Art ^{2,12}	B.F.A.	Arts	Feb 28		Mar 31
Wood Products Processing	B.Sc. (Wood Products Processing)	Forestry	Feb 28		Jun 30

¹ Dates indicated are for the program/session commencing in May. Note: International student application deadline is February 28. September admission deadlines are as follows: application deadline: July 5 (Canadian students), June 6 (international students); document deadline: August 15. Applications are to be directed to the Faculty.

² Contact the department or program directly regarding portfolio, audition, or manuscript requirements.

³ Supplementary application forms are required for the following programs and are due on the dates indicated: Economics Major (June 15), English Major (September 30; May 15), English Honours (April 28), Interdisciplinary Studies BA (May 14; Aug. 20; Nov. 19), International Relations Major (May 15), Political Science Major (May 15), Theatre or Film Major (April 1).

⁴ Application deadline for Degree Completion for Bachelor of Dental Science in Dental Hygiene is April 15 for admission in September. Application deadline for unclassified students is July 31 for admission in September and October 15 for admission in January.

⁵ Including applications for readmission.

⁶ For a Diploma in Education, applications are accepted all year and must be received one month before anticipated registration date.

⁷ Portfolio deadline is March 15; deadline for other documents is June 30.

⁸ The deadline for applying for readmission is May 31.

⁹ Post-RN applicants must apply directly to the School of Nursing.

¹⁰ Students entering first-year Science who wish to apply for the Science One program should contact the Science One office. The supplementary application deadline is April 30.

¹¹ A supplemental application form is required for the Honours program in Biotechnology and is due on February 28.

¹² Deadlines also apply for entry into second-year Visual Art courses.

2006-07

1.2 Academic Year 2006/07

The Academic Year begins on September 1, 2006 and ends on August 31, 2007. Classes for most faculties begin on September 5, 2006. The last day of classes for the Winter Session, Term 1 is December 1, 2006. The last day of classes for Term 2 is April 12, 2007.

WINTER SESSION

The Winter Session is divided into two terms: the first term, generally from early September to late December (although some studies begin in August) and the second term, generally from early January to the end of April (although some studies continue well into the month of May). During the Winter Session classes are offered in the evening as well as in the day.

SUMMER SESSION

Term 1 of Summer Session begins in mid-May and continues through July. Term 2 of Summer Session begins in early July and ends in mid-August.

Many faculties offer distance education courses. Check the Student Service Centre (www.students.ubc.ca/ssc) for summer courses and scheduling.

SATURDAYS, SUNDAYS, AND HOLIDAYS

Where an application deadline falls on a day the University is closed, applications will be accepted on the following working day. Offices are closed Saturdays and Sundays.

Note: all statutory holidays are subject to confirmation by UBC Human Resources.

FACULTY/PROGRAM-SPECIFIC DATES

Contact the respective faculty/program for confirmation of faculty/program-specific dates.

SEPTEMBER

Friday, 1 September 2006

GALA – International Orientation for new international (including US) and exchange students continues (August 30 to September 1). Graduate Studies: Expected date for Faculty of Graduate Studies to receive recommendations

from departments for North American students to be admitted for registration in January.

Graduate Studies: Students wishing to apply for University Graduate Fellowships and external awards administered through the University (NSERC, SSHRC) for 2007/08 should check with their departments for internal student deadlines.

Saturday, 2 September 2006

Language Proficiency Index (LPI): Deadline for completion of the Language Proficiency Index (LPI) test for International applicants residing and attending school outside of Canada at the time of the July or August deadlines.

UBC Housing and Conferences: Residences open.

Monday, 4 September 2006

Labour Day. University closed.

Tuesday, 5 September 2006

2006/07 Academic Year begins.

Classes begin for 2006/07: Winter Session day and evening courses for all faculties not already in session.

Commerce and Business Administration, B.Com. and second year: Orientation day.

Distance education courses: Start date for September (Term A).

Imagine UBC: First-day orientation program for new students. All 100-level classes are cancelled today, with the single exception of those 100-level classes which start at or after 6:00 pm and meet only once per week.

Law, first year: Orientation begins.

Law, second and third years: Classes begin.

Pharmaceutical Sciences: BLOCK 1 clerkship begins (September 5 – 29 inclusive).

Teacher Education Program: 12-month Elementary options, Elementary Year 1 of 2, NITEP Year 4, Middle Years, and 12 month Secondary Options; orientation day. (Term 1: September 5 to December 1 inclusive.) Elementary Year 2 of 2 and NITEP Year 5: practicum begins (September 5 to December 1 inclusive).

Work Study job postings appear on the website: www.students.ubc.ca/workstudy.

Wednesday, 6 September 2006

Graduate Studies: Last day for payment of September installment of tuition fees. Students who have not paid their fees will be placed on financial hold: further registration activity will not be permitted, grades will not be released, and graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on the outstanding balance until it is paid in full (see Fees chapter of Calendar).

Last day for payment of first installment of fees for registration and course changes made before September 1. Students who have not paid their fees will be placed on financial hold: further registration activity will not be permitted, grades will not be released, and graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on the outstanding balance until it is paid in full (see Fees chapter of Calendar).

Friday, 15 September 2006

General University Bursaries: Last day for applications to be submitted to Student Financial Assistance & Awards. Students must have received their 2006/07 student loans to be eligible for the General Bursaries.

UBC Work Study: Last day for applications to be submitted to Student Financial Assistance & Awards. Student Financial Assistance & Awards must receive applications by 4:00 pm. For out-of-province students, Student Financial Assistance & Awards must have received the 2006/07 student loan documents or received a copy of an official notification of award from the home province attached to the Work Study application.

Tuesday, 19 September 2006

Last day for change of registration and for withdrawal from most Term 1 courses without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with a “W” standing.

Distance Education courses: Student Service Centre closes for distance education courses starting in September (Term A). Last day for change of registration and for withdrawal without a “W” standing recorded on a student’s academic record.

Last day for changes between credit and audit for Term 1 courses.

Wednesday, 20 September 2006

Meeting of the Senate.

Thursday, 21 September 2006

Access and Diversity Office: New client orientation.

Friday, 22 September 2006

Last date for change in registration and for withdrawal from most two-term courses without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with a “W” standing.

Last day for changes between credit and audit for two-term courses.

International Student Services orientation for late-arriving international (including US) and exchange students.

Friday, 29 September 2006

Faculty textbook adoptions required by Bookstore for courses beginning in January.

Pharmaceutical Sciences: BLOCK 1 clerkship ends.

OCTOBER**Monday, 2 October 2006**

Pharmaceutical Sciences: BLOCK 2 clerkship begins (October 2 – 27 inclusive).

Friday, 6 October 2006

Last day for payment of fees for any fee assessments incurred between September 1 and September 30. Students who have not paid their fees will be placed on financial hold: further registration activity will not be permitted, grades will not be released, and graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on outstanding balance until it is paid in full (see Fees section – published in Calendar).

Graduate Studies: Last day for final oral examinations for doctoral students planning to graduate in November.

Monday, 9 October 2006

Thanksgiving Day. University closed.

Friday, 13 October 2006

Last date for withdrawal from most Winter Session Term 1 courses with withdrawal standing of “W” recorded on a student’s academic record.

Graduate Studies: Last day for departments to notify the Faculty of Graduate Studies that major papers have been submitted and all requirements met for non-thesis master’s degrees for November graduation.

Graduate Studies: Last day for submission to the Faculty of Graduate Studies Office of final master’s and doctoral theses for November graduation.

Sunday, 15 October 2006

Awards for students with disabilities: Last day for applications to be submitted to Student Financial Assistance & Awards.

Monday, 16 October 2006

Teacher Education Program: Secondary practicum begins (October 16 to 27 inclusive).

Wednesday, 18 October 2006

Meeting of the Senate.

Friday, 27 October 2006

Graduate Studies: Last day for submission of exam copies of doctoral theses to Faculty of Graduate Studies for transmission to the external examiner in time for December 31, 2006 program end date.

Pharmaceutical Sciences: BLOCK 2 clerkship ends.

Saturday, 28 October 2006

Language Proficiency Index (LPI): Deadline for completion of the Language Proficiency Index (LPI) for all students intending to take a first-year English course in January 2007 (Winter Session, Term 2).

Monday, 30 October 2006

Pharmaceutical Sciences: BLOCK 3 clerkship starts (October 30 – November 24 inclusive).

Tuesday, 31 October 2006

Last day for completion of bachelor’s degree program requirements for graduation in November.

Last day for submission of applications for supplemental and deferred examinations from the 2006 Summer Session.

NOVEMBER**Wednesday, 1 November 2006**

Graduate Studies: Last day for Faculty of Graduate Studies to receive recommendations from departments for overseas international students to be admitted for registration in May.

Saturday, 11 November 2006

Remembrance Day. University closed. Service in War Memorial Gymnasium for all students, faculty, alumni, staff, and friends at 10:45 am.

Monday, 13 November 2006

Holiday in lieu of Remembrance Day, Saturday, November 11, 2006. University closed.

Wednesday, 15 November 2006

Meeting of the Senate.

Friday, 17 November 2006

Graduate Studies: Last day for supervisor to submit “Appointment of External Examiner” form to Faculty of Graduate Studies for students expecting to graduate in May.

Saturday, 18 November 2006

Supplemental and deferred examinations (2006 Summer Session).

Tuesday, 21 November 2006

Crane Resource Centre: Recommended date for submission of materials for alternate format production for Winter Session, Term 2.

Wednesday, 22 November 2006

Fall Congregation Ceremonies, Day 1: The Chan Centre for the Performing Arts.

Killam Postdoctoral Fellowships: Last day for departments to submit nominations to Faculty of Graduate Studies for 2006 Fellowship competition.

Thursday, 23 November 2006

Fall Congregation Ceremonies, Day 2: The Chan Centre for the Performing Arts.

Friday, 24 November 2006

Last day for withdrawal from most two-term courses with withdrawal standing of “W” recorded on a student’s academic record.

Access & Diversity Office: Recommended date for submission of Exam Accommodation forms for December examinations.

Fall Congregation Ceremonies, Day 3: The Chan Centre for the Performing Arts (if required).

Graduate Studies: Last day for supervisor to submit “Appointment of External Examiner” form to Faculty of Graduate Studies for April 30, 2007 program end date.

Pharmaceutical Sciences: BLOCK 3 clerkship ends.

DECEMBER**Friday, 1 December 2006**

Last day for sponsored students to submit application to have fees billed to a sponsoring organization for Winter Session Term 2 (January – April) tuition fees. Students who do not submit their applications by the deadline will be required to pay their second instalment of tuition fees by January 7 to avoid financial hold procedures (see Fees chapter in Calendar).

Last day of classes for most faculties.

Graduate Studies: Expected date for Faculty of Graduate Studies to receive recommendations from departments for overseas international students to be admitted for registration in May.

Law, all years: Last day of classes.

Tuesday, 5 December 2006

December examinations begin for most faculties, day and evening classes (December 5 to December 19 inclusive). Saturdays are included in the exam schedule.

Law, all years: December examinations begin.

Wednesday, 13 December 2006

Meeting of the Senate.

Friday, 15 December 2006

Graduate Studies: Last day for final Doctoral Oral Examinations in time for December 31, 2006 program end date.

Tuesday, 19 December 2006

Last day of December examinations for most faculties.

Law, all years: Last day of December examinations.

Monday, 25 December 2006

Christmas Day. University closed.

Tuesday, 26 December 2006

Boxing Day. University closed.

Wednesday, 27 December 2006

Reduced student services in most departments until January 2, 2007.

JANUARY**Monday, 1 January 2007**

New Year's Day. University closed.

Tuesday, 2 January 2007

Graduate Studies: Expected date for Faculty of Graduate Studies to receive recommendations from departments for North American students to be admitted for registration in May.

Pharmaceutical Sciences: BLOCK 4 clerkship begins (January 2 – 26 inclusive).

Friday, 5 January 2007

Graduate Studies: Last day for submission of final master's and doctoral theses to Faculty of Graduate Studies for December 31, 2006 program end date.

Saturday, 6 January 2007

GALA – International Orientation for new international (including US) and exchange students entering Winter Session Term 2.

Monday, 8 January 2007

Graduate Studies: Last day for payment of January installment of tuition fees. Students who have not paid their fees will be placed on financial hold: further registration activity will not be permitted, grades will not be released and graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on the outstanding balance until it is paid in full (see Fees chapter of Calendar).

Last day for payment of second installment of fees for registration and course changes made on or before December 31. Students who have not paid their fees will be placed on financial hold: further registration activity will not be permitted, grades will not be released, and graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on the outstanding balance until it is paid in full (see Fees chapter of Calendar).

Term 2 begins, Winter Session: All faculties, day and evening classes.

Distance education courses: Start date for January (Term C).

Law, all years: Classes begin.

Pharmaceutical Sciences, first, second, and third years: Classes begin.

Teacher Education program: 12-Month Elementary options, Elementary Year 1 of 2, NITEP Year 4, and Middle Years practica begins (January 8 to 19 inclusive); Elementary Year 2 of 2 and NITEP year 5: Term 2 classes begin.

Friday, 12 January 2007

Graduate Studies: Last day for departments to submit renewal recommendations for University Graduate Fellowships.

Monday, 15 January 2007

Pharmaceutical Sciences: Deadline for application for Pharm.D. program commencing in August 2007.

Monday, 22 January 2007

Last day for changes of registration and for withdrawal from most Term 2 courses without withdrawal standing of "W" recorded on a student's academic record. Student Service Centre remains open for course withdrawals with "W" standing.

Distance Education courses: Student Service Centre closes for distance education courses starting in January (Term C). Last day for changes in registration and for withdrawals without a "W" standing recorded on a student's academic record.

Last day for changes between credit and audit for Term 2 courses.

Teacher Education Program: 12-month Elementary options, Elementary Year 1 of 2, NITEP Year 4 and Middle Years – classes begin (January 22 to March 23).

Wednesday, 24 January 2007

Meeting of the Senate.

Monday, 29 January 2007

Pharmaceutical Sciences, fourth year: BLOCK 5 clerkship begins (January 29 – February 23 inclusive).

FEBRUARY**Thursday, 1 February 2007**

Medicine, M.Sc. Genetic Counselling Training Program: Application deadline.

Friday, 2 February 2007

Faculty textbook adoptions required by UBC Bookstore for courses beginning in May.

Wednesday, 7 February 2007

Last day for payment of fees for any fee assessments incurred between January 1 and January 31. Students who have not paid their fees will be placed on financial hold: further registration activity will not be permitted, grades will not be released, and graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on the outstanding balance until it is paid in full (see Fees chapter of Calendar).

Friday, 16 February 2007

Last day for withdrawal from most Winter Session Term 2 courses with withdrawal standing of "W" recorded on a student's academic record.

Graduate Studies: Last day for submission of exam copies of doctoral theses to Faculty of Graduate Studies for transmission to the external examiner in time for May graduation.

Monday, 19 February 2007

Midterm break for most faculties begins (February 19 to 23 inclusive). Lectures and laboratories cancelled. Library and other facilities open.

Commerce and Business Administration: Master's classes continue (M.B.A. midterm break April 10 to 13 inclusive).

Law: Midterm break begins (February 19 to 23 inclusive). Classes cancelled.

Pharmaceutical Sciences, first, second, and third years: midterm break begins (February 19 to 23 inclusive).

Teacher Education Program: Elementary Year 1 of 2 and Year 2 of 2: Midterm break (February 19 to 23 inclusive). 12-month Programs: classes continue.

Friday, 23 February 2007

Pharmaceutical Sciences, fourth year: BLOCK 5 clerkship ends.

Saturday, 24 February 2007

Language Proficiency Index (LPI): Deadline for completion of the Language Proficiency Index (LPI) test by all students intending to take a first-year English course in Summer Session 2007 (Terms 1 and 2).

Monday, 26 February 2007

Pharmaceutical Sciences, fourth year: BLOCK 6 clerkship begins (February 26 – March 23 inclusive).

Wednesday, 28 February 2007

Application deadline for UBC Major Entrance Scholarships and Entrance Bursaries. Student Financial Assistance & Awards must receive the applications by 4:00 pm.

Deadline for application to 2007 Summer Session and the 2007/08 Winter Session except for Visiting, Unclassified, Access, or Auditor students.

Deadline to apply for change of program/campus for the 2007/08 Winter Session.

Deadline to submit Interim post-secondary transcripts for admission to the 2006 Summer session and the 2007/08 Winter Session.

Last day for graduation applications to be submitted to Enrolment Services by all students expecting to graduate in May. Application is made through the Student Service Centre.

Document deadline for Social Work program (BSW) for 2007/08 Winter Session.

Faculty textbook adoptions required by the Bookstore for courses beginning in July.

Meeting of the Senate.

MARCH

Thursday, 1 March 2007

Graduate Studies: Expected date for the Faculty of Graduate Studies to receive recommendations from departments for overseas international students to be admitted for registration in September.

Monday, 12 March 2007

Graduate Studies: Last day for supervisor to submit "Appointment of External Examiner" form to Faculty of Graduate Studies for August 31, 2007 program end date.

Thursday, 15 March 2007

Summer Session: Student Service Centre available for registration for all courses (subject to change). All students should refer to the Student Service Centre for individual registration access dates. Most courses run: Term 1 (evening courses) May 7 to July 27 inclusive (exams July 28); Term 2 (daytime courses) July 9 to August 17 inclusive (exams August 18).

Friday, 16 March 2007

Last day for submission of graduating essays and theses, most bachelor degree programs.

Friday, 23 March 2007

Pharmaceutical Sciences, fourth year: BLOCK 6 clerkship ends.

Monday, 26 March 2007

Pharmaceutical Sciences, fourth year: BLOCK 7 clerkship begins (March 26 – April 20 inclusive).

Teacher Education program: 12-month Elementary options and Middle Years program: Practicum begins (March 26 to June 22 inclusive).

Wednesday, 28 March 2007

Meeting of the Senate.

Saturday, 31 March 2007

Crane Resource Centre: Recommended date for submission of materials for alternate format production for Summer Session for courses starting May 7.

Deadline to submit documentation for admission to the Applied Creative Non-fiction Diploma for 2007/08 Winter Session for currently attending UBC students.

APRIL

Monday, 2 April 2007

Faculty textbook adoptions required by UBC Bookstore for courses beginning in September.

Graduate Studies: Expected date for Faculty of Graduate Studies to receive recommendations from departments for North American students to be admitted for registration in September.

Students applying to the Summer bursary program should apply for summer government student loans by this date.

Thursday, 5 April 2007

Access & Diversity Office: Recommended date for submission of Exam Accommodation forms for April examinations.

Faculty Association General Faculty Meeting, 1:00 pm.

Friday, 6 April 2007

Good Friday. University closed.

Monday, 9 April 2007

Easter Monday. University closed.

Tuesday, 10 April 2007

Commerce and Business Administration, M.B.A.: Midterm break begins (April 10 to 13 inclusive).

Thursday, 12 April 2007

Last day of classes for most faculties.

Law, all years: Last day of classes.

Friday, 13 April 2007

Graduate Studies: Last day for final doctoral oral examinations in time for Spring graduation.

Sunday, 15 April 2007

Deadline to submit final documentation for admission to the 2007 Summer Session Term 1.

Graduate Studies: Last day for final oral examination for doctoral students planning to graduate in May.

Students applying for student loan via the BC Student Assistance Program (BCSAP) for the 2007 Summer Session will have their Term 1 Summer Session tuition fees automatically deferred until June 7, 2007 if their BCSAP application is received and assessed by this date. Students receiving student loan from a province other than BC should contact Student Financial Assistance & Awards before the tuition fee deadline to obtain a deferral.

Monday, 16 April 2007

April examinations begin (day and evening classes) for most faculties (April 16 to 30 inclusive). Saturdays are included in the examination schedule.

Forestry, third year: FRST 452 field work begins at the University Research Forest, Maple Ridge, BC (April 16 to 27 inclusive).

Law: Examinations begin.

Wednesday, 18 April 2007

Meeting of the Senate.

Friday, 20 April 2007

Graduate Studies: Last day for final doctoral oral examinations in time for April 30, 2007 program end date.

Graduate Studies: Last day for departments to notify the Faculty of Graduate Studies that major papers have been submitted and all requirements met for non-thesis master's degrees for Spring graduation.

Graduate Studies: Last day for submission of final master's and doctoral theses to Faculty of Graduate Studies for Spring graduation.

Pharmaceutical Sciences, fourth year: BLOCK 7 clerkship ends.

Friday, 27 April 2007

Geography, third year: GEOG 309 field school begins.

Monday, 30 April 2007

2006/07 Winter Session ends.

Last day of April examinations for most faculties.

Graduate Studies: Last day for submission of final master's and doctoral theses to Faculty of Graduate Studies for April 30, 2007 program end date.

Law, all years: Last day of examinations.

MAY

Tuesday, 1 May 2007

UBC Housing and Conferences: Winter Session residences close; residents are required to vacate.

Civil Engineering Surveying field school (CIVL 235) begins (May 1 to 13 inclusive).

Deadline for secondary school applicants to submit Commerce supplemental application form.

Last day for sponsored students to submit applications to have fees billed to a sponsoring organization. Students who do not submit their applications by the deadline will be required to pay the first instalment of fees by May 10 to avoid financial hold procedure (see Fees chapter of Calendar).

Wednesday, 2 May 2007

Earth and Ocean Sciences, second year students: Geology Field School begins (EOSC 223) (May 2 to May 9 inclusive).

Earth and Ocean Sciences, third year students: Geology field school begins (EOSC 328) (May 2 to May 16 inclusive).

Earth and Ocean Sciences: Hydrogeology Field School begins (EOSC 428) (May 2 to May 6 inclusive).

Monday, 7 May 2007

Summer Session, Term 1: First day of classes for terms running from May 7 to June 15 (exams June 16), and May 7 to July 27 (exams July 28).

Distance education courses: Course start date for Summer Session (Term 1).

GALA – International Orientation for new international (including US) and exchange students attending 2007 Summer Session.

Wednesday, 9 May 2007

Graduate Studies: Last day for payment of May instalment of tuition fees. Students who have not paid their fees will be placed on financial hold; further registration activity will not be permitted, grades will not be released and

graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on the outstanding balance until it is paid in full (see Fees chapter of Calendar).

Summer Session, Term 1: Tuition fees due. Students who have not paid their fees will be placed on financial hold: further registration activity will not be permitted, grades will not be released and graduation diplomas will be withheld. Students will also be assessed a processing fee of \$30.00 and interest will be assessed on the outstanding balance until it is paid in full (see Fees chapter of Calendar).

Friday, 11 May 2007

Last day for changes in registration and for withdrawal from most 3-credit/six-week courses starting May 8 without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with “W” standing.

Crane Resource Centre: Recommended dates for submission of materials for alternate format production for Summer Session courses starting June 18.

Distance Education courses: Student Service Centre closes for distance education courses starting in May (Summer Session Term A). Last day for changes in registration and for withdrawal without a “W” standing recorded on a student’s academic record.

Graduate Studies: Last day for supervisor to submit “Appointment of External Examiner” form to Faculty of Graduate Studies for Fall graduation.

Monday, 14 May 2007

Teacher Education program: 12 Month Secondary options: Most classes begin for Term 1 Summer Session (May 14 to June 22 inclusive).

Tuesday, 15 May 2007

Science One Program: Application deadline.

Wednesday, 16 May 2007

Meeting of the Senate

Friday, 18 May 2007

Last day for changes in registration and for withdrawal from most 6-credit/twelve-week courses starting May 7 without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with “W” standing.

Monday, 21 May 2007

Victoria Day. University closed.

Wednesday, 23 May 2007

Spring Congregation Ceremonies, Day 1: The Chan Centre for the Performing Arts.

Baccalaureate Concert: The Chan Centre for the Performing Arts.

Thursday, 24 May 2007

Spring Congregation Ceremonies, Day 2: The Chan Centre for the Performing Arts.

Friday, 25 May 2007

Last date for withdrawal from most 3-credit/six-week courses starting May 7 with withdrawal standing of “W” recorded on a student’s academic record.

Spring Congregation Ceremonies, Day 3: The Chan Centre for the Performing Arts.

Monday, 28 May 2007

Spring Congregation Ceremonies, Day 4: The Chan Centre for the Performing Arts.

Tuesday, 29 May 2007

Spring Congregation Ceremonies, Day 5: The Chan Centre for the Performing Arts.

Wednesday, 30 May 2007

Spring Congregation Ceremonies, Day 6: The Chan Centre for the Performing Arts.

JUNE

Friday, 1 June 2007

Access & Diversity Office: Recommended dates for submission of Exam Accommodation forms for Summer Session, Term 1, for courses ending June 15.

Crane Resource Centre: Recommended date for submission of materials for alternate format production for Summer Session, Term 2, for courses starting July 10.

Deadline for submission of Summer Session scholarship and bursary applications to Student Financial Assistance & Awards.

Monday, 4 June 2007

Registration for Winter Session opens (subject to change). All students should refer to the Student Service Centre for individual registration access dates.

Monday, 11 June 2007

Graduate Studies: Last day for submission of exam copies of doctoral theses to Faculty of Graduate Studies for transmission to the external examiner in time for August 31, 2007 program end date.

Friday, 15 June 2007

Last date for withdrawal from most 6-credit/twelve-week courses starting May 7 with withdrawal standing of “W” recorded on a student’s academic record.

Summer Session, Term 1, some courses end. Examinations are held either in the evening of June 15 or Saturday June 16.

Saturday, 16 June 2007

Summer Session Term 1 (some courses) examinations.

Monday, 18 June 2007

Summer Session, Term 1: First day of classes for courses running June 18 to July 27 (exams July 28).

Friday, 22 June 2007

Summer Session, Term 1: Last day for changes in registration and for withdrawal from most 3-credit/six-week courses starting June 18 without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with “W” standing.

Application deadline for supplemental and deferred examinations from 2006/07 Winter Session.

Monday, 25 June 2007

Crane Resource Centre: Recommended date for submission of materials for alternate format production for Summer Session, Term 2, for courses starting July 30.

Saturday, 30 June 2007

Affiliation Scholarship, Affiliation Bursaries and First Nations Awards: Last day for applications to be submitted to Student Financial Assistance & Awards.

Students applying to the Winter bursary program in September 2007 should apply for winter government student loans by this date.

JULY

Sunday, 1 July 2007

Canada Day. University closed.

Monday, 2 July 2007

Holiday in lieu of Canada Day, Sunday, July 1, 2007. University closed.

Tuesday, 3 July 2007

Law: Supplemental and deferred examinations begin (July 3 to July 12 inclusive).

Teacher Education Program: 12-Month Elementary September start, Middle Years and 12 Month Secondary September start: Classes begin for Summer Session, Term 2 dates (July 3 to August 10), (July 3 to 20 and July 23 to August 10). 12 Month Elementary and Secondary, Incoming July start programs: Classes begin for Summer Session Term 2 (July 3 – August 17), (July 3 to 20, 28 and July 23 – August 10 and July 23 – August 17)

Friday, 6 July 2007

Summer Session, Term 1: Last date for withdrawal from most 3-credit courses starting June 18 with withdrawal standing of “W” recorded on a student’s academic record.

Monday, 9 July 2007

Summer Session, Term 2: Some courses begin (July 9 to August 17 (exams August 18).

Wednesday, 11 July 2007

Summer Session, Term 2: Last day for withdrawal from most 3-credit courses starting July 9 without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with “W” standing.

Summer Session, Term 2: Tuition due date.

Friday, 13 July 2007

Summer Session, Term 2: Last date for changes in registration and for withdrawal from most 6-credit/six-week courses starting July 9 without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with “W” standing.

Saturday, 14 July 2007

Deadline for the completion of the Language Proficiency Index (LPI) test by BC students (including students who are non-BC residents studying at BC educational institutions) intending to take a first-year English course in September 2007.

Tuesday, 17 July 2007

Summer Session, Term 2: Last date for withdrawal from most 3-credit/three-week courses starting July 9 with withdrawal standing of “W” recorded on a student’s academic record.

Friday, 20 July 2007

Access & Diversity Office: Recommended date for submission of Exam Accommodation forms for Summer Session, Term 1, for courses ending July 27.

Monday, 23 July 2007

Supplemental and deferred examination period (Winter Session), weekdays (July 23 to August 3 inclusive).

Friday, 27 July 2007

Summer Session Term 1: Most classes end. Examinations are held either the evening of July 27 or Saturday July 28.

Summer Session Term 2: Some classes end. Examinations are held either the evening of July 27 or Saturday July 28.

Graduate Studies: Last day for supervisor to submit “Appointment of External Examiner” form to Faculty of Graduate Studies for December 31, 2007 program end date.

Summer Session, Term 2: Last date for withdrawal from most 6-credit/six-week courses starting July 9 with withdrawal standing of “W” recorded on a student’s academic record.

Monday, 30 July 2007

Summer Session, Term 2: Some courses begin (July 30 to August 17, exams August 18).

Graduate Studies: Last day for final doctoral oral examinations in time for August 31, 2007 program end date.

AUGUST

Wednesday, 1 August 2007

Summer Session, Term 2: Last date for changes in registration and for withdrawal from most 3-credit/three-week courses starting July 30 without withdrawal standing of “W” recorded on a student’s academic record. Student Service Centre remains open for course withdrawals with “W” standing.

Graduate Studies: Expected date for Faculty of Graduate Studies to have received recommendations from departments for overseas international students to be admitted for registration in January.

Saturday, 4 August 2007

Language Proficiency Index (LPI): Deadline for completion of the Language Proficiency Index (LPI) test by out-of-province students intending to take a first-year English course in September 2007. Out-of-province students may be granted permission write on September 1 if they miss the LPI sitting in their province. To seek permission, write to the First-Year English Office (First-Year.English@ubc.ca).

Monday, 6 August 2007

BC Day. University closed.

Tuesday, 7 August 2007

Last date for withdrawal from most 3-credit/three-week courses starting July 30 with withdrawal standing of “W” recorded on a student’s academic record.

Wednesday, 8 August 2007

International Student Services welcome services for new international (including US) and exchange students (August 8 to 26 inclusive, and ongoing).

Friday, 10 August 2007

Access & Diversity Office: Recommended date for submission of Exam Accommodation forms for Summer Session, Term 2 courses ending August 17.

Graduate Studies: Last day for submission of exam copies of doctoral theses to Faculty of Graduate Studies for transmission to the external examiner in time for Fall graduation.

Last day for students who hold major external graduate or undergraduate fellowships to apply for Winter Session fee deferments.

Wednesday, 15 August 2007

Last day for sponsored students to submit application to have fees billed to a sponsoring organization. Students who do not submit their applications by the deadline will be required to pay the first instalment of tuition fees by September 5 to avoid financial hold procedure (see Fees chapter of Calendar).

General Bursary Program: Applications available on the Student Service Centre.

Friday, 17 August 2007

Summer Session Term 2: Most courses end. Examinations are held either the evening of August 17 or on Saturday August 18.

Saturday, 18 August 2007

Forestry, third year: Interior Field School (FRST 351) begins (August 18 to 26 inclusive).

Friday, 31 August 2007

2006/07 Academic Year ends.

Last day for graduation applications to be submitted to Enrolment Services by all students expecting to graduate in November. Application is made through the Student Service Centre.

Graduate Studies: Last day for submission of final master’s and doctoral theses to Faculty of Graduate Studies for August 31, 2007 program end date.

II Admissions

UNDERGRADUATE ADMISSION PROCEDURE

Inquiries concerning admission should be made to:

Undergraduate Admissions
(www.welcome.ubc.ca)
The University of British Columbia
Enrolment Services
2016–1874 East Mall
Vancouver, BC, Canada V6T 1Z1
Telephone: 604-822-3014
Fax: 604-822-3599

For application and document deadlines for the various faculties and schools, see Application Deadlines (www.students.ubc.ca/calendar/index.cfm?page=deadlines). All necessary educational documents and an Application for Admission form must be submitted by the designated date. See *Application to UBC*, p. 22.

Faculties or schools that have more eligible applicants than they can admit will not accept applications after the deadline. Faculties or schools that expect to have space available may accept late applications. However, late applications will only be considered after all other eligible applications and it may not be possible to process them before the start of classes. Applications that are not complete by the document deadline may be cancelled if the program has been filled by that date.

Documents submitted in support of an application become the property of the University and are not returned to the applicant unless they are irreplaceable (e.g., graduation certificates/booklets, Iranian high school transcripts, etc.). Applicants who submit irreplaceable documents may complete a “Request for Return of Irreplaceable Documents” (www.welcome.ubc.ca/apply.cfm?page=ttd&view=irreplaceable) form, available online or from Admissions. Irreplaceable documents will be returned after the admission evaluation is complete. For applicants who do not attend UBC, documents will be kept on file for one year only. For those who attend UBC, admission documents are retained for five years after a student stops attending the University.

Notification of admission decisions are given to applicants after all necessary documents have been received and evaluated. Offers of admission and information concerning registration procedures will be provided to all successful applicants.

Students receiving offers of admission to most limited enrolment programs will have their offer of admission revoked and their eligibility to register cancelled if they do not register by the cancellation date given in their letter of

acceptance. Offers of admission or readmission are valid only for the session(s) indicated on the letter of acceptance.

POLICY ON ADMISSIONS

The University of British Columbia seeks applications from students who can benefit from and contribute to the varied and stimulating academic life at this university. The University’s admission regulations and procedures are intended to identify such students and to ensure that they enter programs at a level that will allow them to get the maximum benefit from their university studies.

Academic criteria are the bases of admission for the majority of applicants offered admission but additional criteria may be used in some programs in the selection of a limited number of qualified students. Programs to which admission may be based on both academic and other criteria are identified in the faculty and school entries.

Excellent students who do not meet all of the published admission requirements may be considered for admission in exceptional cases by the dean of the faculty or the dean’s designate.

The number of new students that can be admitted to each program is dependent on a number of factors and is usually not known when the first offers of admission are made. The chances of receiving an offer of admission may be increased by the early submission of an application and supporting documentation. Application and document deadlines are the latest dates on which an application or document will be accepted. Processing of applications does begin before these dates and in some cases programs may be filled by well qualified students before the document deadline.

The University reserves the right, the published regulations notwithstanding, to deny admission on the basis of overall academic record and to limit enrolment by selecting from among qualified applicants those who will be admitted.

Except in special circumstances, no student under the age of 16 is admitted.

The admission requirements in this section refer to the minimum educational level necessary for admission to undergraduate programs. Because of enrolment limitations the academic standing required for admission to most programs is higher than the published minimum. Reference may also be made to the faculty and school entries for specific requirements for admission to the various programs of study in the faculties and schools.

CLASSIFICATION OF STUDENTS

- 1) **Regular.** A student enrolled for studies leading to a degree or a diploma whether on a full-time or a part-time basis.
- 2) **Qualifying.** A student enrolled in make-up studies in preparation for registration as a regular student in a graduate or professional program. Qualifying status is granted only to those students who are recommended for such status by the departments concerned and the Faculty of Graduate Studies.
- 3) **Unclassified.** A student enrolled for studies not intended to lead to a particular degree or diploma. Unclassified students should normally have a recognized degree. Admission as an unclassified student does not guarantee that a student will be able to register for any course offered. Admission as an unclassified student does not imply future admission as a regular student. Students with a failed year in a faculty will not be admitted as unclassified until they have discontinued their studies for at least one year. After a second failed year, admission as unclassified will be subject to the approval of the Senate Admissions Committee.

(a) *Unclassified Students Applying to Second or Subsequent Undergraduate Degree Programs*

A faculty may limit the number of credits taken as an Unclassified student that may be counted for credit toward a second or subsequent undergraduate degree. See individual faculty listings and/or contact faculty advisors for details.

(b) *Unclassified Students Applying to Graduate Programs*

Courses taken as an unclassified (or non-degree) student may be approved for transfer toward a graduate program on permission of the department and the Dean of the Faculty of Graduate Studies.

Consistent with standard transfer credit regulations, students are limited to transferring a maximum of 12 credits or up to 40% of the program credit requirements, whichever is more, toward their Master’s program. No more than 6 credits of transfer credit may be at the undergraduate level (300–400). To be eligible for transfer, a minimum ‘B’ standing must have been achieved and the course(s) must not have been counted toward the completion of another degree or program.

- 4) **Access Studies.** Applicants may be enrolled as Access Studies students upon approval by a faculty (a) to allow them to take a limited number of courses in a specific area to upgrade or achieve a qualification, or (b) when they do not wish to pursue a specific program. Distance education students may be enrolled in this category. Students in this category may normally take up to 6 credits per academic term, up to a maximum of 24 credits in total while registered as Access Studies students. Students enrolled in a UBC degree program may not normally be concurrently registered as Access Studies students. Although documentation requirements vary by Faculty, Access Studies applicants are not normally required to submit transcripts or other academic documentation of prior study. Students with English as a second language, however, are required to satisfy the *English Language Admission Standard*, p. 15, in the same way as applicants to degree programs. Students who have been required to withdraw from any post-secondary institution must provide official transcripts. To be welcome as an Access Studies student, they must normally first complete a minimum of 15 credits of transferable coursework with a GPA of 2.0 on the 4-point scale since having been required to withdraw. Students who have been required to withdraw more than once from any post-secondary institution or program are not eligible for admission as Access Studies students. Continuation as an Access Studies student is normally contingent upon maintaining a passing grade on all courses attempted. Admission as an Access Studies student does not guarantee that a student will be able to register for any course offered. Admission as an Access Studies student does not imply future admission as a regular student. For further information about Access Studies, please contact the Access Studies Coordinator (access.studies@ubc.ca) in Enrolment Services at 604-822-9836.
- 5) **Visitor.** A student enrolled in studies for transfer to a degree program at another recognized university. For applicable fees, see the “Fees, Financial Assistance, and Scholarships” chapter. Student must be in good standing at the home university and must submit official transcripts and a Letter of Permission with their application. Course registrations will be made on a space-available basis only. A Letter of Permission is valid for one session only. A Letter of Permission must be submitted for any subsequent sessions in which a student wishes to register for courses.
- 6) **Exchange.** A visiting student studying at the University of British Columbia under a Senate approved student exchange program and enrolled in studies for transfer to a degree program at another university.
- 7) **Resident.** A dental resident, medical resident or intern, or pharmacy resident

registered in a postgraduate training program in the Faculty of Dentistry, the Faculty of Medicine or the Faculty of Pharmaceutical Sciences.

- 8) **Auditor.** A student registered in a credit course whose participation is limited to that deemed appropriate by the instructor but who, in general, is expected to maintain the same schedule of readings as regular students although not expected to write examinations. An auditor may not transfer to the category of regular student during the term nor may a regular student transfer to the category of auditor except upon the recommendation of the dean of the faculty concerned. Application for admission as an auditor must parallel the procedures for the application of regular students. The application for admission must be accompanied by a written explanation of the reason that status as an auditor is sought. Where an applicant has not met formal requirements for admission to the university, or to the course involved, a full statement of previous relevant activities must be submitted with the application in order that consideration can be given for special admission in the category “mature”. Once formal application has been made the decision on acceptance or otherwise will be made by the dean of the faculty concerned or the dean’s designate. The fees for auditors will be the same as those for regular undergraduate students, See the “Fees, Financial Assistance, and Scholarships” chapter. There will be a statement of “audit” on the permanent academic record for any course taken by a student as an auditor. Students taking a combination of credit and audit courses will be subject to restrictions on maximum work load imposed by the faculties as interpreted by faculty advisors.
- 9) **Post-Degree Trainee.** A post-graduate non-credit student pursuing further clinical or research training in their specialty.
- 10) **Mature Applicant.** A resident of BC whose formal education has been interrupted and who does not meet the normal requirements for admission, but who has pursued interests and activities that have contributed to an intellectual maturity that would permit acceptance to the University. The University reserves the right to determine whether or not an applicant can be classified as mature; the determination will not be made on the sole criterion of chronological age. An applicant who applies for admission as a mature applicant and is not granted admission in this category will be advised of an alternate route of study, usually at a college, in order to prepare for future admission as a regular student. Each applicant is considered on an individual basis. Application must be made to Enrolment Services, giving the applicant’s school and employment background. It may be necessary for the applicant to be interviewed by the dean of the faculty concerned. A mature student is permitted to

undertake degree or diploma studies on the same basis as a fully-matriculated student.

CANADIAN ABORIGINAL STUDENTS

The University of British Columbia is dedicated to making the University’s vast resources more accessible to Aboriginal People, and to improving the University’s ability to meet their educational needs. The University recognizes that Aboriginal students make valuable contributions to its learning environment and therefore invites inquiries and applications from Aboriginal candidates to its many and diverse fields of study.

UBC will consider applicants who do not meet the current academic standing set by the individual faculties and schools, but who meet the University-wide academic minimum of 67% for applicants applying directly from high school or 2.0 for applicants applying from a recognized post-secondary institution.

Applicants will be considered on an individual basis by the applicable faculty or school and a representative of the First Nations House of Learning. Educational history, cultural knowledge, work experience, educational goals, and achievements that indicate an ability to succeed at university will be considered.

Each applicant must submit two letters of reference from persons specifically able to assess the applicant’s potential for academic success. One reference letter should be from a recognized Aboriginal organization or community leader. Applicants must also submit a personal letter outlining their academic objectives.

For the purpose of application and admission to the University of British Columbia, and in accordance with the *Constitution Act, 1982*, Part II, Section 35(2), an Aboriginal applicant is an Indian, Inuit, or Metis person of Canada.

STUDENTS WITH DISABILITIES

Academically qualified students who have physical, sensory, or specific learning disabilities are encouraged to attend the University of British Columbia. The University has a wide variety of services, including several forms of special assistance, designed to accommodate the needs of students with disabilities.

The University will ensure that applicants are not denied admission as a result of their disability and that, where appropriate, accommodation will be made with respect to admission criteria.

Prospective applicants and students with disabilities are encouraged to contact the Disability Resource Centre (www.students.ubc.ca/access). See also the *Services, Organizations, and Facilities* chapter of this Calendar, p. 62, for a description of the services available and to arrange access to them.

ADVANCED CREDIT OR PLACEMENT

Advanced placement, and in many cases advanced credit, may be given in appropriate secondary school subjects where high academic achievement has been attained. This provision applies particularly to the Advanced Placement, International Baccalaureate (Higher Level), and General Certificate of Education (Advanced Level) programs. Interested students should refer to the Undergraduate Viewbook or inquire at Undergraduate Admissions (www.students.ubc.ca/welcome) for more information.

HOME SCHOOLED SECONDARY SCHOOL APPLICANTS

Applicants completing their secondary school education through home study may be eligible for admission. Applicants will be considered on an individual basis and may be expected to present a recognized academic secondary school credential. Homeschooled applicants are encouraged to contact a program advisor prior to applying for admission.

ADMISSION TO UNDERGRADUATE PROGRAMS REQUIRING PRIOR STUDY

Admission requirements for undergraduate programs requiring either substantial progress towards or completion of a prior degree are specified in entries for the faculties and schools offering these programs. Applicants are advised that in some cases a recognized prior degree may not satisfy requirements for specific pre-admission studies. More information is available at Programs of Study (www.students.ubc.ca/welcome/programs.cfm).

ENGLISH LANGUAGE ADMISSION STANDARD

As English is the language of instruction at the University of British Columbia, all applicants, regardless of country of origin or of citizenship status, will be required to demonstrate competence in the English language prior to admission. Competence is expected in all four of the following skills: listening, reading, speaking, and writing.

This requirement is distinct from the Language Proficiency Index (LPI) requirement for first-year English courses, Arts One, the Arts Foundation Program, and Science One at UBC. Please see *Language Proficiency Index Requirement for First-Year English*, p. 120 and below, p. 16, for further information about the LPI.

With the exception of applicants to the Faculty of Graduate Studies, applicants may demonstrate English language competence by one of the following:

- Four years of full-time education in English in Canada or the equivalent in another

country where English is the principal language. Such education must include BC Grade 12 or equivalent and can be in a combination of secondary and post-secondary education. Years completed in a recognized international school where English is the language of instruction may be eligible for inclusion in the required years of instruction.

- A minimum final English (non-ESL) grade in one of the following:

BC English 12 provincial exam (or equivalent ¹)	70%
BC English Literature 12 provincial exam (or equivalent ¹)	70%
IB English A1 or A2 (Standard or Higher)	5
AP English Language and Composition	4
AP English Literature and Composition	4
GCE Advanced-Level English	B

- ¹ In an approved school or country where English is the principal language. Grade scale may be adjusted for the different grading practices.
- Successful completion of the equivalent of four years of full-time instruction in a school/institution in Canada in which the major language of instruction is other than English but where the level of English proficiency required is equivalent to that in English-language schools or institutions in Canada. Such education must include the equivalent to BC Grade 12 and can be in a combination of secondary and post-secondary education. (This will include applicants from CEGEPs who have completed English as a first language).
 - Graduation from a recognized degree program at an accredited university at which English is the primary language of instruction and in a country where English is the principal language.
 - Successful completion of 6 credits of post-secondary first-year English studies for which UBC gives transfer credit.
 - The competence standard indicated on one of the tests of English language proficiency as listed in the 'English Language Proficiency Tests' table below that evaluates skills in listening, reading, speaking, and writing.

ENGLISH LANGUAGE PROFICIENCY TESTS

Test	Competence Level ¹
CAE Certificate in Advanced English ⁴	B
CAEL Canadian Academic English Language assessment	overall 70
With the speaking sub-test	60
CEL UBC Certificate in English Language ²	600
CELPPI Canadian English Language Proficiency Index Program ³	
CELPIT-A (Academic Reading and Writing) ³	4L

Test (Continued)	Competence Level ¹
CELL (Listening)	4L
CELTOP (Speaking)	4L
CPE Certificate of Proficiency in English ⁴	C
IELTS International English Language Testing System (Academic)	6.5 with no part less than 6.0
MELAB Michigan English Language Assessment Battery	85
With the MELAB Oral Interview	
TOEFL Test of English as a Foreign Language	
Either the Paper-based test	55
With the TWE (Test of Written English)	4.0
Or the Computer-based test	22
With the essay	4.0
Or the Internet-based test	
Overall Score	86
Reading	21
Listening	21
Writing	20
Speaking	20

¹ Unless otherwise stated, the score is the minimum on each part of the examination. Tests taken more than two years prior to application for admission will not be considered.

² From UBC's English Language Institute. See www.eli.ubc.ca/lep for further details.

³ From UBC's Applied Research and Evaluation Services (ARES). The Canadian English Language Proficiency Index Test – Academic (CELPIT-A) portion of this test satisfies the Language Proficiency Index (LPI) requirement for first-year English courses at UBC with a score of at least 5 on the essay section.

⁴ Administered by the University of Cambridge ESOL Examinations organization.

WAIVERS OF THE ENGLISH LANGUAGE PROFICIENCY REQUIREMENT

Note: unless a student meets this requirement by exemption, the LPI examination must be taken prior to enrolment in any first-year English course at UBC, or in any of the programs listed above. A student's registration in other courses may be halted if the English requirement for the student's degree has not been met by the faculty's allotted completion time.

Students who have studied full-time for at least four years at a recognized international school where English is the language of instruction, but in a country where English is not the principal language, may be eligible for a waiver of the English Language Admission Standard. A student should consider arranging to meet the requirement through regular means in the event that their request for a waiver of the requirement cannot be granted. To request a waiver, students should send to Admissions:

- A brief letter or email explaining why they believe the requirement should be waived;
- A letter of recommendation from the student's high school English teacher, guidance counsellor, principal, or headmaster that attests the student's level of English proficiency is close to, or equal to, that of a native speaker. The letter should provide information as to how the writer may be contacted (including an email address if possible);
- An official transcript of grades including the student's interim senior year or Grade 12 marks and predicted IB or AP grades (if not already sent); and
- Any additional evidence that may reflect the student's English competence such as achievement test scores (e.g., Scholastic Aptitude Test [SAT] scores).

LANGUAGE PROFICIENCY INDEX (LPI) REQUIREMENT FOR FIRST-YEAR ENGLISH

All programs at UBC require at least 3 credits of first-year English; most require 6 credits. Although it is not necessary to complete the LPI prior to registering for UBC, it is necessary to have completed it before enrolling in any first-year English course, Arts One, the Arts Foundations Program, or Science One at UBC. The LPI is administered by the Department of English in the Faculty of Arts and the LPI Office (www.lpi.ubc.ca). Please refer to each faculty's "English Requirements" and the *LPI section*, p.121, for further details regarding this requirement.

UBC-SFU-UVIC-UNBC CALCULUS EXAMINATION CERTIFICATE

Working in collaboration, the University of British Columbia, Simon Fraser University, the University of Victoria, and the University of Northern British Columbia offer a three-hour calculus examination to all students who have completed, or are currently registered in, a calculus course in secondary school. Students who pass the examination will be awarded a UBC-SFU-UVIC-UNBC Calculus Examination Certificate. The certificate may be presented for credit in MATH 100 at UBC, MATH 151 at SFU, MATH 100 at UVIC, or MATH 100 at UNBC, after registering at one of the four universities. Students claiming credit at UBC will have their examination score shown on their transcript as their grade in MATH 100. Only one attempt is permitted. Students who have already started college or university may not participate. Students already eligible for transfer credit because of high AP or IB scores retain their eligibility regardless of their examination score.

The duties of organizing and hosting the examination rotate between the Mathematics Departments of the participating universities. Web links to the latest information are maintained by the UBC Mathematics Department (see the

Calculus Examination site (www.math.ubc.ca/Ugrad/Challenge)).

UBC-SFU-UVIC-UNBC Calculus Exam
c/o Mathematics Department
The University of British Columbia
Vancouver, BC, V6T 1Z2
Tel: 604-822-2666
Email: challengeexam@math.ubc.ca

APPLICANTS FOLLOWING THE BC/YUKON SECONDARY SCHOOL CURRICULUM

ADMISSION REQUIREMENTS

The minimum academic qualification for admission is secondary school graduation from a recognized secondary school, including the following Grade 11 and 12 courses:

Grade	Required Courses ¹
Grade 12	English 12 Three additional approved examinable Grade 12 courses ¹
Grade 11	English 11 Principles of Mathematics 11 Civic Studies 11 or Social Studies 11 or First Nations Studies 12 At least one approved Science 11 ² An approved Language 11 ³

¹ Or approved equivalent International Baccalaureate, Advanced Placement, or Post-secondary course. See the table *Specific Program Requirements for Applicants Following the BC/Yukon Secondary School Curriculum*, p. 18, and the sections titled *Advanced Placement and International Baccalaureate Courses Approved to Satisfy Pre-requisites*, p. 21, and *Post-Secondary Course Credits that Count Toward High School Graduation*, p. 17.

² See the table *Specific Program Requirements for Applicants following the BC/Yukon Secondary School Curriculum*, p. 18, for programs requiring two Science courses at the Grade 11 level.

³ A beginner's Language 11 does not satisfy this requirement.

The admission average will be calculated on English 12 and the three additional approved examinable Grade 12 courses or the equivalent.

A minimum average of 67% is required for admission to all programs. However, due to limited enrolment, a higher average is required in most programs.

Applicants who, because of administrative difficulties in their school or because they have a physical, sensory, or specific learning disability, cannot present the courses as required, may be excused a specific admissions course requirement. Supporting documentation sent by the principal of the school concerned is required.

All courses must be completed by June. Final examinations offered by the BC Ministry of Education or the external examinations for International Baccalaureate and Advanced Placement courses **must** be written. Summer school courses or grades obtained in supplemental examinations will not be considered.

Approved Examinable Grade 12 Courses

Biology 12
Chemistry 12
English Literature 12
English 12
Français Langue 12 or French 12
Geography 12
Geology 12
German 12
History 12
Japanese 12
Mandarin 12
Principles of Mathematics 12
Physics 12
PSI Calculus Assessment 12¹
Punjabi 12
Spanish 12

¹ For further information refer to *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 16.

Approved courses offered in French will also be accepted. (Français 12 is not accepted in place of English 12.)

Approved Grade 11 Science Courses

Applied Physics 11 and 12¹
Biology
Chemistry
Earth Science
Physics

¹ Together these courses meet both the Grade 11 Science requirement and the Physics 11 requirement.

Approved Grade 11 Language Courses¹

Athapaskan (with Athapaskan 12)
American Sign Language (ASL) 11
Arabic
Chilcotin
Français (Communication et Littérature)
Français (Langue)
French
German
Gitksan
Hebrew²
Italian
Japanese
Korean
Latin
Mandarin Chinese
Musqueam³
Nisga'a
Nuxhalk
Punjabi
Russian
Sechelt
Shuswap
Sm'algayx
Spanish

¹ External Language Certificate 11 or External Language Assessment 11 will meet the language 11 admission requirement.

² King David High School or Pacific Torah Institute.

³ Taught through the UBC FNLG 100B course.

POST-SECONDARY COURSES THAT COUNT TOWARD BC OR YUKON HIGH SCHOOL GRADUATION

The University of British Columbia recognizes certain post-secondary courses, completed as part of the high school graduation requirements, for admission and for transfer credit.

For the purpose of admission, all post-secondary courses completed toward high school graduation must satisfy the requirements of the program of study to which an applicant is admitted, and must be transferable to UBC in accordance with agreed-upon equivalencies published in the British Columbia Transfer Guide (www.bccat.bc.ca/otg). Successfully completed post-secondary courses are considered electives and will not be used in place of required provincially examinable Grade 12 courses.

The admission average will be calculated on English 12 and three additional approved examinable Grade 12 courses or approved post-secondary course(s). Applicants must arrange to have an official transcript sent directly from their post-secondary institution to UBC Undergraduate Admissions.

Courses successfully completed at recognized colleges and universities in British Columbia and Yukon are granted transfer credit in accordance with agreed-upon equivalencies published in the British Columbia Transfer Guide (www.bccat.bc.ca/otg).

TRANSITION PROGRAM

UBC, the Vancouver School Board, and the BC Ministry of Education run a joint university preparation program for academically exceptional students. Students enrolled in this program are eligible for admission to the University upon recommendation of the Principal of the Transition Program and concurrence of the dean of the admitting faculty. Completion of required Grade 12 courses (or their equivalent) necessary for entry to that faculty is mandatory.

CONCURRENT ENROLMENT POLICY

Students who are enrolled in a BC secondary school may be admitted to the University of British Columbia to pursue Concurrent Studies. Students pursuing Concurrent Studies are admitted under the Access Studies student category. Please see *Access Studies*, p. 14, for more information. The following conditions will apply at the University:

- the applicant must have a superior academic record;
- the applicant must be enrolled in a BC secondary school in a program that meets regular UBC entry requirements;
- the applicant must have the written recommendation of the secondary school principal;
- the applicant must have the written consent of the parent or legal guardian

if under the legal age of majority on the opening day of classes; and

- the applicant must have the support of the dean of the faculty for the courses in which the applicant plans to enrol.

Admission will initially be for one academic session but may be renewed with the continued support of the school principal and the dean. Normally no more than 12 credits may be obtained by Concurrent Studies, but students who continue to have superior academic records and the support of the school principal may seek permission from the dean to enrol in further courses.

Students in Concurrent Studies will be treated as regular students in most respects, except that they may not register in a full range of courses. Standard transcripts will be issued and fees and deadlines will be as for regular students.

Students who have enrolled in Concurrent Studies at other recognized post-secondary institutions prior to secondary school graduation may also be eligible for transfer credit.

BRITISH COLUMBIA ADULT GRADUATION DIPLOMA (BCAGD)

The University recognizes the BCAGD Provincial Diploma for admission to the first year of an undergraduate degree. Applicants who have completed the BCAGD must be at least 19 years of age and meet the following admission requirements:

- 1) Four Adult Basic Education (ABE) Advanced Level or Grade 11 courses, which must include English; Algebraic Mathematics (ABE) or Principles of Mathematics 11; one Science¹; and one of Social Science (ABE), Social Studies 11, Civic Studies 11, Language 11, or First Nations 12.
- 2) Four Provincial Level (ABE) or Grade 12, including English and three additional subjects chosen from Biology, Chemistry, Physics, Mathematics (ABE) or Principles of Mathematics 12, Computer Science (ABE), Geology, Geography, History, English Literature, and Languages.

¹ Excludes ABE General and Applied Science and Grade 11 Resource Science.

The admission average will be calculated on ABE Provincial Level English or English 12, and three other ABE Provincial Level or Grade 12 courses, each of which must be graded. A minimum average of 67% is required for admission to all programs. However, due to limited enrolment, a higher average is required in most programs. All courses must be completed by June. Summer school courses or grades obtained in supplemental examinations will not be considered.

Entrance requirements to specific programs parallel those for BC/Yukon secondary school graduates and applicants should refer to the table *Specific Program Requirements for Applicants Following the BC/Yukon Secondary School Curriculum*, p. 18, to ensure they have the required courses.

Adult Basic Education (ABE) Courses

UBC accepts the BC Certificate of Graduation (Dogwood) in combination with Adult Basic Education (ABE) Provincial Level courses completed at recognized secondary schools, adult education centres, or post-secondary institutions. Applicants who complete ABE Provincial Level courses, but do not complete the BC Adult Graduation Diploma (BCAGD), must write the final examination offered by the BC Ministry of Education for each Provincial Level course completed. The admission average will be calculated on ABE Provincial Level English or English 12, and three other ABE Provincial Level or Grade 12 courses, each of which must be graded.

SPECIFIC PROGRAM REQUIREMENTS FOR APPLICANTS FOLLOWING THE BC/YUKON SECONDARY SCHOOL CURRICULUM

The table *Specific Program Requirements for Applicants Following the BC/Yukon Secondary School Curriculum* shows the required courses used in the calculation of the admission average for specific programs, as well as courses that are required but are not used in the calculation of the average:

Program	Degree	Faculty/School	Average Calculated on the Following Required Courses or IB/AP Equivalents	Courses Required but not included in the Calculation of the Average
Agroecology	B.Sc. (Agroecology)	Land and Food Systems	English 12 Principles of Mathematics 12 One of Biology 12, Chemistry 12, Geology 12 or Physics 12 One other approved examinable Grade 12 course	English 11 Language 11 Principles of Mathematics 11 Two of Biology 11, Chemistry 11, or Physics 11 Social Studies 11
Arts	B.A.	Arts	English 12 Three other approved examinable Grade 12 courses	English 11 Language 11 Principles of Mathematics 11 Science 11 Social Studies 11
Commerce ¹ (Direct Entry)	B.Com.	Commerce and Business Administration	English 12 Principles of Mathematics 12 Two other approved examinable Grade 12 courses	English 11 Language 11 Principles of Mathematics 11 Science 11 Social Studies 11
Dental Science	B.D.Sc. (Dental Hygiene)	Dentistry	English 12 Biology 12 Chemistry 12 One other approved examinable Grade 12 course	Biology 11 Chemistry 11 English 11 Principles of Mathematics 11 Language 11 Social Studies 11
Engineering	B.A.Sc.	Applied Science	English 12 Chemistry 12 Principles of Mathematics 12 Physics 12	English 11 Language 11 Chemistry 11 Principles of Mathematics 11 Physics 11 Social Studies 11
Food, Nutrition and Health	B.Sc. (Food, Nutrition and Health)	Land and Food Systems	English 12 Principles of Mathematics 12 One of Biology 12, Chemistry 12, Geology 12, Physics 12 One other approved examinable Grade 12 course	English 11 Language 11 Principles of Mathematics 11 Two of Biology 11, Chemistry 11 or Physics 11 Social Studies 11
Forest Operations, Forest Resource Management	B.S.F.	Forestry	English 12 Principles of Mathematics 12 One of Chemistry 12 or Physics 12 One other approved examinable Grade 12 course	English 11 Language 11 Principles of Mathematics 11 Biology 11 One of Chemistry 11 or Physics 11 Social Studies 11
Forest Science	B.Sc. (Forestry)	Forestry	Same as for B.S.F. (above)	Same as for B.S.F. (above)
Human Kinetics	B.H.K.	Human Kinetics	English 12 One of Principles of Mathematics 12, Biology 12, Chemistry 12, Geology 12 or Physics 12 Two other approved examinable Grade 12 courses	English 11 Language 11 Principles of Mathematics 11 Science 11 Social Studies 11
Midwifery	B.Mw.	Medicine	English 12 Biology 12 Two other approved examinable Grade 12 courses	Chemistry 11 English 11 Language 11 Principles of Mathematics 11 Social Studies 11
Music	B.Mus.	Music	English 12 Three other approved examinable Grade 12 courses	English 11 Language 11 Principles of Mathematics 11 Science 11 Social Studies 11

Program	Degree	Faculty/School	Average Calculated on the Following Required Courses or IB/AP Equivalents	Courses Required but not included in the Calculation of the Average
Natural Resources Conservation	B.Sc. (Natural Resources Conservation)	Forestry	English 12 Chemistry 12 Principles of Mathematics 12 One other approved examinable Grade 12 course	English 11 Biology 11 Chemistry 11 Language 11 Principles of Mathematics 11 Social Studies 11
Nursing	B.S.N.	Nursing	English 12 Biology 12 Two other approved examinable Grade 12 courses	English 11 Chemistry 11 Language 11 Principles of Mathematics 11 Social Studies 11
Science	B.Sc.	Science	English 12 Principles of Mathematics 12 (Minimum 67% grade) Two other approved examinable Grade 12 courses including at least one of Biology 12, Chemistry 12, Geology 12 or Physics 12	English 11 Language 11 Chemistry and Physics 11 Principles of Mathematics 11 Social Studies 11
Wood Products Processing	B.Sc. (Wood Products Processing)	Forestry	English 12 Principles of Mathematics 12, Physics 12 One other approved examinable Grade 12 course	English 11 Language 11 Principles of Mathematics 11 One of Biology 11, Chemistry 11 or Physics 11 Social Studies 11

¹ Under review.

APPLICANTS FROM A SECONDARY SCHOOL IN CANADA OUTSIDE OF BC/YUKON

Applicants who have followed an academic program leading to university entrance will be considered for admission to the University of British Columbia. Students will be required to present English to the senior year level and all prescribed subjects for the university studies sought. (See the table *Specific Program Requirements*, p. 20, in this section.)

Completion of secondary school graduation from a recognized secondary school is mandatory and a minimum average of 67% or equivalent is required.

Because of enrolment limitations the academic standing required for admission to most programs is higher than 67%. Admission to some programs requires a minimum standing in specific courses. The minimum study for a UBC degree is four years.

The following requirements apply:

- **Ontario.** Ontario Secondary School Diploma with six appropriate Ontario Academic Courses (OACs) including English (OAC I) or a minimum of six Grade 12 U/M courses including English (ENG40).
- **Quebec.** The Cote de Rendement Collège d'Enseignement Général et Professionnel (CEGEP). Applicants must have at least one full year of study in an academic diploma program with a minimum R-score of 15. However, due to limited enrolment, a higher R-score is required for most programs. Transfer credit for up to one full year of degree study may be granted when the two-year diploma has been awarded.

- **Alberta, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, PEI, Newfoundland, Northwest Territories, and Nunavut.** Grade 12 graduation with standing in at least five appropriate academic Grade 12 courses including English.

Further information on appropriate academic courses is available through the Welcome website (www.students.ubc.ca/welcome/programs.cfm).

ADMISSION BASED ON INTERIM GRADES

Admission based on interim grades is possible for students with strong academic standing in the final year of secondary school. Applicants must arrange for their school to provide an official transcript to Admissions before the stated document deadline. The transcript must include any final grades for the current year and a list of courses in progress with interim grades. Offers of admission based on interim grades are subject to satisfactory completion of secondary school graduation requirements, completion of all required courses, and maintenance of the required threshold average as noted in the official offer of admission. Offers of admission may be withdrawn from students who do not satisfy these requirements.

SPECIFIC PROGRAM REQUIREMENTS

The information contained in the following table, Specific Program Requirements, applies to applicants from outside BC/Yukon and is expressed in BC/Yukon terms. Undergraduate Admissions will determine course equivalency. These requirements are in addition to those listed above for each province.

SPECIFIC PROGRAM REQUIREMENTS FOR STUDENTS APPLYING FROM OUTSIDE OF BC/YUKON

Program	Degree	Faculty/School	Secondary School Graduation Must Include:
Agroecology	B.Sc. (Agroecology)	Land and Food Systems	English 12, Principles of Mathematics 12 Two of Biology 11, Chemistry 11, Physics 11 Two of Biology 11, Chemistry 11, Physics 11 One of Biology 12, Chemistry 12, Geology 12, Physics 12
Arts	B.A.	Arts	English 12
Commerce ¹ (Direct Entry) and Business Administration	B.Com.	Commerce	English 12, Principles of Mathematics 12
Dental Science in Dental Hygiene	B.D.Sc. (Dental Hygiene)	Dentistry	English 12, Biology 12, Chemistry 12
Engineering	B.A.Sc.	Applied Science	Chemistry 12, English 12, Principles of Mathematics 12, Physics 12
Food, Nutrition and Health	B.Sc. (Food, Nutrition and Health)	Land and Food Systems	English 12, Principle of Mathematics 12 Two of Biology 11, Chemistry 11, Physics 11 One of Biology 12, Chemistry 12, Geology 12, Physics 12
Forest Operations, Forest Resources Management	B.S.F.	Forestry	English 12, Principles of Mathematics 12 Biology 11 One of Chemistry 11, Physics 11 One of Chemistry 12, Physics 12
Forest Science	B.Sc. (Forestry)	Forestry	Same as for B.S.F. (above)
Human Kinetics	B.H.K.	Human Kinetics	English 12 One of Biology 12, Chemistry 12, Geology 12, Principles of Mathematics 12, Physics 12
Midwifery	B.Mw.	Medicine	English 12, Biology 12, Chemistry 11
Natural Resources Conservation	B.Sc. (Natural Resources Conservation)	Forestry	English 12, Biology 11, Chemistry 12, Principles of Mathematics 12
Nursing	B.S.N.	Nursing	Biology 11, Biology 12, Chemistry 11, English 12
Science	B.Sc.	Science	English 12, Principles of Mathematics 12 (minimum 67% grade), Chemistry 11, Physics 11 One of Biology 12, Chemistry 12, Geology 12, Physics 12
Wood Products Processing	B.Sc. (Wood Products Processing)	Forestry	English 12, Principles of Mathematics 12, Physics 12, Chemistry 11, and Physics 11

¹ under review.

APPLICANTS FROM A SECONDARY SCHOOL OUTSIDE CANADA

The following list outlines the minimum standing for admission in terms of educational credentials. All students must present prerequisites appropriate for their intended program of study.

- General Certificate of Secondary Education (GCSE) or General Certificate of Education (GCE), with standing in at least five subject areas, including English, with three at the Advanced Level.
- School Certificate (SC). A Division 1 Certificate with standing in at least five different subjects, including English, with two at the Principal Level on the Higher School Certificate (HSC).
- International Baccalaureate (IB). A Diploma with standing in at least six subjects, three at the standard level and three at the higher level, with a Diploma awarded.
- Secondary school graduation from an academic program at a recognized secondary school with the required average on academic courses completed in Grades 11 and 12. The secondary school subjects must include four years of English and at least three years of Mathematics.

- Certificate of Matriculation. Applicants who have matriculated at a recognized university may be admitted provided subject prerequisites and academic standing for admission to UBC are met.

Because of the differences in world educational systems, satisfactory completion of secondary school is not necessarily an acceptable basis for admission to first year. The University of British Columbia reserves the right to determine whether or not a student is eligible for admission and to determine what transfer credit, if any, may be granted.

Applicants presenting appropriate subjects with high academic achievement on the Advanced Level (GCE), Principal Level (HSC), Higher Level (IB), or Advanced Placement will, where appropriate, be considered for advanced credit or placement.

Additional academic criteria, such as achievement in standardized tests, results from national or international competitions, or compelling evidence of outstanding leadership, may be considered when evaluating undergraduate applicants from secondary schools who have studied full-time outside of Canada for at least one year immediately prior to UBC admission.

International applicants should realize that the financial assistance that is available at the undergraduate level is limited and that

opportunities for gainful employment will be severely restricted as a result of immigration regulations.

APPLICANTS WITH INTERNATIONAL BACCALAUREATE AND ADVANCED PLACEMENT COURSES

The University of British Columbia recognizes these advanced secondary school programs for admission and for transfer credit.

INTERNATIONAL BACCALAUREATE DIPLOMA STUDENTS

For students who complete the International Baccalaureate (IB) Diploma, admission to the University will require a minimum of 24 points including bonus points. Due to limited enrolment, a higher score will be required for admission to most programs.

INTERNATIONAL BACCALAUREATE CERTIFICATE STUDENTS

International Baccalaureate certificate courses may be combined with an approved high school credential for the purpose of admission.

For students who present International Baccalaureate certificate courses, the admission

average will be calculated on the higher of either the official IB final score or the final school grade. In those cases where an IB score is not available at the time of admission selection, the course grade will be used.

The grade conversion scale that will be used to determine admission based on official IB results is as follows:

IB Grade	% Equivalent
7	96
6	90
5	86
4	76
3	70

INTERNATIONAL BACCALAUREATE TRANSFER CREDIT

Credit for equivalent first-year UBC courses will be awarded to students who achieve a grade of at least 5 in Higher Level IB Arts courses and 6 in Higher Level IB Science courses. Details are provided at the Admissions website (www.students.ubc.ca/welcome/transfer.cfm?page=firstyear).

ADVANCED PLACEMENT STUDENTS

Advanced Placement (AP) courses may be combined with an approved high school credential for the purpose of admission.

For students who present Advanced Placement courses, the admission average will be calculated on the higher of either the final AP exam score or the final school grade. In those cases where an AP examination grade is not available at the time of admission selection, the course grade will be used.

The grade conversion scale that will be used to determine admission based on official AP results is as follows:

AP Grade	% Equivalent
5	96
4	86
3	80
2	70

ADVANCED PLACEMENT TRANSFER CREDIT

Credit for equivalent first-year UBC courses will be awarded to students who achieve a grade of 4 or better on the appropriate AP course. Details are available at the Admissions website (www.students.ubc.ca/welcome/admission.cfm?page=ap).

ADVANCED PLACEMENT AND INTERNATIONAL BACCALAUREATE COURSES APPROVED TO SATISFY PRE-REQUISITES

Grade 12 Course	Advanced Placement Course	International Baccalaureate Higher Level Course
Biology 12	Biology	General Biology
Chemistry 12	General Chemistry	Chemistry
English 12	English Language and Composition	English Language A
Physics 12	Physics (B or C)	Physics
Principles of Mathematics 12 ¹		Further Math or Math Methods

¹ One of AP Calculus (AB or BC), IB Calculus, or the UBC-SFU-UVIC-UNBC Calculus Examination Certificate may be used as an elective course (in addition to Principles of Mathematics 12).

APPLICANTS FROM A COLLEGE OR UNIVERSITY

Applicants with prior credit from a recognized university or college will be admitted on satisfaction of the appropriate admission requirement as outlined below. Courses successfully completed in prior study, where appropriate, may satisfy requirements of the program of study to which an applicant is admitted.

A student with an unsatisfactory standing at a college or another university will not be admitted.

GENERAL ADMISSION REQUIREMENT

The minimum academic standing to qualify for admission to the University as a transfer student is successful completion of 24 transferable credits with a 'C' average (60% where 50% is a passing grade), or grade point average of 2.0 (calculated on a 4-point scale: A+=4.33, A=4.0, A-=3.67, B+=3.33, B=3, B-=2.67, C+=2.33, C=2, C-=1.67, D+=1.33, D=1, D-=0.67, F=0). Applicants presenting fewer than 24 credits are evaluated on the basis of both final secondary school grades and the partial post-secondary studies completed. Unless otherwise prescribed by the program to which admission is sought, academic standing is based on the average on all college or university courses attempted, including failures and repeated courses. In the case of applicants with more than 60 credits of prior study, the admission average is calculated on the basis of the most recently completed 60 credits.

Because of enrolment limitations, some programs may require a higher average for admission than the University minimum, and may require a minimum standing in specified courses. Applicants should consult the relevant faculty or school entry for a statement of admission requirements for the program to which they seek admission. To be eligible for second year, applicants must normally have successfully completed 30 credits, and satisfied all promotion requirements for advancement to that year. Applicants to third year must have

successfully completed 54 to 60 credits, and satisfied all promotion requirements for advancement to that year.

MAXIMUM ALLOWABLE TRANSFER CREDIT

In general, transfer credit is limited to the first two years of an undergraduate degree program, but credit at a more senior level is possible with the approval of the faculty concerned. No more than 60 credits of transfer credit, or 50% of required program credits, are allowed in any program, and in some programs the maximum may be less. Courses successfully completed at recognized colleges in British Columbia and Yukon are granted transfer credit in accordance with agreed-upon equivalencies published in the British Columbia Transfer Guide (www.bccat.bc.ca/otg). Courses completed at recognized universities and university colleges in British Columbia are likewise granted credit on the basis of established equivalencies. Courses successfully completed at colleges and universities outside British Columbia and Yukon will be assessed for transfer credit on a course-by-course basis. Students applying for transfer credit may be required to supply a copy of the current calendar of the college or university at which they have previously studied in order that an assessment can be made.

UNASSIGNED CREDIT

Unassigned credit may be granted where a course-to-course equivalence cannot be established. This credit may be used as elective credit. Elective credit may be either in a particular discipline, e.g., "Economics (3) credits," or in a faculty, e.g., "Arts (6) credits." Students should be cautioned that there may be specific faculty or school requirements, as well as specific program requirements that unassigned credit may not satisfy.

ASSOCIATE DEGREES

Students with Associate Degrees of Arts or Science from a recognized college or university college in British Columbia or the Yukon, if admitted to the Faculty of Arts or the Faculty of Science, are guaranteed full transfer credit (60 credits) for the work done for their Associate Degree. Students must still meet all 100- and 200-level course requirements for specific degree programs (e.g., majors, honours, faculty-level requirements) and this may require students to take more than 120 total credits to earn their degree. Students admitted with Associate Degrees must meet the competitive admission average for the program to which they apply if this average is above the published minimum.

CREDIT EARNED VIA PRIOR LEARNING ASSESSMENT OR CHALLENGE

Credits earned via prior learning assessment (PLA), challenge credit, or the equivalent, at another recognized post-secondary institution are acceptable at UBC, provided that the course to which those credits apply is recognized by the University as suitable for transfer credit.

The University accepts only PLA credits that are assigned to specific courses.

MUSIC PRE-MAJOR

For a student completing two years in a post-secondary music program, transfer to the B.Mus. degree at UBC is facilitated by the Music Pre-Major Transfer Agreement. By a notation on his/her transcript, a student is recognized by the sending institution as having satisfied the requirements of the Music Pre-Major if he/she completes a specific number of credits in *each* of five course categories. UBC will award 46 credits for the Pre-Major and will deem the student to have met the first- and second-year core requirements of his/her B.Mus. program.

The Music Pre-Major Transfer Agreement does not cover non-music elective courses and does not guarantee acceptance by a receiving institution. The UBC School of Music will continue to require transferring students to audition. A student who wishes to transfer before completing the Pre-Major will have his/her courses evaluated on an individual basis.

Students who have completed the requirements of the Music Pre-Major and who transfer to the B.A. program at UBC, instead of the B.Mus., will be awarded 36 transfer credits: 30 lower-level Music, and 6 of first-year English.

INSTITUTES OF TECHNOLOGY

Advanced Standing or transfer credit for up to one full year of degree study may be granted, where appropriate.

APPEALING FOR ADDITIONAL CREDIT

Students who feel an error has been made in the credit granted at the time of admission should first make a written request to Enrolment Services for a review of credit granted on admission, and if they are not satisfied with the review decision, they should consult the faculty or school to which they are seeking admission.

INTERNATIONAL APPLICANTS

The University welcomes applications from outstanding international students. Well-qualified applicants from recognized secondary schools colleges and universities will be considered, as well as students applying as transfer students from recognized universities and colleges. Applications from short-term visiting students from other recognized universities may also apply. See Apply to UBC (www.welcome.ubc.ca/apply.cfm) to apply online.

For more information and further assistance, international students should contact the International Student Recruitment and Reception Office (international.reception@ubc.ca), The University of British Columbia, 1036-1874 East Mall, Vancouver, BC, V6T 1Z1. Tel: 604-822-8999; Fax: 604-822-9888.

For information about English language admission requirements see UBC's *English Language Admission Standard*, p. 15.

APPLICATION TO UBC

Prospective students apply for admission to the University of British Columbia on the Internet by using the Provincial Application Service of British Columbia (PASBC) Application form (www.pas.bc.ca). Further information on how to apply to UBC is available on the Welcome website (www.students.ubc.ca/welcome/apply.cfm).

Applications will not be processed until all required items, including the fees, have been received. See *Item 4.1*, p. 29, in the Fees, Financial Assistance, and Scholarship chapter.

Application deadlines are February 28 unless otherwise noted. See Dates and Deadlines (www.students.ubc.ca/calendar/index.cfm?page=deadlines) for details.

DEFERRED ADMISSION

The University of British Columbia recognizes that students may encounter opportunities or circumstances that could result in a request for deferred admission. Applicants who are offered admission to full-time study in the first year of a degree program may request a deferral for one year (or two years in cases of mandatory military service).

To be eligible for a deferral, the applicant must:

- Accept the offer of admission by paying a non-refundable registration deposit; and
- Submit an Admission Deferral Request to Undergraduate Admissions by July 15, or 30 days after an offer of admission, whichever is later.

Deferral will not be available to applicants who wish to attend another post-secondary institution. Applicants who attend another institution during their deferral will lose their guaranteed space and will have to reapply for admission.

Deferral may not be possible for students seeking admission to limited enrolment programs.

Students who are granted permission to defer their admission will still have to satisfy any conditions of the admission offer, such as completion of courses in progress, maintenance of a satisfactory admission average, and graduation from secondary school. They must apply to take up the deferred offer by the application deadline of the following year. They must register in the program and at the campus to which they were admitted or will be required to re-apply and compete with the new applicant pool for a space.

READMISSION

Currently attending UBC students who wish to change faculties or apply for readmission to a new faculty must meet the University minimum average of 60% or 2.0 grade point average. Some programs may require a competitive admission average.

Students who have previously attended UBC may apply for readmission online at the Student Service Centre (www.students.ubc.ca/ssc). There is a non-refundable \$60.00 application fee for all readmission applications. Students who have attended any post-secondary institution(s) since last in attendance at UBC will be required to submit a transcript(s) and must qualify for readmission. Please see application information at www.students.ubc.ca/welcome/admission.cfm?page=readmission.

CHANGE OF DEGREE PROGRAM/CAMPUS

Currently attending UBC students who wish to change faculties or apply for readmission to a new faculty must meet the University minimum average of 60% or 2.0 grade point average. Some programs may require a competitive admission average.

UBC students who wish to transfer to a different program must complete the Change of Degree Program/Campus form on the Student Service Centre (www.students.ubc.ca/ssc) and pay the \$60.00 application fee. Former UBC students can also apply for readmission and change of program or campus using the same form. Readmission and Change of Degree Program forms are considered for the Winter Session only. For current UBC students, evaluations for degree changes will take place in mid-June when final grades for the previous Winter Session are released to the Undergraduate Admissions office. Because of this unavoidable delay, applicants awaiting faculty transfer decisions may wish to register for courses using the eligibility from their current program. Students applying to change degree programs are required to meet faculty or school pre-requisites and admission average. Certain programs may require Change of Degree applications to meet a competitive admission average.

Students who wish to change campus from UBC Vancouver to UBC Okanagan, or *vice versa*, must complete the Change of Degree Program/Campus form on the Student Service Centre (www.students.ubc.ca/ssc) and pay the \$60.00 application fee. Students changing campuses must meet all faculty or school requirements and meet the competitive average for the program. Students may transfer a maximum of 60 credits unless registered in a special inter-campus program.

REGISTRATION

Registration is the process of formally assigning and recording the enrolment of a student usually in a course or courses. Registration is available only to those students who have received an offer of admission or readmission, or to students continuing from term to the following term.

Students register using the Student Service Centre (www.students.ubc.ca/ssc). Certain courses and sections may be restricted.

New students, and students who have applied for readmission to the University, will receive

an offer of admission and an information package.

All undergraduate students who are newly admitted to the University must pay a non-refundable deposit to confirm their acceptance of an offer of admission before they can register for the first time.

Continuing undergraduate students are required to pay a non-refundable deposit before they can register for the first time for any session. Students must pay any overdue amount in full before paying their deposit.

For further information regarding deposits, see *Deposits*, p. 25, in the “Fees, Financial Assistance, and Scholarships” chapter. Deposits will be credited in full towards any assessed fees.

All students must pay their current fee instalment in full by the due date.

Students can register through the Student Service Centre (www.students.ubc.ca/ssc).

APPEALS

APPEALS ON ADMISSION DECISIONS

Applications are screened carefully by Enrolment Services in accordance with Senate and faculty admission policies. Applicants who believe that they have been unjustly denied admission to a program due to an error in process or who believe that they deserve special consideration due to mitigating circumstances should discuss the matter with their Admissions Evaluator immediately upon receipt of their final admission decision. If a satisfactory resolution cannot be achieved, the applicant may submit a written appeal to Enrolment Services for review by the applicant’s faculty or school. **Appeals against admission decisions will be considered on applications for the current year only and must be submitted within four weeks of the date of issue on the admission decision letter, or by the 15th of the month prior to the start of classes, whichever is earlier.** The letter of appeal should include (a) the decision that the applicant is appealing against, (b) a statement of the grounds for the appeal, (c) a detailed account of the circumstances relating to the appeal, and (d) copies of any relevant documents. For more information, refer to the Admission Requirements (www.welcome.ubc.ca/admission.cfm).

APPEALS TO SENATE ADMISSIONS COMMITTEE

Applicants who are unsuccessful in their appeal at the faculty or school level may submit a written appeal to Enrolment Services for review by the Senate Admissions Committee. The Senate Admissions Committee reviews doubtful cases and cases of appeal against decisions made on the basis of Senate policy. **Appeals to the Senate Admissions Committee must be submitted to Enrolment Services no later than the 15th of the month prior to the start of classes.**

The Committee may allow an appeal where it decides that a faculty or school may have overlooked or misinterpreted information provided by the applicant, or arrived at a decision without reasonable consideration of mitigating circumstances, or acted contrary to the faculty’s published procedures. Whenever possible, the student should provide documentary evidence to support the appeal.

Upon receipt of the appeal, Enrolment Services will send a copy of the statement of appeal to the dean of the relevant faculty or school, and ask the faculty or school to provide a written response. Enrolment Services will then forward copies of the student’s appeal and the faculty or school’s response to the Senate Admissions Committee for its consideration.

The decision of the Committee will be communicated in writing to the student and to the dean of the faculty or school within ten days of the hearing of the appeal. The Committee’s decision is final.

2006-07

III Fees, Financial Assistance and Scholarships

NOTICE REGARDING FEES

Fees, including tuition fees, program fees, special fees, and student society fees are subject to approval by the Board of Governors, following consultation with students.

PLEASE NOTE: All fees are reviewed by the Board of Governors in Spring of each year, and are subject to change. Provincial Government guidelines currently limit tuition fee increases in 2006/07 for domestic students to 2%. The fees in this edition of the Calendar are for reference only, and reflect fees for the previous 2005/06 year.

Official fees for the 2006/07 session were not available at the time of publication.

The UBC Web Calendar (www.students.ubc.ca/calendar) will be updated in June 2006 to reflect fee changes.

1 GENERAL INFORMATION AND POLICY ON FEES

1.1 ALLOCATIONS, CONTRACT, CHANGES OF FEES

Fees include any amounts assessed to a student by the University, or by the University on behalf of the AMS, or other student societies and organizations. Fees include, but are not limited to, tuition fees, program fees, special fees, and student society fees.

Notwithstanding anything else in this Calendar, the University reserves the right at any time to change fees without notice. Students who have not completed their course requirements when a change in fees is made may be required to pay the new fees.

Tuition fees for all students include allocations to the Teaching and Learning Enhancement Fund and to student financial support.

A student upon registering has initiated a contract with the University for payment of all assessed fees. A student may terminate this contract only by withdrawing from the University (see Items 1.3, p. 25, and 1.6, p. 26, in this chapter regarding refunds, and *Withdrawal*, p. 50, in the chapter “Academic Regulations”).

Fees listed are in Canadian Dollars, unless otherwise indicated.

1.2 PAYMENT OF FEES

Students may view their individual student financial account on the Student Service Centre (www.students.ubc.ca/ssc).

Fees may be paid by the following methods:

- Electronic Funds Transfer (EFT), at the Student Service Centre. Click on “My

Banking Info” to enter your banking information, and then click on “My Financial Account” to make the payment. *This is the preferred method of payment.*

- By touch-tone or online banking, available through most banks and credit unions. (Your student number is your account number.) Please contact your bank branch for details.
- Credit Card Online: Fee and deposit payments are accepted on the Student Service Centre (www.students.ubc.ca/ssc). Log in and click on “My Financial Account”. You will need VISA or MasterCard to use this option.
- By cheque or cash at any branch of HSBC Bank Canada. A Tuition Fee Payment Form (www.students.ubc.ca/finance/download/fees_payment.pdf) must accompany the payment. Note: You do not have to be an HSBC customer to use this payment method.
- By mail. Cheques should be made payable to “The University of British Columbia” and must reach Enrolment Services by the due date. Send cheques to: Enrolment Services, The University of British Columbia, 2016–1874 East Mall, Vancouver, BC, V6T 1Z1.
- In person at Enrolment Services in the main concourse of Brock Hall at Point Grey Campus or Robson Square Campus. Students may pay by cheque or debit card only. **Please note:** No cash payments are accepted.

Tuition fees, student fees, and other approved fees are consolidated in a Student Financial Account. The outstanding balance in this account will reflect outstanding amounts from previous sessions, changes in registration, any awards made to the student (or the cancellation of an award), penalties for late payment and other approved charges, as well as payments made by the student.

It is the responsibility of students to make their payments by the due dates. Please note: If you have an outstanding balance from a previous session, your payment will be applied to that outstanding amount, not to the current session. Students should check their outstanding balance on the Student Service Centre (www.students.ubc.ca/ssc).

1.3 DEPOSITS

Undergraduate students must pay a registration deposit before they can register. The deposit will be credited towards the student's assessed tuition fees. Once students have registered in

any course, this deposit becomes non-refundable and cannot be transferred to another session.

Some programs require students to confirm their acceptance of an offer of admission by paying an additional portion of their tuition fee. Students will be notified of this when they are offered admission to the program.

See *Item 1.2, Payment of Fees*, p. 25, in this chapter for instructions on how to pay.

Most graduate students and senior citizens do not pay a deposit.

Domestic Undergraduate Students

Domestic undergraduate students must pay a registration deposit of \$100.00. Students who have not registered and wish to have their deposit refunded, should visit Enrolment Services in Brock Hall, email (records.inquiry@ubc.ca), or call 604-822-2844.

International Undergraduate Students

New international undergraduate students are required to pay a first-time deposit of \$500.00 before they can register in any courses. Half of the deposit, \$250.00, is refundable if the student withdraws from all Summer Session courses or from all Winter Session courses by set dates (see *Item 1.6.5 for details*, p. 26). No portion of the deposit is refundable if the student de-registers from courses after these dates. To request a refund, students should first ensure that they have de-registered from all courses, and then email (international.reception@ubc.ca) or phone 604-822-8999 in order to request a \$250.00 refund.

Registration in subsequent sessions requires a \$100.00 deposit. The student's \$100.00 deposit is only refundable if they have not yet registered in any courses. Once the student registers in any course the deposit becomes non-refundable and cannot be transferred to another session. To request a refund, visit Enrolment Services in Brock Hall, email (records.inquiry@ubc.ca) or phone 604-822-2844.

1.4 DUE DATES

The due date for payment of fees is:

- Summer Session (2006)
- Term 1: May 10, 2006
- Term 2: July 12, 2006

Winter Session (2006/2007)

- Term 1: September 6, 2006
- Term 2: January 8, 2007

Summer Session (2007)

- Term 1: May 9, 2007
- Term 2: July 11, 2007

The due date for any increase in a student's balance resulting from an assessment during a term is the 7th of the next month. When the due date falls on a Saturday, Sunday, or statutory holiday, payment may be made on the next business day.

All students must pay their current fee instalment in full by the due date. The due date for a student who has been given a fee deferment is the deferment date.

1.5 OUTSTANDING INDEBTEDNESS (LATE PAYMENTS)

1.5.1 – Undergraduate Students

Where fees, fines, or other indebtedness to the University (including tuition fees, student fees, parking fines, library fines, housing and conferences fees) have not been paid in full, students may be placed on financial hold and charged an interest penalty (see Items 1.5.3, *Financial Hold*, p. 26, and 1.5.4, *Interest Penalty*, p. 26). For tuition fees and student fee due dates, see *Item 1.4, Due Dates*, p. 25.

1.5.2 – Graduate Students

Where fees, fines, or other indebtedness to the University (including tuition fees, student fees, parking fines, library fines, housing and conferences fees) have not been paid in full, students may be placed on financial hold and charged an interest penalty (see Items 1.5.3, *Financial Hold*, p. 26, and 1.5.4, *Interest Penalty*, p. 26). For tuition fees and student fee due dates, see *Item 1.4, Due Dates*, p. 25). If the overdue amount is not paid in full by the first day of the next session, no future session registration will be allowed. Students will remain liable for the outstanding balance plus all interest assessed up to the date on which the outstanding balance is paid in full. Subsequent registration will be allowed only with the written approval of the Faculty of Graduate Studies. Retroactive fees and interest will be assessed prior to registration and must be paid at that time.

1.5.3 – Financial Hold

A student may be placed on financial hold as result of outstanding indebtedness to the University, including tuition fees, student fees, parking fines, library fines, housing and conferences fees. When a student has been placed on financial hold, no subsequent registration activity will be allowed and no transcripts of academic record or graduation diploma will be issued. The Department of Housing and Conferences may refuse admission to residences and may withdraw residence privileges, including dining privileges, requiring a resident to vacate the premises; Parking and Access Control Services may withdraw parking privileges and may tow vehicles; and the UBC Library may withdraw borrowing privileges and access to its collection of electronic information. Students will also be assessed a processing fee of \$30.00 in addition to the

interest penalty. The financial hold will be removed when the outstanding balance, including all penalties, is paid in full.

1.5.4 – Interest Penalty

Interest will be charged at a rate of prime plus 6% per annum. Interest is charged on all outstanding amounts that are past due and is calculated towards the end of each month. See *Item 1.4, Due Dates*, p. 25.

1.5.5 – Late Registration

Fees payable by late registrants will be considered to have been assessed on the starting date of the course or program and to be due seven days later. An interest penalty based on these dates may be assessed.

1.6 REFUND OF FEES

1.6.1 – Overview

Refund of fees, if any, is calculated from the day on which a student drops or withdraws from a course or program. (See *Change of Registration*, p. 49, and *Withdrawal*, p. 50, in the "Academic Regulations" chapter.) If a withdrawal is not approved, the student will be liable for all assessed fees including any interest penalty. For processing of refunds, students must apply to Enrolment Services (records.inquiry@ubc.ca); Tel: 604-822-2844.

1.6.2 – Refund of Undergraduate Student Tuition

The first \$100.00 of tuition fees paid for any session is non-refundable and may not be transferred to another session.

Refund for Two-Term Courses (Term 1)

During first three weeks of classes	100% of the first instalment of the fee for credits dropped
During fourth week	50% of the first instalment
During fifth week	25% of the first instalment
After fifth week	No refund of any part of the first instalment. The second instalment of fees will not be assessed.

Refund for Two-Term Courses (Term 2)

During first two weeks of classes	100% of the second instalment of the fee for credits dropped
After second week	No refund

Refund for One-Term Courses

During first two weeks of classes	100% of the fee for credits dropped
During third week	50% of the fee for credits dropped
During fourth week	25% of the fee for credits dropped

1.6.3 – Refund of Graduate Student Tuition

Graduate students who withdraw during the first two weeks of University sessions will receive 100% of the instalment for that term or session.

The refund of fees for graduate students who withdraw from either Term 1 or Term 2 of

Winter Session or from Summer Session after registration will be calculated as shown below.

Winter Session Term 1 / Term 2 / Summer Session

During first two weeks	100% of the instalment
During third or fourth week	60% of the instalment
During fifth or sixth week	40% of the instalment
During seventh or eighth week	20% of the instalment
After eighth week	No refund of any part of tuition fee instalment

1.6.4 – Refund of Undergraduate Student Fees

If a student's sessional credit load drops below 18 credits on or before the dates listed below, student fees will be re-assessed:

- on or before September 19 for Term 1 courses;
- on or before September 22 for two-term courses; or
- on or before January 22 for Term 2 courses.

The Athletics and Recreation fee, the Ubysey Publication fee, and the AMS fees listed under *Item 2.1, Student Fees, Overview*, p. 27, are adjusted based on credit load.

1.6.5 – Refund of Deposits

Deposits for undergraduate students are non-refundable and may not be transferred to another session. See *Item 1.3, Deposits*, p. 25.

For new international students \$250.00 (of the \$500.00 deposit) is refundable if the student withdraws from all Summer Session courses by April 30 or from all Winter Session courses by August 31. Students who have de-registered by these dates should email International Reception (international.reception@ubc.ca). No portion of the deposit is refundable if a student de-registers from courses after these dates.

1.7 TAX RECEIPTS (T2202A)

This tax receipt is not mailed to students. Students can access their information by logging into the Student Service Centre (www.students.ubc.ca/ssc) on the Web and selecting the T2202A Tax Form option. This information includes the student's assessed tuition and monthly education credit for the tax year. The Athletics and Recreation Fee, the Extended Medical/Dental Fee, the Dietetics and Internship Fee, the ENDS Studio Fee, the Graduating Class Fee, and the Pharmacy Practice Fee qualify for tuition tax credit and will be included on the receipt.

For more information on income tax, visit the Canada Customs and Revenue Website (www.cra-adrc.gc.ca) and search for the "Students and Income Tax" page.

1.8 STUDENTS REGISTERED IN MORE THAN ONE PROGRAM

For students registered in more than one graduate degree program, fees are assessed for both programs until minimum payment is reached for the first program. Fees for the

second program continue as assessed until degree completion.

For students registered in one graduate degree program and one undergraduate program, fees are assessed for both programs until minimum payments are completed for the graduate program. Undergraduate fees will continue to be assessed.

Students registered in one graduate degree program and as an “unclassified student” will be assessed fees for both programs.

Students in Senate-approved combined degree programs for which a program fee has not been established will be assessed fees for each separate program.

Note: Student fees that are common to more than one of the programs will only be assessed once.

1.9 ADMINISTRATIVE AND DOCUMENT FEES

1.9.1 – Miscellaneous Fees

Deferred examination written off-campus, per paper	\$60.00
Diploma, duplicate or replacement (incl. GST)	\$58.85
Diploma, certified copy, per copy (incl. GST)	\$6.42
Dishonoured payment (incl. cheque)	\$15.00
Distance Education special examination (where permitted), per paper	\$40.00
Duplicate tuition fee receipts (incl. GST)	\$6.42
Financial Hold Processing Fee	\$30.00
Review of Assigned Standing, per course	\$50.00
Supplemental examination written at UBC, per paper	\$30.00
Supplemental examination written off-campus, per paper	\$60.00
UBCard (replacement card)	\$10.00

1.9.2 – Calendar Fees

Calendar Fee (incl. GST)	\$5.35
Calendar sent by mail:	
Canada (incl. GST)	\$12.85
USA	\$18.85
International	\$29.85

1.9.3 – Transcript of Academic Record

Official transcripts ordered from the Student Service Centre (www.students.ubc.ca/ssc) are normally mailed or available for pickup at Enrolment Services on the next business day after they are ordered.

Transcripts ordered in person, by mail, or by fax will normally be mailed or available for pickup within five working days. During peak periods, processing time may be longer.

Each copy (incl. GST)	\$5.35
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Additional fee for courier delivery, per address:

Local Area (Vancouver or Kelowna)	\$9.00
Canada	\$15.00
USA	\$23.00
International	\$30.00

1.9.4 – Library – Extramural Services Fee

Fees have been authorized for extramural borrowing. Information concerning these fees may be obtained from the UBC Library.

2 STUDENT FEES

2.1 OVERVIEW

Student fees include fees authorized by student referendum, the UBC Board of Governors, the AMS, and other student societies and organizations. Student fees are due annually, and charged to all students. Fees are calculated according to full-time or part-time status, session, and study level.

Example of Student Fees for Winter Session:

Athletics and Recreation Fee	\$172.53
AMS Fees	\$276.24
Ubyyssey Publication Fee	\$5.00
U-Pass Fee (2 terms)	\$176.00
Student Society Fee	variable
<i>Total</i>	<i>\$629.77</i>

2.2 ATHLETICS AND RECREATION FEE

This annual mandatory fee is authorized by the Board of Governors and is used to support athletic and recreation programs and facilities. This fee is tax deductible and will be included in the T2202A tax receipt (see *section 1.7, Tax Receipts*, p. 26).

For students enrolled in a program of 18 credits or more	\$172.53
Students taking fewer than 18 credits	\$9.58 per credit

2.3 U-PASS FEE

All students are assessed a transit U-Pass program fee, authorized by student referendum.

U-Pass Fee	\$88.00 per term
U-Pass Fee for Summer	\$88.00 (four-month pass)

The U-Pass provides all zone unlimited access to public transit, and is charged to eligible students enrolled in Winter and Summer Session and members of the AMS. The U-Pass program has limited opt-out exemptions (all opt-out applications are available online at the Student Service Centre (www.students.ubc.ca/ssc)). Refer to the U-Pass website (www.upass.ubc.ca) for more information.

2.4 UBYSSEY PUBLICATION FEE

A fee of \$5.00 per year was authorized by a student referendum and the Board of

Governors. This fee is used to fund the operation of *The Ubyyssey* newspaper.

Undergraduate students registered for 18 or more credits	\$5.00
Undergraduate students registered for fewer than 18 credits	\$0.29 per credit
Full-time graduate students	\$5.00
Part-time graduate students	\$2.50

Students who wish to opt out of this fee may do so by applying in person to The Ubyyssey Publications Society Business Office, Student Union Building, Room 23 (basement), 10:30 am to 2:30 pm (closed noon to 1:00 pm), Monday through Friday, and fill out a form for an assessment adjustment. Students registered in one term of Winter Session or either term of Summer Session must apply by the end of the second week of classes. Students registered in both terms of the Winter Session must apply by the end of the second week of classes in Term 1. Adjustments will be credited to the student's Financial Account.

2.5 ALMA MATER SOCIETY FEES

2.5.1 – Overview of AMS Fees

The following fees are authorized by student referendum and the Board of Governors. They are collected by the University at the request of the Society. Students enrolled in 18 or more credits are assessed fees of \$33.50 made up as follows:

Operating expenses of the AMS	\$12.50
Capital projects (CPAC)	\$15.00
University/External Lobbying	\$3.50
AMS Resource Groups	\$1.50
WUSC Refugee students assistance	\$1.00
<i>Subtotal</i>	<i>\$33.50</i>

Students taking fewer than 18 credits are assessed fees of \$1.86 per credit. Graduate students on Schedule B (see *Item 5.2.3*, p. 31) are assessed \$16.75.

2.5.2 – Athletics and Intramurals Fee

All students are assessed an Athletics and Intramurals fee.

Athletics and Intramurals Fee	\$21.00
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The maximum fees payable for the period September to August 31 are \$54.50 (fee total from Items 2.5.1 and 2.5.2).

2.5.3 – Additional AMS Fees (with Opt-out Provisions)

All students assessed the AMS or GSS fees (regardless of credit load or place of residence) will be assessed a maximum fee of \$221.74 for the period September 1 to August 31, made up as follows:

AMS Extended Health and Dental Plan	\$196.74
Student Aid Bursary Fund	\$12.00
Student Legal Fund	\$1.00
AMS Services	\$9.00
Sexual Assault Support Services	\$3.00

<i>Subtotal</i>	\$221.74
Ubysses Publication	\$5.00 or variable, p. 27.

For students enrolled only in Summer Session, please see *Item 3.6*, p. 29, for assessed student fees.

2.5.4 – Medical Insurance

Students from outside British Columbia are responsible for ensuring that they have basic medical insurance as a condition of their acceptance to the University. International students should refer to *Item 6.2* of the online Calendar, p. 35 for more information. Canadians, or permanent residents, should visit the BC Government's Health Website (www.healthservices.gov.bc.ca/msp) or contact the *Student Health Service*, p. 65, under the "Services, Facilities, and Organizations" chapter of the Calendar for more information.

All UBC students who are assessed student fees are also assessed the *AMS/GSS Extended Health and Dental Plan fee*, p. 27. This is an extended health and dental plan that provides coverage, in addition to basic medical covered by MSP, for expenses such as most prescription drugs, travel health insurance, vision, and dental care. This fee is assessed only in the Winter Session and provides coverage from September 1 to August 31.

For information on Mandatory International Student Medical Insurance see *Item 6.2*, p. 35.

2.5.5 – Extended Health and Dental Plan

Students who already have an equivalent extended health and dental plan may opt out of the AMS Health and Dental plan. Students can also enrol their spouse and/or dependants by completing an enrolment process and paying an additional fee, over and above their student association fee. Visit the Studentcare website (www.studentcare.net) for more information.

AMS Extended Health and Dental Plan	\$196.74
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Students registered in Winter Term 1 must apply to opt out or enrol their spouse/dependants between Sept. 5 – 26, 2006, or within three weeks of their registration date, whichever is later. Students registered in Winter Term 2 only must apply for opt outs or enrolments between Jan. 8 – 29, 2007, or within three weeks of their registration date, whichever is later. Students wishing to enrol or opt out should visit the Studentcare website (www.studentcare.net) or contact Studentcare, Room 61, Student Union Building, Tel: 1-877-795-4421 (toll free).

The Extended Health and Dental Insurance Plan is not available to students who are registered only in the Summer Session.

Check your fees at the Student Service Centre (www.students.ubc.ca/ssc) to verify whether or not you are assessed the Extended Health and Dental Plan fee. For Plan details, enrolment and opt-out deadlines (see above), visit the Studentcare website (www.studentcare.net).

2.5.6 – Student Funds, Support, and Services Fees

Students who wish to opt out of the Student Aid Bursary Fund fee, the Student Legal Fund fee, Sexual Assault Support Fund fee, or the AMS Services fee may do so by applying in person to the AMS Administration Office, Room 266, Student Union Building. Office hours are 11:00 am to 2:00 pm. Students registered in one term of Winter Session or either term of Summer Session must apply by the end of the second week of classes. Students registered in both terms of Winter Session must apply by the end of the second week of classes in Term 1. Refunds will be issued upon request. Those students who opt out of the Student Legal Fund fee forgo eligibility for membership in the Student Legal Fund Society. See *Student Legal Fund Society*, p. 65, in the "Services, Facilities, and Organizations" chapter in the Calendar for more information.

2.6 UNDERGRADUATE SOCIETY FEES

The Board of Governors approves, on the recommendation of the Alma Mater Society, special fees for Undergraduate Societies. These fees are not related to credit load. The fees for Winter Session are as follows:

Arts (B.A., B.F.A., and Diploma Programs)	\$13.00
Commerce (B.Com.)	\$266.00
Dentistry	\$115.00
Education (including Diploma Programs)	\$10.00
Engineering	\$45.00
Forestry	\$50.00
Human Kinetics	\$10.00
Land and Food Systems (Agriculture) (B.Sc. degrees)	\$30.00
Law	\$148.00
Medicine: 1st and 2nd years	\$58.00
Medicine: 3rd and 4th years	\$68.00
Music	\$10.00
Nursing	\$28.50
Pharmacy	\$18.00
Rehabilitation Sciences	\$6.00
Social Work and Family Studies	\$5.00
Science	\$22.00

2.7 GRADUATING CLASS FEE

A fee of \$7.00, authorized by the Board of Governors, is assessed for all students in Winter Session who are registered in the final year of a course leading to a bachelor's degree, the M.D., or the D.M.D., and who have not previously paid the fee. This fee is for the support of student-sponsored graduating class activities. Enquiries with respect to this fee should be directed to the Alma Mater Society. This fee is tax deductible and will be included in the T2202A income tax receipt (see *section 1.7, Tax Receipts*, p. 26).

2.8 GRADUATE STUDENT SOCIETY FEES

The following annual fees are authorized by student referendum and the Board of Governors:

Capital Improvement Fund	\$5.00
Graduate Student Society	\$44.00

SPECIFIC PROGRAM-LEVIED SOCIETY FEES COLLECTED BY THE STUDENT SOCIETIES:

Community and Regional Planning	\$10.00
Forestry	\$5.00
Library, Archival and Information Studies ¹	\$20.00

¹ This fee is collected one time only (not annually) by the School of Library, Archival and Information Studies on behalf of the student society.

3 PROGRAM AND COURSE FEES

3.1 CO-OPERATIVE EDUCATION PROGRAM FEES

Co-operative Education Program	
Co-op Fee per work term	\$612.00
Co-op Workshops	\$200.00

3.2 DISTANCE EDUCATION COURSES

Fees will be charged on a per-credit basis plus a non-refundable administrative charge of \$45.00 for each Distance Education course.

Refunds will be granted if applied for in writing and received at the Distance Education Office by the end of the month of the course start date. Course materials must be returned in new condition. The minimum assessment will be \$100.00 or 20% of the tuition, whichever is greater.

Where examinations are permitted at a location not normally set up for UBC examinations, a Special Invigilation and Outside Examination Centre Fee of \$40.00 is payable with your examination application.

The following Distance Education fees also apply to the courses listed below:

Lab fees for FRST 308, 309, and 421	\$65.00
Lab fees for SOIL 200	\$65.00

3.3 EXCHANGE PROGRAMS

3.3.1 – Undergraduate Formal Exchange Programs

Students visiting UBC, on approved exchange programs under a formal agreement between their home university and UBC, will pay fees to their home university. These fees cover credit courses taken in Winter Session. Students will be assessed the transit *U-Pass fee*, p. 27, of \$88.00 per term, and an *IMED fee*, p. 35, of either \$120.00 or \$170.00.

UBC undergraduate students who are studying elsewhere on approved exchange programs covered by a formal agreement between the two universities (EAP, GOTSEP, or CUSE) must register for the appropriate non-credit exchange activity and pay UBC tuition fees for 15 credits per term plus student fees for the Winter Ses-

sion. All other UBC students on such exchange programs pay to UBC the normal tuition fees for their program for each term they are away, in addition to student fees.

All other UBC students on such exchange programs pay to UBC the normal tuition fees for their program for each term they are away, in addition to student fees.

3.3.2 – Student Exchange Fees

UBC undergraduate students applying for the exchange program pay the following fees:

Student Exchange Programs

Student Exchange Application Fee (non-refundable) all applicants	\$75.00
Student Exchange Administration Fee (refundable) all applicants	\$255.00

3.3.3 – Universities Graduate Exchange Agreements

Graduate students in good standing and paying tuition fees at one of the following universities: Alberta, Athabasca, Brandon, Calgary, Lethbridge, Manitoba, McGill, Montreal, Northern British Columbia, Regina, Saskatchewan, Simon Fraser, Toronto, or Victoria can register at UBC as exchange graduate students without paying tuition fees. See *Visiting Students under the Graduate Exchange Agreement*, p. 223, and the *Western Deans' Agreement*, p. 223, under the Faculty of Graduate Studies.

3.4 COURSE, FIELD TRIP AND FIELD COURSE FEES

These are one-time fees that are applied to specific programs or courses. Fees are collected by the faculty departments.

3.4.1 – Student Accident Insurance

Departments may require students performing coursework in environments where the risk of injury is greater than in a classroom, (e.g., laboratories, field work, clinical practice, practicums, and so on), to purchase Student Accident Insurance. The annual fee for this Insurance is \$7.00. See the UBC Treasury website (www.treasury.ubc.ca/risk_2.html#sai) for more information.

3.4.2 – Miscellaneous Course and Program Fees

Course/Program	
ANTH 306	variable
ARCH 502	variable
BIOL 140 (elective field trip)	variable
BIOL 205 (optional field trip)	variable
BIOL 326 (optional field trip)	variable
BIOL 328 (optional field trip)	variable
BIOL 409	variable
BIOL 427	variable
BIOL 428 (optional field trip)	variable
BIOL 465 (optional field trip)	variable
Environmental Design (B.En.D./ENDS program) Studio Fee ¹	\$60.00 per course
EOSC 223	variable
EOSC 328	variable
EOSC 473	variable

Course/Program (Continued)

EOSC 573	variable
GEOG 309	variable
GEOG 379	variable
LARC 511: accomodation, instruction, administration, transportation, meals	variable
Visual Arts (VISA) Studio Fee ¹	\$30.00 per course

¹ Applied to select courses only. See department for list of courses to which the fee applies.

3.4.3 – Forestry Field and Workshop Courses

Forestry Field and Workshop Courses

CONS 451 (Natural Resources Conservation)	variable
FRST 305 (Silviculture I Field Trip)	variable
FRST 351 (Interior Field School)	variable
FRST 352 (Integrated Field Studies)	variable
FRST 452 (Coast Field School)	variable
FRST 551	variable
FOPR 352 (Harvesting Field Trip)	variable
WOOD 305 (Wood Machine Skills)	variable
WOOD 353 (Mill Site Visits)	variable

3.5 MISCELLANEOUS FACULTY FEES

Applied Science

B.A.Sc. Annual Professional Activities Fee	\$100.00
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This fee is assessed for all students registered in the B.A.Sc. program upon entry into each year of the program. An Advisory Committee, which includes faculty members and students, will make recommendations on the allocation of the funds.

Dentistry

Dentistry, short-term visiting students	\$51.00
Annual Clinic Fee (DMD Program in 2006/07)	\$23,300.00

Land and Food Systems (formerly Agricultural Sciences)

Annual Dietetics Internship Fee	\$1,500.00
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Medicine

Canadian Electives Application Fee	\$100.00
Dean's Letter of Reference, Single Copy	\$45.00
Dean's Letter of Reference, Additional Copies processed at the same time	\$10.00
Confirmation of Graduation form	\$10.00
Faxing single copy: Canada and USA	\$10.00
Faxing single copy: International	\$15.00
International Electives Application Fee	\$140.00-\$300.00
Non-credit Activity course for visiting foreign medical students	\$250.00
Replacement ID cards	\$10.00

Pharmaceutical Sciences

B.Sc. (Pharm.) practice fee for students in fourth year	\$203.75
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3.6 SUMMER SESSION FEES

Summer Session students who have not already paid the maximum AMS fees in a given year will be assessed as follows:

Summer Session 2006 Fees

Athletics and Recreation Fee	\$9.58 per credit
AMS Fee	\$1.86 per credit
AMS Athletics and Intramurals	\$21.00
AMS Services	\$9.00
AMS Student Aid Bursary Fund	\$12.00
AMS Student Legal Fund	\$1.00
Sexual Assault Support Services	\$3.00
Ubysey Publications	\$0.29 per credit
U-Pass (4 month pass)	\$88.00

Students should refer to the Summer Session Calendar Supplement (www.students.ubc.ca/calendar/summer) for further details on these fees and the procedure for opting out where applicable. (The AMS fees are exclusive of the Extended Health and Dental Plan Fee that is available only for students who were registered in the preceding Winter Session.)

4 UNDERGRADUATE STUDENT FEES

4.1 UNDERGRADUATE APPLICATION PROCESSING FEES

Undergraduate Application Processing Fees (Enrolment Services)

For applicants who are Canadian citizens or Permanent Residents of Canada	\$60.00
For UBC students who are applying for re-admission and/or change of faculty	\$60.00
For applicants who will be studying on a Student Authorization (e.g., non-Canadian citizens and non-Permanent Residents) and presenting transcripts from institutions within or outside of BC	\$100.00

Commerce – Broad-based Admission Application Processing Fee

Supplemental Application Processing Fee for all Secondary School applicants to the Faculty of Commerce (regardless of citizenship)	\$75.00
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Land and Food Systems

Integrated Dietetics Program Application Fee	\$50.00
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Law

Supplemental Application Fee	\$80.00
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Music

Supplemental Application Fee	\$60.00
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4.2 UNDERGRADUATE TUITION FEES

4.2.1 – Overview

The following fees apply to Canadian Citizens and Permanent Residents (Landed Immigrants) only. International students see Section 6 for applicable fees.

Fee payment in Winter Session may be in two instalments. In general, the first instalment covers tuition for Term 1 courses and the first half of two-term courses, plus most student fees.

The second instalment covers tuition for Term 2 courses and the second half of two-term courses. Students enrolled in a study program restricted to Term 1 or Term 2 must pay the full amount assessed by the due date for that term.

Fees shown do not include student fees, nor do they include laboratory and other special fees. See sections 1, 2, and 3 of this chapter.

A tuition fee of \$136.40 per credit is charged for all undergraduate certificate, diploma, baccalaureate, and post-baccalaureate programs except those programs listed in *Item 4.2.3*, and in *Item 4.3*. Fees paid for a graduate program do not cover courses being taken to complete the requirements of an undergraduate degree.

4.2.2 – Per-Credit Fee Examples

EXAMPLE OF PER-CREDIT FEE, 30-CREDIT PROGRAM

30-credit program at \$136.40 per credit	
Tuition (30 x \$136.40)	\$4,092.00
Student Fees (see Items 2.2, p. 27, 2.3, p. 27, 2.4, p. 27, 2.5, p. 27)	\$629.77
Plus applicable student society fee (see Item 2.6, p. 28)	\$variable
	\$(total)

EXAMPLE OF PER-CREDIT FEE, 36-CREDIT PROGRAM

36-credit program at \$136.40 per credit	
Tuition (36 x \$136.40)	\$4,910.40
Student Fees (see Items 2.2, p. 27, 2.3, p. 27, 2.4, p. 27, 2.5, p. 27)	\$629.77
Plus applicable student society fee (see Item 2.6, p. 28).	\$variable
	\$(total)

4.2.3 – Per-Credit Fee for Specific Programs

B.A.Sc. Applied Science (year 1)	\$136.40 per credit
B.A.Sc. Applied Science (years 2–5)	\$145.60 per credit
B.Com. Commerce (year 1)	\$136.40 per credit
B.Com. Commerce (years 2–4)	\$202.10 per credit
BEDN Bachelor of Education: Elementary (years 1, 2 & 3)	\$136.40 per credit
BEDN Bachelor of Education: Elementary (years 4 & 5)	\$151.90 per credit
DEDU Diploma in Education	\$151.90 per credit
All other undergraduate programs in Education	\$151.90 per credit

B.Sc. (Pharm.) Pharmaceutical Sciences started 2004+	\$201.10 per credit
B.Sc. (Pharm.) Pharmaceutical Sciences started prior to 2004	\$194.70 per credit

4.2.4 – Student Fees for Undergraduate Students

See Section 2, Student Fees, for information on applicable student fees.

4.3 SPECIALIZED UNDERGRADUATE TUITION FEES

For fees related to faculty admission, application processing and/or other administrative items, please see the individual listings in the “Faculties, Colleges and Schools” chapter of the Calendar.

The following tuition fees are applicable to undergraduate programs of select faculties. For graduate-level program fees see Section 5. For per-credit fees for specific undergraduate programs see *Item 4.2.3*, p. 30.

Tuition fees are assessed in two instalments in Winter Session, and are charged for the following specific programs and year levels:

Dentistry	
DMD and Combined DMD and B.Sc. – Students who began their program starting 2004 and years after	\$14,000.00 per year
DMD and Combined DMD and B.Sc. – Students who began their program starting 2003	\$12,155.00 per year
DMD and Combined DMD and B.Sc. – Students who began their program starting 2002	\$10,491.00 per year
DMD and Combined DMD and B.Sc. – Students who began their program starting 2001 or years earlier	\$9,350.00 per year
International Dental Degree Completion Program	\$30,480.00 per year
Residents	\$332.00
Law (Full Time)	
Students who began their program starting 2003 and years after	\$9,180.00 per year
Students who began their program starting 2002 or years earlier	\$7,140.00 per year
International Students who began their program starting 2002	\$556.41 per credit

Law (Part Time)	
Students who began their program starting 2003 and years after	\$306.00 per credit
Students who began their program starting 2002 or years earlier	\$238.00 per credit

Medicine	
MD and Combined MD and B.Sc. – Students who began their program starting 2004 and years after	\$14,000.00 per year
MD and Combined MD and B.Sc. – Students who began their program starting 2003	\$12,155.00 per year
MD and Combined MD and B.Sc. – Students who began their program starting 2002	\$10,491.00 per year

Medicine (Continued)	
MD and Combined MD and B.Sc. – Students who began their program starting 2001 or years earlier	\$9,350.00 per year
Residents	\$332.00

Pharmaceutical Sciences	
Residents	\$70.00

4.4 UNCLASSIFIED, QUALIFYING, VISITING, AND ACCESS STUDIES STUDENTS; AUDITORS AND OTHERS (CANADIAN CITIZENS AND PERMANENT RESIDENTS)

4.4.1 – Overview

Unclassified students, qualifying students, auditors, students registered for concurrent studies and access studies, and students not working toward a degree are assessed a fee of:

- \$136.40 per credit for undergraduate courses (normally those numbered under 500).
- \$306.00 per credit for undergraduate Law courses.
- \$321.30 per credit for graduate courses (normally those numbered 500 and above).

If a course has a zero (0) credit value, fees will be assessed at one (1) credit at the applicable course-level fee.

4.4.2 – Qualifying Students

Qualifying students will be assessed fees on a per-credit basis for all courses taken (see *Item 4.4.1, Overview*, p. 30). Fees paid under these circumstances will not subsequently be credited in a graduate degree program. International students refer to *Item 6.4* of the online Calendar, p. 36, for details.

4.4.3 – Visiting Students

Visiting undergraduate students will be assessed fees at the prevailing per-credit rate (*Item 4.4.1*, p. 30) plus authorized student fees. International students refer to *Item 6.4*, p. 36, for details. Other visiting undergraduate students may register for the non-credit activity ‘Visiting Undergraduate Student’ (VURS499). The fee for each registration in this activity, which covers either Term 1 of Winter Session or Term 2 of Winter Session or Summer Session, is equal to the tuition fee for one credit of course work plus authorized student fees.

Visiting graduate students who wish to take credit courses must register for those courses and will be assessed tuition fees at the prevailing graduate per credit rate, (see *Items 4.4.1*, p. 30 and *6.4*, p. 36) plus authorized student fees. Other visiting graduate students may register for the non-credit activity ‘Visiting Graduate Student’ (VGRD 500). The fee for each registration in this activity, which covers either Winter Session Term 1 or Term 2, or Summer Session, is equal to the tuition fee for one credit of course work plus authorized student fees.

4.4.4. – Senior Citizens

BC residents who are Canadian citizens or permanent residents aged 65 years or over during the session in which they are registered are not assessed application, tuition, or student fees. The Distance Education administrative fee and some special fees may be assessed. Fees will be assessed to senior citizens for programs in areas such as Dentistry, Law, Medicine, Nursing, or any faculty or school where existing facilities and resources are limited.

4.4.5 – Access Studies

Tuition fees for Access Studies students are assessed on a per credit basis, taking into consideration the year level of the course and the Faculty in which it is offered. Most undergraduate courses will be assessed at \$136.40 per credit, or \$566.41 per credit for International Students. Tuition fees for programs in Commerce, Applied Science, Education, Pharmaceutical Sciences, if available, will be assessed as described in Section 4, Undergraduate Student Fees. Law courses, if available, will be assessed at \$306.00 per credit. International Students will be assessed as noted in *Item 6.4*, p. 36. Graduate level (courses numbered 500 or above) courses, if available, will be assessed at \$321.30 per credit, or \$556.41 per credit for International Students. All student fees will be assessed as noted in Section 2, Student Fees.

4.4.6 – Certificate Program Fees

CERTIFICATE OF ADVANCED STUDY

Three (3) instalments per year of	\$1,262.07
On-leave fee, per year	\$274.40

The Certificate of Advanced Study is offered by the School of Library, Archival and Information Studies. No candidate will pay total fees of less than the first three (3) instalments and will continue to pay the full instalment rate plus authorized student fees until degree completion.

The annual student fees are the same as those for full-time (Schedule A) Master's students. See *Item 5.2.7*, p. 32.

GRADUATE CERTIFICATE IN REHABILITATION SCIENCES

The Graduate Certificate in Rehabilitation Sciences is offered by the School of Rehabilitation Sciences.

Tuition Fee

\$951.00 per 3 credit course

5 GRADUATE STUDENT FEES

5.1 GRADUATE APPLICATION PROCESSING FEES

Graduate Application Processing Fees

Application fee, per department, for all graduate programs except master's-level Business programs – domestic students (Canadian citizens or Permanent Residents of Canada)	\$90.00
Application fee, per department, for all graduate programs except master's-level Business programs – students studying on a Student Authorization	\$150.00
Commerce and Business Administration (Sauder School of Business) application fee for master's-level programs	\$125.00
Pharmaceutical Sciences application fee for Doctor of Pharmacy (Pharm.D.)	\$125.00
Rehabilitation Sciences supplemental application fee for M.O.T. and M.P.T. programs	\$100.00

Some programs have higher or additional fees for graduate applications. If not listed in the table above, contact the *Faculty of Graduate Studies*, p. 217, or refer to the "Faculties, Colleges, and Schools" chapter of the Calendar for more details.

5.2 MASTER'S TUITION FEES

5.2.1 – Overview

The following fees apply for Canadian Citizens and Permanent Residents (Landed Immigrants). See Section 6, International Students, for fees for foreign residents.

Every candidate enrolled in a master's program is required to maintain continuous registration by paying tuition instalments according to Schedule A (*Item 5.2.2*, p. 31) or B, (*Item 5.2.3*, p. 31) plus authorized student fees (Section 2). Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 1.5.2, Outstanding Indebtedness*, p. 26.)

All graduate students are automatically assessed fees according to *Schedule A*, p. 31. Students who are planning on taking a master's degree through part-time study (*Schedule B*, p. 31) must obtain approval of their departmental advisor and the Faculty of Graduate Studies prior to the beginning of the term in which fees are first assessed. To do so, please complete the *Application for Part-time Payment Form* (grad.ubc.ca/forms/?-SAW). This application is also available from the Faculty of Graduate Studies.

Only candidates planning to take their degree through part-time study are permitted to select Schedule B. Candidates who select Schedule B are advised that, by virtue of their part-time status, they are ineligible to receive government loans, interest-free status, and University fellowships or scholarships. Candidates are not permitted to switch from Schedule B to Schedule A after the due date of the first instalment.

5.2.2 – Full-time Fees Schedule

SCHEDULE A: AVAILABLE TO ALL STUDENTS

The normal fee for the full-time master's degree is payable in three (3) instalments per year according to the following schedule (plus authorized student fees). No candidate who selects Schedule A will pay total fees of less than the first three (3) instalments (plus authorized student fees).

Master's Degree	Instalments per year to be paid	Per Instalment Fee	Minimum no. of Instalments to be paid	Minimum Fee (based on Instalments)
	3	\$1,262.07	3	\$3786.20

See *Table 1*, p. 32, (*Item 5.2.5*, p. 32) for fees due after Instalment 6.

5.2.3 – Part-time Fees Schedule

SCHEDULE B: PART-TIME STUDENTS ONLY

The normal fee for the part-time master's degree is payable in three (3) instalments per year according to the following schedule (plus authorized student fees). No candidate who selects Schedule B will pay total fees of less than the first nine (9) instalments (plus authorized student fees).

Master's Degree	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid	Minimum Fee (based on Instalments)
	3	\$721.30	9	\$6491.70

See *Table 1*, p. 32, (*Item 5.2.5*, below) for fees due after Instalment 9.

5.2.4 – Switching Fee Schedules

See *Item 5.2.1 (Overview)*, p. 31, for details on switching fee schedules.

5.2.5 – Continuing and Extension Fees

If a degree program is not completed by a set number of instalments or a minimum program fee, the assessments will then switch to a Continuing Fee.

Schedule A Continuing Fee is assessed after instalment 6. Schedule B Continuing Fee is assessed after instalment 9.

For the Specialized Master's Program Continuing Fee information see separate program listings under Item 5.3.

Table 1: Continuing and Extension Fees

Each subsequent year, Continuing fee, plus authorized student fees	\$1,729.80
Each subsequent year, Extension fee, plus authorized student fees	\$2,429.50

If a Master's degree is not awarded within a period of five years from the initial registration, a student may be granted an extension with permission from the Faculty of Graduate Studies.

5.2.6 – On Leave Fee

All Master's programs have a fee of \$274.40 assessed for each year On Leave status is taken.

5.2.7 – Student Fees for Graduate Students

Graduate students are required to pay student fees regardless of credit load or their place of residence. See Section 2, Student Fees, for further details on the fee groupings listed below.

The annual student fees for graduate students:

Fees	Full-time student (Schedule A)	Part-time student (Schedule B)
Athletics & Recreation Fee	\$172.53	\$172.53
AMS Mandatory Fees	\$54.50	\$37.75
AMS Opt-Out Fees	\$221.74	\$221.74
Ubyssy Publication Fee	\$5.00	\$2.50
U-Pass	\$88.00 per term	\$88.00 per term
Graduate Student Society Fees	\$49.00*	\$49.00*

* CIF \$5.00; GSS \$44.00. For other graduate student society fees that are applicable to specific programs see *Item 2.7*, p. 28.

Some of these fees are paid in instalments, some are assessed in Winter Session, Term 1 or, for new students, in their first registered term, along with tuition fees.

5.2.8 – Fees Payable upon Completion of Degree

Candidates who have paid more than the minimum for the degree will have their tuition fees prorated to the end of the month in which the Faculty of Graduate Studies confirms that all degree requirements have been completed. This includes the submission of either their major paper or final project to their department or their thesis to the Faculty of Graduate Studies Office.

Note: student fees are not prorated. Fees are due in September, January, and May for Graduate students. See Section 2, Student Fees, for further details on student fees for graduate students.

5.3 SPECIALIZED MASTER'S TUITION FEES

5.3.1 – Overview

The fees listed below apply to individual Master's programs. The specialized Master's program fees are different from the standard Schedule A or B of the Master's Program.

Note: Authorized student fees are applicable to all Schedules listed below. See Section 2 and *Item 5.2.7*, p. 32, for details of the applicable student fees.

5.3.2 – Master of Architecture

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	3	\$1,415.66	9

See *Table 1*, p. 32, for fees due after Instalment 9.

5.3.3 – Master of Business Administration

Minimum program fees \$36,000.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
15 month program	\$9,000.00	4
28 month program	\$5,142.85	7

See *Table 1*, p. 32, for fees due after Instalment 4 for the 15 month program and after Instalment 7 for the 28 month program.

5.3.4 – Master of Arts Education and Master of Education

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	3	\$1,804.34	3
Schedule B (Part-time students only)	3	\$1,084.67	9

See *Table 1*, p. 32, for fees due after Instalment 6 for Schedule A and Instalment 9 for Schedule B.

5.3.5 – Master of Education (Adult Learning and Global Change)

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	3	\$2,125.00	6

See *Table 1*, p. 32, for fees due after Instalment 6.

5.3.6 – Master of Education (Hong Kong Institute of Education)

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of Instalments to be paid
Schedule A	3	\$2,285.72	7

See *Table 1*, p. 32, for fees due after Instalment 7.

5.3.7 – Master of Education (Programs Off-Campus)

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	3	\$1,275.00	9

See *Table 1*, p. 32, for fees due after Instalment 9.

5.3.8 – Master of Educational Technology

Schedule	Each 3-credit course
Per course fee	\$1,275.00

5.3.9 – Master of Engineering

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	3	\$1,534.00	3
Schedule B (Part-time students only)	3	\$904.00	9

See *Table 1*, p. 32, for fees due after Instalment 6 for Schedule A and Instalment 9 for Schedule B.

5.3.10 – Master of Fine Arts in Creative Writing (Distance Education)

Schedule	Per credit Amount
Per credit fee	\$466.66

5.3.11 – Master of Health Administration

Minimum program fees \$22,440.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	\$3,740.00	6

See *Table 1*, p. 32, for fees due after Instalment 6.

5.3.12 – Master of Human Kinetics

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	3	\$1,430.67	3
Schedule B (Part-time students only)	3	\$836.33	9

See *Table 1*, p. 32, for fees due after Instalment 6 for Schedule A and Instalment 9 for Schedule B.

5.3.13 – Master of Journalism

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	\$1,848.20	5

See *Table 1*, p. 32, for fees due after Instalment 5.

5.3.14 – Master of Jurisprudence in Common Law

Minimum program fees \$25,500.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	\$8,500.00	3

See *Table 1*, p. 32, for fees due after Instalment 3.

5.3.15 – Master of Landscape Architecture

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	3	\$1,364.07	9

See *Table 1*, p. 32, for fees due after Instalment 9 for Schedule A.

5.3.16 – Master of Archival Studies, Master of Library and Information Studies and Joint M.A.S./M.L.I.S.

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
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Schedule A (Available to all students)	3	\$1,290.67	3
Schedule B (Part-time students only)	3	\$743.00	9

See *Table 1*, p. 32, for fees due after Instalment 6 for Schedule A and Instalment 9 for Schedule B. For Certificate of Advanced Study fees see *Item 4.4.6*, p. 31.

5.3.17 – Master of Management

Minimum program fees \$22,440.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
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Schedule – 16 month Operations Research and Transportation & Logistics	\$5,610.00	4
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See *Table 1*, p. 32, for fees due after Instalment 4.

5.3.18 – Master of Occupational Therapy

Minimum program fees \$11,220.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
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Schedule A	\$1,870.00	6
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See *Table 1*, p. 32, for fees due after Instalment 6.

5.3.19 – Master of Physical Therapy

Minimum program fees \$11,220.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
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Schedule A	\$1,870.00	6
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See *Table 1*, p. 32, for fees due after Instalment 6.

5.3.20 – Master of Rehabilitation Science (Online)

Schedule	Each 3-credit course	Each 1.5-credit course
per course fee	\$951.00	\$475.00

5.3.21 – Master of Science, Genetic Counselling

Minimum program fees (2 year program) \$30,600.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
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Schedule A	\$6,120.00	5
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See *Table 1*, p. 32, for fees due after Instalment 5

5.3.22 – Master of Social Work (Distance Education)

Minimum program fees \$10,684.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
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Schedule A	\$1,187.11	9
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See *Table 1*, p. 32, for fees due after Instalment 9.

NOTE: All fees are subject to change. Please see 'Notice Regarding Fees' at the beginning of this chapter.

5.3.23 – Master of Software Systems

Minimum program fees \$16,830.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	\$4,207.50	4

See *Table 1*, p. 32, for fees due after Instalment 4.

5.3.24 – Combined Master of Arts (Asia Pacific) and Bachelor of Laws

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	2	\$5,221.04	6
After Instalment 6		\$1,262.07	3

See *Table 1*, p. 32, for fees due after Instalment 9.

5.3.25 – Combined Master of Business Administration and Bachelor of Laws

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	2	\$7,942.50	8

See *Table 1*, p. 32, for fees due after Instalment 8.

5.3.26 – Combined Master of Business Administration and Master of Arts (Asia Pacific)

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	3	\$6,631.03	6
After Instalment 6		\$1,262.07	3

See *Table 1*, p. 32, for fees due after Instalment 9.

5.3.27 – Combined Master of Engineering and Bachelor of Applied Science

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	3	\$1,534.00	3

See *Table 1*, p. 32, for fees due after Instalment 6.

5.3.28 – Combined Master of Science and Diploma in Periodontics

Minimum program fees \$11,585.16

Schedule	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	2	\$1,930.86	6

See *Table 1*, p. 32, for fees due after Instalment 6.

5.4 DOCTORAL TUITION FEES

5.4.1 – Overview

The following fees apply for Canadian Citizens and Permanent Residents (Landed Immigrants). See International Students (Section 6) for fees for foreign residents.

Every candidate enrolled in a doctoral program is required to maintain continuous registration by paying tuition instalments, plus authorized student fees according to the appropriate tuition fee schedule.

Special program fees apply to the Doctor of Education in Educational Leadership, Doctor of Pharmacy, and Combined Doctor of Philosophy and Doctor of Medicine, as noted in *Item 5.4.4*, p. 34.

Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 1.5.2, Outstanding Indebtedness – Graduate Students*, p. 26.)

All candidates are considered to be “full-time” for the assessment of tuition and authorized student fees. Authorized student fees are applied to all Doctoral programs regardless of credit load or their place of residence.

Ph.D. and D.M.A. students in the first four years of their doctoral programs are eligible for a Ph.D. Tuition Fee Award, except in cases when Ph.D. tuition fees are directly billed to a third-party. The Ph.D. Tuition Fee Award is equivalent to the tuition fee assessment (but does not cover student fees).

5.4.2 – Doctoral Tuition Fees Schedule

The normal fee for the doctoral program is payable in three (3) instalments per year according to the following schedule, plus authorized student fees. No candidate in any doctoral program will pay total fees of less than the first six (6) instalments plus authorized student fees.

A student at this University who transfers from a master’s program to the doctoral program will receive credit toward the fees required for the doctoral program.

SCHEDULE A

Doctoral Degree	Instalments per year to be paid	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	3	\$1,262.07	6

After instalment 9 each subsequent year’s Continuing Fee is \$1,729.80; Extension Fee per year \$2,429.50; On Leave Fee, per year is \$274.40.

5.4.3 – Fees Payable upon Completion of Degree

Candidates who have paid more than the minimum for the degree (the first six (6) instalments) will have their tuition fees prorated to the end of the month in which the Faculty of Graduate Studies confirms that all degree requirements have been completed. This includes the submission of their thesis to the Faculty of Graduate Studies. Student fees are not prorated.

5.4.4 – Specialized Doctoral Tuition Fees

DOCTOR OF EDUCATION IN EDUCATIONAL LEADERSHIP

Minimum Program Fees \$25,983.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
Instalment 1	\$1,443.50	
Instalments 2–9	\$2,877.00	
Instalment 10	\$1,443.50	10

After Instalment 10, each subsequent year, the Continuing Fee is \$2,658.71 (3 instalments per year of \$886.24). On Leave Fee is \$274.40

DOCTOR OF PHARMACY

Minimum program fees \$38,301.00

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A	\$7,660.20	5

After instalment 5, each subsequent year, the Continuing Fee is \$1,729.80. On Leave Fee is \$274.40.

COMBINED DOCTOR OF PHILOSOPHY AND
DOCTOR OF MEDICINE

Schedule	Per Instalment Fee	Minimum no. of instalments to be paid
Schedule A (Available to all students)	\$1312.34	18

After Instalment 18, each subsequent year, the Continuing Fee is \$1,729.80. On Leave Fee is \$274.40.

5.4.5 – Student Fees for Doctoral Students

The annual student fees for doctoral students are the same as those for full-time (Schedule A) Master's students. See *Item 5.2.7*, p. 32, for applicable student fees.

6 INTERNATIONAL STUDENT FEES

6.1 GENERAL INFORMATION

6.1.1 – Overview

All information pertaining to general practices regarding fees are applicable to International Students. This includes, but is not exclusive to, all regulations, rules, and items of note that are specified in the following Sections of this chapter, including: *Item 1.1: Allocations, Contract, Change of Fees*, p. 25; *Item 1.2: Payment of Fees*, p. 25; *Item 1.3: Deposits*, p. 25; and *Item 1.5: Outstanding Indebtedness*.

6.1.2 – Student Visa to Permanent Residence Status

If an international student becomes a Permanent Resident on or before the tuition fee due date of the term (see *Item 6.1.3*, p. 35, below), regular fees will be assessed for that term.

If an international student becomes a Permanent Resident after the tuition fee due date for a current term, international fees will be assessed for that current term and regular fees will be assessed for subsequent terms.

Please Note: Permanent Resident status is attained as of the “Landed on” date, indicated on the Record of Landing, not the “Date Issued”.

6.1.3 – Fee Due Dates

Tuition fee due dates are as follows:

Winter Session, Term 1	September 6, 2006
Winter Session, Term 2	January 8, 2007
Summer Session	May 9, 2007

For information on Late Payments see *Item 1.5*.

6.1.4 – Student Fees for International Students

Student fees and applicable program fees will be applied to all international students enrolled at the University. See information in Sections 2 and 3 for applicable fees. Student and program fees are assessed upon registration to the University.

6.2 HEALTH INSURANCE FOR NEW INTERNATIONAL STUDENTS

There are two basic insurance plans (iMED and MSP) and one extended plan (AMS/GSS Health and Dental) for international students at UBC. Descriptions of all three plans are provided below.

6.2.1 iMED

The University provides a mandatory basic health insurance program (iMED) for all new international students as a condition of registering as a student (excludes Canadian citizens and permanent residents of Canada). iMED covers emergency hospitalization and medical services (including doctor's visits) for unexpected sickness or injury.

All new students who pay international tuition fees, as well as international exchange students and students in the Ritsumeikan University and

Korea University UBC Joint Academic programs, are automatically assessed the following fees:

A) iMED	\$120.00
B) iMED for one-term exchange students	\$170.00

COVERAGE PERIOD

New international students are automatically covered for the three-month waiting period before they become eligible for BC's Medical Services Plan (MSP), with the exception of one-term exchange students, who are covered by iMED for the duration of their exchange because they are not eligible for MSP.

For one-term international exchange students, iMED covers:

Term 1: August 28, 2006 – January 2, 2007 (plus up to ten days travel from your home country to Canada).

Term 2: December 25, 2006 – April 30, 2007 (plus up to ten days travel from your home country to Canada).

The \$170.00 fee will be assessed before the start of classes and will be listed online as a student fee.

One-term exchange students cannot change their dates; they can purchase additional days of coverage directly from David Cummings Insurance Services (DCIS) if they arrive in BC before – or leave after – the dates indicated above. For more information, visit DCIS (www.david-cummings.com/imed).

For all others, iMED covers the three month waiting period before you are eligible for MSP, from the time you leave home (up to ten days prior to arrival) until your MSP eligibility date. Your coverage will begin when you arrive in Canada, with the earliest arrival date being Aug. 1 (Term 1), Dec. 1 (Term 2), Apr. 1 (Summer Term 1), or June 1 (Summer Term 2). The \$120.00 fee for the three month period will be assessed when you register and will be listed online as a student fee.

If you arrive in BC in the month(s) before your iMED coverage is due to start, please contact DCIS (www.david-cummings.com/imed) to purchase advance coverage; you may then be eligible to opt out of UBC's iMED plan.

If you arrive in BC in the month after the dates indicated above, you must submit the Date Change Form (www.david-cummings.com/pdf/DCISiMEDChangeDatesForm.pdf), with proof of your arrival date in BC, to David Cummings Insurance Services. Your dates of coverage can then be shifted to cover your three-month waiting period for MSP. The deadline for submitting your Date Change Form is the end of the third week of classes.

Adding family members: You may add your dependents to your iMED plan. For more information and application forms, visit DCIS (david-cummings.com/imed/enrolment/familymembers.htm).

Opting Out: If you are already covered by MSP, by another Canadian provincial health plan, or by mandatory health insurance provided by a third-party sponsor with whom UBC has an agreement, you must opt out of iMED before the end of your third week of classes at UBC. Please note that having private insurance does not make you eligible to opt out of iMED. For opt out instructions and forms, visit DCIS (www.david-cummings.com/imed/enrolment/optingout.htm).

6.2.2 BC's Medical Services Plan (MSP)

Anyone residing in BC for longer than six months is required by law to enrol in BC MSP and pay premiums directly to the plan. However, there is a waiting period of three months before any newcomer to BC is eligible for BC MSP. For more information about MSP and to download an application, visit BC MSP (www.healthservices.gov.bc.ca/msp).

6.2.3 AMS/GSS Health and Dental Plan

All UBC students who are assessed student fees are also assessed the *AMS/GSS Health and Dental Plan fee*, p. 28. This is an extended health and dental plan which provides for medical services not covered by MSP, for example most prescription drugs, travel health insurance, vision care, and dental care. This fee is assessed only in the Winter Sessions and provides coverage from September 1 to August 31.

AMS/GSS Health and Dental Plan Fee	\$196.74
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6.3 UNDERGRADUATE TUITION FEES FOR INTERNATIONAL STUDENTS

International students who began an undergraduate program as of Summer 2002 will be assessed tuition fees in the amount of \$566.41 per credit. Cost-of-living increases will be implemented annually. The cost-of-living increase reflects cost increases in wages and salaries, library acquisitions, supplies and equipment, utility charges, and other related education costs. Proposals for additional tuition fee increases for new (2006) international students and certain programs are under consideration and will be reviewed by UBC's Board of Governors at its March 2006 meeting. Proposals include contributions towards capital costs and differential fees for selected programs. Where reciprocity agreements (such as Exchange programs) exist, international students shall pay regular fees.

Per Credit Fee (undergraduate programs)	\$566.41*
Standard 3 credit course	\$1,699.23*

* Cost of Living increases will be implemented annually

6.4 UNCLASSIFIED, QUALIFYING, VISITING, AND ACCESS STUDIES STUDENTS; AUDITORS AND OTHERS (INTERNATIONAL STUDENTS)

Unclassified students, qualifying students, auditors, students registered for concurrent studies and access studies, and students not working toward a degree pay the following credit fees:

Commencing Summer 2002	\$556.41 per credit for both undergraduate and graduate courses*
Prior to Summer 2002	\$516.00 per credit for undergraduate courses* \$556.41 per credit for graduate courses*

* If the course has a zero (0) credit value, fees will be assessed at 1 credit, at the applicable course level fee. Cost-of-living increases will be implemented annually.

Student fees do apply, see Section 2.

6.5 MASTER'S DEGREE TUITION FEES FOR INTERNATIONAL STUDENTS

6.5.1 – Overview

Every candidate enrolled in a master's program is required to maintain continuous registration by paying tuition instalments according to Schedule A or B (listed below) plus authorized student fees, as listed under Section 2. Failure to pay fees will result in a financial hold and an interest penalty. (See 1.5, Outstanding Indebtedness.)

All international graduate students are automatically assessed fees according to *Schedule A*, p. 36.

Students who are planning on taking a master's degree through part-time study must obtain approval of their departmental advisor and the Faculty of Graduate Studies prior to the beginning of the term in which fees are first assessed. To do so, please complete the Application for Part-time Payment form (grad.ubc.ca/forms/index.asp?formID=SDT). This application is also available from the Faculty of Graduate Studies.

Only candidates planning to take their degree through part-time study are permitted to select *Schedule B*, p. 36. Candidates who select *Schedule B* are advised that, by virtue of their part-time status, they are ineligible to receive government loans, interest-free status and University fellowships or scholarships.

Note: Candidates are not permitted to switch from *Schedule B* to *Schedule A* after the initial payment.

International students admitted to programs charging tuition fees of \$7,200.00 are eligible for an International Partial Tuition Scholarship of \$3,488.00, which is applied to assist with their tuition fees. Students in the following master's programs in the Faculty of Education are eligible for the following amounts: Master of Arts in Education, \$1,893.00; Master of Education, \$1,893.00; and Master of Human Kinetics, \$2,992.00. Students are eligible as long as they are not a recipient of any external funding that pays their tuition. Some departments may offer additional money towards the International Partial Tuition Scholarship. Students are advised to contact their department for details.

6.5.2 – Fee Schedules for Master's Degree Programs

The full-time fees (*Schedule A*, below) are available to all students. The part-time fees (*Schedule B*, below) are only available to part-time students. No candidate will pay total fees less than the specified instalments, plus authorized student fees, and will continue to pay the full instalment rate, plus authorized student fees, until degree completion.

Student Fees apply to all Master's students. See *Item 6.1.4*, p. 35, for details on student fees applicable to International Master's students. Student fees are not prorated.

MASTER'S FEE SCHEDULES FOR INTERNATIONAL STUDENTS

Master's Degree Schedule	Instalments per year to be paid	Per Instalment Fee	On Leave Fee Per Year	Minimum no. of instalments to be paid
Full Time: Schedule A	3	\$2,400.00	\$849.00	3
Part Time: Schedule B	3	\$1,380.00	\$849.00	9

6.5.3 – Specialized Master's Tuition Fees

Specific Master's Program	Instalments per year to be paid	Per Instalment Fee	On Leave Fee Per Year	Minimum no. of instalments to be paid	Minimum Fee (based on instalments)
Master of Architecture	3	\$3,333.33	\$849.00	3	\$10,000.00
Master of Business Administration					
Master of Business Administration (15 month program)	3	\$9,000.00	\$849.00	4	\$36,000.00
Master of Business Administration (part time)	3*	\$5,142.85	\$849.00	7	\$36,000.00
* After Instalment 9, each subsequent year Continuing Fee is \$1,695.90					
Master of Educational Technology	Per course fee, each 3-credit course \$1,275.00				
Master of Engineering	3	\$5,000.00	\$849.00	3	\$15,000.00
Master of Fine Arts in Creative Writing (Distance Education)	\$766.66 per credit				
Master of Health Administration	3	\$3,740.00	\$849.00	6	\$22,440.00
Master of Journalism	3	\$3,333.33	\$849.00	3	\$10,000.00
Master of Jurisprudence in Common Law	3	\$8,500.00	\$849.00	3	\$25,500.00
Master of Landscape Architecture	3	\$3,333.33	\$849.00	3	\$10,000.00
Master of Management					
16 month program (Operations Research and Transportation & Logistics)	3	\$5,610.00	\$849.00	4	\$22,440.00
Master of Science in Genetic Counselling	3	\$6,120.00	\$849.00	5	\$30,600.00 (2 year program)
Master of Software Systems	3	\$4,207.50	\$849.00	4	\$16,830.00
Combined Master of Business Administration and Bachelor of Laws	2	\$11,148.00	\$849.00	8	\$89,184.00

See *Item 6.1.4*, p. 35, for student fees applicable to International Master's students. Student fees are not prorated.

6.5.4 – Switching Fee Schedules for International Students

The normal fee for the full-time master's degree is payable in three (3) instalments per year according to the schedules listed below (plus authorized student fees).

Note: Candidates are not permitted to switch from Schedule B to Schedule A after the initial payment.

6.5.5 – Fees Payable upon Completion of Degree

Candidates who have paid more than the minimum for the degree (three (3) instalments on *Schedule A*, p. 36 or nine (9) on *Schedule B*, p. 36) will have their tuition fees prorated to the end of the month in which the Faculty of Graduate Studies confirms that all degree requirements have been completed. This includes the submission of either the major paper or final project to the department, or the thesis to the Faculty of Graduate Studies.

6.6 DOCTORAL DEGREE TUITION FEES FOR INTERNATIONAL STUDENTS

6.6.1 – Overview

Every candidate enrolled in a doctoral program is required to maintain continuous registration by paying tuition instalments, plus authorized student fees, until degree completion according to the schedule below. Special program fees apply to the Doctor of Education in Educational Leadership and Doctor of Pharmacy, as noted in *Item 6.6.2*, p. 37.

Failure to pay fees will result in a financial hold and an interest penalty. See *Item 1.5*, Outstanding Indebtedness.

All candidates are considered to be full-time for the assessment of tuition and authorized student fees. No candidate in any doctoral degree program will pay total fees of less than six (6) instalments and will continue to pay the full instalment rate, plus authorized student fees, until degree completion.

A student at this University who transfers from a master's program to the doctoral program will receive credit toward the fees required for the doctoral program.

Ph.D. and D.M.A. students in the first four years of their doctoral programs are eligible for a Ph.D. Tuition Fee Award, except in cases when Ph.D. tuition fees are directly billed to a third-party. The Ph.D. Tuition Fee Award is equivalent to the tuition fee assessment (but does not cover student fees).

International students registered full-time in the fifth or later years of doctoral programs charging tuition fees of \$7,200.00 are eligible for an International Partial Tuition Scholarship of \$3,488.00 which is applied to assist with their tuition fees. Students are eligible as long as they are not a recipient of any external funding that pays their tuition.

Some departments may offer additional money toward the International Partial Tuition Scholarship. Students are advised to contact their department for details.

6.6.2 – Doctoral Tuition Fees

No candidate will pay less than six (6) instalments plus authorized student fees. See *Item 6.1.4*, p. 35, for student fees applicable to International Master's students.

DOCTORAL DEGREE (FULL-TIME)

Instalments per year	Per Instalment Fee	On Leave Fee per year	Minimum Instalments	Minimum Fee
3	\$2,400.00	\$849.00	6	\$14,440.00

SPECIFIC DOCTORAL DEGREES

Specific Doctoral Degree	Instalments per year	Instalment	Per Instalment Fee	Minimum Instalments	Minimum Fee
Education in Educational Leadership*	3	1	\$1,443.50		\$25,983.00
		2–9	\$2,877.00		
		10	\$1,443.50		
	3	After 10	\$886.24		
Doctor of Pharmacy*	3		\$9,810.00	5	\$49,050.00

* On Leave Fee is \$849.00 per year.

Fees for Students Registered Prior to September 1997

On Leave Fee (per year)	\$340.00
Extension Fee (per year)	\$2,595.00*

* Candidates enrolled in a doctoral program beginning September 1997 will continue to pay the full instalment rate until degree completion. Fees payable upon completion of degree (see *item 6.5.3*, p. 37).

6.6.3 – Fees Payable upon Completion of Degree

Candidates who have paid more than the minimum for the degree (six (6) instalments) will have their tuition fees prorated to the end of the month in which the Faculty of Graduate Studies confirms that all degree requirements have been completed. This includes the submission of their thesis to the Faculty of Graduate Studies. Student fees are not prorated.

7 FINANCIAL ASSISTANCE AND SCHOLARSHIPS

7.1 FINANCIAL ASSISTANCE

Deborah Robinson, Associate Registrar & Director, Student Financial Assistance and Awards

Barbara Crocker, Associate Director, Student Financial Assistance and Awards

UBC is committed to ensuring access for all eligible domestic students. In assessing financial need, students and their families are expected to assume the primary financial responsibility for their education. Student Financial Assistance and Awards can help.

UBC's financial assistance programs are summarized below. Complete information is available on the Awards, Fees, and Finances website (www.students.ubc.ca/finance).

To qualify for most financial assistance, students are required to register in 60% of a full course load (www.students.ubc.ca/finance/loans.cfm?page=courseload) in an approved program.

7.1.1 Domestic Students

Domestic students are Canadian citizens or permanent residents. Except for Entrance Bursaries, the following programs are available to both undergraduate and graduate domestic students.

GOVERNMENT STUDENT LOANS

A student loan is government-funded repayable financial assistance. While students are registered in full-time studies, the loans are interest-free. Students can maintain interest-free status even when not receiving a loan, provided they meet the full-time studies requirement and complete forms available from Student Financial Assistance and Awards.

Students apply for student loans from their home province of residence. Visit www.students.ubc.ca/finance/loans.cfm for more information on applying.

Students need to apply for loans by June 30 to ensure eligibility for bursaries and work study.

GENERAL BURSARIES

Bursaries are non-repayable awards allocated on the basis of assessed financial need. To be eligible, applicants must be Canadian citizens or permanent residents of Canada and apply by the Bursary deadline. They

also must have enrolment confirmed on government student loans, for the current session, by the Bursary deadline.

Students starting studies in September should apply to the Winter Bursary program; the deadline is September 15. Students starting in May, should apply to the Summer Bursary program; the deadline is June 1. For more information on applying, see the General Bursary information (www.students.ubc.ca/finance/awards.cfm?page=bursaries) on the Student Financial Assistance and Awards website.

WORK STUDY

Work Study is a UBC employment program that helps fund on-campus jobs for students. Eligible students must be Canadian citizens or permanent residents, and in receipt of government student loans. Applications are available starting August 15 from the Student Financial Assistance and Awards website and are due September 15. Apply early as positions are available on a first-come first-serve basis.

ENTRANCE BURSARIES

Entrance Bursaries help students make the transition from secondary school to university. Students have to demonstrate financial need, but do not have to be receiving a student loan. The applicant's high school principal or counsellor must attest to the student's financial need.

Most eligible students are in their graduating year of secondary school. Students who have taken an extended break between high school graduation and their post-secondary education are also eligible, provided they have not taken any post-secondary studies prior to attending UBC.

Applications are due February 28. Students applying for Entrance Bursaries should also consider applying for General Bursaries (see above).

AFFILIATION BURSARIES

Affiliation Bursaries, like General Bursaries, fund students that have assessed financial need and who are in receipt of student loans. In addition, criteria for these bursaries include membership in an organization, affiliation with a union, specific firm or industry, or personal characteristics of the student such as cultural heritage. Criteria for each bursary are listed on the application form.

Applications are available from the Student Financial Assistance and Awards website and are due June 30.

ABORIGINAL STUDENTS

In addition to the University's general award programs, UBC has over 60 awards specifically for Aboriginal students and students pursuing Aboriginal-relevant coursework. Applications are available from the Student Financial Assistance and Awards website (www.students.ubc.ca/finance/awards.cfm?page=search) and are due June 30.

STUDENTS WITH DISABILITIES

In addition to the University's general award programs, UBC has 20 awards specifically for students with disabilities. Applications are due

October 15 and are available for download online (www.students.ubc.ca/access/drc.cfm) or in paper format from the Disability Resource Centre and the Crane Library, 1874 East Mall, UBC.

PART-TIME STUDENTS

Students registered in degree related courses equivalent to less than a full-time course load may be eligible for federal grants and loans. More information, for students from all provinces, is available online (www.aved.gov.bc.ca/student-services/student/sp/pt/).

EMERGENCY FUNDING

A student in an emergency situation or faced with an unexpected expense should contact Student Financial Assistance and Awards. Advising is available to review the student's current financial situation and explore funding options.

7.1.2 International Students

International students are neither Canadian citizens nor permanent residents of Canada, and are studying at UBC on a Canadian study permit. Citizenship and Immigration Canada requires international students to have sufficient funds for tuition and living costs. Generally, international students are not eligible for need-based financial assistance from UBC, but are eligible to be considered for most merit-based scholarships. First year and post-secondary transfer students entering UBC are eligible to apply for the International Leader of Tomorrow Award and all international students can apply for work placements via the Work Learn program.

INTERNATIONAL LEADER OF TOMORROW AWARD

Eligible students demonstrate financial need and an exceptional level of scholastic achievement, extracurricular achievement, and leadership.

Each secondary and post-secondary school is invited to nominate one student. School counsellors may request a nomination package from UBC's International Student Recruitment and Reception (international.reception@ubc.ca) office. Packages will not be sent directly to students.

Nomination packages are due February 28.

WORK LEARN PROGRAM

The Work Learn Program is an experiential work program for international students that offers experience in a UBC workplace, the opportunity to earn money, and a connection with the UBC community. No loans are required. Visit the Career Services website (www.careers.ubc.ca) for more information.

US LOANS

U.S. citizens and some non-citizens are eligible for loans from the United States. UBC participates in the Federal Stafford Loan program and the Federal PLUS Loan program. Stafford loans are held directly by the student, while PLUS loans are held by the parent to help fund the student's education.

Students should visit US Loan page (www.students.ubc.ca/finance/loans.cfm) for more information.

Contact Information

Student Financial Assistance and Awards
Enrolment Services
The University of British Columbia
Brock Hall, First Floor
1036-1874 East Mall
Vancouver BC V6T 1Z1
Tel: 604-822-5111
Fax: 604-822-6929
Web: www.students.ubc.ca/finance

7.2 SCHOLARSHIPS

Scholarships are awards given for academic excellence, and some also include other criteria such as leadership, community service, artistic endeavours, and athletics. The funding is provided by the University and by private donors, including the government, community organizations, and corporations. Unless otherwise specified, both domestic students (Canadian citizens and permanent residents) and international students (on a Canadian study permit) are eligible for all UBC awards.

Student Financial Assistance and Awards administers scholarships for undergraduate students. The Faculty of Graduate Studies administers scholarships and other merit-based support for graduate students.

7.2.1 Undergraduate Scholarships

Deborah Robinson, Associate Registrar & Director, Student Financial Assistance and Awards

Barbara Crocker, Associate Director, Student Financial Assistance and Awards

UBC's major scholarship programs are summarized below. Complete information is available on the web (www.students.ubc.ca/finance).

ENTRANCE SCHOLARSHIPS

Major Entrance Scholarships

There are over 80 Major Entrance Scholarships for students entering UBC from secondary school, some as high as \$40,000 over four years. Candidates are evaluated based on scholastic performance and the ability to lead, directly or by example, in artistic endeavours, community service, athletics, and the school.

Students must be nominated by their school to be eligible and can download application packages online (www.students.ubc.ca/welcome/finance.cfm?page=scholarships&view=entrance). Applications are open to Canadian citizens and permanent residents and are due February 28.

President's Entrance Scholarships

The President's Entrance Scholarships (PES) are up to \$4,000 and recognize academic excellence in students entering from secondary school or transferring from a college, university, or technical institute. There is no application; new students are automatically considered and notified as part of their offers of admission.

Please see the complete PES Information (www.welcome.ubc.ca/finance.cfm?page=scholarships&view=president).

Leadership Excellence Award

The Leadership Excellence Award recognizes students entering UBC from secondary school who are recipients of the Canadian Merit Scholarship Foundation (CMSF) Award and/or the Millennium Excellence Award at the national or provincial level. Visit the website (www.welcome.ubc.ca/finance.cfm?page=scholarships&view=leadership) for more information.

AP Achievement Scholarship

UBC recognizes students entering UBC from secondary school who have achieved the distinction of AP Scholar through their achievement in the Advanced Placement (AP) program. The AP Achievement Scholarships are available for students who do not already hold other UBC scholarships. Visit the website (www.welcome.ubc.ca/finance.cfm?page=scholarships&view=book) for more information.

Entrance Scholarships for Post Secondary Transfer Students

There are 18 Entrance Scholarships for undergraduate students entering UBC from a college or university. Candidates are evaluated primarily based on scholarly achievement, but are also considered for their personal qualities and activities.

Applications are due June 15 and are open to Canadian citizens and permanent residents. Students who already hold a degree and intend to transfer to UBC to complete a second degree are not eligible for this award.

TREK Excellence Scholarships – Post Secondary Transfer Students

The TREK Excellence Scholarship (TES) for students transferring from a college, university, or technical institute has been renamed and is now available as the President's Entrance Scholarship (see above).

International Leader of Tomorrow Award

This program provides funding to outstanding international students entering from either a secondary or post-secondary school. Please see *International Leader of Tomorrow Award*, p. 38, in the "Financial Assistance" section.

TREK EXCELLENCE SCHOLARSHIPS – CONTINUING UBC STUDENTS

The TREK Excellence Scholarships are \$1,500 awards for continuing students and are given to the top 5% of students in each year of each faculty and school. Each year the TREK Excellence Scholarship eligibility will be evaluated based on UBC grades from the previous year. This is not a renewable scholarship, and no application is required.

Please see the complete TES Information (www.welcome.ubc.ca/finance.cfm?page=scholarships&view=trek).

UNDERGRADUATE SCHOLARS PROGRAM
In September 2005, UBC began offering a new scholarship program for current students, the TREK Excellence Scholarship (TES), that

replaces the Undergraduate Scholars Program (USP). Funding for the USP program will not stop immediately. Instead, UBC will support a gradual transition to the TES by grandfathering out the USP until April 2007.

For details on eligibility for USP grandfathering, please see the complete USP information (www.students.ubc.ca/finance/awards.cfm?page=scholarships&view=usp).

AFFILIATION SCHOLARSHIPS

Criteria for these awards include membership in an organization, affiliation with a union, specific firm or industry, or personal characteristics of the student such as cultural heritage, in addition to scholastic achievement. Requirements for each award are listed on the application form.

Applications are available from the Student Financial Assistance and Awards website and are due June 30.

AWARDS RECOMMENDED BY FACULTIES

UBC has many awards available for students after first year. Most of these awards do not require an application. Instead, each faculty looks for students with strong academics and community leadership. Students are notified automatically if they receive an award.

Visit the Student Financial Assistance and Awards website for a complete list (www.students.ubc.ca/finance/awards.cfm?page=search) of awards that UBC provides.

PREMIER UNDERGRADUATE SCHOLARSHIPS

These scholarships are for students in the last two years of a baccalaureate program, the first year of Graduate Studies, or in the Medicine (M.D.) or Dentistry (D.M.D.) programs. Students must have strong academic standing. Other qualifications include: active interest and participation in sports; moral force of character; ability to work with and lead others; and participation in student and community activities.

Students must be nominated by their faculty, department, or a designated student organization. Applications are available in the summer months; contact Student Financial Assistance and Awards for more information.

ABORIGINAL STUDENTS

In addition to the University's general award programs, UBC has over 60 awards specifically for Aboriginal students and students pursuing Aboriginal-relevant coursework. Applications are available from the Student Financial Assistance and Awards website (www.students.ubc.ca/finance/awards.cfm?page=search) and are due June 30.

STUDENTS WITH DISABILITIES

In addition to the University's general award programs, UBC has 20 awards specifically for students with disabilities. Applications are due October 15 and are available for download online (www.students.ubc.ca/access/drc.cfm) or in paper format from the Disability Resource Centre and the Crane Library, 1874 East Mall, UBC.

PART-TIME AND SUMMER STUDENTS
There are limited numbers of scholarships available for part-time study and students studying during the Summer Session. Please contact Student Financial Assistance and Awards for more information.

EXTERNAL SCHOLARSHIPS

Many organizations offer their own scholarships that can be used towards a UBC education. Students apply directly to a corporation, parent's employer or community group. Students should conduct a broad search for these scholarships, including viewing three useful websites:

- www.millenniumsolarships.ca
- www.scholarshipscanada.com
- www.studentawards.com

CONTACT INFORMATION

Student Financial Assistance and Awards
Enrolment Services

The University of British Columbia
Brock Hall, First Floor
1036-1874 East Mall
Vancouver BC V6T 1Z1
Canada

Tel: 604-822-5111

Fax: 604-822-6929

Web: www.students.ubc.ca/finance

7.2.2 Graduate Scholarships

Lynn Alden, Associate Dean, Awards and Student Professional Development

The Faculty of Graduate Studies administers merit-based scholarships and awards for graduate students at the University of British Columbia. These scholarships recognize high academic achievement, research ability and potential, demonstrated leadership ability, and excellent communication skills.

UBC's graduate scholarship programs are summarized below. Complete information is available on the web (grad.ubc.ca/awards).

GRADUATE ENTRANCE SCHOLARSHIPS

Graduate Entrance Scholarships are offered by graduate programs and departments to the best and brightest incoming students for their first year of full-time graduate study or research at UBC. Inquiries about this scholarship should be addressed to the head of the graduate program or department concerned.

UNIVERSITY GRADUATE FELLOWSHIPS

The Faculty of Graduate Studies offers approximately 300 University Graduate Fellowships each year to meritorious students for full-time study and/or research leading to a graduate degree. Awards are made on the basis of academic excellence, and are open to currently registered, full-time UBC graduate students, regardless of citizenship or visa status. Students should contact their departments for more information on departmental review processes and deadlines.

PH.D. TUITION AWARD

Effective September 2003, all Ph.D. and D.M.A. students in the first four years of doctoral studies are eligible for a Ph.D. Tuition Fee Award, except in cases when Ph.D. tuition fees are directly billed to a third-party. The

Ph.D. Tuition Fee Award is equivalent to the tuition fee assessment.

INTERNATIONAL PARTIAL TUITION SCHOLARSHIP

NB: Award amounts are for the 2005/2006 academic year, and are subject to change for the 2006/2007 academic year. International graduate students are eligible for an International Partial Tuition Scholarship of up to \$3,488, which is applied to assist with their tuition fees if they are registered full-time in master's programs or in fifth or later years of doctoral programs that assess tuition fees of \$7,200 per year. Students in the following master's programs in the Faculty of Education are eligible for the following amounts: Master of Arts in Education, \$1,893, Master of Education, \$1,893, and Master of Human Kinetics, \$2,992. Students are eligible as long as they are not recipients of external scholarships or external funding that pays their tuition.

MORE SCHOLARSHIPS

Killam Predoctoral Fellowships

Killam Predoctoral Fellowships are the most prestigious awards available to graduate students at UBC. Approximately 30 awards are made each year to the top doctoral candidates in the University Graduate Fellowships competition. The stipend for 2005–2006 awards was \$25,000 per annum for two years and a \$1,500 travel allowance for research during the two-year term of the award. All eligible candidates nominated by their department in the University Graduate Fellowships competition are automatically considered for Killam Predoctoral Fellowships.

Department-Recommended Awards

A large number of graduate awards are made on the recommendation of a department or faculty. In many cases students are automatically recommended by their departments; in other cases departments may hold an internal competition to which students must apply. Students should contact their departments to discuss the process by which department-recommended awards are given out.

External Awards

A large number of organizations and levels of government provide scholarship funding for graduate students. In most cases, students apply directly to the external funding agency. In some cases, however, applications are made through the student's graduate department and then through the Faculty of Graduate Studies. Students should contact their departments for more information on departmental review processes and deadlines. The Faculty of Graduate Studies is also responsible for administering the payments on behalf of most external funding agencies. Therefore, graduate students who are awarded external scholarship funding should contact the Faculty of Graduate Studies to arrange payment of the award funding.

Travel Awards

Graduate students are eligible for the Graduate Student Travel Fund once per degree program. The Travel Fund provides one-time travel

support, to a maximum of \$400, to a student who presents a paper or poster at an official conference or symposium (student workshops are ineligible) while they are enrolled full-time in a graduate degree program.

CONTACT INFORMATION

Faculty of Graduate Studies, Awards
180-6371 Crescent Road
Vancouver, BC V6T 1Z2
Phone 604-822-2848
Fax 604-822-5802
Email: graduate.awards@ubc.ca
Web: grad.ubc.ca/awards

For further details on graduate scholarships please see the Faculty of Graduate Studies section *Awards and Scholarships*, p. 227.

IV Establishment and Constitution

INTRODUCTION

The creation of a university in British Columbia was first advocated in 1877. In 1890 an act of the provincial legislature established “The University of British Columbia” but the venture failed for lack of a quorum at the first meeting of the Senate. In 1908 the earlier act was repealed and a new act was established, incorporating the University. The University operated under this act and its amendments as the sole public university in the province until 1963 at which time a new *Universities Act* was passed by the legislature making provision for sister institutions.

The University opened its Vancouver campus in the autumn of 1915 in temporary quarters on part of the site of the General Hospital in Fairview. At the beginning of the 1925/26 Session, the University commenced work on its permanent Vancouver campus on Point Grey.

UBC Okanagan was established as a campus of the University on April 1, 2005 on the North Kelowna campus of the former Okanagan University College. The first UBC Okanagan students began their studies in September 2005.

UNIVERSITY ACT

The *Universities Act* was rewritten in 1974 and has since been further revised. The University currently operates under the authority of the British Columbia *University Act*, R.S.B.C. 1996, c. 468.

The full text of the *University Act* is available at: www.qp.gov.bc.ca/statreg/stat/U/96468_01.htm.

COAT-OF-ARMS

The following description of the University of British Columbia’s institutional Coat of Arms is from the Grant of Arms issued by the College of Arms on September 23, 1915:

“Argent three bars wavy Azure issuant from the base a demi-sun in splendour proper, on a chief of the second an open book proper edged, strapped and buckled Or inscribed with the words TUUM EST Sable.”

HONORARY DEGREES

The degrees of Doctor of Laws (Honoris Causa), Doctor of Science (Honoris Causa) and Doctor of Letters (Honoris Causa), LL.D., D.Sc., and D.Litt., respectively, are the honorary degrees conferred from time to time by the Senate of the University upon persons who have achieved distinction in scholarship or public service.

ACADEMIC DRESS

The undergraduate’s gown is black in colour and of the ordinary stuff material, of ankle length, and with long sleeves and the yoke edged with khaki cord. The master’s gown is the same, without cord. The Ph.D. regalia consists of a gown, Cambridge style, of maroon silk material with front facing panel and sleeves of UBC blue with gold piping; hood, Cambridge pattern, blue silk outside and gold lining; cap, decanal bonnet, of maroon silk with gold cord and tassel. The Ed.D. regalia consists of a gown similar in style to that of the Ph.D. but of black stuff; hood American style with lining of light blue and with chevron of University blue, white and gold; cap, decanal bonnet of black stuff with gold cord and tassel. The D.M.A. regalia is similar to that of Ed.D. with hood lined with alizarin crimson and a chevron of University blue and gold.

The master’s hood is the same as the bachelor’s, lined with the distinctive colour. The M.B.A. hood conforms similarly to that of the B.Com. The M.Sc. (Bus. Admin.) hood is similar to that of M.Sc. with grey trim and black and white cord. The M.Eng. hood is the same as that of the M.A.Sc. except that it is trimmed with a University blue cord. The hood for the honorary degree of LL.D. is of scarlet broadcloth lined with dark blue velvet, that for the D.Sc. is the same with dark purple lining; and for the D.Litt., the same with cream lining.

DEGREE COLOURS

Outfits

D.M.A. Gown black with front panel and sleeves of University blue with gold piping; **D.M.A. Hat** decanal bonnet of black with gold cord and tassel; **D.M.A. Hood** pink with chevron of University blue and gold; **Ed.D. Gown** black with front panel and sleeves of University blue with gold piping; **Ed.D. Hat** decanal bonnet of black with gold cord and tassel; **Ed.D. Hood** light blue with chevron of University blue, white, and gold; **Ph.D. Gown** maroon with front panel and sleeves of University blue with gold piping; **Ph.D. Hat** decanal bonnet of maroon silk with gold cord and tassel; **Ph.D. Hood** blue silk outside with gold lining; **Pharm.D. Gown** black with front panel and sleeves of olive green with gold piping; **Pharm.D. Hat** decanal bonnet of black with gold cord and tassel; **Pharm.D. Hood** University blue with chevron of University blue and gold.

Hoods

B.A. University blue; **B.A.Sc.** scarlet; **B.A.Sc./M.Eng.** see M.Eng; **B.Arch.** scarlet with white cord; **B.B.R.E.** light grey with black and grey cord; **B.C.S.** light blue; **B.Com.** light grey with black and grey cord; **B.D.Sc.** lilac and red cord on white; **B.Ed.** white with University blue cord; **B.En.D.** old gold; **B.F.A.** University blue with magenta cord; **B.H.E.** turquoise; **B.H.K.**

malachite green; **B.L.A.** maize with white cord; **B.M.L.Sc.** scarlet and royal blue twisted cord on white; **B.M.W.** maroon with emerald green cord; **B.Mus.** University blue with light pink cord; **B.S.F.** brown with green cord; **B.S.N.** scarlet with blue and white cord; **B.S.W.** magenta; **B.Sc.** light blue; **B.Sc. (Agri)** maize; **B.Sc. (Agroecology)** maize with gold and green cord; **B.Sc. (Food, Nutrition, and Health)** maize with gold and white cord; **B.Sc. (Forestry)** brown with light blue cord; **B.Sc. (Global Resource Systems)** maize with gold and blue twisted cord; **B.Sc. (Natural Resource Management)** brown with red cord; **B.Sc. (O.T.-P.T.)** scarlet and white cord on royal blue; **B.Sc. (Pharm.)** dark green with scarlet cord; **B.Sc. (Wood Processing)** brown with red cord; **D.M.D.** lilac and red; **LL.B.** amethyst violet; **LL.M.** fully lined amethyst violet; **M.A.** fully lined University blue; **M.A. (Asia Pacific Policy Studies)** see M.A.; **M.A. (Children’s Literature)** fully lined University blue with yellow cord; **M.A. (Planning)** fully lined University blue with green and grey cord; **M.A. (WS)** see M.A.; **M.A.S.** fully lined University blue with silver and yellow cord; **M.A.S./M.L.I.S.** fully lined yellow with blue and silver twisted cord; **M.A.S.A.** fully lined scarlet with white and grey cord; **M.A.S.L.A.** fully lined maize with scarlet cord; **M.A.Sc.** fully lined scarlet; **M.Arch.** fully lined scarlet with white cord; **M.B.A.** fully lined grey with black and grey cord; **M.B.A./LL.B.** see M.B.A. or LL.B.; **M.D.** scarlet and royal blue; **M.E.T.** see M.Ed; **M.Ed.** fully lined white with University blue cord; **M.Eng.** fully lined scarlet with dark blue cord; **M.F.** see M.S.F.; **M.F.A.** fully lined University blue with magenta cord; **M.H.A.** scarlet with blue cord; **M.H.K.** fully lined malachite green; **M.H.Sc.** scarlet with grey cord; **M.J.** see M.A.; **M.Jur.** see LL.M.; **M.L.A.** fully lined maize with scarlet cord; **M.L.I.S.** fully lined cadmium yellow; **M.M.** see M.B.A.; **M.Mus.** fully lined University blue with light pink cord; **M.O.T.** See M.Sc. (Rehab); **M.P.T.** See M.Sc. (Rehab); **M.R.Sc.** See M.Sc. (Rehab); **M.S.F.** fully lined brown with green cord; **M.S.N.** fully lined scarlet with blue and white cord; **M.S.S.** see M.Sc; **M.S.W.** fully lined magenta; **M.Sc.** fully lined light blue; **M.Sc. (Agri)** fully lined maize; **M.Sc. (Bus.Admin.)** fully lined grey with black and grey cord on light blue; **M.Sc. (Pharm)** fully lined dark green with scarlet cord; **M.Sc. (Planning)** fully lined University blue with dark green and white cord; **M.Sc. (Rehab)** fully lined royal blue with scarlet and white cord.

UBC VISION AND INITIATIVES

UBC’S VISION FOR THE 21ST CENTURY

The University of British Columbia will provide its students, faculty, and staff with the best possible resources and conditions for learning and research, and create a working environment dedicated to excellence, equity, and mutual respect. It will cooperate with government, business, and industry, as well as with other educational institutions and the general community, to create new knowledge, prepare its students for fulfilling careers, and improve the quality of life through leading-edge research.

The graduates of UBC will have developed strong analytical, problem-solving, and critical thinking abilities; they will have excellent research and communication skills; they will be knowledgeable, flexible, and innovative. They will recognize the importance of understanding societies other than their own. As responsible citizens, the graduates of UBC will value diversity, work with and for their communities, and be agents for positive change. They will acknowledge their obligations as global citizens and strive to secure a sustainable and equitable future for all.

TREK 2010

“Trek 2010: A Global Journey” is a strategic planning document that spells out the University’s goals and the steps by which it hopes to achieve them, in five general areas: People, Learning, Research, Community, and Internationalization. The document is the successor to “Trek 2000”, an earlier plan that has determined many of the University’s academic and research priorities, influenced its involvement in the community, and resulted in various campus-wide initiatives over the past five or six years.

The vision statement of “Trek 2010” is that “The University of British Columbia, aspiring to be one of the world’s best universities, will prepare students to become exceptional global citizens, promote the values of a civil and sustainable society, and conduct outstanding research to serve the people of British Columbia, Canada, and the world.” For further information on “Trek 2010”, please visit the Trek (www.vision.ubc.ca) (UBC’s Vision) website.

E-STRATEGY

UBC’s e-Strategy (www.e-strategy.ubc.ca) is a guiding framework to align UBC’s technology initiatives with the University’s strategic goals. The goal of e-Strategy is to enable students, faculty, and staff to excel in one of the world’s leading universities by enhancing learning, research, and community through leading-edge technology initiatives. Campus Wide Login (CWL) simplifies login to the myUBC portal, the Student Service Centre, WebCT, and other University services. The myUBC portal offers convenient, personalized access to web mail, library account information, and other information and services. UBC’s wireless network allows notebook computer users to connect to the Internet from almost anywhere on any UBC campus. And thousands of UBC students use online course materials and tools to enhance their learning experience.

CHANCELLOR

A. McEachern, B.A., LL.B., LL.D.(Hon.)

PRESIDENT AND VICE-CHANCELLOR

M. C. Piper, O.C., B.Sc. (Mich.), M.A. (Conn.), Ph.D. (McG.).

BOARD OF GOVERNORS

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The President

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APPOINTED BY THE LIEUTENANT-GOVERNOR IN COUNCIL

W. J. B. Bennett, N. Byres, LL.B., P. Choquette, B.A., B.Sc., M.Sc., J. Eccott, B.Com., A. Garg, Ph.D., M.D., F.R.C.P.C., J. Hoffman-Zehner, B.Com., B. Lapointe, R. Louie, LL.B., J. Reid, F.C.A., B. Rositch, B.A., B.Arch., D. Whitehead, B.A.Sc., M.B.A.

ELECTED BY STUDENTS

H. Cook, T. Louman-Gardiner, B.A., Q. T. Omori

ELECTED BY NON-FACULTY EMPLOYEES

Bonnie Bates Gibbs, B.A., M.B.A., Belle Dale-Wills

VANCOUVER SENATE

EX-OFFICIO

The Chancellor
The President, Chair
The Academic Vice-President
The Deans of Faculties
The Librarian
The Director of Continuing Studies
The Principal, College of Health Disciplines
The Registrar, Secretary

ELECTED BY THE FACULTIES

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N. Bantia, M.Tech, Ph.D., W. Dunford, B.Sc., M.Sc., Ph.D.

Arts

B. Arnell, B.A., M.Sc., Ph.D., C. Friedrichs, A.B., B.L.S., M.L.I.S.

Commerce and Business Administration

J. A. Brander, B.A., M.A., Ph.D., D. Granot, B.Sc., M.Sc., Ph.D.

Dentistry

R. L. Harrison, D.M.D., M.Sc., M.R.C.D. (C), M. I. MacEntee, L.D.S. (R.C.S.L), Dipl. Prosth., Ph.D., F.R.C.D. (C)

Education

L. Gunderson, M.A., Ph.D., R. Irwin, B.Ed., D.P.Ed., M.Ed., Ed.D.

Forestry

S. Grayston, B.Sc., Ph.D., P. L. Marshall, B.Sc.F., M.Sc.F., Ph.D., R.P.F.

Graduate Studies

P. B. Potter, B.A., M.A., J.D., Ph.D., D. G. Steyn, B.Sc., M.Sc., Ph.D.

Land and Food Systems

M. K. Upadhyaya, B.Sc., M.Sc., M.A., Ph.D., D. M. Weary, B.Sc., M.Sc., Ph.D.

Law

C. Boyle, LL.B., LL.M., J. Sarra, B.A., LL.B., LL.M. S.J.D.

Medicine

E. Dean, B.A., Dip. (P.T.), M.S., Ph.D., D. McLean, B.Sc., M.D.

Pharmaceutical Sciences

H. Burt, B. Pharm., Ph.D., D. W. Fielding, B.Sc., M.Sc., Ed.D.

Science

J. D. Berger, A.B., A.M., Ph.D., J. Young, B.A.Sc., M.Sc., Ph.D.

ELECTED BY A JOINT MEETING OF THE FACULTIES

P. Adebar, B.E., M.A.Sc., Ph.D., G. Bluman, B.Sc., Ph.D., I.M. Franks, B.Ed., M.Sc., Ph.D., P. G. Harrison, B.Sc., Ph.D., R. Helsley, B.S., M.A., Ph.D., J. L. Johnson, B.S.N., M.N., Ph.D., R.N., W. McKee, B.A., M.A., Ph.D., D. G. Paterson, M.A., D.Phil., S. E. Thorne, B.S.N., M.S.N., Ph.D., R.N., R. Windsor-Liscombe, B.A., Ph.D., F.S.A., (Terms expire 2008)

ELECTED BY THE PROFESSIONAL LIBRARIANS

M. E. Friesen, B.A., B.L.S., M.L.I.S. (UBC)
(Term expires 2008)

REPRESENTATIVES OF THE STUDENT BODY

B. Ahmadian, Applied Science, L. McLean, Arts, M. Tung, Commerce and Business Administration, D. Younan, Dentistry, J. Mergens, Education, E. Gibson, Forestry, P. Orchard, Graduate Studies, T. Gillespie, Land and Food Systems, E. Segal, Law, T. Gerschman, Medicine, J. Jawanda, Pharmaceutical Sciences, C. Funnell, Science, (Terms expire 2006)

ELECTED BY THE STUDENTS AT-LARGE

B. Aujla (Arts), E. Cheung (Science), J. Collins (Arts), G. Eom (Science), I. Noohi (Arts), (Terms expire 2006)

ELECTED BY CONVOCATION

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J. D. Dennison, M.P.E., Ed.D., St. Mark’s College, K. MacQueen, Vancouver School of Theology, B. Stelck, B.Ed., M.Ed., M.Div., Ph.D., Carey Theological College, R. J. K. Wilson, B.Sc., M.A., Ph.D., M.T.S., Regent College

OKANAGAN SENATE

For more information, including meeting schedules and a membership list, please visit the Okanagan Senate website (okanagan.students.ubc.ca/senate/).

COUNCIL OF SENATES

Consult the electronic version of this Calendar in May 2006 for updated Council of Senates membership information.

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Director of Internal Audit

M. Hartwick, B.Com. (Br.Col.), C.A., C.I.A.

Deans of Faculties, Vancouver

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Principal, College of Health Disciplines

J. H. V. Gilbert, M.S., Ph.D. (Purdue), L.C.S.T., Dip. Phon.

Planning and Institutional Research

W. Sudmant, B.Sc., M.A. (S.Fraser), Director.

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Vice-President, Academic and Provost

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Deans of Faculties

See *President's Office*, p. 43.

Principal, College of Health Disciplines

See *President's Office*, p. 43.

Centre for Teaching and Academic Growth

G. Poole, B.A. (Br.Col.), M.A. (San Diego State), Ph.D. (S.Fraser), Director.

Continuing Studies

J. Hutton, B.A., M.L.S., Associate Vice-President; M. Holmes, B.Com., M.B.A., Director; W. Koty, B.A., M.A., Director, Applied Degrees.

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Applied Technology Division

P. Moroney, B.A., M.A., Division Director.

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COMMUNICATION
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COMMUNITY PROGRAMS

D. Black, B.A., M.A., Program Director.

ENGLISH LANGUAGE INSTITUTE

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LANGUAGES, CULTURES AND TRAVEL DIVISION

J. Plessis, B.A., M.A., Ph.D., Division Director; L. Sun, B.A., M.A., Program Director.

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B. Hawkes, B.A., M.A., Director.

Equity Office Advisors

L. Charvat, B.A. (Ohio), J.D. (Washington, D.C.), LL.M. (Br.Col.); M. Da Cruz, B.A., B.ED., M.A. (San Diego State); A. Long, B.A. (Qu.), M.A. (Dal.); M. Sarkissian, B.A., M.A. (Br.Col.).

First Nations House of Learning

R. Vedan, B.A. (W.Ont.), M.S.W. (Br.Col.), Ph.D. (S.Fraser), Director.

Information Technology

T. Dodds, B.A. (Guelph), M.B.A. (Windsor), Associate Vice-President; J. Haeusser, B.Sc. (Hons.) (Br.Col.), Manager-IT Security Office; S. Mair, B.A. (Hons) (Connecticut), P.M.P., I.S.P., Director – Partnering Services.

IT SERVICES

J. Burns, B.Comm. (R.R.U.), Director – Support; C. Fairlie, B.Sc., M.B.A. (U.W.O.), Director – Applications; S. Hille, Executive Director; S. Owen, B.Sc. (Tor.), Director – Infrastructure.

Library

UNIVERSITY LIBRARIAN AND DIRECTOR,
IRVING K. BARBER LEARNING CENTRE
C. Quinlan, B. Mus. (Qu.), M.L.S. (Dal.), M.B.A. (Memorial U.), University Librarian and Director.

DEPUTY UNIVERSITY LIBRARIAN

W.P. Ward, B.A, M.A (Alta.), Ph.D. (Qu.), Interim Deputy University Librarian.

ASSISTANT UNIVERSITY LIBRARIANS

T. Atkinson, B.Ed., M.L.S. (Br.Col.), Assistant University Librarian, Arts, Humanities and Social Sciences; J. Kreider, B.A. (Goshen College), M.A.T., M.L.S. (Indiana), Assistant University Librarian, Collections; L. Starr, B.Sc. (Alta.), M.L.S. (Tor.), Assistant University Librarian, Sciences.

Office of Learning Technology

M. Lamberson, B.A. (Boston U.), M.S. (Penn. State), Ph.D. (Br.Col.), Director.

Planning and Institutional Research

UBC International

K. J. McGillivray, B.A.(Car.), M.A. (Qu.), Ph.D. (Lond.), Director.

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Vice-President, Academic and Research (Okanagan)

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A. Parr, Director.

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G. Atkins, B.Econ. (New Engl., Aust.), ARMIT (Mech. Eng., Aust.), M.I.E., C.P. Eng. (Aust.), RPA, FMA (Canada), Associate Vice President, Land and Building Services.

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B. Braley, B.A. (Vic.B.C.), M.B.A. (Br.Col.), C.R.M. (S.Fraser), Associate Vice President, Treasury.

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Chan Centre for the Performing Arts

S. Katz, Managing Director.

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S. Katz, Executive Director.

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Learning Exchange

M. Fryer, Director.

Legal Affairs

H. Lai, University Counsel.

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S. Macrae, Director.

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Networks of Centres of Excellence Administration Office

B. J. Sauder, B.S.F. (Br.Col.), M.F. (Br.Col.), Director.

Peter Wall Institute for Advance Studies

O. Slaymaker (Dr.), Acting Director, B.A. (Hon.) Geography (Camb.), A.M. Geology (Harv.), M.A., Ph.D. Geography (Camb.).

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UBC Press

P. Milroy, Director.

University – Industry Liaison Office

A. Livingstone, B.Sc. (Br.Col.), Managing Director.

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Vice-President, Students

B. D. Sullivan, A.B. (Harv.), M.P.H. (Yale).

Executive Coordinator

TBA

International Student Initiative

D. Wehrung, A.B. (Dartmouth), M.Sc., Ph.D. (Stan.), Director.

Internationalization & Alumni Relations

W. Cheung, B.A. (C.U.H.K.), M.A. (Cant., N.Z.), Senior Advisor.

Athletics and Recreation

R. Philip, B.A. (Sir George Williams), B.Ed (McG.), M.A. (Concordia), Director.

Enrolment Services and Registrar

B. J. Silzer, B.Sc., M.A., M.Ed. (Alta.), Associate Vice President, Enrolment Services and Registrar.

Housing and Conferences

F. P. Fotis, B.A., M.S.Ed. (Indiana), Director.

UBC Alumni Association

M. Earl, A.B., M.L.A. (Stan.), Associate Vice President, Alumni/Exec. Dir. AA.

FACULTY MEMBERSHIP

The Senate defines membership of a faculty, other than the Faculty of Graduate Studies, as follows:

- 1) The Dean of the faculty;
- 2) The President;
- 3) The Dean of the Faculty of Graduate Studies;
- 4) The University Librarian;
- 5) All full-time: lecturers, instructors, assistant professors, associate professors and professors provided for in the budget of the faculty;
- 6) Such other members of the teaching or administrative staffs of the faculty or University as the faculty shall appoint in conformity with rules determined by the faculty and approved by the Senate; and
- 7) Student representatives.

FACULTY OF GRADUATE STUDIES

Individuals eligible for full membership in the Faculty must be faculty members holding the title of professor, associate professor or assistant professor or professors emeriti in an academic unit authorized to offer graduate degree programs. Ex-officio members include the President, the Dean and the Associate Deans of the Faculty of Graduate Studies and the University Librarian.

GRADUATE COUNCIL

The legislative and administrative authority of the faculty regarding graduate programs of study is vested in the Graduate Council. In all matters concerning admission, scholarships, programs and examinations, the Dean and Associate Deans act, with the Registrar, as administrative officers for the Graduate Council.

The elected membership of the Graduate Council includes up to seventy-five faculty elected by and from members of the Faculty of Graduate Studies and two faculty members of Senate elected by the Faculty of Graduate Studies. There are also up to 14 members elected by and from students registered in the Faculty of Graduate Studies and one student member of Senate elected by the students of the Faculty of Graduate Studies.

Ex-officio members include the Dean (Chair) and the Associate Deans of the Faculty, the Registrar (Secretary), and the Vice-President, Research.

V Academic Regulations

DEFINITIONS

In this chapter, and throughout this Calendar, unless the context requires otherwise:

“**days**” when referring to a number of days means working days and will not be construed as including Saturdays and Sundays or any other days on which the University is closed, unless required otherwise by the context;

“**Committee of the Senate**” or reference to a committee of the Senate means the committee designated for the purpose by the University Senate;

“**Dean of the Faculty**” refers, where necessary, to any other appropriate officer of the University;

“**Faculty**” includes, where necessary, any other appropriate administrative unit of the University;

“**Senate**” or “**University Senate**” means the Vancouver Senate of The University of British Columbia or the council of senates of The University of British Columbia, as required in the context.

“**University Act**” means the *British Columbia University Act*, R.S.B.C. 1996, c. 468, unless otherwise stated.

ACADEMIC FREEDOM

The members of the University enjoy certain rights and privileges essential to the fulfilment of its primary functions: instruction and the pursuit of knowledge. Central among these rights is the freedom, within the law, to pursue what seems to them as fruitful avenues of inquiry, to teach and to learn unhindered by external or non-academic constraints, and to engage in full and unrestricted consideration of any opinion. This freedom extends not only to the regular members of the University but to all who are invited to participate in its forum. Suppression of this freedom, whether by institutions of the state, the officers of the University, or the actions of private individuals, would prevent the University from carrying out its primary functions. All members of the University must recognize this fundamental principle and must share responsibility for supporting, safeguarding and preserving this central freedom. Behaviour that obstructs free and full discussion, not only of ideas that are safe and accepted, but of those which may be unpopular or even abhorrent, vitally threatens the integrity of the University’s forum. Such behaviour cannot be tolerated.

FREEDOM FROM HARASSMENT AND DISCRIMINATION

The University of British Columbia is committed to ensuring that all members of the University community—students, faculty, staff, and visitors—are able to study and work in an environment of tolerance and mutual respect that is free from harassment and discrimination.

ACADEMIC ACCOMMODATION FOR STUDENTS WITH DISABILITIES

The University of British Columbia recognizes its moral and legal duty to provide academic accommodation. The University must remove barriers and provide opportunities to students with a disability, enabling them to access university services, programs, and facilities and to be welcomed as participating members of the University community. The University’s goal is to ensure fair and consistent treatment of all students, including students with a disability, in accordance with their distinct needs and in a manner consistent with academic principles.

The University will provide academic accommodation to students with disabilities in accordance with the British Columbia *Human Rights Code*, R.S.B.C. 1996, c. 210 and the *Canadian Charter of Rights and Freedoms*, Part I of the *Constitution Act, 1982*, being Schedule B to the *Canada Act 1982* (U.K.), 1982, c. 11. Provision of academic accommodation shall not lower the academic standards of the University. Academic accommodation shall not remove the need for evaluation and the need to meet essential learning outcomes. (Approved by the Board of Governors, May 1999.)

TEACHING EVALUATION

The University recognizes the importance of high quality teaching for the academic preparation of its students and accordingly requires that instructors be annually evaluated by procedures which include provision for assessment by students.

ATTENDANCE

Regular attendance is expected of students in all their classes (including lectures, laboratories, tutorials, seminars, etc.). Students who neglect their academic work and assignments may be excluded from final examinations. Students who are unavoidably absent because of illness or disability should report to their instructors on return to classes.

Students may not, concurrently with their University attendance, take studies for university degree credit through any other institution by correspondence, evening or regular session class without the approval of the dean of the faculty in which they are studying at the University.

The University reserves the right to limit attendance, and to limit the registration in, or to cancel or revise, any of the courses listed.

Information concerning limitations on attendance for the various faculties and schools is found in the faculty and school entries.

SPACE IN COURSES

Enrolment is limited in all courses and admission does not guarantee that space will be available in any course or section. However, no student in a graduating year may be excluded from a course necessary to meet degree program requirements because of lack of space (this rule does not apply to elective courses or preferred sections of courses). Any student in a graduating year who is confronted with such a situation should consult the dean, director, department head or faculty advisor.

CANCELLATION OF CLASSES

The University accepts no responsibility for the cancellation or discontinuance of any class or course of instruction which may be made necessary or desirable as a result of an act of God, fire, riot, lock-out, stoppage of work or slow-down, labour disturbances, lack of funds, the operation of law, or other causes of the kind.

PROGRAM REQUIREMENTS

Degree or program requirements are established and modified with the knowledge and approval of Senate and are recorded in the faculty and school entries. Unless a student takes an extraordinary number of years to complete prescribed studies, the student is usually given the option of meeting requirements in effect when first enrolled or of meeting revised requirements subsequently approved by Senate.

Interpretation of the requirements will be provided in normal cases by the dean of the faculty concerned and where differences occur by the Registrar.

Some faculties indicate degree standing on graduation based on the average for the degree as follows: Class I, 80% or over; Class II, 65% to 79%; Pass, 50% to 64%.

Degree standings in faculties that grant initial degrees are designated as Class I, Class II and Pass when the degree is granted based on the average percentage grade of all upper-level (300 or higher) courses used to satisfy the degree requirements (excluding courses graded as Pass/Fail). When a student has passed courses that are surplus to degree requirements the courses with the highest grades among those that satisfy these requirements will be used in calculating the degree standing. The average percentage grade calculated to determine degree standing will appear on the transcript as the degree average.

REQUIREMENTS TO RECEIVE A DEGREE OR DIPLOMA

The requirements for degrees and diplomas are described in the faculty and school entries. Except where the requirements of a particular degree or diploma program specifically state otherwise, a student must:

- 1) satisfy all the program requirements by completing studies either at UBC or elsewhere;
- 2) satisfy at least 50% of the credits required for the program while registered in the program¹; and
- 3) in undergraduate programs, complete upper-division UBC credits to satisfy at least 50% of the credits required by point (2) above.

To complete a second or subsequent undergraduate degree or diploma program, a student must, in addition to the three requirements above, also complete at least as many upper-division (i.e., 300- or 400-level) credits as are normally required for that program while registered in it. A student may enrol in a degree program more than once provided that the program does not overlap significantly with studies for a prior degree.

¹ Courses taken while studying at another institution on a Senate-approved exchange program satisfy this requirement.

ACADEMIC ASSESSMENT

Formal examinations are held in most courses in December and April. These are scheduled during official examination periods at term end. Other tests are held at the discretion of the instructors and faculties concerned. All prescribed examinations are mandatory. Students who miss an examination or are unable to complete other tests or graded work, because of medical, emotional or other personal reasons should follow the procedures for requesting Academic Concession (see *Academic Concession*, p. 50, in this chapter).

REVIEW FOR AUTHENTICITY

All work submitted by students (including, without limitation, essays, dissertations, theses, examinations, tests, reports, presentations, problem sets, and tutorial assignments) may be reviewed by the University for authenticity and originality. Without limiting the generality of the foregoing, such review may include the use

of software tools and third party services including Internet-based services such as TurnItIn.com. By submitting work, students consent to their work undergoing such review and being retained in a database for comparison with other work submitted by students. The results of such review may be used in any University investigation or disciplinary proceedings. (See *Student Discipline*, p. 52, in this chapter).

SENATE POLICY ON EXAMINATIONS

The following regulations were approved by the Senate in October 1976 and amended in December 1990 and apply generally across campus except to the Faculty of Graduate Studies and to post-graduate professional faculties.

- 1) Faculties are urged to make full use of the formal examination periods, both in December and in April, and that, unless the relevant dean and head, for sound academic reason, grant exemption, all courses designed for first- and second-year students be examined in December as well as April.
- 2) The holding of any examination, formal or informal, during the two weeks preceding the formally scheduled examinations of December and April is forbidden. (This recommendation does not apply to regular weekly or bi-weekly tests or to traditional and current practices in laboratories.)
- 3) Scrupulous adherence by invigilators (members of faculty and other invigilators) to the regulations governing the invigilation of examinations is mandatory.
- 4) Smoking shall not be permitted during the examinations nor during lectures. (This applies equally to members of faculty and to students.)
- 5) Faculties are urged to curtail the use of the "take-home" examination, both in the extent of its administration and in the weight assigned to it in the calculation of marks.

RULES GOVERNING FORMAL EXAMINATIONS

The following are the rules governing formal examinations:

- 1) Each candidate must be prepared to produce, upon request, a Library/AMS card for identification;
- 2) Candidates are not permitted to ask questions of the invigilators, except in cases of supposed errors or ambiguities in examination questions;
- 3) No candidate shall be permitted to enter the examination room after the expiration of one-half hour from the scheduled starting time, or to leave during the first half hour of the examination;
- 4) Candidates suspected of any of the following, or similar, dishonest practices shall be immediately dismissed from the examination and shall be liable to disciplinary action;

- Having at the place of writing any books, papers or memoranda, calculators, computers, sound or image players/recorders/transmitters (including telephones), or other memory aid devices, other than those authorized by the examiners;
 - Speaking or communicating with other candidates;
 - Purposely exposing written papers to the view of other candidates or imaging devices. The plea of accident or forgetfulness shall not be received;
- 5) Candidates must not destroy or mutilate any examination material; must hand in all examination papers; and must not take any examination material from the examination room without permission of the invigilator; and
 - 6) Candidates must follow any additional examination rules or directions communicated by the instructor or invigilator.

EXAMINATION HARDSHIPS

An examination hardship is defined as three or more examinations scheduled within a 24-hour period. A student facing an examination hardship shall be given an examination date for the second examination causing hardship by the respective instructor or department. The student must notify the instructor of the second examination no later than one month prior to the examination date.

EXAMINATION RESULTS

Instructors may, subject to the policy in their department, school or faculty, post student grades, using lists showing student numbers in numeric order. Student names must not be shown. If instructors intend to post grades it is their responsibility to ensure that all students are advised of this before any grades are posted. Students may request that their grades not be posted. Departments, schools or faculties may ask professors not to post grades until they have been reviewed. All grades must be clearly labeled 'Unofficial'.

Official grades are available at the Student Service Centre (www.students.ubc.ca/ssc). Any student who must meet an application date for another institution before their official grades are received should contact the transcript clerk in *Enrolment Services*, p. 60, to make arrangements to meet the deadline.

VIEWING MARKED EXAMINATIONS

A final examination becomes the property of the University and must remain in the possession of the University until destroyed or otherwise disposed of. A student may make written application (by January 31 for the Winter Session Term 1, by June 30 for Winter Session, Term 2, and by September 15 for the Summer Session) to the department head, director or dean, who will make every effort to arrange for the student to view her or his marked final examination paper(s) with the course instructor or designate. The purpose of

this exercise is purely pedagogic and distinct from the *Review of Assigned Standing*, p. 50.

DEFERRED AND SUPPLEMENTAL EXAMINATIONS

A deferred examination is an examination written at a later date, while a supplemental examination is an examination in addition to the usual examination(s) given for a course.

If a deferred examination is not written by the end of the next regular deferred examination period for that session, the deferred standing will be removed.

It is the student's responsibility to seek an extension by contacting his/her faculty. If a student, because of exceptional circumstances, is permitted by their faculty to postpone a deferred beyond the first regular deferred examination period, the student will be responsible for the content of the course as currently offered. If the course is discontinued, the deferred privilege may be cancelled.

Students granted Deferred standing by the dean of the faculty in which the student is enrolled may be given the opportunity to complete outstanding course work by writing the next regularly scheduled examination in the course or make-up examination if the department offering the course agrees. Students should see the sections of the Calendar in which the regulations for the faculty offering the course are detailed (e.g. all students with deferred standing in a Science course should consult the Faculty of Science sections of the Calendar).

For Winter Session courses, Deferred and Supplemental examinations for students who have not completed outstanding course work will be held in late July or early August or on another date to be determined by the department. Applications may be made to *Enrolment Services*, p. 60 up to the date specified in the University's Academic Year (www.students.ubc.ca/calendar/academicyear.cfm) and must be accompanied by the required fee. Examinations may be written at the University or arrangements may be made to write off campus with the approval of Enrolment Services.

For Summer Session courses, Supplemental and Deferred examinations that cannot be written as regularly scheduled December examinations will be held at the University on one date in mid-November or on another date to be determined by the department. Applications must be made to Enrolment Services by the date specified in the University's Academic Year (www.students.ubc.ca/calendar/academicyear.cfm) and must be accompanied by the required fee.

In special cases a student may be permitted to write examinations at a university outside British Columbia or at a special centre other than a university if satisfactory arrangements can be made within Canada. Since permission is contingent on completion of arrangements, only early applications to write in special centres will be considered.

In the event that a candidate is unable to write an examination, a refund of the required fee will be considered if the candidate submits an adequate explanation to the Examination Coordinator in Enrolment Services at least two weeks prior to the scheduled examination period.

SUPPLEMENTAL EXAMINATION POLICY

Supplemental examination regulations vary among faculties and are described in the appropriate section in the faculty and school entries. Students are governed by the regulations of the faculty or school in which they are registered.

Supplemental examinations are not available in all faculties or in all courses. In courses in which proficiency is judged on a continuing basis throughout a term, or in which final examinations are not given, or in Pharmaceutical Sciences courses where the final examination contributes less than 40% of the course grade, no supplemental examinations are provided.

Supplemental examinations are not granted to students registered in a graduate program. However, a course in which a grade of less than 65% was obtained may be repeated for a higher standing if recommended by the department and approved by the Dean of Graduate Studies. In a course that is repeated, both marks will appear on the transcript. The higher mark will be used to determine promotion in a program and in any decision to admit a student or withdraw a student from a program. Averages calculated for other purposes will include both marks.

Where a supplemental examination is provided, a student may write it in an attempt to obtain higher standing in the course concerned. The result of the supplemental examination will be shown on the student's record as an additional entry. In some situations a higher mark may enhance a student's chance of meeting some specific program requirement.

In the Summer Session, a student who satisfactorily completes a 6-credit course will be granted a supplemental examination in a second subject if the final mark is not less than 40% in the second subject.

In all but the final year, a candidate who has been granted a supplemental may write it once only. If the candidate fails, the course must be repeated or a permissible substitute taken. Normally, in the final year, a second supplemental examination may be written.

If a supplemental examination is not written by the end of the next regular supplemental examination period for that session, the supplemental standing will be removed.

It is the student's responsibility to seek an extension by contacting his/her faculty. If a student, because of exceptional circumstances, is permitted by their faculty to postpone a supplemental beyond the first regular supplemental examination period, the student will be responsible for the content of the course as currently offered. If the course is discontinued, the supplemental privilege may be cancelled.

GRADING PRACTICES

In most faculties, individual courses are normally graded as follows:

Percentage (%)	Letter Grade
90–100	A+
85–89	A
80–84	A-
76–79	B+
72–75	B
68–71	B-
64–67	C+
60–63	C
55–59	C-
50–54	D
0–49	F (fail)

Instructors are responsible for providing written guidelines to all students at the start of each course, outlining how the final grade for the course will be arrived at, and including any related policies such as arrangements that may be made for students who are unable to complete a test or other graded work because of short term illness or for other reasons. Guidelines made available on the Web meet this requirement (students who are unable to access the Web should ask their instructor to provide these guidelines in an alternate format).

The Faculties of Dentistry and Graduate Studies and the Schools of Library and Archival Studies, Nursing, and Rehabilitation Sciences, define Fail ('F') as below 60%.

If a student in a baccalaureate program who receives a 'T' standing in a graduating essay or other course approved by the faculty completes the course within 12 months of the end of the term in which the student first registered for the course the 'T' standing will be replaced by the grade assigned. If the course is not completed within 12 months the 'T' standing will be replaced by a grade of zero (or 'F' standing in a Pass/Fail course).

In the Faculty of Medicine, individual courses in the Doctor of Medicine undergraduate program are graded on an Honours (H), Pass (P), Fail (F) system. The Faculty defines Fail as below 60% and a Pass as 60% or greater, but below Honours. An Honours grade is assigned by individual course directors and approved by the promotions committee.

Faculties, departments and schools reserve the right to scale grades in order to maintain equity among sections and conformity to university, faculty, department or school norms. Students should therefore note that an unofficial grade given by an instructor might be changed by the faculty, department or school. Grades are not official until they appear on a student's academic record.

A few programs of study make provision for an 'Honours Standing'. This is explained in the appropriate faculty and school entries. However, in most faculties where 'Honours' is used it is applied to a study program where expectations in terms of achievement and level of study are higher than in other programs.

STANDINGS

Aegrotat (AEG) allows a student credit for a course even though the course requirements have not been completed due to medical, emotional, or other difficulties. This standing is awarded only if the course instructor and the dean agree that the student has demonstrated the capacity to deal with the course material satisfactorily. When AEG standing is awarded, a letter grade is assigned. This will be converted to the minimum percentage for that category for the calculation of averages.

Audit (AUD) is granted to students who have been officially approved as having audit status. These students are expected to complete all course requirements except the final exam, and may be given Fail (F) standing if their performance is not satisfactory. See *Classification of Students*, p. 13, in the “Admissions” chapter in this Calendar.

Exempt (EX) is granted to students who have registered for a required course from which she or he is exempt.

Adjudicated Pass (J) is granted where credit is granted and the course need not be repeated although it may not normally qualify as a prerequisite for further work. (The grade assigned by the instructor is used in the calculation of averages.)

Pass (P) or **Fail (F)** is granted where no grade is assigned, excluded from calculation in all averages. Pass (P) denotes satisfactory completion of the requirements of the subject; credit granted where applicable. Fail (F) denotes fail standing.

Honours (H) or **Pass (P)** or **Fail (F)** is granted where no grade is assigned, excluded from calculation in all averages; Honours (H) exceeds course requirements, credit granted where applicable; Pass (P) requirements of subject completed satisfactorily, credit granted where applicable; Fail (F) denotes fail standing.

Prior Learning Assessment (PLA) credit is assigned based on prior learning in a subject area.

Supplemental (S) denotes failure, no credit. Supplemental privilege granted. See *Supplemental Examination Policy*, p. 47, under “Academic Assessment” in this chapter.

Deferred Standing (SD) may be granted by the Dean of the Faculty in which the student is enrolled when a student has a valid reason for not completing course requirements as scheduled and does not qualify for Aegrotat standing (see *Academic Concession*, p. 50). Students granted Deferred standing in Winter Session courses must complete all outstanding course requirements by August 23 following. Students granted Deferred standing in Summer Session courses must complete all outstanding work by December 25 following. Students granted Deferred standing are responsible for making satisfactory arrangements with their instructors for completion of outstanding course requirements. If a student fails to complete deferred requirements by the dates specified, the Deferred standing will be replaced with a grade

or standing that reflects requirements completed in the course. Students unable to meet the specified deadlines because of further medical, emotional or other difficulties must make an additional application for Academic Concession no later than August 31 for Winter Session courses or December 31 for Summer Session courses following the original deferral. See *Deferred and Supplemental Examinations*, p. 47, under “Academic Assessment” in this chapter.

Thesis in Progress (T) denotes graduating essay not submitted; course continuing. If a student in a bachelor's program who receives a ‘T’ standing in a graduating essay or other course approved by the faculty completes the course within 12 months of the end of the term in which the student first registered for the course, the ‘T’ standing will be replaced by the grade assigned. If the course is not completed within 12 months, the ‘T’ standing will be replaced by a grade of zero (or ‘F’ standing in a Pass/Fail course).

Withdrawal (W) denotes official withdrawal. See *Withdrawal*, p. 50, in this chapter.

ACADEMIC STANDING

There are three levels of academic standing:

- In Good Standing
- On Academic Probation
- Failed

All students on initial entry to the University are **In Good Standing**. The academic standing of a student may change to **On Academic Probation** or **Failed** as the result of academic performance evaluations, as described below.

A student **On Academic Probation** may have restrictions placed on his or her registration as described in each Faculty's section on “Academic Standing”. A student who had been required to discontinue his or her studies, and later successfully appealed for readmission, will be placed **On Academic Probation**.

A student who receives an academic standing of **Failed** will be required to discontinue his or her studies for 12 months. Normally, the student will be required to discontinue his or her studies starting immediately. However, a student registered in and attending one or more courses will be permitted to complete those courses if the determination of an academic standing of **Failed** is only made after the last date for withdrawal without a ‘W’ being recorded on the transcript.

A student appealing to be permitted to continue his or her studies immediately despite having received an academic standing of **Failed** may not register for, or, attend courses while awaiting the results of the appeal, except as noted above. Therefore, a student **On Academic Probation** should maintain contact with his or her faculty advisor in case any circumstances arise that might adversely affect academic performance.

ACADEMIC PERFORMANCE EVALUATIONS

The following description of the academic performance evaluation process applies to students in all faculties not having separate regulations. An academic performance evaluation also does not address the issue of academic progress toward a particular degree or promotion from one-year level to the next.

Academic performance evaluations are performed for each student up to three times per year: at the end of each term of the Winter Session and at the end of the Summer Session. No evaluation is performed if a student has taken no credit courses since the last evaluation, or if the number of credits taken is less than some minimum number specified by the faculty in which the student is registered. Otherwise, the total number of credits attempted since the last academic performance evaluation, the fraction of those credits that were passed, and the credit-weighted average are computed. Those three quantities, plus the current academic standing of the student, are used to determine the new academic standing of the student according to a table. (Refer to each faculty or school's sections on “Academic Standing” for the appropriate table, or contact the faculty in question.)

Courses are only included in an academic performance evaluation once a final grade has been assigned. For example, courses for which a deferred examination has been granted will be considered within the academic performance evaluation for the period in which the deferred examination is written.

ADVANCEMENT REGULATIONS

Advancement practices vary among faculties and are described in the faculty and school entries. General regulations applicable to all faculties include the following:

- 1) Except in special cases, or where the faculty provides otherwise, no student may repeat a course more than once.
- 2) Each faculty has regulations on advancement. Students who do not meet the required standard in any session will be assigned Failed standing and will be required to discontinue or withdraw.
- 3) A student in a year of study which may normally be taken in the first or second year following secondary school graduation who is assigned Failed standing will be required to either discontinue for at least one year or to withdraw.
- 4) Students who are assigned Failed standing in one faculty may transfer to another faculty if they meet the advancement and admission requirements of the second faculty.
- 5) Students who have been required to discontinue or withdraw may be readmitted subject to the regulations of the faculty which they wish to enter.

- 6) A student at any level of university study who fails for a second time, will be required to withdraw from the University. After a period of at least one year, an appeal for permission to re-enrol will be considered. Such an appeal will be granted only after the appeal has been reviewed and approved by the dean of the faculty concerned. A negative decision by the dean may be appealed to the Senate Admissions Committee.

GRADUATION

Every candidate for a degree must make formal application for graduation. Students make a formal application for graduation via the Student Service Centre (SSC) (www.students.ubc.ca/ssc).

The application deadline for May Congregation is March 1. The earliest date to make an application for May Congregation is December 15 of the previous year. The application deadline for November Congregation is August 31. The earliest date to make an application for November Congregation is June 15.

An application must be submitted if you plan to graduate regardless of whether or not you intend to participate in the scheduled ceremonies. If your request to graduate is not approved by your Faculty, a reapplication for the next congregation will be required.

Applications for May are not acknowledged until the end of March when Graduation Ceremony information is mailed. Acknowledgment for November applications will be emailed at the end of September. The receipt of graduation information does not confirm the satisfactory completion of your degree program. The Faculty completes this approval process. Students can access the SSC one week prior to the ceremonies to confirm graduation.

Students are reminded that because of the extended Winter Session in the Faculty of Medicine, academic results for the first year are not available from this faculty in time for spring graduation. Thus, all applications for degrees by students completing their Science degrees while registered in the first year of Medicine, will be treated by the Faculty of Science as applications for fall graduation.

Students completing degree requirements at another institution are also reminded that, because of the delay in obtaining official transcripts, all applications for degrees for such students will be treated by Enrolment Services as applications for fall graduation.

No student will receive a graduation diploma until all academic fees have been fully paid. See *Financial Hold*, p. 26, in the “Fees, Financial Assistance, and Scholarships” chapter in this Calendar.

Please check the following websites for the latest information on graduation:
www.students.ubc.ca/current/graduation.cfm
 and www.graduation.ubc.ca.

CHANGE OF REGISTRATION

Except in special circumstances, a one-term course may be added to a student’s program only within the first two weeks of the course, and a two-term course within the first three weeks. If a course is dropped during these periods, no record of the registration in the course will appear on the student’s academic record.

Students may withdraw from courses in which they are registered at any time up to the end of the sixth week of class for courses which are offered in a single term, and of the twelfth week for courses which span two terms. Withdrawals will be noted on the academic record by a standing of ‘W’. Such standings will not be included in computing averages. The withdrawal deadline dates for the current academic year are indicated in the accompanying tables in this part.

Fee refunds for withdrawals will be calculated on a pro-rata basis. See *Refund of Fees*, p. 26, in the “Fees, Financial Assistance, and Scholarships” chapter in this Calendar.

The dates for withdrawal given above also apply to students auditing courses.

Students may withdraw from courses outside the limits described above only with the permission of the dean of the faculty in which they are registered. In such cases, the instructor should be informed. Such withdrawals will be recorded as ‘W’ on the student’s academic record.

Faculties may, at their discretion, limit the number of ‘W’ standings permitted to a student. Any withdrawals in excess of that limit that would normally produce a standing of ‘W’ will result in assignment of ‘F’ for the course or courses involved. Normally, a student may not withdraw from a course more than once.

A student must be registered in all courses being taken for credit. A student who ceases to attend a course, does not write the final examination, or otherwise fails to complete course requirements, and who neither qualifies for a deferred examination (see *Deferred Standing*, p. 48, in the this chapter under “Grading Practices, Standings”), nor has obtained official permission to drop the course, will be given a standing of ‘F’ with a grade which reflects performance in the course. No supplemental examination can be granted under these circumstances.

The student is responsible for the completeness and accuracy of registration as it relates to the regulations of the degree or diploma program in which the student is enrolled.

COURSE DROP/WITHDRAWAL DATES FOR DISTANCE EDUCATION COURSES

For purposes of withdrawal, all courses delivered by DE&T are considered Term 1 courses (regardless of their credit value).

If you need to withdraw and it is past the deadline listed on the Student Service Centre (SSC) (www.students.ubc.ca/ssc), contact DE&T’s

2006 WINTER SESSION—COURSE DROP/WITHDRAWAL DATES

	Last day to drop without a ‘W’ standing through the Student Service Centre (Web)	Student Service Centre (Web) available for course withdrawals with a ‘W’ standing	Student Service Centre (Web) unavailable; Faculty approval required
Full-year course (2 terms)	September 22, 2006	September 23, 2006–November 24, 2006	After November 24, 2006
Term 1 Course	September 19, 2006	September 20, 2006–October 13, 2006	After October 13, 2006
Term 2 Course	January 22, 2007	January 23, 2007–February 16, 2007	After February 16, 2007

2006 WINTER SESSION—COURSE DROP/WITHDRAWAL DATES FOR COMMERCE MASTER’S-LEVEL MODULES BAXX

BAXX Modules in Commerce	Last day to drop without a ‘W’ standing through the Student Service Centre (Web)	Student Service Centre (Web) available for course withdrawals with a ‘W’ standing	Student Service Centre (Web) unavailable; Faculty approval required
Term 1A Module (Period 5)	September 11, 2006	September 12, 2006–September 18, 2006	After September 18, 2006
Term 1B Module (Period 6)	October 30, 2006	October 31, 2006–November 6, 2006	After November 6, 2006
Term 2A Module (Period 1) ¹	January 15, 2007	January 16, 2007–January 22, 2007	After January 22, 2007
Term 2B Module (Period 2)	March 5, 2007	March 6, 2007–March 12, 2007	After March 12, 2007
Term 2C Module (Period 3)	April 30, 2007	May 1, 2007–May 7, 2007	After May 7, 2007

¹ Please note that Period 1 BAXX classes start the week of January 8, 2007.

Learner Support Advisors
(amanda.marques@ubc.ca).

If you are concerned about your progress in your course, a DE&T Learner Support Advisor (det.queries@ubc.ca) (in partnership with your instructor) can offer some guidance as to your options. Visit the Distance Education and Technology (det.ubc.ca) website for general information and resources.

WITHDRAWAL

Undergraduate students may withdraw from the University by using the Student Service Centre (www.students.ubc.ca/ssc) to withdraw from all courses when it is available. In all other cases a student who wishes to withdraw from the University must obtain the approval of the dean, director or faculty advisor on a *Change of Registration* form. When the withdrawal is approved the academic record will show the date of withdrawal and a standing of 'W' in all courses that are not completed on that date. When the withdrawal is not approved the student will remain registered in all courses and a final grade and/or standing will be assigned at the end of the term or session. Unclassified students who wish to withdraw should apply to *Enrolment Services*, p. 60. A student who does not complete formal withdrawal procedures will be liable for all assessed fees until such procedures are completed.

WITHDRAWAL FOR UNSATISFACTORY CONDUCT

The Senate of the University may require a student to withdraw from the University at any time for unsatisfactory conduct, for failure to abide by regulations, for unsatisfactory progress in a program of studies or training, or for any other reason which is deemed to show that withdrawal is in the interests of the student and/or the University.

Cases brought forward under this policy will be referred to an *ad hoc* committee of Senate, to be named by the Senate (currently the Senate Nominating Committee), for disposition, with the understanding that the student would have the right of appeal to the Senate Committee on Appeals on Academic Standing. Both the reasons for bringing the case and the response of the student should be heard before a final decision is reached. The *ad hoc* committee must ensure that the case is conducted fairly. A tie vote on the decision upholds the decision being appealed and the case is dismissed.

LETTER OF PERMISSION TO STUDY AT ANOTHER INSTITUTION

After the start of the first session to which a student has been admitted, any student who is eligible to continue studies and who intends to complete a UBC degree, may obtain transfer credit from another institution—only if prior permission has been obtained from the faculty in which the student is enrolled.

ACADEMIC CONCESSION

Students may request academic concession in circumstances that may adversely affect their attendance or performance in a course or program. Such circumstances include:

- a medical condition
- emotional or other problems
- religious observance

Students who intend, or, as the result of circumstance, must request academic concessions should notify their dean or director, or their instructor(s) as specified in the procedures below.

Religious observance may preclude attending classes or examinations at certain times. In accordance with the UBC Policy on Religious Holidays (www.universitycounsel.ubc.ca/policies/policy65.pdf), students who wish to be accommodated for religious reasons must notify their instructors in writing at least two weeks in advance, and preferably earlier.

Students absent from final examinations held in the official examination periods must request academic concession from the office of their dean or director. Students who are absent at the other times, or are unable to complete tests or other graded work because of short term illness, religious obligation, or for other reasons, should normally discuss with their instructors how they can make up for missed work, according to written guidelines given them at the start of the course (see *Grading Practices*, p. 47, in this chapter). Instructors are not required to make allowance for any missed test or incomplete work that is not satisfactorily accounted for. Students also have the right to request academic concession from their dean or director's office.

Students who wish to request academic concession from the office of the dean or director must apply to the office as close as possible to the time their attendance is adversely affected. In case of religious observance, the office of the dean or director must receive notification a minimum of two weeks in advance. The University, in considering these requests or any appeals of decisions on academic concession, will not normally take into account untimely notifications. When a student requests academic concession, he or she will be asked to provide such evidence as is deemed appropriate. If there is a medical problem, the student should submit a "Statement of Illness" form obtained from the *Student Health Service*, p. 65 or the attending physician. The student may be asked to provide additional information.

The academic concessions that may be granted include the following: permission to drop or withdraw from a course after the normal deadlines (see *Change of Registration*, p. 49), Aegrotat standing or Deferred standing (see *Grading Practices*, p. 47) and withdrawal from the University (see *Withdrawal*, p. 50).

If permission is given to drop or withdraw from a course, any refund of fees will be in accordance with normal policy (see *Refund of Fees*, p. 26, in the "Fees, Financial Assistance, and Scholarships" chapter in this Calendar).

Students in good academic standing who are permitted to withdraw from the University may apply to re-enrol in the program from which they withdrew. Application to re-enrol must be made by the published application deadline for the program. A student permitted to withdraw may be told the time period during which an application to re-enrol will be permitted. A medical certificate of a nature sufficient to satisfy the University that the student is ready to continue studies may be required before the student will be re-enrolled.

REVIEW OF ASSIGNED STANDING

Reviews of assigned standing are governed by the following regulations:

- 1) Any request for the review of an assigned grade other than for a supplemental examination (in which a request for a review will not be granted), must reach Enrolment Services no later than July 15 for the Winter Session, and not later than October 15 for the Summer Session, and must be accompanied by the necessary fee for each course concerned which will be refunded only if the mark is raised.
- 2) Each applicant for a review must state clearly why he or she believes the course deserves a grade higher than it received; pleas on compassionate grounds should not form part of this statement. Prospective applicants should remember that under Senate regulations instructors must re-examine all failing grades and indicate in their records that this has been done.
- 3) An applicant who has been granted a supplemental should prepare for the examination since a change in the original mark is unlikely and the result of the review may not be available before the end of the supplemental examination period.
- 4) Reviews will not be permitted in more than two courses in the work of one academic year, and in one course in a partial program of 18 credits or fewer or in the work of Term 1 or 2 of a Summer Session.

Students can download the application form (www.students.ubc.ca/current/grades.cfm) or pick up a copy from Enrolment Services.

TRANSCRIPT OF ACADEMIC RECORD

Official transcripts are confidential and are only released on written request from the student. All transcripts issued to the student are officially sealed in individual envelopes and may be either mailed to the student or picked up. Transcripts issued to an institution, company, or agency are mailed directly to their address in confidential envelopes marked transcript of record. Third-party requests must be accompanied by a signed authorization from the student.

Each transcript will include the student's complete record at the University. Since credit earned is determined on the results of final

examinations, a transcript will not include results of midterm examinations.

No transcript will be issued to or for a student who has not made arrangements satisfactory to the Department of Financial Services to meet any outstanding indebtedness.

Requests for transcripts should be made in advance to allow time for processing. Payment must be included with requests. Transcripts will not be provided until payment is received.

Students may order transcripts through the Student Service Centre (www.students.ubc.ca/ssc). For more information about other ways to order, students should visit www.students.ubc.ca/current, or email (transcripts.students@ubc.ca) the transcripts department.

RETENTION OF STUDENT RECORDS

Academic Records, including all information appearing on a Transcript of Academic Record, are retained indefinitely. Notations of student discipline are retained according to the terms of the penalty imposed. Materials supporting applications for admission, correspondence and transcripts from other institutions and similar material may be destroyed five years after a student's last registration, except for doctoral students where material may be destroyed after two years from the date of graduation. Other material may be destroyed sooner.

Students who submit irreplaceable material may request the return of that material. Such requests must be submitted with the original material. The office to which the material is submitted will return the material as soon as possible and not later than six months after the student's graduation or last registration.

SENATE APPEALS ON ACADEMIC STANDING

DEFINITION

Under this heading, "Senate Appeals on Academic Standing":

"Committee" means the University Senate's Committee on Appeals on Academic Standing.

APPEAL PROCEDURE

Students who wish to protest decisions relating to their academic studies may do so. The protest should be made initially as near the source of difficulty as possible, presumably an instructor, and progress to the Head of the Department concerned and then to the Dean of the Faculty. There is a standing committee of the University Senate, the Committee on Appeals on Academic Standing, that reviews all appeals made to the Senate, the senior academic authority in the University. Following are the policies and procedures of this Committee.

1 COMPOSITION OF THE COMMITTEE

The Committee consists of eleven members, six of whom are members of Senate who are faculty members, three of whom are members of Senate who are students, and two of whom are members of Senate who are neither faculty members nor students. The Chancellor, the President and the Registrar are members of the Committee ex-officio; the Chancellor and the President, but not the Registrar, shall be entitled to vote.

2 TERMS OF REFERENCE

2.1 The Committee shall hear and dispose of appeals by students from decisions of Faculties on matters of Academic standing, but the Committee has no jurisdiction where the sole question raised in an appeal turns on the exercise of academic judgment by a Faculty.

2.2 Subject to section 2.3 below, the decision of the Committee on an appeal is a final disposition of that appeal. Senate has conferred on the Committee the power of making final decisions pursuant to section 37(1)(b) of the *University Act*.

2.3 If an issue on an appeal raises, in the opinion of the Committee, an unsettled question of policy or procedure of general importance to the University, the Committee may refer that question to the Senate for a ruling.

2.4 The Committee shall allow an appeal where it decides that the decision has been arrived at through improper or unfair procedures, and that as a result a wrong decision on the merits has or may have been arrived at. Without limiting the generality of the phrase 'improper or unfair procedures' shall be construed to include the consideration of information that ought not to have been considered, and the failure to consider information that ought properly to have been considered.

2.5 An appeal allowed by the Committee shall be by:

- 1) reversal of the decision of the Faculty, and the granting of such academic standing to the appellant as the Committee thinks fit in the circumstances; or
- 2) quashing of the decision of the Faculty, and the sending of the matter back to the Faculty to be dealt with in accordance with proper procedures.

2.6 In all cases, other than those falling within paragraph 2.4, the Committee shall dismiss the appeal. A dismissed appeal or a tie vote on the decision upholds the decision being appealed and the case is dismissed.

2.7 In order to ensure that an appeal is fairly conducted, the Committee may in any particular case waive any of the procedural rules provided for in these regulations, or may make such further ancillary rulings on procedure as it sees fit. The rules need not conform to an adversarial model and inquiry model rules may be applied.

2.8 Members of the Committee will not discuss the substance of an appeal with any of the parties other than at a hearing.

2.9 The Committee shall make annual reports to Senate. The report shall state the number of appeals heard, their disposition, and the general nature of the appeals, and shall draw Senate's attention to any other matters of general significance in the university which have arisen out of the Committee's work.

3 PROCEDURES PRIOR TO THE HEARING

3.1 A student who wishes to appeal a decision of a Faculty shall lodge a written notice of appeal with the Registrar within 10 days of being informed in writing of the Faculty's final decision.

3.2 Within five (5) days of receiving a notice of appeal, the Registrar shall send to the appellant a copy of these regulations, and in addition shall inform the appellant that he or she is entitled to appear before the Committee in person and may also be represented by counsel.

3.3 Within 15 days of receiving the regulations, the appellant shall file with the Registrar a statement of appeal. This should contain each of the following:

- 1) A statement of the decision from which the appeal is being taken;
- 2) A statement of the relief which the appellant seeks;
- 3) A brief chronological statement of the circumstances relating to the appeal;
- 4) Copies of any documents which the appellant intends to rely on at the hearing; and
- 5) The names of any witnesses the appellant proposes to call at the hearing. It is the appellant's responsibility to ensure that such witnesses are present at the hearing.

3.4 Within five (5) days of its receipt the Registrar shall send the appellant's statement of appeal to the Dean of the faculty from which the appeal is being taken.

3.5 Within 15 days of the receipt from the Registrar of the appellant's statement of appeal, the Dean shall file a response with the Registrar. This should contain each of the following:

- 1) A confirmation of the nature of the decision from which the student is appealing or, if the decision is not properly stated in the appellant's statement of appeal, a statement as to the nature of the decision;
- 2) A statement whether, assuming the appeal were to be allowed, the relief sought by the student ought properly to be granted;
- 3) The Faculty's response to the grounds of appeal;
- 4) The Faculty's comments on the chronological statements of events;
- 5) Copies of any documents which the faculty intends to rely on at the hearings; and
- 6) The names of any witnesses the Faculty proposes to call at the hearing.

3.6 Within 10 days of the receipt of the Faculty's response, the Registrar shall set a date for a hearing. The hearing should usually take place within two months of the receipt of the Faculty's response.

3.7 Prior to the hearing, the Registrar shall circulate copies of material submitted by the appellant and the Faculty to the members of the Committee, the appellant, and the Faculty.

3.8 The time limits referred to in paragraphs 3.1–3.6 are intended as outside limits, and all parties are encouraged to make every effort to proceed more quickly if possible.

3.9 The Registrar may, of his own volition or at the request of the appellant or the Faculty, extend the time limits provided for in these regulations. If the Registrar refuses to extend the time limits following the request, then the refusal may be appealed to the Committee as a whole, and the Committee may, acting pursuant to its authority under section 2.5, extend the time limits as it sees fit.

3.10 The Senate Committee may, at its discretion, dismiss an appeal for lack of timely prosecution.

4 PROCEDURES AT THE HEARING

4.1 A quorum for any hearing before the Committee shall consist of at least five (5) voting members, or any lesser number if that is agreed to by the appellant and the Faculty.

4.2 A member of the Committee shall not take part in an appeal where to do so would involve the member of the Committee in a conflict of interest (e.g., conflict of duty).

4.3 At the hearing, subject to the rulings of the Committee, the following order should be followed:

- 1) The appellant may make an opening statement;
- 2) The appellant may call and examine such witnesses as the appellant sees fit;
- 3) The Faculty may cross-examine any of the witnesses called by the appellant, including, where appropriate, the appellant;
- 4) The Faculty may make such opening statement as it sees fit;
- 5) The Faculty may call and examine such witnesses as it sees fit;
- 6) The student may cross-examine any of the Faculty's witnesses;
- 7) The appellant may make a closing statement;
- 8) The Faculty may make a closing statement; and
- 9) The appellant may respond to any matters arising out of the Faculty's statement to which the appellant has not yet spoken.

4.4 The Committee may request that it be provided with further information other than that supplied initially by the appellant or the Faculty. Without limiting this general power if, after a hearing, the Committee is of the opinion that it requires further information in order to reach a decision it may either ask that that information be supplied at a further hearing or,

without a hearing, it may ask that the information be supplied to it in writing. In the latter case both the appellant and the Faculty must be given the opportunity of commenting on the information so supplied, before the Committee reaches a final decision.

5 THE DECISION

5.1 The Committee may arrive at a decision on the basis of a majority vote of those voting members of the Committee present at the hearing.

5.2 In the event of a tie vote an appeal shall be dismissed.

5.3 The decision of the Committee shall be communicated in writing to the appellant and to the Dean of the Faculty within ten days of the final hearing of the appeal.

5.4 The Committee shall give reasons for its decision; and in the case of a minority vote, the minority may if it wishes give reasons for its dissent.

STUDENT CONDUCT AND DISCIPLINE

DEFINITIONS

In this chapter, and throughout this Calendar, unless the context requires otherwise:

“**ARES**” means the director of Applied Research and Evaluation Services in its capacity as administrator of the Language Proficiency Index and includes a person designated by the director to represent ARES;

“**cheating**” and similar terms includes, but is not limited to: falsifying any material subject to academic evaluation, including research data; engaging in unauthorized collaborative work; having in an examination any materials (including devices) other than those permitted by the examiner; and using unauthorized means to complete an examination (e.g., receiving unauthorized assistance from a fellow student);

“**Committee of the Senate**” or reference to a committee of the Senate means the committee designated for the purpose by the University Senate;

“**Dean's Office**” means the dean of the faculty of the course in which the student is enrolled and includes a faculty member designated by the dean to represent the faculty;

“**Enrolment Services**” means the Registrar and includes a person designated by the Registrar to represent Enrolment Services;

“**Initiator**” means the party that refers an allegation of academic misconduct to the President's Committee. Normally, a Dean's Office refers allegations but on occasion, ARES or Enrolment Services may also refer allegations to the President's Committee;

“**Office of the University Counsel**” means the University Counsel and includes a person designated by the University Counsel to represent the Office of the University Counsel;

“**plagiarism**” see section 3.1., Academic Misconduct below;

“**President's Committee**” means the President's Advisory Committee on Student Discipline as the President may designate for the University, by campus or otherwise;

“**Senate Committee**” means the Senate Committee on Student Appeals on Academic Discipline;

“**Dean of the Faculty**” shall be deemed to refer, where necessary, to any other appropriate officer of the University; and

“**Senate**” or “**University Senate**” means the Vancouver Senate of The University of British Columbia or the council of senates of The University of British Columbia, as the case may be.

STATUTORY AUTHORITY

The President of the University has the authority under section 61 of the *University Act*, p. 41, to deal summarily with any matter of student discipline, allowing the President to take whatever disciplinary action he or she deems to be warranted by a student's academic misconduct. The specific provisions as to Academic Misconduct and Non-Academic Misconduct, as set out below, do not limit, and should not be construed as limiting in any way, the general authority conferred upon the President by the *University Act*.

DISCIPLINE FOR ACADEMIC MISCONDUCT

1. Student Declaration and Responsibility

Upon registering, a student has initiated a contract with the University and is bound by the following declaration:

“I hereby accept and submit myself to the statutes, rules and regulations, and ordinances (including bylaws, codes, and policies) of The University of British Columbia, and of the faculty or faculties in which I am registered, and to any amendments thereto which may be made while I am a student of the University, and I promise to observe the same.”

The student declaration is important. It imposes obligations on students and affects rights and privileges including property rights. You must not enroll as a student at the University if you do not agree to become bound by the declaration above. By agreeing to become a student you make the declaration above and agree to be bound by it.

Each student is required to furnish the information necessary for the University record, to keep Enrolment Services informed of changes in name and contact information.

Students are required to inform themselves of the statutes, rules and regulations, and ordinances (including bylaws, codes, and policies) and to any amendments thereto applicable at the University. For policies and procedures issued by the Board of Governors, see the University of British Columbia Policy and Proce-

Handbook or the Office of the University Counsel website (www.universitycounsel.ubc.ca/policies/index.html). For policies issued by the Vancouver Senate, see the Senate website (www.students.ubc.ca/senate/policies.cfm).

The University authorities do not assume responsibilities for others that naturally rest with adults themselves. This being so, the University relies on the good sense and on the home training of students for the preservation of good moral standards and for appropriate modes of behaviour and dress.

The University and University authorities are not obligated to enforce any statutes, rules, regulations, or ordinances (including bylaws, codes or policies) if discretionarily enforceable by law or made under its, or their, power or authority.

2. General

2.1 Academic honesty is essential to the continued functioning of the University of British Columbia as an institution of higher learning and research. All UBC students are expected to behave as honest and responsible members of an academic community. Failure to follow the appropriate policies, principles, rules and guidelines of the University with respect to academic honesty may result in disciplinary action.

2.2 It is the student's obligation to inform himself or herself of the applicable standards for academic honesty. Students must be aware that standards at the University of British Columbia may be different from those in secondary schools or at other institutions. If a student is in any doubt as to the standard of academic honesty in a particular course or assignment then the student must consult with the instructor as soon as possible and in no case should a student submit an assignment if the student is not clear on the relevant standard of academic honesty.

2.3 If an allegation is made against a student, the Registrar may place the student on academic hold until the President has made his or her final decision. When a student is placed on academic hold, the student is blocked from all activity in the Student Service Centre.

3. Academic Misconduct

Students are responsible for informing themselves of the guidelines of acceptable and non-acceptable conduct for graded assignments established by their instructors for specific courses and of the examples of academic misconduct set out below. Academic misconduct that is subject to disciplinary measures includes, but is not limited to, engaging in, attempting to engage in, or assisting others to engage in the following:

- **3.1** Plagiarism occurs where an individual submits or presents the oral or written work of another person as his or her own. Scholarship quite properly rests upon examining and referring to the thoughts and writings of others. However, when another person's words or ideas are used, the author must be acknowledged in the

text, in footnotes, in endnotes, or in another accepted form of academic citation. Where direct quotations are made, they must be clearly delineated (for example, within quotation marks or separately indented). Plagiarism encompasses situations in which there is no recognition given to the author for phrases, sentences, or ideas of the author incorporated in a work to situations in which an entire work is copied from an author, or composed by another person, and presented as original work. Plagiarism should not occur in submitted drafts or final works. A student who seeks assistance from a tutor or other scholastic aids must ensure that the work submitted is the student's own. Students are responsible for ensuring that any work submitted does not constitute plagiarism. Students who are in any doubt as to what constitutes plagiarism should consult their instructor before handing in any assignments;

- **3.2** Submitting the same, or substantially the same, essay, presentation, or assignment more than once (whether the earlier submission was at this or another institution) unless prior approval has been obtained from the instructor(s) to whom the assignment is to be submitted;
- **3.3** Impersonating a candidate at an examination or other evaluation, facilitating the impersonation of a candidate, or availing oneself of the results of an impersonation;
- **3.4** Submitting false records or information, orally or in writing, or failing to provide relevant information when requested;
- **3.5** Falsifying or submitting false documents, transcripts, or other academic credentials; and
- **3.6** Failing to comply with any disciplinary measure imposed for academic misconduct.

4. Disciplinary Measures

Academic misconduct often results in a one-year suspension from the University and a notation of academic discipline on the student's record. However, disciplinary measures which may be imposed, singly or in combination, for academic misconduct include, but are not limited to, the following:

- a letter of reprimand
- a failing grade or mark of zero on the assignment or in the course in which the academic misconduct occurred
- suspension, cancellation or forfeiture of any scholarships, bursaries or prizes
- suspension from the University for a specified period of time. During the period of suspension, a student may not participate in activities of the University, including but not limited to attending or auditing classes. Students will not receive credit for courses taken at another institution during a suspension
- expulsion from the University

- denial of admission or re-admission to the University for a specified or indefinite period of time
- a notation of academic discipline on the student's record in the Student Information System, which will appear on the student's Transcript of Academic Record
- revocation of a degree or other academic credentials dishonestly or improperly obtained

The laying of criminal charges or the commencement of civil proceedings does not preclude the University from commencing disciplinary proceedings or taking disciplinary measures against a student who has committed academic misconduct.

5. Investigation—Dean's Office

5.1 All incidents of suspected academic misconduct must be reported to the Dean's Office, with the exception of complaints arising through Enrolment Services or ARES, and those no longer suspected following investigation by the querying instructor. Instructors will report under procedures established by the Dean's Office, or where none exist, then directly to the Dean's Office. The Dean's Office may investigate further (which may include a review by the Dean's Office, the instructor, or others of the record and other work of the student) before dealing with the matter by:

- dismissing the allegation;
- giving the student a warning; or
- referring the matter to the President's Committee for possible disciplinary measures by the President.

5.2 When an instructor suspects that a student has committed an academic misconduct the instructor normally will be the first to investigate the incident and should give the student the opportunity to meet to discuss the suspected academic misconduct. This meeting may not be required in all incidents of suspected academic misconduct.

Assignment of grades is a matter of academic merit and the instructor may re-evaluate the academic merit of the student's work at issue taking into consideration the results of any investigation under this section 5, in which case the instructor may:

- require the student to re-do work at issue or to do supplementary work;
- assign a grade of zero or a failing grade for the work; or
- assign a mark less harsh than failing for the work.

5.3 When a student admits having committed the suspected academic misconduct, the Dean's Office may investigate further before dealing with the matter. If the Dean's Office refers the incident to the President's Committee, the student will normally be given the opportunity to meet with the Dean's Office to discuss and explain any extenuating circumstances of the academic misconduct.

5.4 When a student denies having committed the suspected academic misconduct, the Dean's

Office will investigate further. In the course of the investigation, the student will normally be given the opportunity to meet with the Dean's Office to discuss the circumstances of suspected academic misconduct. If the investigation reveals academic misconduct by the student:

- in the original incident only, then the Dean's Office may refer the matter to the President's Committee; or
- in other incidences, then the Dean's Office will refer the matter to the President's Committee.

5.5. The student will be advised by the Dean's Office that a record of its decision will be retained in the student's file in the Faculty and that, in the event of any further allegations of academic misconduct, the incident may be used in determining the academic measures or discipline to be imposed for subsequent misconduct. The Dean's Office will notify the President's Committee and the instructor in writing of its decision.

6. Investigation–Enrolment Services

6.1 When Enrolment Services suspects that a student has committed an academic misconduct it will investigate the incident. In the course of the investigation, the student will normally be given the opportunity to meet with Enrolment Services to discuss the allegation and/or explain any extenuating circumstances of the academic misconduct.

6.2 Enrolment Services may refer any allegation of academic misconduct to the President's Committee for possible disciplinary measures by the President.

7. Investigation–ARES

7.1 When ARES suspects that a student has committed an academic misconduct it will investigate the incident. In the course of the investigation, the student will normally be given the opportunity to meet with ARES to discuss the allegation and/or explain any extenuating circumstances of the academic misconduct.

7.2 ARES may refer any allegation of academic misconduct to the President's Committee for possible disciplinary measures by the President.

8. Initiator's Responsibilities

8.1 All allegations referred to the President's Committee by any Initiator must be made by submitting a completed Statement of Case in the form prescribed by the Office of the University Counsel. The Statement of Case must set out all facts relevant to the allegation and include all documentary evidence upon which the Initiator intends to rely and a list of witnesses, if any, who will be called by the Initiator at the hearing before the President's Committee.

8.2 The Initiator is normally responsible for presenting the allegations at the hearing before the President's Committee and arranging for witnesses to attend on behalf of the Initiator. In certain cases, the University Counsel may designate legal counsel to present the case instead of the Initiator or to assist the Initiator.

9. Student's Responsibilities

9.1 Upon receipt of a Statement of Case and the notice of hearing from the President's Committee, the student must submit a completed Statement of Response in the form prescribed by the Office of the University Counsel. The Statement of Response must set out all facts relevant to the student's defence and include all documentary evidence upon which the student intends to rely and a list of witnesses who will be called by the student at the hearing before the President's Committee.

9.2 The student is responsible for responding to the allegations at the hearing before the President's Committee and arranging for witnesses, if any, to attend on behalf of the student. If the student is unable or unwilling to participate in a hearing within a reasonable period of time, the President's Committee may proceed with the hearing or the Chair of the President's Committee may recommend to the President that the student remain on academic hold (or both) until the President has made his or her final decision.

9.3 The student may be represented or assisted at the hearing before the President's Committee by any person, including legal counsel. If the student is to be represented by legal counsel then the student must inform the President's Committee and the Office of the University Counsel at least ten working days prior to the hearing. The University Counsel may designate legal counsel to assist the Initiator at the hearing.

10. President's Committee

10.1 The President's Committee is constituted to conduct hearings on alleged academic misconduct and to report its findings to the President, who then decides what discipline, if any, should be imposed pursuant to section 61 of the *University Act*. The Chair of the President's Committee may set down rules for President's Committee hearings and these rules may be altered from time to time by the Chair. The rules need not conform to an adversarial model and inquiry model rules may be applied. See the online President's Committee rules (www.universitycounsel.ubc.ca).

10.2 The President's Committee will notify the student of the date for the hearing into the allegation and provide the student with a copy of the Statement of Case. The President's Committee will provide the Initiator with a copy of the Statement of Response.

10.3 The Registrar, in consultation with the Chair of the President's Committee, may place the student on academic hold until the President has made his or her final decision.

10.3.1 A student may write to the Registrar to request the academic hold be removed. The request must include an explanation of why such an academic hold is not appropriate in the circumstances. The Registrar, in consultation with the Chair of the President's Committee, will determine if the request will be granted.

10.4 The President's Committee may arrange for witnesses to attend a hearing or otherwise require the Initiator or the student to provide

additional information relevant to the President's Committee's determination.

10.5 At the conclusion of the hearing, the President's Committee will review the evidence submitted to it, including the Statement of Case submitted by the Initiator and the Statement of Response submitted by the student involved, and may consider all issues relevant to the allegation in making a determination as to whether, on a balance of probabilities, the student committed the alleged academic misconduct. The President's Committee will submit a report of its findings (including any findings with respect to extenuating circumstances) to the President, who will decide what disciplinary measures, if any, are to be taken under section 61 of the *University Act*.

11. President

11.1 Once the President has come to a decision based on the report of the President's Committee, the President will send a letter to the student detailing the following:

- the President's decision;
- reasons for the President's decision, including the Report from the President's Committee;
- a description of the nature and the duration of the disciplinary measures imposed, if any; and
- notice that the student has a right to appeal the decision to the Senate Committee and the time limit for such an appeal.

11.2 The President will promptly report any disciplinary measures imposed to the Senate Committee with a statement of his or her reasons. The President will also provide copies of his or her decision to the Registrar and the Initiator.

12. Registrar

The Registrar is responsible for taking appropriate action in accordance with the President's decision, including making a notation on a student's transcript, entering or changing a grade for a course, placing an academic hold on a student's academic status for the duration of a suspension, and notifying the instructors of courses in which a student is enrolled.

13. Appeals

13.1 A student has the right to appeal any disciplinary decision of the President to the Senate Committee as established under section 37(1)(v) of the *University Act*.

13.2 A student who wishes to appeal a decision of the President under section 13.1 must so notify the Registrar in writing and give a full explanation of the grounds for the appeal. The Registrar must receive this notification within 45 calendar days of the date of the President's letter to the student informing the student of the disciplinary decision. The Registrar may extend this time limit if, in the Registrar's opinion, circumstances warrant.

13.3 Appeals are considered by at least five members of the Senate Committee, unless the

student consents to fewer members. The student and the Initiator may make written submissions to the Senate Committee for consideration at the appeal. The student may be represented or assisted at the appeal by any person, including legal counsel. The University Counsel may designate legal counsel to assist the Initiator through the appeal process.

13.4 The Senate Committee is an appellate tribunal and does not re-hear matters. A student may, under section 13.1, appeal a decision on the following grounds:

- 1) the President incorrectly determined that the conduct of the student, either admitted or as found by the President, constitutes misconduct or the President incorrectly applied a University policy or procedure;
- 2) the student has material evidence that was not reasonably available at the time of the President's Committee hearing;
- 3) there was a breach or unfair application of the University's procedure prior to the President's Committee hearing that was raised before the President's Committee but not adequately remedied through the President's Committee;
- 4) the procedure of the President's Committee was unfair or operated unfairly, in that there was bias or a lack of independence in the President's Committee, or the President's Committee's procedures were unfairly applied or breached, or that the President gave insufficient reasons for his or her decision;
- 5) the President erred in the President's assessment of the evidence in the President's Committee's report, including any factual inferences made by the President, or the credibility of the student or other witnesses; or
- 6) the discipline imposed by the President was excessive.

13.5 The Senate Committee reviews the President's decision on one of the grounds enumerated in section 13.4 using the appropriate standard as follows:

- 1) Where the appeal is under section 13.4(1), the appropriate standard of review is correctness. The Senate Committee may reverse or vary the President's decision or substitute its own decision if it disagrees with the President's determination or application of a University policy or procedure;
- 2) Where the appeal is under section 13.4(2) and the Senate Committee is satisfied that the material evidence was not reasonably available at the time of the President's Committee hearing and there is substantial likelihood that it would affect the outcome, the Senate Committee will send the matter back to the President's Committee for re-hearing;
- 3) Where the appeal is under section 13.4(3) or section 13.4(4), the appropriate standard of review is whether a reasonable person, knowledgeable about the facts, would perceive the process at or before the President's Committee to be unfair. If the

Senate Committee finds this to be the case, it will refer the matter back to the President's Committee for a re-hearing, or with the consent of the student and the Initiator, reverse or vary the President's decision or substitute its own decision;

- 4) Where the appeal is under section 13.4(5), the appropriate standard of review is reasonableness. The Senate Committee may reverse or vary the President's decision or substitute its own decision only if the President's assessment of the evidence in the President's Committee's report, including any factual inferences made by the President or the credibility of the student or other witnesses, is unreasonable; or
- 5) Where the appeal is under section 13.4(6), the appropriate standard of review is reasonableness. The Senate Committee may reverse or vary the President's decision or substitute its own decision only if the exercise of the President's discretion with respect to the academic discipline imposed is unreasonable.

13.6 As soon as possible after the hearing is completed the Senate Committee will notify the student, the Initiator, the Registrar and the Office of the University Counsel (as the President's representative) of its decision in writing.

13.7 The Chair of the Senate Committee may set down rules for Senate Committee appeals and these rules may be altered from time to time by the Chair. The Senate Committee rules are available online at the Senate website (www.students.ubc.ca/senate).

DISCIPLINE FOR NON-ACADEMIC MISCONDUCT

Ignorance of the appropriate standard of behaviour is no defence to an allegation of Non-Academic Misconduct. Non-Academic Misconduct that is subject to Disciplinary Measures includes, but is not limited to, the following:

- 1) Disrupting instructional activities, including making it difficult to proceed with scheduled lectures, seminars, etc., and with examinations and tests.
- 2) Damaging, removing, or making unauthorized use of university property, or the personal property of faculty, staff, students or others at the University. Without restricting the generality of the meaning of "property", it includes information, however it be recorded or stored.
- 3) Injuring a person or damaging property in any way which demonstrates or results from hate, prejudice or bias against an individual or group based on race, national or ethnic origin, language, colour, religion, sex, age, mental or physical disability, sexual orientation or any other similar factor.
- 4) Assaulting individuals, including conduct which leads to the physical or emotional injury of faculty, staff, students, or others at the University, or which threatens the

physical or emotional well-being of faculty, staff, students, or others at the University.

- 5) For information regarding appeals for academic discipline resulting from non-academic misconduct, see section 13 Appeals under *Discipline for Academic Misconduct*, p. 54.

2006-07

VI Services, Facilities, and Organizations

CONTACT DIRECTORY

This is a selected list of contacts and student services. For complete listings of UBC's Faculty and Administrative Directory visit the UBC directory website (www.directory.ubc.ca). For more information on UBC visit www.ubc.ca.

EMERGENCY AND HEALTH SERVICES

Chaplaincy	chaplains.students.ubc.ca
Counselling Services	604-822-3811; www.students.ubc.ca/counselling
Emergency First Aid	604-822-4444
Emergency on campus: ambulance, fire, hazardous materials, rescue	911
Hazardous Materials Response, Fire Dept.	604-822-4567
Health Safety & Environment	604-822-2029
RCMP	911; 604-224-1322
Security	604-822-2222; non emergency 604-822-8609; www.security.ubc.ca
Speakeasy (peer counselling)	604-822-3700; www.ams.ubc.ca
Student Health Service	604-822-7011; www.students.ubc.ca/health
Vancouver Hospital, UBC Site	604-822-7222

SELECTED STUDENT SERVICES

Access & Diversity	604-822-5844; www.students.ubc.ca/access
Admissions, Graduate	604-822-2848; grad.ubc.ca
Admissions, Undergraduate	604-822-9836; 1-877-272-1422; www.students.ubc.ca/welcome
Alumni Services	604-822-3313; www.alumni.ubc.ca
Alma Mater Society (Undergraduate Student Society)	604-822-2901; www.ams.ubc.ca
Ask Me @ UBC (web only)	www.askme.ubc.ca
Awards, bursaries, scholarships	604-822-5111; 1-877-272-1422; www.students.ubc.ca/finance
Bookstore	604-822-2665; www.bookstore.ubc.ca
Career Services	604-822-4011; www.students.ubc.ca/careers
Childcare	604-822-5343; www.childcare.ubc.ca
Classroom Services	604-822-9946; www.students.ubc.ca/facultystaff/classrooms.cfm
Continuing Studies	604-822-1444; www.cstudies.ubc.ca
Enrolment Services	604-822-9836; www.students.ubc.ca
Exam Schedules	604-822-3483; www.students.ubc.ca/current/exams.cfm
Fees	604-822-2844; www.students.ubc.ca/finance
First Nations Services	604-822-8940; www.longhouse.ubc.ca
Go Global (Exchange Programs)	604-822-0942; www.students.ubc.ca/global
Graduate Student Society	604-822-3203; www.gss.ubc.ca
Housing	604-822-2811; www.housing.ubc.ca
International House	604-822-5021; www.students.ubc.ca/international
International Graduate Student Orientation	604-822-3203

International Undergraduate Student Orientation	604-822-5021
IT Services (Email accounts, Internet access)	604-822-6611; www.itservices.ubc.ca
Library	www.library.ubc.ca
Parking & Access Control	604-822-6786; www.parking.ubc.ca
Records & Registration	604-822-2844; www.students.ubc.ca/ssc
Student Information Centre	604-822-9836; 1-877-272-1442
Student Recruitment & Advising	604-822-9836; www.welcome.ubc.ca
Student Service Centre (web only)	www.students.ubc.ca/ssc
Student Societies	604-822-2844
Transporation Alternatives	604-822-RIDE; www.trek.ubc.ca

ATHLETICS, RECREATION AND CAMPUS ATTRACTIONS

Athletics (web only)	www.gothunderbirds.ca
Attractions @ UBC (web only)	www.attractions.ubc.ca
24-Hour T-Bird Results/Upcoming Events	604-822-BIRD (2473)
Aquatic Centre – Pool Schedule Information	604-822-4522
Campus Recreation & Fitness	604-822-6000
Chan Centre for the Performing Arts	604-822-9197; www.chancentre.com
Community Sports camp enquiries	604-822-3688
Museum of Anthropology	604-822-5087; www.moa.ubc.ca
Thunderbird Stadium/Playing Fields	604-822-6121
UBC BirdCoop Fitness Facility	604-822-6924
UBC Coast Club Tennis Centre	604-822-2505
UBC Rec	604-822-6000; www.rec.ubc.ca
War Memorial Gym	604-822-3094
Theatre at UBC	www.theatre.ubc.ca
Thunderbird Winter Sports Centre	604-822-6121
UBC Botanical Garden	www.ubcbotanicalgarden.org

CAMPUSES

VANCOUVER (POINT GREY)

The University of British Columbia (Point Grey) is located at the western tip of the Point Grey Peninsula, in the City of Vancouver. The University Endowment Lands community (also known as University Hill) is situated adjacent to the campus to the east, while 763 hectares of forested parkland known as Pacific Spirit Regional Park serves as a “green belt” between Vancouver and the campus.

UBC offers hundreds of undergraduate and graduate programs through its 12 faculties and 11 schools, and one college at the Vancouver campus. UBC Vancouver also has over 3,000 full-time faculty members who are dedicated to teaching and research. Further information on programs of study and general information for students is available at www.welcome.ubc.ca. For information on UBC news and developments visit www.ubc.ca.

University Town

Like all great universities, the University of British Columbia is evolving. Originally conceived as a traditional commuter campus, the University is returning to the original vision of its founding architects who in 1914

described "...a university city in an idyllic setting." UBC is continuing to engage the campus community in a planning and visioning process that will assist in the creation of a new mixed use and sustainable community which, in turn, supports and strengthens the University's academic mission. For more information, visit the University Town website (www.universitytown.ubc.ca).

For more on the history of UBC, visit the UBC Library's University History and Historical Facts website (www.library.ubc.ca/archives/facts.html).

UBC OKANAGAN

One Great University, Two Great Campuses

The Okanagan's University of British Columbia campus, UBC Okanagan, opened its doors on the former North Kelowna campus of Okanagan University College in September 2005. The establishment of UBC Okanagan will increase access to post-secondary education in British Columbia by adding 4,500 new student spaces by 2009. This new campus features the reputation and learning resources of a world-class research and teaching university, and offers distinctive academic programs, a smaller-scale campus, region-centred research, and international learning opportunities. Programs of study include agroecology, arts, engineering, fine arts, management, nursing, science, and social work. Flexible learning models, theme-based inquiry, undergraduate research, and practical experience are important themes for existing and emerging programs. For more information, see the UBC Okanagan website (www.ubc.ca/okanagan). For detailed program and course information, consult the UBC Okanagan Calendar (www.ubc.ca/okanagan/calendar).

UBC ROBSON SQUARE

UBC Robson Square is a vital link between the University and the community. Comprehensive services including the Life and Career Centre, Faculty of Commerce and Business Administration (Sauder School of Business) – Executive Education, UBC Continuing Studies, UBC Enrolment Services, the UBC Bookstore, and UBC Library, are now easily accessible in the heart of downtown Vancouver.

With over 70,000 square feet of beautifully renovated classrooms, meeting rooms, reception areas, and a theatre available for rental, the campus is also a popular venue for meetings, conferences, exhibitions, and special events.

For more information, please visit the UBC Robson Square website (www.robson-square.ubc.ca).

UBC Robson Square
800 Robson Street
Vancouver, BC V6Z 3B7
Tel: 604-822-3333
Fax: 604-822-0070
Bookings line: 604-827-5444
Email: robson.info@ubc.ca
Web: www.robsonsquare.ubc.ca

GREAT NORTHERN WAY

In 2001 Finning International Inc. donated a 6.6 hectare land package, located at the False Creek flats, to UBC and three other institutions. Today, UBC, Simon Fraser University, the Emily Carr Institute of Art and Design, and the British Columbia Institute of Technology share this land, now known as the Great Northern Way Campus.

The Great Northern Way Campus is being developed into an integrated environment with training and education programs offered by each partner. The four institutions are currently developing their program goals and campus construction plans.

For more information visit the Great Northern Way Campus website (www.gnwc.ca).

STUDENT SERVICES

ALMA MATER SOCIETY

The Alma Mater Society (AMS) is the student society of UBC. Its mission is to improve the quality of the educational, social, and personal lives of the students of UBC. Since 1915 the AMS has played a major role in such areas as student representation on University bodies, housing, internal and external lobbying, childcare, student services, and construction of buildings on campus. Every student becomes a member of the AMS upon enrolment in a credit course at UBC and payment of the AMS fees. Today the AMS represents more than 42,000 students at UBC, and operates or oversees a wide variety of student services, student-owned businesses, resource groups, clubs, and a health and dental plan.

The AMS offices, AMS student services, AMS resource groups, and student businesses are all located in the Student Union Building (SUB). In addition to offering services to students, the AMS is an advocate on student issues and ensures that the views of students are presented to the University administration and the provincial and federal governments.

The AMS is governed by a 49-member Student Council, consisting of the Executive, representatives from undergraduate and graduate societies and schools, and student representatives from the UBC Board of Governors and the Senate. The AMS Executive, Senate, and Board of Governors representatives are elected by the general student population in January of each year. Student Council meets every other Wednesday evening at 6:00 pm in SUB Room 206 (Council Chambers). Any student is welcome to attend these meetings, the minutes of which are posted outside the AMS offices as well as on the AMS website (www.ams.ubc.ca).

Commissions

The AMS ensures student participation at all levels of student government through its commissions. An Executive member heads each commission and each commissioner is given a specific portfolio and responsibilities. Below is a description of the four commissions.

Student Administrative Commission (SAC), SUB Room 238, telephone 604-822-2361. SAC is chaired by the Vice-President, Administration and is responsible for implementing AMS policies regarding the Student Union Building and is the official liaison between the AMS and the clubs. It is also responsible for overseeing SUB security, the AMS Art Gallery, student room bookings and Clubs Days, as well as approving administrative contracts between the AMS subsidiaries and non-AMS organizations.

Finance Commission, SUB Room 238F, telephone 604-822-2361. Chaired by the Vice-President, Finance, this commission is responsible for administering AMS funds, overseeing the financial activities of the AMS subsidiary organizations, helping AMS organizations prepare their budgets, and approving short-term loans to AMS clubs and undergraduate societies.

University Commission, SUB Room 238P, telephone 604-822-6868. Chaired by the Vice-President, Academic/University Affairs, this commission is responsible for lobbying the University administration on issues such as childcare, equity, housing, safety, academics, University policies, and campus planning or any University policies that affect students.

External Commission, SUB Room 238P, telephone 604-822-6868. Chaired by the Vice-President, External Affairs, this commission is responsible for community outreach such as Homecoming and The Great Trekker Award, maintaining good relations with other student associations, and government lobbying on student issues such as post-secondary education funding, student loans, transit, childcare, and equity.

Communications

The AMS employs a wide array of society-wide resources to engage in consistent and high-quality communications with students. At the AMS we foster a climate that encourages interchange of ideas in order to facilitate a greater understanding of the relationship of the AMS to its membership, the subsidiary organizations, the University administration, and all levels of government. The AMS is committed to fostering an understanding of the issues and priorities of students and student bodies and is prepared to act on their interests through their elected student representatives.

The AMS employs a wide array of communications initiatives; some of these are:

- surveys to gauge student interests, opinions, concerns, wants, and needs
- weekly updates in *The Ubyssy* paper
- feedback via email
- public forums
- communication boards around campus
- write-ups in *The Point* and *Graduate Magazine*
- poster campaigns
- various information pamphlets distributed around campus
- AMS website

- *Inside UBC*, AMS guide to student life at UBC
- press releases and media relations
- washroom ads
- feedback cards located around the SUB
- bi-monthly student council meetings open to all students
- AMS submissions in the *First Year Insight* email newsletter

For more information, please contact the AMS Marketing and Promotions department at marketing@ams.ubc.ca.

Student Services

For an overview of the businesses and services the AMS offers, visit the AMS website (www.ams.ubc.ca).

The AMS operates a wide variety of student services to meet student needs throughout the year. Professional staff, student staff, and volunteers work together to operate these services.

Through student fees, the following services are provided for and by the students of UBC:

AMS Advocacy Office	604-822-9855; advocate@ams.ubc.ca ; standing up for student rights
AMS Food Bank	foodbank@ams.ubc.ca ; fighting student hunger and providing emergency food supplies to students in need
AMS Internship program	604-822-5627; internship@ams.ubc.ca ; placing students in internships across Vancouver
AMS Joblink	604-822-5627; joblink@ams.ubc.ca ; the only student-run employment centre in Canada
AMS Ombuds office	604-822-4946; assist@ams.ubc.ca ; promoting collaborative dispute resolution
AMS First Week	604-822-1989; firstweek@ams.ubc.ca ; filling the first week of school with exciting events
AMS Mini-school	604-822-9342; minischool@ams.ubc.ca ; course offerings outside the classroom
AMS Rentsline	604-714-4848, 604-730-2010; off campus housing
AMS Safewalk	604-822-5355; safewalk@ams.ubc.ca ; campus walkers getting students home safely
AMS Speakeasy	604-822-3777 (Info), 604-822-3700 (Crisis); speak@ams.ubc.ca , speakreferrals@ams.ubc.ca ; peer counselling, referrals, and information
AMS Sexual Assault Support Centre	604-827-5180; sasc@ams.ubc.ca ; increasing awareness of sexual violence and supporting survivors

AMS Tutoring 604-822-9084; tutoring@ams.ubc.ca; helping students achieve their academic goals

AMS Volunteer Connections 604-822-9268; volunteers@ams.ubc.ca; connecting students to volunteer opportunities on campus and around the world

For more information, contact the Executive Coordinator of Student Services at 604-822-9949, or at services@ams.ubc.ca. For more information about the AMS/GSS Health and Dental Plan, call toll-free 1-877-795-4421.

AMS Businesses

The AMS owns and operates businesses that are designed to meet student needs. They include: the Pit Pub, Snack Attack, the Pendulum, Pie R Squared, Blue Chip Cookies, the Gallery Lounge, the Moon Restaurant, Bernoulli's Bagels, the Outpost (retail store), Subcetera/Box Office, Copyright, the Sub Arcade, and Whistler Lodge. There is also a full-service post office and a commercial conference and catering department. These businesses are owned and operated by UBC students. Through its services and commercial operations the AMS employs over 500 students and pays approximately \$2 million in student wages each year.

Clubs

The AMS, through the Student Administrative Commission, maintains over 200 clubs with focuses ranging from recreational to academic, religious to political. In September, during the third week of classes, many clubs set up information and recruitment tables in the SUB for Clubs Days. For more information, or to create your own club, contact the Vice-President, Administration at 604-822-3961.

Student Resource Groups

Student Resource Groups aim to support, protect, and celebrate the different cultural backgrounds and beliefs of all the students. They provide services such as seminars, public speakers, and discussion groups as well as proposing and lobbying for policy changes within the AMS and the University.

Student resource groups include the following:

Colour Connected	604-822-1421; provides support and information to students who feel alienated and disempowered due to discrimination.
Social Justice Centre	604-822-9612; committed to encouraging activism on campus and providing support to students.
Pride UBC	604-822-4638; provides peer support to members and friends of the gay, lesbian, bisexual and transgendered community at UBC.

Student Environment Centre 604-822-8676; created for students concerned about the ecological problems facing our planet.

Women's Centre 604-822-2163; feminist centre and women-only lounge.

For more information please contact the Vice-President, Academic/University Affairs at 604-822-3092.

ATHLETICS AND RECREATION

The Department of Athletics and Recreation is committed to offering students a wide variety of opportunities to take part in sport and recreational activities, ranging from a multitude of non-credit courses, special events, and intramural leagues administered by UBC REC (www.rec.ubc.ca), to the elite intercollegiate competition of the UBC Thunderbirds. In addition to its many programs, Athletics and Recreation operates an extensive network of modern indoor and outdoor facilities, including the Student Recreation Centre, the Aquatic Centre, the Thunderbird Winter Sports Centre, War Memorial Gymnasium, Thunderbird Stadium, the UBC Tennis Centre, as well as numerous fields specifically designed for soccer and rugby.

Students receive preferential rates for most campus recreation activities as well as special student rates for admission to all UBC Thunderbird football, basketball, hockey, and volleyball home games.

Athletics and Recreation, general inquiries	604-822-2531
Aquatic Centre	604-822-4521
Bird Coop Fitness Facility	604-822-6924
UBC REC	604-822-6000
Campus Recreation & Fitness	604-822-6000
Racquetball/squash courts	604-822-6125
Tennis Centre	604-822-2505
Sport field bookings and information	604-822-6121
24-hour Thunderbird scores and events	604-UBC-BIRD; 604-822-2473
War Memorial Gymnasium bookings and info	604-822-6084
Winter Sports Centre	604-822-6121

CAREER SERVICES

Career Services is the central campus service for students and alumni to explore options, find and create work opportunities, and manage their careers. Career Services offers a variety of mixed mode, in-class/on-line career self-management workshops as well as individual advising and work search consultations. Career Services oversees the Tri-mentoring program, hosts many events where students and alumni can connect, and maintains an extensive array of on-line resources. Career Services also administers Careers Online, the central university job posting website.

Career Services

Student Development and Services
The University of British Columbia
2307–1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-4011
Web: www.students.ubc.ca/careers

Hours: 8:30 am to 4:00 pm, Monday to Friday.

COUNSELLING SERVICES

Counselling Services provides free confidential counselling for students attending UBC. Psychologists, professional counsellors, pre-doctoral interns, and master's-level counsellor trainees are available to work individually with students to help them address personal, career, and/or educational concerns. First appointments can be made in person, by phone, or by dropping in. Drop-in sessions are first come first served. Emergencies are seen on a same day basis.

- Mon/Tue/Thur/Fri: 8:00am–4:30pm
- Wed: 9:30am–8:00pm (September–April); 9:30am–6:00pm (May–August)

Follow-up appointments may be made by calling or dropping by Counselling Services.

In addition to individual counselling, Counselling Services offers counselling groups and student development workshops designed to help students achieve their highest potential.

Counselling Services
Student Development and Services
The University of British Columbia
1040 –1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-3811
Web: www.students.ubc.ca/counselling

ENROLMENT SERVICES

YES! Your Enrolment Services

Enrolment Services aims to provide the best possible service to the UBC community, in support of UBC's goal of becoming one of the world's finest universities.

Many Enrolment Services publications, including the *UBC Calendar* and the *Undergraduate Viewbook* are available online and in print. All printed publications are available at the Welcome Centre or from the Enrolment Services' counter in Brock Hall.

Enrolment Services (www.students.ubc.ca) is located at Brock Hall on the Point Grey campus and comprises the units listed in this section. Refer to the individual units for further contact details and information on their services.

Administrative Services

Administrative Services provides support in the areas of finance, budgeting, human resources, office operations, space administration, staff orientation, health, safety and environment support, and mailroom and print shop services to the 15 units that comprise Enrolment Services and Student Development & Services.

Admissions

Admissions is responsible for admission of undergraduate students, re-admission of

students and evaluation of transfer credit from other educational institutions. Undergraduate Admissions is located within Enrolment Services in Brock Hall.

Prospective students can obtain admissions information, apply to UBC, and check the status of their application online. Public access terminals are located in Brock Hall and are available 7:00 am to 6:00 pm Monday to Friday.

For details of admission requirements, see the *Admissions* chapter, p. 13, in this Calendar.

For graduate student admissions' requirements, see *The Faculty of Graduate Studies*, p. 217, under the chapter "Faculties, Colleges, and Schools" in this Calendar.

Undergraduate Admissions
Enrolment Services
2016–1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-3014
Fax: 604-822-3599
Web: www.students.ubc.ca/welcome

Hours: 8:00 am to 4:00 pm, Monday, Thursday and Friday; 9:30 am to 4:00 pm Tuesday; and 8:00 am to 5:30 pm Wednesday.

Classroom Services

Classroom Services, located in Brock Hall, is responsible for the overall management of the University's learning spaces. This includes the provision of technical equipment and resources, and classroom design, maintenance and renovations. The unit coordinates academic course schedules, *ad hoc* use of classrooms and outdoor space, and exam schedules, as well as processing liquor license requests for functions in unlicensed areas of campus.

For classroom bookings or more information, contact us by email (classroomservices@students.ubc.ca) or visit our website below.

Classroom Services
Enrolment Services
2303 –1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-9946
Web: www.students.ubc.ca/facultystaff/classrooms.cfm

Communications Services

Communications Services coordinates and produces the web and print versions of the official *UBC Academic Calendar*; designs and maintains the web presence of www.students.ubc.ca and accompanying websites; supports UBC Okanagan initiatives; maintains www.ubc.ca/okanagan/students and accompanying websites; and provides communications, production, support, and advice to units within the Vice-President, Students portfolio.

Communications Services
Enrolment Services
2016–1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-8874
Fax: 604-822-8856
Email: jean.elko@ubc.ca

Records and Registration

Records & Registration is responsible for all undergraduate records and registration activities, for fee assessments, examination results, transcript production and graduation, the management of the online student system, and statistics and reporting.

Students may obtain their student record, register for courses and perform many other tasks through the Student Service Centre (www.students.ubc.ca/ssc).

Public access terminals are located in Brock Hall.

Records & Registration
Enrolment Services
2016–1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-2844
Fax: 604-822-5945
Web: www.students.ubc.ca;
www.students.ubc.ca/ssc

Hours: 8:00 am to 4:00 pm, Monday, Wednesday, Thursday, and Friday; 9:30 am to 4:00 pm Tuesday.

Senate and Curriculum Services

Senate & Curriculum Services provides secretariat support for the academic governance of the University through the Vancouver and Okanagan Senates, the Council of Senates, Senate Committees, and the Faculty councils. Senate & Curriculum Services also conducts University elections.

Senate & Curriculum Services
Enrolment Services
Tel: 604-822-5239
Email: [Tania Salsman \(taniasalsman@ubc.ca\)](mailto:taniasalsman@ubc.ca)
Web: www.students.ubc.ca/senate

Student Financial Assistance and Awards

Student Financial Assistance and Awards partners with students and their families to build a financial strategy to attend UBC. Financial support includes student loans, grants, bursaries, work placements and emergency funding. Scholarships are available to reward merit, including achievements in academics, leadership, community service, artistic endeavours and athletics. For further information, see the "Fees, Financial Assistance, and Scholarships" chapter in this Calendar.

Student Financial Assistance & Awards
Enrolment Services
Brock Hall, First Floor
1036 –1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-5111
Fax: 604-822-6929
Web: www.students.ubc.ca/finance

Hours: Monday, Thursday, and Friday: 8:00 am to 4:00 pm; Tuesday: 9:30 am to 4:00 pm; Wednesday: 8:00 am to 5:30 pm.

Student Information Services

See *Student Information Services*, p. 62, for information on the Welcome Centre and other resources available to students.

Student Systems

Student Systems, a unit of Enrolment Services, is responsible for development, ongoing maintenance, enhancements, reporting, and operations for the University-wide Student Information System (SIS). The SIS includes interactive web-based systems for students, faculty and administrative staff. These include systems to support awards and financial assistance, admissions, advising, registration, grades processing, sessional evaluation, degree audit, graduation, student financial account, course management, course scheduling and room bookings. Student Systems is also responsible for office automation support within all Enrolment Services & Student Development and Services units by providing desktop equipment, server hardware, software, and technical support.

Student Systems
Enrolment Services
2016 -1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-6343
Web: www.students.ubc.ca/ssc

Student Recruitment and Advising

UBC Student Recruitment and Advising serves as a welcome centre for prospective UBC students. The office provides information, services, and programs for prospective students and their parents, and counsellors from Canadian secondary schools and colleges. Student Recruiter-Advisors provide academic advising (prior to admission) and information regarding undergraduate programs, admission requirements, awards and financial assistance, student housing, campus life, and other student services for both the Vancouver and Okanagan campuses of UBC. The office also provides services for newly admitted students, including help with course registration and preparing for first year.

Each year, Student Recruiter-Advisors visit secondary schools and colleges in BC and throughout Canada to meet with prospective UBC students. The office also arranges a multi-faceted campus visit program for school groups or individual students and their parents, including guided campus tours, March Break activities, information sessions, and individual advising services; online registration is available for all services. Student Recruitment and Advising also coordinates a wide variety of events and programs both on and off campus designed to help prospective students learn more about academic options and student life at UBC.

UBC Student Recruitment and Advising is located in the UBC Welcome Centre, room 1200 Brock Hall (see hours of operation below). Visit the UBC Student Recruitment & Advising website (www.welcome.ubc.ca) for more information.

Student Recruitment and Advising

Enrolment Services
1206 -1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-9836
Toll free: 1-877-272-1422
Web: www.welcome.ubc.ca;
www.ubc.ca/okanagan

Andrew Arida
Associate Director, UBC Student Recruitment & Advising
The University of British Columbia
Tel: 604-822-2890
Toll Free: 1-877-272-1422

*Welcome Centre hours: 8:00 am to 5:00 pm
Monday, Wednesday to Friday; Tuesdays 8:30
am to 5:00 pm; Saturdays 9:30 am to 2:30 pm.*

FOOD SERVICES

See *Food Services*, p. 68, under “Spaces and Places” for further details.

FRATERNITIES AND SORORITIES

Fraternities and sororities are recognized by the Senate of UBC as student organizations. Since 1926, thousands of students have become members of UBC's Greek Community (so-called because groups are named with Greek letters). The ten men's fraternities and seven women's sororities on campus provide valuable leadership experience and academic, social, and athletic opportunities for their members, including scholarships, career networking with alumni, and the highest participation rate in Intramural sports of any campus group. The Greek Community is also active in fund-raising and volunteering for charity, benefiting over 50 Lower Mainland philanthropic organizations. The brand-new Greek Village on campus provides housing for members and a home away from home for commuters. All UBC students are invited to learn more about Greek life and membership during Sorority Recruitment and Fraternity Rush in early September. For more information, please visit the greek life website (www.ams.ubc.ca/clubs/greek).

GRADUATE STUDENT SOCIETY

The UBC Graduate Student Society (GSS) is an organization of graduate students, dedicated to serving the academic, social, and cultural interests of its members. The GSS is managed by graduate student representatives elected by each UBC graduate program, and a ten-member executive committee. By virtue of a \$39.00 fee paid with tuition fees, all of the 7000 graduate students are members of GSS. From the \$39.00 fee, \$34.00 goes to fund GSS activities and \$5.00 goes to a Capital Improvement Fund (monies allocated specifically for maintaining the Thea Koerner Graduate Student Centre). A not-for-profit society, the GSS is independently registered with the Registrar of Companies of BC, and is affiliated with the Alma Mater Society (AMS). The University recognizes GSS as the official representative of UBC graduate students.

GSS advocates for, and protects the interests of, graduate students at UBC. It not only supports

graduate students in their studies, especially those facing academic problems, but also organizes social, sport, and recreational events for its members. Most important of all, the Society is dedicated to promoting post-secondary (particularly graduate) education and to increasing participation by members of the community in post-secondary education at UBC. The Society works towards increasing such participation by seeking the removal of remaining non-academic barriers to participation in post secondary education.

As part of its mandate, the GSS manages the Thea Koerner Graduate Student Centre (GSC). Built in 1960 on the northeastern edge of the campus, the GSC was made possible by a generous endowment from Leon Koerner in memory of his wife, Thea. The Centre houses the offices of the GSS and the Faculty of Graduate Studies (FoGS), and is also home to the Koerner's Pub with an open-air patio, which has the best selection of microbrews on campus, and is managed by the GSS; and Leon's Lounge, equipped with computers and relaxing couches, available for graduate students to check emails or relax over tea or coffee.

The Society's other ongoing commitments include: publishing “The GSS Notes”, a weekly email update, *The Graduate*, a monthly magazine, and the annual *Graduate Student Handbook*; the Grad Nooners, a series of Friday talks on academic and social issues; and a wide range of sporting and cultural events. New services and activities are constantly being designed in an effort to bring graduate students together.

Please visit the GSS website (www.gss.ubc.ca) to learn more about the GSS or email (information@gss.ubc.ca) if you have any questions or concerns.

HOUSING

See the *Department of Housing and Conferences*, p. 67.

INTERNATIONAL STUDENT RECRUITMENT AND RECEPTION

Under the leadership of UBC's International Student Initiative (see below), the International Student Recruitment & Reception Office responds to international inquiries and provides information and pre-admission advising services to prospective international students inquiring from within Canada or from abroad. The office also coordinates international recruiting and outreach activities, sending UBC representatives to international secondary schools and college fairs to meet with prospective UBC students. In the recruitment year 2005/06 recruiters visited over 60 countries and 22 US states.

The office works closely with other Enrolment Services and Student Development and Services units to assist newly-admitted students during their transition to UBC. For more information about undergraduate programs of study, application, admissions, English language admission standards, tuition, scholarships, housing, campus tours, and transition services for newly-admitted students, please contact:

International Student Recruitment and Reception
Room 1200–1874 East Mall
Brock Hall, UBC
Vancouver, BC V6T 1Z1
Tel: 604-822-8999
Fax: 604-822-9888
Web: www.welcome.ubc.ca

International Student Initiative

One of UBC's Trek 2010 goals is to internationalize the University by increasing the numbers of international students that attend the University. This strategy was first established by the Board of Governors in 1996, and since that time has been implemented by the International Student Initiative. The Initiative is authorized to increase the participation of international students in undergraduate, post-baccalaureate, diploma, and professional graduate programs.

Through the Initiative, the University works actively to attract and retain outstanding students from a geographically-diverse range of countries, including the United States, Mexico and countries in Africa, Asia, Australasia, Europe, Central and South America, and the Middle East. The University collaborates with external organizations such as the Canadian Education Centre Network, Canadian Embassies, the Association of Universities and Colleges of Canada, and the British Columbia Centre for International Education to promote Canada in general and UBC in particular, as a venue for post-secondary education. The Initiative also works closely with faculties, UBC Enrolment Services, and Student Development and Services to identify and address barriers to entry for international students, and to pay special attention to improving and expanding services critical to international student success at UBC. The Initiative also works closely with Canadian secondary schools and colleges from which a significant percentage of UBC's international students come.

The Initiative has established an International Student Recruitment and Reception Office (see above) to handle inquiries from prospective international students, to provide pre-admissions advising services, and to coordinate the University's international recruitment activities.

PARKING AND ACCESS CONTROL SERVICES

See *Parking and Access Control Services*, p. 70, under "Spaces and Places".

STUDENT DEVELOPMENT AND SERVICES

Student Development and Services comprises the units listed in this section, and provides services to students in partnership with academic units, Alma Mater Society and the Graduate Student Society.

Please refer to the individual units for contact information and further details on their services.

Access and Diversity

Access and Diversity (www.students.ubc.ca/access) provides leadership at UBC in eliminat-

ing barriers to full participation that prospective and enrolled students experience arising from gender, race/ethnicity, sexual orientation, and disability. The unit works with the University community to further equity and inclusivity in the learning environment.

The Disability Resource Centre, a component of Access and Diversity, works with the University community to determine reasonable accommodation for students, faculty, staff, and visitors with disabilities. The DRC coordinates disability related accommodations such as interpreting, captioning, mobility assistance, and specialized exam arrangements and facilitates the provision of specialized equipment. The Crane Resource Centre provides access to alternate format materials for people with print disabilities.

Access and Diversity
Student Development and Services
The University of British Columbia
1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-5844; TTY 604-822-9049
Fax: 604-822-6655
Web: www.students.ubc.ca/access

Career Services

See *Career Services*, p. 59, under "Student Services" in this section for details on this unit.

Counselling Services

See *Counselling Services*, p. 60, under "Student Services" in this section for details on this unit.

Disability Resource Centre

The Disability Resource Centre is now part of the *Access and Diversity*, p. 62, unit within Student Development and Services. For further information, go to the *DRC listing*, p. 64, under "Advocacy and Support Services" in this chapter.

Go Global: Student Mobility Programs

See *Go Global: Student Mobility Programs*, p. 443, within the "Alternative Study Options" chapter for information.

Go Global
International House, UBC
1783 West Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-0942
Fax: 604-822-9885
Web: www.students.ubc.ca/global

International House

See *International House*, p. 69, within "Spaces and Places" in this chapter.

International House Community Programs

Exciting international experiences are no longer a world away. International House Community Programs brings the world to you through a series of discussions, workshops, retreats, classes, cultural events, and excursions. A diversity of programming throughout the year provides students with an opportunity to make connections, gain valuable intercultural leader-

ship skills, learn about Canadian life, global issues, world cultures, and global citizenship.

International House
1783 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-5021
Fax: 604-822-5099
Web: www.students.ubc.ca/international

International Student Development

International Student Advisors (ISAs) are available for appointments, by email and phone to assist international students throughout their time at UBC. ISAs can help with information and guidance about immigration and employment (i.e. study permits, work permits, temporary resident visas), health insurance, and personal and cultural transition to the UBC learning environment. They can also act as a starting point and referral source for other questions you may have.

International Student Advisors
International House
1783 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-5021
Fax: 604-822-5099
Web: www.students.ubc.ca/international

Student Development

Student Development (www.vpstudents.ubc.ca/development.cfm) works with the University community to support and enrich student learning. Student Development officers provide experiential learning opportunities for students, as well as responsive and professional programs and services in the areas of leadership, learning, skills, peer programs, international student development and advising, and orientation and transition.

Student Health Service

See *Student Health Service*, p. 65, under "Health Services" in this chapter.

Women Students' Office

The Women Students' Office is now part of the unit *Access and Diversity*, p. 62, within Student Development and Services.

STUDENT INFORMATION SERVICES

The mandate of Student Information Services is to provide excellent service at a single point of contact, and to enhance the quality of services provided to students and others at UBC.

Services are located in the Brock Hall concourse, the Welcome Centre and at UBC Robson Square. These areas are the first point of contact for many students and campus visitors at UBC.

Registrarial services are located in the Brock Hall concourse. Services include transcript requests, tuition payment, registration information, faculty advisor referrals, as well as general information about UBC and its services.

Prospective students can visit the Welcome Centre for campus tours, information about admission requirements and applications, appointments with Advisors and general information about UBC and its services.

Staff can answer most questions; students are referred to other services when necessary. Other resources include the Ask Me (www.askme.ubc.ca) web-based response system and the student information call centre.

Student Information Services
The University of British Columbia
1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-9836 or 1-877-272-1422 (toll free in North America)
Fax: 604-822-9858
Web: www.askme.ubc.ca; www.students.ubc.ca

STUDENT SERVICE CENTRE

Students and applicants may access their student records and perform many tasks, including registration, grades inquiry, admission status and ordering transcripts, through the Student Service Centre (www.students.ubc.ca/SSC). New services are continuously being added, so students are advised to check the website regularly.

UBYSSEY PUBLICATIONS SOCIETY

Since 1918 UBC's official student newspaper, *The Ubyyssey*, has been the paper of choice for those who want to know what's going on around campus. Twice a week, the paper hits the stands packed full of news, sports, arts and culture, and opinion, all edited, written and produced by students. Tuesday's paper generally focuses on news and sports, while Friday's "Page Friday" emphasizes culture and features.

The Ubyyssey (www.ubyssey.bc.ca) has been an autonomous paper since 1995, governed by a board of elected UBC students. The paper concentrates on students at UBC and the issues that affect them, both on—and off-campus. One of the largest and most distinguished university papers in the country, *The Ubyyssey* was one of the first members in Canadian University Press, a collective of student papers across Canada. The writers and photographers have been recognised nationally by the John H. MacDonald awards for journalism and for filing freedom of information requests, receiving five awards in 2004.

The paper is always looking for volunteers, so students are encouraged to be a part of this 85 year tradition. No experience is necessary. If interested contact us (coordinating@ubyssey.bc.ca). Telephone 604-822-2301.

ADVOCACY AND SUPPORT SERVICES

ALUMNI AFFAIRS

Alumni services at UBC are managed by the independent Alumni Association and the Alumni Relations Unit administered by the Vice-President, Students. Together, these two units make up Alumni Affairs, and work as a team to create opportunities for UBC graduates to get involved with their alma mater.

The Alumni Association was founded in 1917 to foster a life-long relationship between the university and its graduates. Over the years the

Alumni Association developed programs such as reunions, faculty-based networking nights, recognition events, career workshops, faculty lectures, regional alumni network organizations, and mentoring and other opportunities for students. The Alumni Association is governed by an elected Board of Directors, and alumni serve on the university's senate and Board of Governors.

In 2004, the university and the Alumni Association officially joined forces to provide alumni services to UBC's 200,000-plus graduates. Alumni Affairs produces and distributes the award-winning *Trek Magazine* and the *Grad Gazette* email newsletter, and provides member services such as travel/study programs, affinity credit card and insurance programs. Alumni Affairs also awards a number of scholarships and bursaries to students, holds an annual Achievement Dinner to recognize alumni and friends of UBC who have had a significant impact on the university and the community, hosts major alumni events around the globe, and mobilizes alumni to advocate on behalf of UBC.

Alumni Affairs operates a website www.alumni.ubc.ca and an online social networking community, *TrekConnect*, which is accessible through the website.

CAMPUS SECURITY

Campus Security (www.security.ubc.ca) plays a leading role in promoting and maintaining a safe and secure environment that serves to enhance the quality of life for students, staff, faculty, residents, and guests of the University.

Campus Security is comprised of professionally trained and dedicated security personnel who are focused on the delivery of quality security and safety services to the community. Campus Security provides services in the four specific program areas of Operational Patrols, Secure Access, Community Relations, and Lost & Found:

- Campus Security Patrol provides 24-hour assistance, 7 days a week for any security and safety concerns. Our officers patrol by vehicle, bike, and foot.
- Secure Access provides support to your department and building needs with intrusion alarm systems and card access control services.
- Community Relations supports and partners in campus safety initiatives and crime prevention programs with a focus on education and awareness outreach and training.
- Campus Security coordinates the central campus Lost & Found. Hours of operation are: Monday through Friday (excluding statutory holidays) from 9:00 am to 5:00 pm. The Lost and Found contact number is 604-822-9922.

Campus Security is located at 2133 East Mall, just south of the main Bookstore entrance. For both emergency and non-emergency assistance Campus Security may be contacted direct by calling 604-822-2222 or by activating any blue

light phone on campus. In addition, incidents can be reported on-line through our website.

For more detailed information about programs or our services, please visit our website at www.security.ubc.ca.

CHAPLAINS

Students are invited to consult the following chaplains and advisors, whose services are offered on a voluntary basis:

Rev. Roberta Fraser, B.Sc., M.Div.	Anglican	604-224-1410
Mr. Trevor Freeman, B.A.	Anglican	604-224-1410
Mr. Borna Nouredin	Bahai	604-224-1244
Rev. Harry Park, M.Div.	Baptist	604-331-0260
Sensei Roy Akune, B.S., M.Div.	Buddhist	604-224-7710
Mr. Richard Carruthers, B.S., M.Div.	Canadian Southern Baptist	604-939-8589
Mr. Eyal Lichtman	Jewish	604-224-4748
Jane Gingrich	Lutheran	604-224-1614
Dr. Ismail Laher	Muslim	604-822-5882
Rev. Christopher Rigden-Briscall	Orthodox	604-872-2311
Mr. Arthur Howard, B.Sc. (Agr.), Dip.C.S., M.Div.	Pentecostal	604-222-0160
Rev. Chul Kim, M.Div.	Presbyterian (Korean)	604-374-2622
Rev. Mark Hoo	Roman Catholic	604-822-4463
Rev. Ed Searcy, M.Div.	United Church	604-224-3391

Further information on chaplaincy at UBC can be found at the Chaplaincy website (chaplains.students.ubc.ca).

CHILD CARE FACILITIES

UBC operates a variety of child care centres and preschool programs. See *Child Care Services*, p. 68, under "Spaces and Places", Department of Housing and Conferences, in this chapter.

DEVELOPMENT OFFICE

The University of British Columbia's reputation as a world-class teaching and research institution grows stronger every year. Privately funded scholarships and bursaries, endowed professorships and chairs, library acquisitions and state-of-the-art equipment and facilities help UBC stay at the forefront of higher education and research.

The Development Office works in close partnership with alumni, friends of UBC, corporations, foundations, service organizations, and government to secure funding for projects that address University and community priorities. A range of fundraising and donor recognition activities are organized by the University's central and campus-based Development Staff.

There are a number of ways an individual can contribute to the University. Individual donors may make one-time gifts, pledges over a period of time, or contributions through bequests, gifts-in-kind, and other planned gifts. Many in-

tatives are designed to build the financial endowment UBC holds in trust. Annual endowment earnings are invested in the University's students, faculty, and future, providing a legacy of opportunity and achievement.

Donations are an investment in higher education. For more information about supporting UBC, call the Development Office at 604-822-8900 or visit the Development Office website (www.supporting.ubc.ca).

DISABILITY RESOURCE CENTRE

The Disability Resource Centre, a component of Access and Diversity, works with the University community to determine reasonable accommodation for students, faculty, staff and visitors with disabilities. The DRC coordinates disability related accommodations such as interpreting, captioning, mobility assistance, and specialized exam arrangements and facilitates the provision of specialized equipment. The Crane Resource Centre provides access to alternate format materials for people with print disabilities.

Disability Resource Centre
Student Development and Services
The University of British Columbia
1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-5844; TTY 604-822-9049
Fax: 604-822-6655

Crane Resource Centre Tel: 604-822-6111
Fax: 604-822-6113
Email: disability.resource@ubc.ca
Web: www.students.ubc.ca/access

EQUITY OFFICE

The Equity Office provides confidential advice, support, and assistance to UBC students, staff, and faculty who have concerns about discrimination or harassment on any of the following 13 human rights grounds: age, ancestry, colour, family status, marital status, place of origin, political belief, physical or mental disability, race, religion, sex, sexual orientation, or criminal conviction unrelated to employment. For information about Equity Office policies, procedures, and workshop offerings, please view our website at www.equity.ubc.ca.

To make an appointment with an advisor, contact the Equity Office.

Equity Office
Room 2306, Brock Hall
1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-6353
Fax: 604-822-3260

FINANCIAL SERVICES

The Financial Services Department provides accounting-related services to the University Community. Our primary areas of responsibility are:

Payroll

- Ensuring that all employees (faculty, staff and students) are paid on an accurate and timely basis.

- Administering health and insurance benefits as well as tuition waivers and special leaves.
- Accounts Payable
- Processing vendor invoices, expense claims, and other payment requests.

Research and Trust Accounting

- Invoicing and providing financial reporting to government and industry research sponsors.
- Advising and supporting the University research community on a variety of project funding and compliance issues through liaising with government and industry project sponsors.

Systems

- Financial and human resource system support and development.

Reporting

- Accurate and timely financial reporting to internal and external users.

Financial Services Department
305-2075 Westbrook Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-2454
Web: www.finance.ubc.ca

FIRST NATIONS HOUSE OF LEARNING

First Nations House of Learning (FNHL) was established in 1987 to make UBC and its resources more accessible to BC's First People, and to improve the University's ability to meet the needs of First Nations. Through consultation with Aboriginal communities, the House of Learning aims to provide a quality post-secondary education determined by the philosophies and values of First Nations.

FNHL is located in the spectacular Longhouse that is the centre of Aboriginal activities on campus. The Longhouse serves as a "home away from home" where Aboriginal students, families, and friends can gather to study, share, and socialize in an environment that reflects the cultural traditions of Aboriginal people.

Housed within the Longhouse are the Sty-Wet Tan Great Hall, an Elder's lounge, S-Takya Childcare Centre, Xwi7xwa Library, a student and staff lounge, a computer lab, kitchen, change rooms, and administrative offices.

The House of Learning promotes a number of initiatives designed specifically for Aboriginal students. FNHL works with faculties across the University to enrich courses and programs with Aboriginal content.

In addition, the House of Learning works with the University to increase access of Aboriginal people to the University. As a result of this, the Canadian Aboriginal Students Admission Policy was established. For more information, see *Canadian Aboriginal Students*, p. 14, in the chapter, Admissions. The House of Learning also provides information on post-secondary opportunities and offers counselling and support services for Aboriginal students. Other

goals of the House of Learning include increasing the Aboriginal leadership on campus, and promoting international relations and exchange for the advancement of Indigenous peoples around the world.

The Longhouse
1985 West Mall
University of British Columbia
Vancouver, BC, V6T 1Z2
Tel: 604-822-8940
Fax: 604-822-8944
Web: www.longhouse.ubc.ca

HUMAN RESOURCES

People create the community we know as UBC—faculty, staff, students, alumni, residents, and visitors. We want to "make it possible for everyone to live, work, and study in the most supportive environment possible" (Trek 2010). Human Resources contributes to the values, strategies, and goals of Trek 2010 by providing supportive and innovative people practices to the UBC community.

How does this apply to students? The University of British Columbia encourages students to consider employment at UBC as they work towards their degrees and after graduation. In addition to being a wonderful academic environment for learning and research, UBC wants to create a place to work and study that exceeds people's expectations. Students seeking employment opportunities can contact their departments directly or consult the Career Services website (www.students.ubc.ca/careers). In addition, term positions and career opportunities are posted weekly on the HR website (www.hr.ubc.ca), along with application procedures.

INFORMATION TECHNOLOGY SERVICES

Information Technology works closely with students, faculty, staff, and alumni to provide IT-related strategy, applications, infrastructure, and support services to the UBC community. Information Technology does this through two principal units: ITServices and ITStrategy. Learn more about Information Technology, its services, and its role in collaborative technology leadership by visiting the ITServices website (www.it.ubc.ca).

Services for Students

ITServices at Information Technology offers a range of online, data, and voice services to students. Visit the ITServices website (www.itservices.ubc.ca) to find out more.

Campus-Wide Login. You'll need a Campus-Wide Login account to access many online services at UBC, such as the Student Service Centre and UBC Wireless. Visit www.cwl.ubc.ca for more information.

Email. Sign up for your free UBC email account at www.interchange.ubc.ca.

UBC Wireless Network. Connect to the internet for free from almost anywhere on campus using a laptop and a wireless card. Visit www.wireless.ubc.ca for more information.

Free Anti-Virus Software. Protect your computer from harmful viruses and worms by downloading free anti-virus software at www.download.ubc.ca.

myUBC. Get personalized access to the university's online resources, including webmail and WebCT. Visit my.ubc.ca for more information.

Residence Telephones. ResTel is the telephone service for Thunderbird, Ritsumeikan, St. Andrew's, St. John's College, Vancouver School of Theology, and Carey Hall residences. Visit voice.ubc.ca for more information.

Residence High Speed Internet Access. If you live in a connected residence, you can access the internet with ResNet. Visit www.resnet.ubc.ca for more details, including availability.

Protecting Your Computer and IT Security

Information Technology strives to ensure that computer systems operated by UBC students, faculty, and staff remain secure. As a proactive measure, Information Technology provides free anti-virus software (see **Services for Students** above for more details) and IT security expertise. Visit the IT Security Office website (www.itsecurity.ubc.ca) for more information.

The IT Security Office at Information Technology also investigates security incidents reported by students, faculty, and staff. For more information on what constitutes a security incident, and when to notify the IT Security Office, visit the IT Services Security Reporting page (www.itservices.ubc.ca/security/reporting).

Getting Support

IT Service Centre. The Information Technology IT Service Centre can assist you with inquiries, support requests, and billing information. For contact information and hours of operation, contact Customer Service (www.itservices.ubc.ca/contact/support).

MEDIA GROUP, THE

See *The Media Group*, p. 292, in the *College of Health Disciplines*.

PUBLIC AFFAIRS OFFICE

This office is responsible for communicating UBC's Trek 2000 vision along with key University messages and values to both its internal community of students, faculty, and staff, and to the broader external community of diverse audiences. Public Affairs' primary role is to enhance the reputation of the University.

The office provides the news media with accurate and timely information about research activities and other matters of public interest, produces a wide range of publications including *UBC Reports*, *Annual Report*, *Experts Guide*, and various brochures. The office takes overall responsibility for the top level of the UBC website (www.ubc.ca), and the Public Affairs website (www.publicaffairs.ubc.ca). Staff also provide public and media relations counselling to UBC administrative and academic units and offer communications services to campus units. The Public Affairs Office may be reached by

telephone at 604-822-4636, fax 604-822-2684 or email (public.affairs@ubc.ca).

For general information about UBC, contact the public information line, UBC-INFO (822-4636), or visit the Public Affairs Office website (www.publicaffairs.ubc.ca).

STUDENT LEGAL FUND SOCIETY

The Student Legal Fund Society (www.slfs.org) (SLFS) was founded in 1998 to support litigation, advocacy, and lobbying for improved education and access to education at UBC, and such other matters of law which set broad precedent and concern UBC students. All UBC students who have paid the Student Legal Fund fee (charged by the AMS) are eligible for membership. Members may stand for election to the SLFS board and may vote in SLFS elections. Membership registration takes place during SLFS elections, which are held in conjunction with AMS elections during the third week of January. For more information, telephone 604-827-1208.

WOMEN STUDENTS' OFFICE

See *Access and Diversity*, p. 62, within Student Development and Services.

HEALTH SERVICES

STUDENT HEALTH SERVICE

The Student Health Service is open to all UBC students. The clinic operates on an appointment system with time reserved daily for urgent, same day care.

Services include care of illness or injury, preventive health care, psychiatric services, antigen and immunization administration. When necessary, hospitalization will be arranged in a hospital, either on or off campus, depending on the type of facility required. Student Health Service Outreach Services include: a Wellness Centre in the Student Union Building, providing information and workshops on all aspects of wellness; a Nurse in Rez which offers health and wellness advice in some of the residences on campus, and the Health and Wellness website (www.students.ubc.ca/health) which provides health information specific to the concerns of University students.

Student Health Service
Student Development & Services
The University of British Columbia
main floor M334

Acute Care Unit, Vancouver hospital and
Health Sciences Centre
Vancouver, BC, V6T 1Z3
Tel: 604-822-7011
Web: www.students.ubc.ca/health

Hours: 8:00 am to 4:00 pm Monday to Friday except Thursday when we open at 9:00 am. There is an Emergency Department in the Acute Care Unit where help is available for acute injuries or sudden illness, when the Health Service is closed.

Wellness Education Outreach

The Wellness Education Coordinator, in collaboration with the Wellness Information Network (WIN) Peer Educators, provides wellness programming and resources for UBC students. The program includes a variety of health and wellness fairs, articles, displays, brochures and workshops. A new wellness centre is open for information and discussions from 9:00 to 5:00 pm Monday to Friday, in the Student Union Building, Room 56B. WIN volunteers are recruited in March and December. Information is available from the Wellness Education Coordinator (wellness.outreach@ubc.ca); telephone 604-822-4858.

MEDICAL INSURANCE

Application forms for medical insurance coverage are available at the Student Health Service and at International House. Electronic application forms are available online at the MSPBC website (www.healthservices.gov.bc.ca/msp). For further details consult the Health Service or the Medical Services Plan of BC by writing to MSPBC, PO Box 9035, Stn Prov Govt, Victoria, BC, V8W 9E3 or by calling 604-296-4677 (general inquiries) or 604-660-2421 (application status).

Note: Students who allow their insurance to lapse or who do not possess valid medical insurance must be billed directly.

BC Residents

Students who are BC residents are advised to have coverage under the Medical Services Plan of BC (MSP) of BC. Unmarried students whose parents are covered by the MSP are insured as dependents until their nineteenth birthday. The coverage may be continued until the student's twenty-fifth birthday if the student is in full-time attendance at university and mainly dependent on his or her parents. However, students must notify the Plan of student status each September, otherwise coverage ceases on the nineteenth birthday.

Students who are not covered by their parents' medical insurance plan must obtain insurance coverage from the MSPBC. Students covered by the MSPBC as individual subscribers may be eligible for a subsidy directly from MSPBC to defray the costs of the premiums. Application forms for the subsidy are available in the Student Health Service Office, International House and from MSPBC.

Non-BC Residents

Canadian students who are not BC residents should maintain coverage in their home province. All Canadian provinces accept responsibility for physician visits and hospital costs for their students attending the University of British Columbia provided the hospital insurance premiums (where required) have been paid.

International Students

UBC requires that all international students have basic and extended health insurance for the duration of their studies at UBC. The university provides Health Insurance for New

International Students (iMED), to all new students who pay international tuition and student fees, as well as exchange students and Ritsumeikan –and Korea University –UBC Joint Academic Program students. New international students are automatically covered for the three-month waiting period before they become eligible for BC's Medical Services Plan (MSP), with the exception of one-term exchange students, who are covered by iMED for the duration of their exchange because they are not eligible for MSP.

Students who are already covered by MSP, another Canadian provincial health plan, or mandatory health insurance provided by third-party sponsors with whom UBC has an agreement, must opt out of iMED before the end of their third week of classes at UBC. New international students should register for MSP as soon as they arrive. For extended coverage most international students are covered by the AMS/GSS Health and Dental Plan. For information on fees, see Item 6.2, p. 35, in the "Fees, Financial Assistance, and Scholarships" chapter. For further information please visit the *International Student Handbook* (www.students.ubc.ca/international/handbook.cfm).

Medical Requirements for Registration

The University reserves the right to require a medical examination if circumstances warrant.

The Faculties of Dentistry and Medicine have special medical requirements.

- Faculty of Dentistry: see *Acceptance*, p. 180, in that section under "Admission".
- Faculty of Medicine: see *Post-Acceptance Requirements*, p. 323, under Doctor of Medicine, Admission.

AMS/GSS HEALTH/DENTAL PLAN

The AMS/GSS provides a mandatory Extended Health and Dental Plan. If you have equivalent coverage, you may opt out. For further information on fees, applications, coverage and opting out, please refer to the *Health & Dental Plan Reference Guide* brochure (distributed by the AMS and GSS), visit the website (www.studentcare.net), or contact the Health Plan Office (Tel: 1-877-795-4421).

STUDENT SERVICE CENTRE

Students and applicants may access their student records and perform many tasks, including registration, grades inquiry, admission status and ordering transcripts, through the Student Service Centre (students.ubc.ca/ssc). New services are continuously being added, so students are advised to check the website regularly.

SPACES AND PLACES

ASIAN CENTRE

The UBC Asian Centre is a focal point for the sharing of ideas and information around the Pacific. Opened in 1981, the Centre houses the Asian Library, the Department of Asian Studies, and the Office of UBC International. The

Centre also provides space for the Asian interests of the School of Music, and houses a small permanent photo exhibit, "Asian Canadians: The Immigrant Experience." In 1985 the Pacific Bell Tower was constructed on the Asian Centre grounds to house the Pacific Bell, cast by the late Master Craftsman, KATORI Masahiko. The Bell reflects the strong spirit of peace and friendship between Japan and Canada.

The UBC Asian Centre has multi-functional facilities suitable for conferences, seminars, workshops, exhibitions, and cultural performances. Space can be booked by university and public groups.

Information on the UBC Asian Centre facilities is available on the Office of UBC International website (www.ubcinternational.ubc.ca/asian_centre.htm). Enquiries about booking the Seminar Room at the Asian Centre may be made by calling UBC International, Administrator, Tangerine Twiss, at 604-822-3114.

The booking of the Auditorium is handled by the Department of Asian Studies, Administrator, Roger Chow, at 604-822-5068.

The Asian Centre
1871 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-2427

Hours: The Asian Centre is open during the regular hours of the Asian Library.

BOOKSTORE

The UBC Bookstore is a self-supporting business owned by the University of British Columbia. The Bookstore is the province's major academic bookstore, stocking both general and academic book titles. As well as serving students, faculty, and staff, the Bookstore welcomes the general public.

UBC Bookstore operates four locations: the UBC (Point Grey) store, the UBC Health Sciences Bookshop, the UBC Bookstore Robson Square, and, in Kelowna, the UBC Okanagan Bookstore. The UBC Bookstore website (www.bookstore.ubc.ca) provides general information and secure online ordering.

During the first week of classes, regular store hours are extended. Exact dates and hours are posted at each Bookstore and on the website.

UBC Bookstore
6200 University Boulevard
Vancouver, BC, V6T 1Z4
Tel: 604-822-2665
Toll-free in Canada 1-800-661-3889
Fax: 604-822-8592
Email: bkstore@interchange.ubc.ca

Hours: Monday –Friday from 9:30 am to 5:00 pm; and Saturday from 11:00 am to 5:00 pm.

Course Books

Course books and academic materials are normally available two to three weeks prior to the beginning of classes. The Bookstore operates the FastStart Coursebook Reservation Service, which is free to UBC students. Course book listings are available under "Students" at

www.bookstore.ubc.ca two weeks before the start of terms. A first year student can expect to spend between \$400.00 and \$700.00 for books and supplies per term, depending on their program. Used course books are available for sale whenever possible. Extended used book buybacks are held at the beginning and end of Terms 1 and 2. The Bookstore also buys back coursebooks, Monday to Friday, during each term.

General Books and Special Orders

The Bookstore stocks all UBC course texts and materials, as well as general and reference books. Children's books, bestsellers, computer books, magazines and one of the city's largest collections of calendars are also available. Discounts on regular-priced general books are offered through the UBC Bookstore Book Club. For information on general books, call 604-822-4749. The Bookstore offers a special order service for in-print titles, which are not in stock. For special orders phone 604-822-6415 or click "Special Order Service" at www.bookstore.ubc.ca.

Supplies

Additional in-store merchandise includes UBC clothing, giftware, school/office supplies, and office furniture. UBC clothing and giftware are also available online.

Computer Department

The Bookstore's Computer Department carries Apple and IBM laptops as well as name brand peripherals. There is also a full line of software, including educational packages and office programs. Many products are educationally priced (lower than retail) for UBC faculty, staff, and students. Click on "Computer Department" at the UBC Bookstore website (www.bookstore.ubc.ca) or call 604-822-4748 for more information.

Health Sciences Bookshop

UBC Health Sciences Bookshop carries over 7,000 titles specializing in medical and allied health sciences plus diagnostic equipment.

Health Sciences Bookshop
2750 Heather Street
Vancouver, BC, V5Z 4M2
Tel: 604-875-5588

Orders may be placed toll free in Canada at 1-800-665-7119. Books can be ordered at hsb.bookstore.ubc.ca or via email (medbooks@interchange.ubc.ca).

Hours: Monday –Saturday from 10:00 am to 5:00 pm.

UBC Bookstore Robson Square

This store carries titles related to courses held at UBC Robson Square plus reference and general book titles, UBC clothing, giftware, stationery, and educationally-priced software. In addition, this location specializes in books for the legal, engineering, and architectural professions.

800 Robson Street
Vancouver, BC, V6Z 2C5
Tel: 604-822-6453
Email: rsquare@interchange.ubc.ca

Hours: Monday, Tuesday, Thursday, Friday
from 10:30 am to 5:00 pm; Wednesday from
10:30 am to 7:30 pm; and Saturday from Noon
to 4:00 pm.

UBC Okanagan Bookstore

This store carries textbooks and academic materials for all courses held at UBC Okanagan. As well, it features reference and general books, UBC clothing and giftware, educationally-priced computer hardware and software, and school/office supplies.

333 University Way
Kelowna, BC, V1V 1V7
Tel: (250) 491-6546
Fax: (250) 491-6563

Hours: Monday–Friday from 8:30 am to 4 pm.

BOTANICAL GARDEN

UBC Botanical Garden's history dates back to 1912 when a hectare of land was allocated to establish a botanical garden on the Provincial Colony Farm at Essondale under the directorship of Prof. John Davidson. In 1916, the collections were moved about 20 miles to the lands set aside for the development of the new university, UBC. The Botanical Garden is both the oldest department on campus and the oldest continuously operating university botanical garden in Canada.

The Botanical Garden's present holdings comprise three main sites: the main Botanical Garden (28 ha), with its administration and reception buildings and garden shop; the nursery (10 ha); and the Nitobe Memorial Garden (1 ha), an authentic Japanese Tea and Stroll garden (see below). The main garden consists of a number of separate gardens, including a Food Garden, Physic (apothecary's) Garden, Winter Garden, Alpine Garden, Arbour Garden, BC Native Garden, and an Asian Garden.

Among the foremost attractions in the Vancouver area are the 15-hectare David C. Lam Asian Garden and the E. H. Lohbrunner Alpine Garden. The Alpine Garden displays plants from alpine regions around the world. This garden was constructed using 2,000 tonnes of pyroxine andesite boulders from the BC Interior.

Situated among towering native conifers at the garden's entrance, the Asian Garden includes more than five hundred different rhododendrons. This garden also features significant collections of maples, clematis, magnolia and sorbus along with hundreds of rare and unusual southeast Asian plants of all forms. The garden is named for the Honourable David C. Lam, the province's first Chinese-Canadian Lieutenant Governor.

Botanical Garden and the Shop in the Garden
6804 SW Marine Drive
Tel: 604-822-3928
Fax: 604-822-2016
Email: botg@interchange.ubc.ca
Web: www.ubcbotanicalgarden.org

Public horticultural inquiries (Tuesday and Wednesday, 12:00 to 3:00 pm) and 24 hr event information: 604-822-9666. Admission free for UBC students with student card.

NITOBE MEMORIAL GARDEN

Opened in 1960, the Nitobe Memorial Garden is dedicated to the memory of Dr. Inazo Nitobe. Dr. Nitobe was a distinguished educator and international civil servant who sought to build cultural bridges between Japan and the West. The garden was designed by Professor K. Mori of the University of Chiba and was developed to provide an authentic example of Japanese landscape architecture using native and Japanese plants. The garden is known as one of the top three Japanese gardens in the world outside of Japan.

The Nitobe Memorial Garden is located across the street from UBC's Museum of Anthropology. To contact, please see the Botanical Garden listing above, or visit the garden's website (www.nitobe.org). Admission free for UBC students with student card.

CHAN CENTRE FOR THE PERFORMING ARTS

Conceived by a consortium of distinguished architects, theatre designers and acousticians, the Chan Centre for the Performing Arts houses the Chan Shun Concert Hall, the Telus Studio Theatre and the Royal Bank Cinema. The Chan Centre offers a full range of music, theatre, and film programs involving the community and the University.

The 1,200-seat **Chan Shun Concert Hall** has been designed as an inspiring environment for the enjoyment of audiences and artists alike. The Concert Hall features an adjustable acoustical canopy and can accommodate a wide range of musical events with superb sound quality. The flexibility of the stage ensures that solo performers, chamber groups and symphony orchestras with a full chorus on stage are provided with a facility which meets their individual and specific needs.

The Telus Studio Theatre features a flexible seating configuration which can accommodate an audience of up to 280 people. The Studio Theatre is an ideal space for classical drama, small musicals, cabaret, and solo performances, with spatial and technical requirements readily available for all productions.

The Royal Bank Cinema is an intimate 160-seat audio visual theatre with the capacity to screen 16 mm, 35 mm film or slide and video projections. The multi-purpose facility can also be used for a wide range of activities including conferences, meetings, lectures, and festival events.

Inquiries regarding the Chan Centre may be sent by telephone 604-822-9197 or fax 604-822-1606. More information may be obtained from the Chan Centre website (www.chancentre.com).

DEPARTMENT OF HOUSING AND CONFERENCES

The Department of Housing and Conferences provides housing for students, faculty, and staff on campus. Applications are approved on a first-come, first-serve basis. The Department also arranges conference spaces and facilities.

Application/information booklets, application forms and rate sheets for residences are available from the Department of Housing and Conferences online at www.housing.ubc.ca/application/gen_info.htm, or in Brock Hall.

Note: The Department of Housing and Conferences' application process is entirely separate from the University's admission system, so students should not wait until they are admitted to UBC before applying for housing, due to high demand.

CONTACT INFORMATION

Department of Housing and Conferences
1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-2811
Fax: 604-822-6935
Email: information@housing.ubc.ca
Web: www.housing.ubc.ca

Hours: 8:30 am to 4:00 pm, Monday to Friday
(closed on weekends and statutory holidays).

Single Student Housing-Winter Session

Furnished residence accommodation is available for single students during Winter Session on a room-and-board basis in Place Vanier and Totem Park residences, or on a room-only basis in Walter Gage, Fairview Crescent, Ritsumeikan-UBC House and Marine Drive residences (opening Fall 2005).

Tel: 604-822-2811
Fax: 604-822-6935
Email: information@housing.ubc.ca
Address: See *Contact Information*, p. 67.

Single Student Housing-Year Round

Thunderbird Residence is designed for single students and couples, without children, requiring year-round on-campus accommodation. The unfurnished studio, one-bedroom, and two-bedroom units are assigned on a priority basis to graduate students, students registered in professional programs and mature students over 25 years of age. Thunderbird Residence also offers four-bedroom, furnished townhouses which are assigned to qualified applicants on a first-come, first-served basis on a year-round contract.

Thunderbird Residence Assignments
Tel: 604-822-2812
Fax: 604-822-6935
Email: thunderbird@housing.ubc.ca
Address: See *Contact Information*, p. 67.

Summer Housing

Students registered for Summer Session Term 1 only or for Terms 1 and 2 are housed in Fairview Crescent residence. Students who are on campus for Summer Session Term 2 only are housed in Place Vanier residence. Housing

enquiries for Summer Session Term 1 or those taking Term 1 and Term 2 should be directed to:

UBC Summer Housing
Tel: 604-822-2812
Fax: 604-822-6935
Email: reservations@housing.ubc.ca
Address: See *Contact Information*, p. 67.

Summer Session Term 2 only registrants should contact:

Conferences and Accommodation
Tel: 604-822-1000
Fax: 604-822-1001
Email: reservations@housing.ubc.ca
Address: See *Contact Information*, p. 67.

Residence Advisors

This once-in-a-lifetime work experience offers outstanding leadership training and development. Employment positions as residence advisors are offered each year to students who have previous experience living in a university residence or other group living setting, and who have demonstrated ability to relate well to others in a community environment, to maintain high academic standards, and to participate more actively in student life. More information and an application form are available in early January at the Housing and Conferences website (www.housing.ubc.ca), the Department of Housing and Conferences in Brock Hall, or at one of the residence front desks. Participation in the interview selection process and a criminal record check are necessary.

Student Family Housing

Unfurnished apartments and townhouses are available on a yearly basis in Acadia Park residence for couples with or without children and single parents with children. Applicants should contact:

UBC Student Family Housing
Tel: 604-822-4411
Fax: 604-822-6935
Email: family@housing.ubc.ca
Address: See *Contact Information*, p. 67.

Faculty/Staff Housing

Unfurnished apartments are available on a yearly basis in University Apartments residence for singles and couples with or without children. Qualified faculty and staff applicants should apply to:

Faculty/Staff Housing
Tel: 604-822-4411
Fax: 604-822-6935
Email: family@housing.ubc.ca
Address: See *Contact Information*, p. 67.

Child Care Services

UBC operates a variety of child care centres and preschool programs which provide care for children aged four months to twelve years. Full-time and part-time care is available. There is a waiting list for each age group. For brochures and waiting list applications, please contact:

UBC Child Care Services
2881 Acadia Road
Vancouver, BC, V6T 1S1
Tel: 604-822-5343 Fax: 604-822-9195
Email: child_care@brock.housing.ubc.ca
Web: UBC Child Care Services website (www.childcare.ubc.ca).

FOOD SERVICES

Home of the famous UBC Cinnamon Bun.

UBC Food Services offers 20 unique operations and services with over 400 union and student employees providing fast, convenient, and friendly service to the university community. A variety of branded food outlets are available. Snack bars, coffee bars, and cafeterias are strategically located throughout the campus. Pacific Spirit Cafeteria, Sage Bistro, 99 Chairs and the Trek Express offer variety from quick snack items to fine dining. We also offer a few options for evening dining on campus. Visit the new Vanier Dining Room at Place Vanier, Totem Park Dining Room, or 99 Chairs at the David Lam Centre. Our bakeshop is well known for its all-occasion cakes, which can be ordered directly from the UBC Bakeshop and delivered to you anywhere on campus. Food Services also has Gift Baskets and Gift Certificates available for gift giving anytime of the year, please visit the UBC Food Services (www.foodserv.ubc.ca) for more information or call 604-822-6828.

UBC Catering

Extensive catering services for office meetings, graduations, conferences, banquets, weddings, and BBQs are available seven days a week. Services are available at any location on campus, including AMS locations, the Museum of Anthropology, Asian Centre, Botanical Garden, Cecil Green Park House. Call 604-822-2018 for more details or visit UBC catering. (www.ubccatering.ubc.ca)

Ponderosa Meeting Space

UBC Food Services has great rooms available for meetings, seminars, workshops, and banquets at the Ponderosa Building. For space availability, booking and catering needs, please call 604-822-2018.

University Centre

The University Centre, home of Sage Bistro and Sage Catering, offers an upscale, fine dining environment. Spectacular vistas of Howe Sound and the North Shore mountains add to the dining experience. Full catering and banquet services are available. Call 604-822-0429 for more information or visit the Sage Bistro website (www.sage.ubc.ca). For reservations for lunch or dinner call 604-822-0968.

Dining Convenience & Savings with your UBCcard

Your UBCcard is also a dining discount card, providing convenience and savings (up to 20%) to students, faculty, staff, and the University community. Purchase your Dining Savings at the UBC Food Service Meal Account Office. Your UBCcard is accepted at all UBC Food Services locations, including Residence Dining

Rooms, Starbucks coffee bars, Bread Garden, Subway, Tim Hortons, and the full-service restaurants. For more information contact the Meal Accounts Office (meal.plan@ubc.ca) at 604-822-5839.

Administration Office

For more information, hours of operation and special events, visit UBC Food Services (www.foodserv.ubc.ca), or contact us at:

UBC Food Services Administration Office
The University of British Columbia
2071 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-UBC-FOOD (822-3663)
Web: www.foodserv.ubc.ca

HERBARIUM

The Herbarium consists of permanent reference and research collections of dried plant specimens housed in cases in the Department of Botany in the Biological Sciences Building. All groups of macroscopic algae, fungi, and plants are represented in the collection of more than half a million specimens. There are more than 220,000 specimens of seed plants and ferns. This includes the world's largest collection of British Columbia plants, one of the world's largest collections of tropical prayer plants (Marantaceae), as well as large collections from other parts of North America, the Hawaiian Islands, Europe, South Africa, South America, New Zealand, and Australia. The algae collection includes over 80,000 specimens of marine algae. This includes the world's largest collection of seaweeds from British Columbia and Alaska, and major collections from Washington, Oregon, Australia, New Zealand, Europe, Japan, and South Africa. The fungi collection includes over 38,000 specimens. This includes an excellent collection of Myxomycetes (slime molds) as well as representatives of most groups of true fungi. In addition, the lichen collection includes 30,000 specimens. The bryophyte collection contains over 220,000 specimens, of which over 180,000 are mosses and 35,000 are liverworts. It is the third largest bryophyte collection in North America, and the largest collection of British Columbia bryophytes. It also includes major collections from the rest of North America, Japan, Western Europe, Australia, and New Zealand.

Herbarium specimens are the basis for all documented identifications and geographical distributions of plants. The collections are studied taxonomically by the curators, other faculty and students, and researchers all over the world. The specimens are also a resource that can be used by scientists for chemical and molecular analysis. The Herbarium also keeps voucher specimens of plants which have been studied chemically, genetically, or in other ways. These voucher specimens provide permanent proof of the identity of the species that was actually studied. Foresters, archaeologists, ecologists, police, agriculturists, other government agencies, and the general public also use the Herbarium for plant identifications. More information about the Herbarium may be

obtained from the Botany website (www.botany.ubc.ca).

INTERNATIONAL HOUSE

International House (I. House) is a student centre for international and intercultural learning and is open to all members of UBC and their families. If you want to meet people, share your culture, and learn about the world, I. House is a great place to start.

I. House is home to UBC's International Student Advisors, Go Global: Student Mobility Programs, International House Community Programs, and YouLead. Each year I. House hosts GALA-International Orientations in August, January, and May, as well as UBC International Week in the spring.

You can come to I. House for:

- International Peer Program
- International student advising
- Student exchange information
- GALA-International Orientation
- ReachOut
- International volunteer opportunities
- Global Resource Centre
- Explore Canada / Explore the World programs: Leadership and Learning (UBC International Week); Language Support (Language Circles; ESL Classes; Conversation Club); Multicultural Wellness and Spirituality (My International Circle; Heart-Mind Community Circle; Yoga, Salsa, Kendo, Kung Fu, MSA Prayer) and a diversity of cultural programs
- TOP: Transition Out Program
- I. Volunteer Program: Mentorship, host programs, event planning, public relations, and community service projects are just some of the ongoing volunteer leadership opportunities at I. House

I. House is a place where everyone is welcome to drop in and get involved. It is surrounded by a peaceful garden and offers two lounges, a meeting room, a reading corner and global resource library, a piano, a big screen TV, and table tennis. I. House is available for booking for international learning activities by all members of UBC.

International House
1783 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-5021
Fax: 604-822-5099
Web: www.students.ubc.ca/international

MORRIS AND HELEN BELKIN ART GALLERY

The UBC Fine Arts Gallery was established in 1948 and located in the basement of Main Library. During its early history, it was the only gallery in the Vancouver region to focus exclusively on contemporary art. In 1995, the Fine Arts Gallery was rededicated the Morris and Helen Belkin Art Gallery and moved to its current premises at 1825 Main Mall. In 2002, the Belkin Satellite gallery opened in downtown

Vancouver as an outreach site for the UBC Morris and Helen Belkin Art Gallery

The Morris and Helen Belkin Art Gallery's mandate is to research, exhibit, collect, publish, educate, and develop programs in the field of contemporary art and in contemporary approaches to art history and criticism. The Gallery is not limited to particular media or disciplines; however, special emphasis is placed on the areas of the Canadian avant-garde, emerging artists, Vancouver's post-war art history, and practices and projects that challenge the status quo. The University Art Collection, which is housed and administered by the Gallery, is the third largest public art collection in the province, containing more than 2,500 artworks and over 30,000 archival items.

Through a regular program of exhibitions, publications, loans, special projects, and exchange programs, the Morris and Helen Belkin Art Gallery participates in the national and international community of institutions concerned with contemporary art. The Gallery serves students, scholars, researchers, and the public on local, national, and international levels. The Gallery also collaborates with the UBC Department of Art History, Visual Art, and Theory, on the Masters of Arts in Critical and Curatorial Studies program.

The Morris and Helen Belkin Art Gallery is funded by the UBC Faculty of Arts, the Belkin Family Foundation Operating Endowment, the Belkin Gallery Endowment for Acquisitions and Exhibitions, private and corporate sponsorship, and government arts funding agencies.

Morris and Helen Belkin Art Gallery
1825 Main Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-2759
Fax: 604-822-6689
Web: www.belkin-gallery.ubc.ca

Belkin Satellite
555 Hamilton Street
Vancouver, BC, V6B 2R1
Tel: 604-687-3174
Fax: 604-822-6689
Web: www.belkin-gallery.ubc.ca

MUSEUM OF ANTHROPOLOGY

The Museum of Anthropology (MOA) (www.moa.ubc.ca), founded in 1947, houses over 35,000 ethnographic artifacts. The Northwest Coast collection is outstanding, consisting of a broad range of materials, both ceremonial and domestic, some donated and others purchased.

MOA also contains extensive Asian, Pacific Islands, and Inuit collections along with classical materials from the Mediterranean. Other important collections include a worldwide collection of over 5,000 textiles and an extensive ceramics collection of which the Koerner collection of European ceramics forms a part.

The Laboratory of Archaeology is housed in the Museum and operates independently. Its collections are primarily the result of four decades of UBC faculty and student research in southwestern British Columbia.

The Museum of Anthropology is Canada's largest teaching museum. Collections from North American First Nations and Inuit cultures of both ancient and contemporary materials are used in teaching, especially in museum training courses, and in various anthropology courses as well as courses in other disciplines. They are also resources for research work by students, scholars, and community groups.

The spectacular building enhances the Museum's collection of massive carvings created by Northwest Coast First Nations' artists, and permits the public display of most of its ethnographic collections in the Research Collection gallery.

The Museum of Anthropology, with the Departments of Anthropology and Sociology and Fine Arts, offers theoretical and practical training in Museum Studies as a component of undergraduate and graduate degree programs. This training is also available to students of other related disciplines such as Asian Studies, Classics, History, and Education by permission of the relevant departments. In addition, the museum has a program of internships for students to gain practical experience as part of their studies.

The operations and programs of the Museum are funded in part by the Government of Canada through the Museums Assistance Program of the Department of Canadian Heritage and by the Province of British Columbia through the British Columbia Arts Council.

Museum of Anthropology
6393 N.W. Marine Drive
Vancouver, BC V6T 1Z2
Tel: 604-822-5087
Web: www.moa.ubc.ca

PACIFIC MUSEUM OF THE EARTH, THE

The newly created Pacific Museum of the Earth (PME) combines the collections of the former MY Williams Planet Earth Museum and the Pacific Mineral Museum. The museum includes displays of spectacular rocks and minerals, fossils, a seismograph and various exhibits relating to ocean and atmospheric sciences. This exhibit is the only one of its kind in British Columbia.

The most prominent display is the wall-mounted example of the dinosaur *Lambeosaurus*. This animal, 80 million years old, occupies a permanent position just inside the door. Minerals, rocks and fossils are drawn from departmental collections, individuals, and societies and total approximately 40,000 items. The museum offers exhibit tours free of charge to groups and K-12 school classes. For information on Earth and Ocean Sciences, the PME, and directions, please refer to our website below.

The Pacific Museum of the Earth
6339 Stores Rd.
Earth and Ocean Sciences Main Bldg.
Vancouver, BC V6T 1Z4
Tel: 604-822-6992
Web: www.eos.ubc.ca/public/museum
Hours: 9:00 am to 5:00 pm Monday to Friday.

PARKING AND ACCESS CONTROL SERVICES

Parking and Access Control Services is an ancillary operation of the University of British Columbia, the goals of which are to provide efficient and effective parking facilities for its customers and to meet the needs of the University community and its visitors.

Campus parking is a user-pay privilege. Several pay parking options are available on campus including parking permits, daily parking, and proximity parking in one of our five parkades, surface lots or metered spaces.

Parking Permits

Parking permits are sold at the Parking Office to allow students, faculty, and staff to park their vehicles in designated permit parking lots. Parking permits are not transferable.

There is more demand for parking than spaces available. Each year an Advanced Student Registration is held. Students may register starting in April on our secure website (www.ubcparking.com).

Parking is permitted only in areas which are clearly designated for parking. No parking is allowed on roadways, fire lanes, or in any area not designated or signed for parking.

Penalties for contravention of UBC Parking Regulations are ticketing and/or impoundment of vehicle. To avoid impoundment and other consequences all parking tickets must be paid. Late payment of Fees and Accounts: whereas the University may decline to allow subsequent registration of a student, or provide academic transcripts. The University may take legal action or utilize any other remedies that may be available to it, whether the outstanding obligation is owed by a faculty member, staff member, student, or other individual. Please see University Policy #67 (www.universitycounsel.ubc.ca/policies/policy67.pdf).

For further information call 604-822-6786 Monday to Friday, 8:30 am to 4:30 pm or visit the Parking and Access Control Services website (www.ubcparking.com).

ZOOLOGICAL MUSEUMS

The Zoological Museums contain material representative of both vertebrate and invertebrate taxa. They are housed in several rooms in the Biological Sciences building.

The Cowan Vertebrate Museum contains 17,400 catalogued mammal specimens, 15,200 birds, 2,100 clutches of bird eggs, and 1,600 amphibians and reptiles. Major historical accessions include the K. Racey collection of birds and mammals, the H.R. Macmillan bird collection, and the zoological collections of W.S. Maguire and J. Wynne. Major geographical

representation is for Western Canada. About half of the bird specimens date from before 1950. More information may be obtained from the museum website (www.zoology.ubc.ca/~vertmus/). This museum is now being run by part-time staff, so use is limited. Telephone: 604-822-4665.

The George J. Spencer Entomological Museum now contains about 600,000 specimens mostly from British Columbia and Yukon. Notable holdings include the Stace-Smith Collection of Coleoptera, the Foxlee collection of Diptera and Hymenoptera, the Downes collection of Hemiptera, and the Llewellyn-Jones collection of Lepidoptera. More information may be obtained from the museum website (www.insecta.com). This museum is now being run by part-time staff, so use is limited. Telephone: 604-822-3379.

The UBC Fish Museum has one of the two largest collections of fish in Canada with over 23,000 catalogued entries comprising over 800,000 specimens. Fifty percent of the collection is from North America and the remainder from throughout the world. In addition to preserved specimens, the collection is rich in skeletal and x-ray material. The data base is amenable to computer manipulation, permitting searching for specific geographical areas and/or faunal associations. For more information visit the museum website (www.zoology.ubc.ca/~etaylor/nfrg/fishmuseum.html). This museum is now being run by part-time staff, so use is limited.

AFFILIATED AND RESIDENTIAL COLLEGES

AFFILIATED THEOLOGICAL COLLEGES

The British Columbia *University Act*, R.S.B.C. 1996, c. 468 states that a "university must be non-sectarian and non-political in principle" (s. 66(1)), and further, that "[d]espite subsection (1), a theological college incorporated in British Columbia may be affiliated with a university under a resolution or order made by the senate and approved by the board" (s. 66(2)). At UBC, affiliated colleges have the right to representation of one member each on the UBC Vancouver Senate.

The granting of affiliation means that the college meets the criteria for affiliation established by the Senate of the University of British Columbia but does not imply any scrutiny or approval of the course offerings of the affiliate college by the Senate.

Carey Theological College

Brian F. Stelck, B.Ed., M.Ed., M.Div., Ph.D.,
President

Carey Theological College is the centre for pastoral studies and graduate internship programs for the Baptist Union of Western Canada. The College offers courses in applied theology, supervised field education, and continuing education programs for church leaders, including a Doctor of Ministry program, a Master of Pasto-

ral Ministry program, and, in cooperation with Regent College, a Master of Divinity.

Carey Theological College
5920 Iona Drive
Vancouver, BC, V6T 1J6
Telephone: 604-224-4308
Fax: 604-224-5014
Email: info@careytheologicalcollege.ca
Web: [website \(www.careycentre.com\)](http://www.careycentre.com)

Regent College

Rod J. K. Wilson, B.Sc., M.A., Ph.D., M.T.S.,
President

Regent College is an international graduate school of Christian studies. It is an autonomous body, trans-denominational in character and evangelical and Biblical in basis. Regent College offers graduate-level theological and interdisciplinary courses for lay men and women that lead to a one-year Diploma in Christian Studies, and a two-year Master of Christian Studies degree. A three-year Master of Divinity degree designed for men and women entering professional ministries, and a four-year Master of Theology degree are also offered. Summer Sessions consisting of one-, two- and three-week periods as well as a seven-week intensive Hebrew and Greek-Language Session are held each year. The College has formal affiliation with the university, and is fully accredited with the Association of Theological Schools in the USA and Canada.

Regent College
5800 University Boulevard
Vancouver, BC, V6T 2E4
Web: www.regent-college.edu

St. Mark's College

ROMAN CATHOLIC
Dr. David Sylvester, Principal pro tem & Vice-Chancellor
Rev. Denis April, C.S.B., B.A., M.L.S.,
Librarian

Rev. Mark Hoo, O.P., M.A., S.T.L., Chaplain
St. Mark's is the Catholic center on the campus offering a home to a vibrant worshipping community, graduate degree programs in theology, as well as undergraduate arts studies through its partner Corpus Christi College. St. Mark's grants degrees at the Master's level in Religious Education and Theology, and certifies and diplomas in Spirituality, Religious Education, and Theology. The College's library specializes in theology, history, and philosophy and is open to all members of the university community. The College sponsors many student clubs and social outreach initiatives and provides facilities for the parishioners of St. Ignatius Parish. St. Mark's is formally affiliated with the University of British Columbia and a member of the Consortium of Theological Schools at UBC (CTSUBC).

St. Mark's College
5935 Iona Drive
Vancouver, BC, V6T 1J7
Tel: 604-822-4463
Fax: 604-822-4659
Email: corpus@interchange.ubc.ca
Web: www.stmarkscollege.ca

Corpus Christi College
Tel: 604-822-6862
Fax: 604-822-4659
Email: corpus@interchange.ubc.ca
Web: www.corpuschristi.ca

Vancouver School of Theology

ANGLICAN, UNITED, PRESBYTERIAN,
UNITED METHODIST
Vancouver School of Theology (VST) is a multi-denominational graduate school of theology open to all interested in the study of the Christian faith. The School offers varied programs for all – lay and ordained. The School's goal is to be a centre for theological research and dialogue. It caters to both full and part-time students and, with a focus on educational competence, offers the following degrees:

- Master of Arts in Theological Studies (M.A.T.S.) degree. A two-year program. Five concentrations are offered: Spirituality, Spirituality and Spiritual Direction, Bible, History & Theology or Integrative Studies.
- Master of Arts in Religious Education (M.A.R.E.). A two-year degree designed to equip people for competent leadership in various forms of educational ministry in congregations and other religious institutions.
- Master of Divinity (M.Div.) degree. A three- to four-year program.
- Master of Divinity (Ordained) degree. A three- to four-year program for those interested in ordained ministry.
- Master of Theology (Th.M.) degree. A post-graduate degree for those who hold a Master of Divinity degree, offering thesis or general research options.
- Doctor of Ministry (D.Min.) degree. A post-graduate degree for those who hold a Master of Divinity degree, this program is designed to improve student's leadership abilities in interpreting and communicating the Gospel in ministerial contexts.

VST also offers one-year programs of general inquiry into theology, ministry and spirituality. Evening and weekend continuing education courses are also available to all.

As a member of the Native Ministries Consortium, VST offers a Master's of Divinity degree program by extension to prepare candidates identified and sponsored by Aboriginal communities and their churches for professional and lay ministry.

The VST Library is one of the major theological libraries in North America. It is open to all with a valid UBC Library card.

In 2004–05, Vancouver School of Theology is housed in the Chancellor Building, north of Gage Towers. VST is formally affiliated with UBC and is fully accredited by The Association of Theological Schools in the United States and Canada.

Vancouver School of Theology
6000 Iona Drive
Vancouver, BC, V6T 1L4
Tel: 604-822-9563
Fax: 604-822-9212
Email: vstinfo@vst.edu
Web: www.vst.edu

RESIDENTIAL COLLEGES

Carey Hall

Within the Carey Theological College, Carey Hall provides residence and dining facilities for 55 co-educational undergraduate UBC students, mostly in single rooms. The residence is currently under construction and will be available January 2005. Contact the main office at 604-224-4308 for further details.

Green College

Green College is a residential college for graduate students. See *Green College*, p. 288, under the Faculty of Graduate Studies, Centres and Institutes for further details.

St. Andrew's Hall

St. Andrew's Hall is a theological college of the Presbyterian Church in Canada on the campus of the University of British Columbia. It provides a multidisciplinary residential community located at the heart of the campus, immediately east of the Faculty of Law, for students and their families from all faculties and schools at the University. St. Andrew's is the centre for Presbyterian chaplaincy activities on campus. In conjunction with the Vancouver School of Theology, it offers degree and diploma programs in theological education. For further information on student accommodation, conference facilities, or chaplaincy services, contact the main office at 604-822-9720. More information may be obtained on the St. Andrew's website (www.standrews.edu).

St. John's College

St. John's College is a residential college for graduate students. See *St. John's College*, p. 288, under the Faculty of Graduate Studies, Centres and Institutes for further details.

ACADEMIC PRESSES

B.C. ASIAN REVIEW

Maiko Behr, Managing Editor. Tara Barnett, Tanya Boughtflower, Javier Cha, Courtney Loo, Editors

Established in 1987 by graduate students of the Department of Asian Studies, the *B.C. Asian Review* is a refereed journal of scholarly research in the humanities covering all regions of Asia. Produced in electronic format since 1998, the journal now invites critical feedback from a worldwide audience. The editors wel-

come submissions from graduate students, scholars and researchers at universities in Canada and abroad. Inquiries may be directed to:

Department of Asian Studies
Asian Centre
1871 West Mall
Vancouver, BC, V6T 1Z2
Email: bcarinfo@interchange.ubc.ca
Web: www2.arts.ubc.ca/bcar

BC STUDIES: THE BRITISH COLUMBIAN QUARTERLY

Robert A. J. McDonald, Editor

Established in 1969, *BC Studies* is a journal of informed writing on the political, economic, and cultural life of British Columbia, past and present. Each issue contains articles on a wide range of topics, in-depth reviews of current books, and a bibliography of recent publications about the province. Also available are theme issues on topics such as First Nations, domestic space, the environment, and more.

Offices of *BC Studies*
162 Buchanan E
1866 Main Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-3727
Fax: 604-822-0606
Email: write_us@bcstudies.com
Web: www.bcstudies.com

CANADIAN JOURNAL OF CIVIL ENGINEERING

D.S. Mavinic, Editor

The *Canadian Journal of Civil Engineering* publishes papers in the various disciplines of civil engineering. The *Journal* publishes the views and findings of recognized researchers and practitioners from industry, government and universities. It also highlights new developments in civil engineering analysis, design, and construction. The *Journal*, which is now in its 30th year, is published bi-monthly in both electronic and hard copy form.

Don Mavinic, Professor of Civil Engineering at UBC, and the editor of the *Journal*, is assisted by an editorial board of 19 prominent civil engineers from across Canada, and by the Assistant to the Editor, Kelly Lamb, and the Office Assistant, Julie Sedger. The *Journal's* editorial office (cjce@civil.ubc.ca) is based in the Department of Civil Engineering at UBC.

Tel: 604-UBC-CJCE (822-2523)
Fax: 604-822-0568
Web: www.nrc.ca/cgi-bin/cisti/journals/rp/rp2_desc_e?cjce

CANADIAN LITERATURE

Laurie Ricou, Editor
G. Deer, K. McNeilly, L. Moss, R. Beaudoin, Associate Editors
D. Chin, Managing Editor

Canadian Literature, a quarterly journal founded in 1959, is published at UBC. This refereed journal features critical articles on Canada's literature, new poems by Canadian poets, and reviews of significant Canadian publica-

tions. For submission guidelines, upcoming events, and subscriptions visit the *Canadian Literature* website (www.canlit.ca).

JOURNAL OF ENVIRONMENTAL ENGINEERING & SCIENCE

D.W. Smith and D.S. Mavinic, Co-Editors

The *Journal of Environmental Engineering & Science* publishes papers on environmental research, encouraging interdisciplinary research collaboration to address the multi-faceted nature of environmental problems. It addresses all aspects of environmental engineering and applied environmental science. This NRC *Journal* is affiliated with the Canadian Society for Civil Engineering. The *Journal* publishes the views and findings of recognized researchers and practitioners from industry, government, and universities. It highlights new developments in environmental engineering and science. The *Journal*, which is now in its third year, is published bi-monthly, in both electronic and hard copy form.

The *Journal's* editorial office (jees@civil.ubc.ca) is based in the Department of Civil Engineering at UBC. For more information, telephone 604-822-4600, fax 604-822-0568, or visit the website (www.nrc.ca/cgi-bin/cisti/journals/rp/rp2_desc_e?jees).

PACIFIC AFFAIRS

Jacqueline Garnett, Managing Editor
Timothy Cheek, Editor
Linh Trinh, Publishing Assistant

Pacific Affairs, established in 1927, is an international quarterly that features articles on the current political, economic, social, and diplomatic issues of Asia and the Pacific. Each issue also contains a comprehensive book review section.

Pacific Affairs

164-1855 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-6508
Email: enquiry@pacificaffairs.ubc.ca
Web: www.pacificaffairs.ubc.ca

PACIFIC EDUCATIONAL PRESS

Catherine Edwards, Director

Pacific Educational Press is an educational publishing house located within the Faculty of Education. It has been publishing educational and general interest titles since 1971. Over 250 titles have been published, and almost 80 are currently in print. The press publishes textbooks for use in teacher-education programs, scholarly books in education, general books on issues in education, professional books for teachers, and books for use in school programs. The press has also produced school textbooks under contract to the ministries of education.

Subject area interests of the press include literature and language education; fine arts, drama, and music education; mathematics, environmental, and science education; social studies education and related areas such as multiculturalism and anti-racist education, First Nations education, and global education; use of computers and alternative media in education; his-

tory and philosophy of education; and contemporary issues in education.

Pacific Educational Press
Hut O4, 6365 Biological Sciences Road
Vancouver, BC, B6T 1Z4
Tel: 604-822-5385
Fax: 604-822-6603
Email: pep@interchange.ubc.ca
Web: www.pep.educ.ubc.ca

PRISM INTERNATIONAL

Amanda Lamarche, Catharine Chen, Editors
Brenda Leifso, Executive Editor
George McWhirter, Andrew Gray, Advisory Editors
Jennifer Herbison, Design & Production Manager

PRISM international is a literary journal published by the Creative Writing Program. It features poetry, fiction, drama, creative non-fiction, and translation by emerging and established authors from Canada and around the world. 1999 marked *PRISM's* 40th anniversary, making it western Canada's longest running literary magazine. In 2003, *PRISM* won first prize in poetry at the Western Magazines Awards for Marlene Cookshaw's "Dial" and "Pocket-watch." *PRISM* also won the silver medal for fiction at the National Magazine Awards for Michael V. Smith's "What We Wanted." "What We Wanted" and William Metcalfe's story "Nice Big Car, Rap Music Coming Out the Window" (42.1), also appeared in the prestigious Journey Prize Anthology.

For individual subscription rates to *PRISM International* (Literary Quarterly), visit our website (prism.arts.ubc.ca) or email us (prism@interchange.ubc.ca).

Annual Short Fiction Contest: deadline January 31 of each year, First Prize \$2,000.00, runners up \$200.00 each. Annual Prize for Literary Non-Fiction: deadline September 30, First Prize \$500. Annual Earle Birney Poetry Prize, \$500.00. More information is available on the *PRISM* website (prism.arts.ubc.ca).

THE THUNDERBIRD

The Thunderbird (www.tojr.ca) (UBC Online Journalism Review) is a student-run online publication – the only one of its kind in Canada – devoted to media issues, criticism, and developing new models of journalism. *The Thunderbird's* content includes a selection of news stories, analysis, opinion, and creative non-fiction about a wide range of topics from the local to international level. The publication is run from UBC's School of Journalism.

The University of British Columbia bears no responsibility whatsoever for the content of the student publication.

UBC PRESS

R. Peter Milroy, Director
Jean Wilson, Associate Director, Editorial
George Maddison, Associate Director, Marketing and Operations
Holly Keller, Assistant Director, Production and Editing
Melissa Pitts Assistant Director, Toronto Office

Since its founding in 1971, UBC Press has become a nationally and internationally recognized leader in scholarly book publishing. Through innovation, resourcefulness, and a commitment to the highest professional standards it seeks to advance knowledge, contribute to the community of scholarship, and engage society. The Press publishes peer-reviewed works written by scholars from the University of British Columbia and other Canadian and non-Canadian universities, as well as by writers who are not members of the academic community but whose work meets the Press's criteria. To ensure that rigorous standards are maintained in work associated with the University's imprint, UBC Press books must be approved by a Publications Board consisting of faculty members appointed by the President to assess the peer review process. The Press markets and distributes its books in Canada and works with a network of sales agents, distributors, and library jobbers throughout the world to ensure international distribution.

In addition to its role as a publisher, the Press is a major Canadian marketing agent for scholarly and reference works from other scholarly and academic publishers from Canada, the US, UK, Australia, and Asia.

Recognizing that a publisher of books for specialist audiences serves its authors and audience best through a strategy of publication in selected areas, the Press in the last decade has focused primarily on the social sciences. The main areas in which UBC Press publishes are Canadian and British Columbian history, Native studies, political science, law, Asian studies, environmental studies, forestry, natural history, geography, sociology, urban studies, Northern studies, archaeology, anthropology, and linguistics.

The Press frequently co-publishes books with university presses and museums in the United States, Asia, Australia, and Europe.

The UBC Press main office at 2029 West Mall houses the Press's editorial, marketing, and production departments. An eastern office is located at 587 Markham Street, 2nd floor, Toronto, ON M6G 2L7; telephone 416-535-9670, fax 416-535-9677. There is also a Kelowna office: telephone 250-764-4761, fax 250-764-4709. Queries about publication should be addressed to Jean Wilson (wilson@ubcpres.ubc.ca), Associate Director, Editorial.

Shipping and warehousing are done by UniPresses, 34 Armstrong Avenue, Georgetown, ON L7G 4R9; telephone 905-873-2750, toll-free telephone: 1-877-864-8477, fax 905-873-6170.

Information and catalogues of recently published books and all books in print are available from UBC Press, 2029 West Mall, Vancouver, BC, V6T 1Z2, Canada. To access electronic books-in-print listings and other information about the Press, see the UBC Press website (www.ubcpres.ca), telephone 604-822-5959, fax 604-822-6083, or contact UniPresses.

VII Research Units, Centres, and Institutes

INTRODUCTION

The University of British Columbia has a long-standing tradition of excellence in research in all fields. The biomedical and health sciences work with the social sciences and humanities to improve health, health care, and quality of life. The basic sciences, as well as engineering and architecture build our understanding of nature, the universe, and the wellspring of inventions that enhance life on this planet. Work in the humanities and social sciences help us understand ourselves—individually and collectively, historically and cross-culturally, pragmatically and imaginatively. The agricultural sciences, forestry, sustainability, and the environment focus on matters fundamentally important to human sustenance. The University is committed to discipline-based traditions of inquiry, while fostering interdisciplinary initiatives that allow research groups to pursue avenues that could not be as fully explored within disciplinary boundaries.

Not all research units, centres, and institutes are currently listed in this chapter. Please refer to the UBC Research website (www.research.ubc.ca) or individual faculties for further listings of research activities at UBC.

VICE-PRESIDENT RESEARCH

OVERVIEW

Dr. John Hepburn, Vice-President, Research

The Vice-President Research has a wide range of administrative functions that are both internal and external to the University. The general mandate is as follows:

- to be a champion of, and advocate for, research among UBC's internal and external communities;
- to foster collaborations in research, creative, scholarly, and professional activities among scholars in various fields both within and outside UBC;
- to foster an environment that ensures that faculties, schools, colleges, and the library receive efficient support services relating to research administration and information on funding sources, grant procedures, and other relevant matters;
- to establish and maintain effective liaison with agencies and institutions such as the national granting councils, research foundations, teaching hospitals, as well as with external research centres, business, industry, government, and the public;

- to promote technology transfer and oversee the management of intellectual property issues;
- to foster international linkages and research collaboration; and
- to promote and ensure ethical research practices.

Reporting units under the direction of the Vice-President Research include: Animal Care Centre, Office of Research Services, University-Industry Liaison Office, the Peter Wall Institute for Advanced Studies, and UBC Press. In addition, a number of regulatory committees report to the Vice-President Research: The UBC Animal Care Committee, the UBC Biosafety Committee, the Chemical Safety Committee, the UBC Behavioural Research Ethics Board, the UBC Clinical Research Ethics Board, and the Radiation and Radioisotopes Screening Committee.

For more information visit the Office of the Vice-President Research website (www.research.ubc.ca).

ANIMAL CARE CENTRE

The Animal Care Centre (ACC) is responsible for the welfare of all animals on the University campus and in University departments located at affiliated hospitals. Animal health is monitored by veterinary staff and by regular health surveys, particularly of the rodent population.

Assistance is provided to researchers in developing proposals using animals and in carrying out technical aspects of the animal-related components. Research activities are monitored to ensure compliance with the protocols approved by the UBC Committee on Animal Care (www.acc.ubc.ca) under the guidelines of the Canadian Council on Animal Care.

OFFICE OF RESEARCH SERVICES

The Office of Research Services (ORS) (www.orsil.ubc.ca) serves a dual role in the area of research funding: service to researchers, and responsibility to the University for the application of policies and procedures.

Services include: maintaining a website providing research funding information (e.g., grant-competition deadline dates, application form templates and guidelines); personal communication/consultation regarding appropriate funding sources; departmental presentations by Office staff, and organization of presentations by granting agency representatives; development and implementation of the Researcher Information Service (RISe) allowing researchers to interact via the web with all ORS services.

The Office processes all grant applications and awarded funds, establishes project grants (PGs), and administers fund transfers to/from UBC. The Office also provides the secretariat and management for the review of research involving humans, animals, or biohazardous materials.

The ORS responsibilities to the University include: the vetting of signatures on grant applications and final approval on behalf of the University; compliance with UBC policies and external funding agency requirements/conditions; the administration of procedures for review of projects involving human subjects, animals, and biological hazards; the maintenance of databases of applications; funded research; reviews of projects involving human subjects, animals, and biological hazards; and the production of reports and statistics on research funding.

UNIVERSITY-INDUSTRY LIAISON OFFICE

The University-Industry Liaison Office (UILO) facilitates the exchange between industry and UBC's academic researchers. The UILO negotiates research agreements with industry and supports the commercialization of technological innovations arising from UBC and its affiliated hospitals.

UBC is one of Canada's top research universities. In the 2004/2005 fiscal year, UBC received \$364 million in sponsored research funding that supported close to 6,000 research projects. Research activities lead to an annual average of 143 invention disclosures. It is the UILO's responsibility to evaluate, protect, market, and license those inventions that have commercial application. Through technology transfer, UBC supports BC's growing high technology industries, and contributes to the economic development and diversification of the region.

UILO activities include: protecting the intellectual property assets of UBC; managing the further development of UBC technologies; licensing UBC research discoveries; fostering the creation, development, and early success of spin-off companies formed around UBC technologies; identifying sources of industry and government research funding and opportunities for collaborative research; serving as an information and networking resource for industry on UBC technologies, research expertise and facilities; and providing education programs and awareness both on and off-campus regarding the sponsored research and technology transfer process.

For more information on the UILO including resources, reports, and statistics on UBC technology transfer activities, please visit the UILO website (www.uilo.ubc.ca).

PETER WALL INSTITUTE FOR ADVANCED STUDIES

The Peter Wall Institute for Advanced Studies was established to support fundamental, interdisciplinary research and creative activities that have the potential to result in significant advances to knowledge. See *Peter Wall Institute for Advanced Studies*, p. 82, in this chapter under “Institutes” for further information.

UBC PRESS

Since its founding in 1971, UBC Press has become a nationally and internationally recognized leader in scholarly book publishing. Through innovation, resourcefulness, and a commitment to the highest professional standards it seeks to advance knowledge, contribute to the community of scholarship, and engage society. See *UBC Press*, p. 72, in Chapter 6, “Services, Facilities, and Organizations” for further information.

CENTRES

APPLIED CONSERVATION RESEARCH, CENTRE FOR

Peter Arcese, Sarah Gergel, Directors

The Centre for Applied Conservation Research (CACR) was established to find science-based solutions to complex conservation problems within managed and natural landscapes. CACR conducts research on applied conservation issues in British Columbia and elsewhere in the world. A major goal is to further sustainable forest management through the application of research to complex land management issues. CACR's research assists with both planning and determining the effectiveness of improved management practices. CACR provides opportunities for high-calibre graduate students to work on issues that are both complex and immediately relevant. CACR also encourages an effective dialogue with people working outside the University, to ensure the continued relevance of our research and to provide people with access to the most current research information. Housed within the Forest Sciences Centre, the Centre is closely associated with the Departments of Zoology, Botany, and Geography, and with the *Biodiversity Research Centre*, p. 74. Research activities are profiled on the CACR website (www.forestry.ubc.ca/conservation).

Centre for Applied Conservation Research
Forest Sciences Centre
The University of British Columbia
2045—2424 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6761

BIODIVERSITY RESEARCH CENTRE

D. Schluter, Director

A unit within the Faculty of Science

The Biodiversity Research Centre is concerned with all aspects of biodiversity research. Faculty members and their students from the Departments of Botany, Earth and Ocean Sciences, Microbiology and Immunology, and Zoology are cooperating to investigate the measurement of biological diversity, the role of biodiversity in ecosystem function, the origins of biodiversity, factors endangering biodiversity, uses of biological diversity, and the many aspects of biodiversity conservation. The BRC is closely associated with the *Centre for Applied Conservation Research*, p. 74, and the *Fisheries Centre*, p. 75. For more information contact the Centre (biodiversity.centre@ubc.ca) or visit the Biodiversity Research Centre's website (www.zoology.ubc.ca/biodiversity).

BLOOD RESEARCH, CENTRE FOR

Dr. Ross T. A. MacGillivray, Director

The Centre for Blood Research is a multi-disciplinary unit that offers facilities and opportunities for graduate study in transfusion science through the academic departments of its faculty members. The academic appointments of the faculty members in the Centre for Blood Research span seven faculties and thirteen departments at UBC. Research activities are organized into four general themes: (1) the blood plasma proteome as a diagnostic and therapeutic resource, (2) optimizing value derived from donor platelets, (3) creation of artificial blood components, and (4) social and psychological aspects of blood donation.

Graduate students wishing to work with faculty members in the Centre for Blood Research should identify their research interests, associate these with specific faculty members, and phone or write to the faculty member directly. Information on these training opportunities is available upon request from the Centre for Blood Research, or on the Centre for Blood Research website (www.cbr.ubc.ca).

BRAIN RESEARCH CENTRE

Max Cynader, Director

The Brain Research Centre is a unique partnership between Vancouver Coastal Health (www.vch.ca/home_page/index.htm) and the Faculty of Medicine (www.med.ubc.ca) at UBC. The Centre aims both to advance knowledge of the brain and to explore new discoveries and technologies that have the potential to reduce the suffering and cost associated with disease and injuries of the brain.

The Brain Research Centre includes over 160 investigators with broad expertise in neuroscience research ranging from the test tube, to the bedside, to industrial spin-offs. Headquartered at the UBC Hospital site of Vancouver Coastal Health, the Centre operates as a hub-and-spoke facility, with teams of neuroscientists located at the UBC campus and other locations in Vancouver and beyond.

The Centre employs a strong multidisciplinary approach, combined with a scientific philosophy of cooperation and collaboration among the researchers, students, and technicians who are exploring common origins and overlapping features of neurological and psychiatric disorders. More information is available on the Brain Research Centre website (www.brain.ubc.ca).

CANADIAN CENTRE FOR THE CULTURE OF MICROORGANISMS

The Canadian Centre for the Culture of Microorganisms (CCCM) maintains living specimens of marine phytoplankton, freshwater microalgae, and fungal isolates for research, teaching, and commercial use. This facility represents an amalgamation of three living collections:

- The Northeast Pacific Culture Collection of marine phytoplankton (NEPCC), which originated in the late 1960s in the Department of Oceanography under the administration of Dr. F. J. R. Taylor;
- The Freshwater Algal Culture Collection of the Department of Botany (likewise established more than 30 years ago by Dr. Janet Stein); and
- The Fungal Collection of Dr. Robert Bandoni, Emeritus Professor of Botany at UBC.

The Canadian Centre for the Culture of Microorganisms is the only facility of its kind in Canada and is one of the most comprehensive in the world. The marine phytoplankton collection currently consists of 207 strains, representing 11 algal classes and all the major algal groups. The major emphases are on local species of ecological and toxicological importance and on those that may be of importance in biotechnology. Currently, 35% of the isolates are from BC waters and the remainder are from tropical and other temperate regions. A unique feature of the CCCM is the inclusion of various species of oceanic microflagellates isolated from the northeast Pacific, and the dinoflagellate collection is one of the largest in the world. The freshwater algal collection currently consists of approximately 68 strains representing 9 algal classes, while the fungal collection contains 1190 strains of filamentous fungi and 696 strains of yeast, many of which are unique to the CCCM. These collections have been declared by the National Biotechnology Advisory Committee as being of “strategic value to Canadian Biotechnology” and of “unique scientific importance”.

Cultures are supplied for teaching, research, and commercial purposes at UBC and worldwide. A nominal fee is charged to cover processing costs, unless an exchange of cultures can be arranged. Further information, including a current list of species in culture and relevant technical data, is available on the Department of Botany website (www.botany.ubc.ca). The CCCM is located in the Department of Botany in the Biosciences Building and may be reached by telephone at 604-822-4825, fax 604-822-6089, or email (cccm@interchange.ubc.ca).

CROSS-FACULTY INQUIRY IN EDUCATION, CENTRE FOR

A unit within the Faculty of Education

Established originally as the Centre for the Study of Curriculum and Instruction in 1976, the Centre for Cross-Faculty Inquiry in Education (www.ccfi.educ.ubc.ca) combines the features of both a research and program unit. The Centre fosters collaborative inquiry on education-relevant themes of cross-faculty interest, at the same time offering graduate courses and programs on cross-faculty themes in Education.

FISHERIES CENTRE

D. Pauly, Director

A unit within the Faculty of Graduate Studies

The Fisheries Centre mission is to research the options for restoring fisheries, conserving aquatic life, and rebuilding ecosystems. Fisheries Centre work integrates research on ecological, social, and economic aspects of fisheries. In addition, the Fisheries Centre trains a diverse and international mix of graduate students.

The Fisheries Centre aims to focus and promote the multidisciplinary study of fisheries. Analytical tools developed in a broad spectrum of parent subjects, including biology, oceanography, economics, and planning are employed in order to assess, appraise, and forecast the impacts of both human and natural processes on fishery resources.

Fisheries policy and management problems under study include assessment and management of artisanal and commercial food capture fisheries, ecosystem impacts of fishing, multidisciplinary evaluation of the health of fisheries, recreational fisheries, coastal and watershed management, conflict resolution and co-management of shared fishery resources, marine resource consumption, and the conservation of threatened and exploited species in both marine and freshwater environments. Major objectives are to establish a fully international, multidisciplinary perspective, and to provide a forum for the foundation of concepts of management and sustainable development of fisheries.

The Fisheries Centre conducts grant- and contract-based research, organizes courses, seminars, workshops, and professional training courses. The resulting publications aim to promote a deeper understanding of management of fisheries resources around the globe. The Fisheries Centre forms a base for a research community of faculty, research associates, post-doctoral fellows, graduate students, and off-campus adjuncts. It provides a Resources Centre and Local Area Network comprising reference material and computing facilities for analysis and assessment of fisheries.

At present, in addition to individual faculty researching a number of topics (C. Walters: population dynamics; T. Pitcher: ecosystem reconstruction; S. Martell: population dynamics; V. Christensen: ecosystem modeling), five research units conduct coordinated research within the Fisheries Centre. The Marine Mammal Research Unit (Director,

Dr. Andrew Trites) conducts multidisciplinary research on marine mammals in the field, in captivity, and in the laboratory. It addresses pressing questions relevant to the natural history, biology, and conservation of marine mammals, and provides independent research and advice on these matters. The Sea Around Us Project (Principal Investigator, Dr. Daniel Pauly) studies the impact of fisheries on marine ecosystems. Project Seahorse (Director, Dr. Amanda Vincent) works to advance conservation and sustainable use of the world's coastal marine ecosystems. The Fisheries Economics Research Unit (Director, Dr. Ussif Rashid Sumaila) explores how ecosystems can provide sustainable and equitable economic and social benefits to both present and future generations. Finally, the BC Government Aquatic Ecosystem Science Section, an affiliated unit, works on freshwater management, mitigation, and recreational fisheries in the province.

Although housed in the Centre, graduate students within the Fisheries Centre are attached to the RMES interdisciplinary program, to Zoology, Geography, Economics, Animal Science, or other programs as appropriate to their research project. The Fisheries Centre organizes a series of graduate courses on fisheries topics and issues. Full details are available on request.

The Fisheries Centre
The University of British Columbia
2202 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-2731
Fax: 604-822-8934
Email: office@fisheries.ubc.ca
Web: www.fisheries.ubc.ca

HEALTH SERVICES AND POLICY RESEARCH, CENTRE FOR

See the *College of Health Disciplines*, p. 292, in the "Faculties, Colleges, and Schools" chapter of the Calendar for details on this centre.

HUMAN SETTLEMENTS, CENTRE FOR

Anthony H.J. Dorsey, Chair

A unit within the Faculty of Graduate Studies

The Centre for Human Settlements (CHS) conducts multi-disciplinary research, and capacity-building programs related to regional, urban, and community development. The Centre is a unit within the School of Community and Regional Planning (www.scarp.ubc.ca). Faculty and student associates from various departments participate in CHS projects.

See also *The School of Community and Regional Planning*, p. 175.

The Centre for Human Settlements
The University of British Columbia
242-1933 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-5254
Web: www.chs.ubc.ca

INTERCULTURAL LANGUAGES STUDIES, CENTRE FOR

Dr. Kenneth Reeder, Dr. Christine Rouget, Acting Directors

The mission of the Centre for Intercultural Language Studies is to facilitate, coordinate, enhance and promote the study of intercultural communication and the teaching and learning of languages in an intercultural context.

The Centre's main goals are to contribute to the study of intercultural communication and the professionalization of language and culture instruction both at UBC and more broadly in British Columbia through research, teaching, and outreach. For more information visit our website (www.lerc.educ.ubc.ca/fac/duff/cils/index.htm) or, contact Dr. Kenneth Reeder (kenneth.reeder@ubc.ca) at 604-822-5764 or Dr. Christine Rouget (christine.rouget@ubc.ca) at 604-822-4035.

INTERNATIONAL BUSINESS STUDIES, CENTRE FOR

Dedicated to the promotion of research in the fields of international business and trade, the Centre for International Business Studies (CIBS) is committed to the dissemination of information concerning international trade and investment to businesspeople, government officials, faculty, and students.

The research of the Centre includes a mix of applied theory, empirical studies and policy papers. Faculty members form the leading research group in Canada in subject areas including: international trade and investment theories and policies, international finance, and transportation. The Centre also has a leading team of researchers specializing in Asian business. Some of the current research projects in the Centre include international trade between consumer and conservationist countries, scale effects of North American trade liberalization, international capital-market integration, dynamic behaviour of international joint ventures, and the convergence of regional and multilateral trade regimes.

In addition to its research programs, the Centre promotes international exchanges of students. It also funds undergraduate and graduate seminars on international business and executive programs focusing on trade and investment. For more information visit the CIBS website (cibs.commerce.ubc.ca) or telephone 604-822-9406.

INTERNATIONAL CANADIAN STUDIES CENTRE

Richard Cavell, Director

Canada is increasingly being studied internationally and in terms of its international contexts. The ICSC positions itself collaboratively and entrepreneurially with particular regard to the *circa* 300 Canadian Studies programs around the world through programs of Visiting Scholars and Professors, international symposia and conferences, and in its support of international research consortia.

Graduate Associates support graduate research and international exchange, and enhance undergraduate learning and research through a mentoring program for Majors in Canadian Studies facilitated by the Associates.

The Centre is administered by a Director, an Associate Director (who is also Chair of the Program in Canadian Studies) and a Board of Directors, appointed from senior scholars in the University, including the McLean Chair in Canadian Studies. It also takes advice from an Honorary Board and an International Advisory Committee.

For further information, visit the website (www.canadianstudies.ubc.ca) and contact the Director (icsc@interchange.ubc.ca).

INTERNATIONAL CENTRE FOR CRIMINAL LAW REFORM AND CRIMINAL JUSTICE POLICY

Kathleen Macdonald,
Acting Executive Director

The International Centre for Criminal Law Reform and Criminal Justice Policy was established in 1991 in Vancouver. It is a joint initiative of the University of British Columbia, Simon Fraser University, and the International Society for the Reform of Criminal Law. The Centre is affiliated with the United Nations and is an interregional institute in the UN Network of Institutes on Crime Prevention and Criminal Justice. The Centre is housed at UBC.

The International Centre's association with the University of British Columbia and Simon Fraser University allows it to marshal effective interdisciplinary teams for work in criminal law and criminal justice policy research and education.

The Centre's primary role is to contribute to international criminal justice policy development through analysis, research, and consultation, and to provide technical assistance to implement international policy and standards. The program focus for the Centre is threefold: international criminal law; protection of human rights through criminal law in national systems; and criminal law responses to emerging threats to human security.

The International Centre for Criminal Law Reform and Criminal Justice Policy
The University of British Columbia
1822 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-9875
Fax: 604-822-9317
Email: icclr@law.ubc.ca
Web: www.icclr.law.ubc.ca

INTERNATIONAL HEALTH, CENTRE FOR

See the *College of Health Disciplines*, p. 292, within the "Faculties, Colleges, and Schools" chapter for details on this centre.

INTERNATIONAL RELATIONS, CENTRE OF

B. L. Job, Director
A unit within the Faculty of Graduate Studies

The Centre of International Relations (CIR), a component of the Liu Institute for Global Issues, is a research institute within the Faculty of Graduate Studies. Its purpose is to facilitate internationally-oriented, interdisciplinary research and teaching among the faculty and students of UBC and other institutions. The Centre administers projects and grants, organizes conferences, sponsors seminars and lectures, and hosts postdoctoral fellows and visiting scholars. The Centre of International Relations is one of the longest standing of its kind within Canada.

Faculty members, postdoctoral fellows, and graduate students, from a range of disciplines, including political science, law, commerce, history, economics, and other social sciences, are involved in the Centre's activities. The Centre collaborates with other campus units, especially the Liu Institute for Global Issues, the Institute of Asian Research, the Institute for European Studies, and with Simon Fraser University and other institutions both in Canada and abroad. The Centre operates as headquarters for the Canadian Consortium on Human Security and the Canadian Member Committee of the Council on Security Cooperation for the Asia Pacific.

The current research agenda of the Centre is focused on the transformation of the international system in the post-Cold War era—on Canada's role in this international order, on the formation of international regimes to manage global issues, and on international security, especially Asia-Pacific security.

The Centre sponsors projects, conferences, lecture series, and publishes a Working Paper series. See www.cir.ubc.ca for further information.

The Centre does not offer courses or degree programs. Inquiries concerning graduate studies in international relations should be directed to the Department of Political Studies and the Faculty of Graduate Studies.

The Centre of International Relations
The University of British Columbia
6476 NW Marine Drive
Vancouver, BC V6T 1Z2
Tel: 604-822-5480
Web: www.cir.ubc.ca

JAMES HOGG ICAPTURE CENTRE FOR CARDIOVASCULAR AND PULMONARY RESEARCH

Peter Pare, Director
Bruce McManus, Co-Director

Among the important challenges for biomedical researchers, discovering the inter-individual variations in the genetic code of patients and model systems and how these differences interact with diverse environments to produce disease is one of the most compelling. The James Hogg iCAPTURE Centre (Imaging, Cell Analysis, and Phenotyping Toward Understanding Responsive, Reparative, Remodelling, and Recombinant Events) is a UBC Senate-approved research centre supported collabora-

tively by the Faculty of Medicine of UBC and Providence Health Care.

Investigators and trainees in the iCAPTURE Centre are now using the best available technology to image and measure changes in molecules, cells, tissues, organs, and whole organisms, including patients, in order to understand the link between our genes and environments in causing heart, lung, and blood vessel diseases. The role of inflammation and virus infections in the initiation and progression of disease is a central theme of emphasis for the 250 staff of the Centre. Efforts to integrate complex datasets by the establishment of novel software underlie the life sciences program. Synergy with numerous scientists across faculties at UBC and elsewhere has been fostered to enable the work. The iCAPTURE Centre offers various training and research programs and facilities to students and partners. iCAPTURE is located at UBC's campus of St. Paul's Hospital. More information is available on the iCAPTURE website (www.icapture.ubc.ca).

MEDIA AND GRAPHICS INTERDISCIPLINARY CENTRE

S. Fels, Director
A unit within the Faculty of Graduate Studies

The Media and Graphics Interdisciplinary Centre (MAGIC) was created at UBC to foster research covering the entire spectrum of new computer-based and computer-associated media. Typical examples include multimedia, computer animation, 3-D modeling, interactive Web-based applications, hypermedia, computer music and computer-based tools for collaboration in education, medicine and entertainment. The Centre highlights the commitment of UBC to the use of advanced media technology, and brings together existing efforts and new initiatives from various research programs. MAGIC serves as a catalyst to assimilate and exploit new technology in research and education at UBC and to strengthen interaction with industry through collaborative research. Projects affiliated with MAGIC have their own funding, although MAGIC provides shared facilities and personnel to assist in the start-up phases of projects and in the design and evaluation of research prototypes. MAGIC does not grant degrees directly. Students earn degrees in existing programs, conducting research within MAGIC projects.

Specializations

HUMAN COMPUTER INTERACTION (HCI)
The Media and Graphics Interdisciplinary Centre coordinates a Specialization in the field of Human Computer Interaction (HCI). Human-Computer Interaction is an interdisciplinary field of study that explores human behaviour in technology-rich environments with the goal of informing the design and testing of new technologies. MAGIC does not grant degrees; however, students earning degrees in participating departments can specialize in Human-Computer Interaction by successfully completing the Specialization requirements in addition to the requirements

necessary for their Masters degree. Students who meet the requirements for the Specialization will have the following added to their Master's degree: "Specialization in Human-Computer Interaction". The Specialization in HCI, along with the transcript and the endorsement of the program, will identify Masters Graduates as having attained special training in the interdisciplinary field of HCI.

Contact Information

Additional information on MAGIC or the Specialization in Human Computer Interaction may be obtained directly from the Director of the Media and Graphics Interdisciplinary Centre (MAGIC), 3640 Forest Science Centre, 2424 Main Mall, Vancouver, BC, V6T 1Z4, Canada; Tel: 604-822-8990; or by visiting the MAGIC website (www.magic.ubc.ca).

MOLECULAR MEDICINE & THERAPEUTICS, CENTRE FOR

Michael Hayden, Director

The Centre for Molecular Medicine and Therapeutics (CMMT) is a research centre dedicated to the practice of discovery research contributing to fundamental knowledge in the determination and control of genetic susceptibility to disease. CMMT's specific mandate is to increase understanding of cellular and protein function as the key to improved diagnosis, treatment, and prevention of health problems in children and adults.

The CMMT promotes research excellence and innovation, providing flexible funding to researchers and an environment that enhances the ability to reach goals in a time effective manner. Infrastructure and support at the CMMT include a bioinformatics facility, expression profiling, DNA sequencing, antibody production, world-class facilities for mouse genetics (transgenics, breeding, and behaviour testing), and a facility for experimental therapeutics in animal models of human disease.

Graduate students and scientists with special interests in genetics, model organisms, cellular mechanisms, computational biology, pharmacogenetics, developmental biology, experimental therapeutics and proteomics are encouraged to apply for positions. For more information please visit CMMT's website (www.cmmt.ubc.ca).

OPERATIONS EXCELLENCE, CENTRE FOR

Eric Cope, Director

A unit within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)

The Centre for Operations Excellence (COE) administers the Master of Management in Operations Research (MM in OR) program in the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business) at UBC. The MM in OR program is a unique master's program that works closely with students to develop and realize their goals by providing an advanced education and the

opportunity to apply their knowledge and skills in a professional business environment.

The COE partners with leading companies to formulate and solve operations research problems using advanced management science methods. A COE project combines the enthusiasm of hard-working graduate students with the knowledge and expertise of the Operations and Logistics Division of the Faculty. An outstanding project team comprised of students, faculty, and staff will work with you to discuss potential outcomes and develop a project plan tailored to your specific needs. A COE project will bring you a solution to a challenging problem and add significant value to your organization.

The industry project is the cornerstone of the program. Every MM in OR student conducts an intensive 5-month applied project with a COE Industry Partner that addresses a significant operational issue. Students gain practical outlets and new ideas for their research, and further enhance their professional skills through interaction with leading companies in a corporate environment. Working closely with Sauder faculty and COE project leaders, students use the latest decision tools and technologies to make concrete recommendations to senior executives of some of the most prominent companies in Western Canada.

Annie Ko, Program Manager
Centre for Operations Excellence
Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)
The University of British Columbia
2053 Main Mall
Vancouver, BC
Canada V6T 1Z2
Tel: 604-822-1800
Fax: 604-822-1544
Web: www.coe.ubc.ca

PHELPS CENTRE FOR THE STUDY OF GOVERNMENT AND BUSINESS

Thomas W. Ross, Director

A unit within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)

The Phelps Centre for the Study of Government and Business is a research centre within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business). The Centre supports theoretical and applied research into the role of governments in the Canadian economy and into the relationship between government and business in Canada. The twin foci of this research will be on normative questions about the way governments should operate to best serve their constituents, and on positive questions about the causes and effects of actual government activities.

The Centre carries out its mandate through a number of activities including the support of research through, for example, small research grants, commissioned papers, and conferences. The Centre also supports research and education through dissemination activities, including its own working paper series, a seminar series,

a public policy luncheon series, and the establishment of a public website. The Centre is the home of the UBC Election Stock Market Project and of the Canadian Competition Policy Web Page Project. The Centre (together with the Department of Civil Engineering) has recently launched the UBC P3 Project, a large research and teaching initiative aimed at improving our knowledge of how public-private partnerships (P3s) can be used by governments to provide public services in Canada and elsewhere.

Janet Gannon, Project Manager
Phelps Centre for the Study of Government and Business

Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)
The University of British Columbia
2053 Main Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-8399
Web: csgb.ubc.ca

PHILLIPS, HAGER & NORTH CENTRE FOR FINANCIAL RESEARCH

Ron Giammarino, Director

A unit within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)

To remain on the leading edge of business education, the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business) must be at the forefront of financial research. The Phillips, Hager & North Centre for Financial Research was established as the umbrella of Finance Division activity and coordinates the Division's research and educational activities around four broad themes: understanding and managing financial risks; understanding and evaluating the financial policies of corporations; understanding and evaluating financial regulation; and understanding the determinants of financial values. Within these four areas, the Centre will pursue research designed to produce substantive insights into critical industry challenges—insights that help to strengthen institutional performance.

The Centre will build upon this research foundation and the strong industry-faculty interactions that currently exist to enhance the educational experience of our students. Research papers and breakfast briefings will all be supported through the activities of the Centre. In addition, research will be brought to bear on issues that are of more immediate and practical importance through conferences and applied research projects.

Janet Gannon, Project Manager
Phillips, Hager & North Centre for
Financial Research
Faculty of Commerce and Business
Administration (otherwise known as
the Sauder School of Business)
The University of British Columbia
2053 Main Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-8399
Web: [www.sauder.ubc.ca/research/
research_centres/phn.cfm](http://www.sauder.ubc.ca/research/research_centres/phn.cfm)

PROSTATE RESEARCH, UBC CENTRE FOR

Larry Goldenberg, M.D., F.R.C.S.C., F.A.C.S.,
Director

The UBC Centre for Prostate Research is recognized world-wide as a comprehensive, multi-disciplinary hub for research, treatment, and education in prostate disease. Our primary research goal is to better understand prostate cancer, and to accelerate the discovery of therapeutics to control progression of the disease to treatment-resistant androgen independence.

The Centre is home to internationally renowned scientists and clinicians with expertise in functional genomics, nucleotide therapeutics, androgen receptor studies, antisense technology, viral-based gene therapies, cell signaling, genetic epidemiology, pharmacokinetics, magnetic resonance imaging (MRI) research, environmental impact on tumorigenesis, patient education, and population-based clinical trial development and implementation (translational research).

The Centre's programs continue to expand, thanks to significant grant funding and philanthropic donations. Graduate students, clinicians and researchers wishing to work at the Centre for Prostate Research are encouraged to contact the Centre directly. Contact information is available at our website (www.prostatecentre.com).

PULP AND PAPER CENTRE

The Pulp and Paper Centre houses collaborative research and teaching programs between UBC and the Pulp and Paper Research Institute of Canada (Paprican). Affiliates of the Centre drawn from University faculty members supervise graduate student research in a variety of engineering fields. These academic activities are linked to the industry through Paprican's post-graduate program founded more than eighty years ago at McGill University. More information is available on the Pulp and Paper Centre's website (www.ppc.ubc.ca).

UBC CENTRE FOR RESEARCH ON ECONOMIC AND SOCIAL POLICY

TBA, Director

The UBC Centre for Research on Economic and Social Policy (CRESP), established in 1992, is a centre for multi-disciplinary policy-relevant research in the social sciences. The Centre is based in the Faculty of Arts and has an advisory board from various departments in both the

Faculty of Arts and other faculties. Research at the Centre is focused on policies related to the labour market and training/education, income security and social insurance, the public sector and public finance, and a broad range of social issues. Distributional matters are a particular concern in much research conducted through the Centre.

The Centre's current activities focus on a major study: 'Equality, Security and Community: Explaining and Improving the Distribution of Well-Being in Canada', funded as a SSHRC Major Collaborative Research Initiatives project and with other supporters. This interdisciplinary project will run from 1998 to 2004 and involves 12 UBC academics plus researchers from seven other Canadian universities and Statistics Canada. The project is summarized at the CRESP website (www2.arts.ubc.ca/cresp).

TEACHING AND ACADEMIC GROWTH, CENTRE FOR

Gary Poole, Director

Since its establishment in 1987, the Centre for Teaching and Academic Growth's (TAG) mission has been to foster quality teaching and learning across the University. The Centre offers programs, services, and resources to meet a wide range of needs and interests of all members of the UBC teaching community. Offerings include seminars and institutes, a University-wide learning conference, a faculty certificate program, three-day instructional skills workshops, support for new faculty, a resource room, publications and web resources, and other customized peer coaching and outreach activities. TAG relies upon and builds a strong network of colleagues from all disciplines, and creates a supportive learning environment in which to explore teaching practice and reflect upon a range of contemporary instructional issues.

For more information visit the Centre for Teaching and Academic Growth website (www.tag.ubc.ca).

TRANSPORTATION STUDIES, CENTRE FOR

David Gillen, Director

A unit within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)

The Centre for Transportation Studies fosters research and publication on transportation and logistics and closely related fields. The Centre has an extensive research publication record. Research usually involves student research assistants under the direction of faculty, thereby contributing to the role of the University as well as the research function. The research is wide-ranging, covering all modes of transportation and a number of disciplinary approaches and research methods. There is an emphasis on publication to foster wider knowledge and contribute to improved management and public policy in transportation and logistics. Dissemination activities include: conferences, roundtable events, and seminars.

Lorra Ward, Assistant
Centre for Transportation Studies
Faculty of Commerce and Business
Administration (otherwise known as
the Sauder School of Business)
The University of British Columbia
2053 Main Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-4510
Web: www.sauder.ubc.ca/cts/

UBC BIOINFORMATICS CENTRE

Francis Ouellette, Director

The UBC Bioinformatics Centre (UBiC) is an interdisciplinary research centre focused on collaborative research. A multidisciplinary group of researchers, with expertise in the areas of microbiology, biology, computer science, statistics, chemistry, and medical genetics make up the faculty members at UBiC, academically affiliated with the Faculties of Science and Medicine. UBiC offers opportunities for graduate study in bioinformatics through the academic departments of its faculty members and through the CIHR/MSFHR funded Bioinformatics training program (bioinformatics.ubc.ca).

UBiC integrates three groups of investigators: scientists involved in basic research in computational biology, software and database developers engaged in high-throughput bioinformatics, and support and training core staff facilitating the learning of bioinformatics by the research community. Research activities are focused on algorithm development, statistical methodologies, and data management processes that accelerate discoveries in life sciences and computational biology. This integrated environment allows for the translation of basic research activities into computational tools. More information for students interested in exploring opportunities at UBiC can be found on the UBC Bioinformatics Centre website (bioinformatics.ubc.ca).

UBC CENTRE FOR URBAN ECONOMICS AND REAL ESTATE

Tsur Somerville, Director

A unit within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)

The UBC Centre for Urban Economics and Real Estate is a research centre within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business at UBC). The Centre was established in 1988 (originally named the Canadian Real Estate Research Bureau) with the financial support of the Real Estate Foundation of British Columbia.

The Centre's general objective is to support research and education in real estate and urban economics at UBC. Research supported by the Centre covers both theoretical issues and applied problems. Some of the research activities conducted within the Centre include publishing working papers and research monographs, providing financial support for students in the M.Sc. and Ph.D. programs in Urban

Economics and Real Estate, running a unique visiting scholar program and a research symposium in the summer, and promoting B.Comm students in the Real Estate concentration to the professional community. The Centre is also a forum for the exchange of views about factors influencing the real estate industry.

Janet Gannon, Project Manager
UBC Centre for Urban Economics
and Real Estate
Faculty of Commerce and Business
Administration (otherwise known as
the Sauder School of Business)
The University of British Columbia
2053 Main Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-8399
Web: cuer.sauder.ubc.ca

W. MAURICE YOUNG CENTRE FOR APPLIED ETHICS

P. Danielson, Professor of Applied Ethics
and Director

A unit within the Faculty of Graduate Studies

The W. Maurice Young Centre for Applied Ethics is an interdisciplinary unit in the Faculty of Graduate Studies. The Centre promotes research and graduate education in applied ethics, including bioethics, business ethics, professional ethics, environmental ethics, ethics and technology, ethics and genetics/genomics, and research ethics. The Centre has four endowed chairs and professorships, two faculty members with clinical ethics appointments, a Michael Smith Foundation Scholar, faculty associates from many disciplines, research associates, adjunct professors, and post-doctoral fellows. As well, the two NSERC Industrial Chairs in Animal Welfare are associated with the Centre. In addition, the Centre sponsors lunch, lectures, conferences, and workshops, as well as graduate/post-graduate courses and practicums in applied ethics. The Centre is supported by endowments, core university funding, and project funding.

Students can become associated with the Centre through the Interdisciplinary Studies Program or through participating graduate programs. The Centre also provides a number of research assistantships each year.

W. Maurice Young Centre for Applied Ethics
The University of British Columbia
227-6356 Agricultural Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-8625
Fax: 604-822-8627
Web: www.ethics.ubc.ca

W. MAURICE YOUNG ENTREPRENEURSHIP AND VENTURE CAPITAL RESEARCH CENTRE

Ilan Vertinsky, Director
A unit within the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business)

The W. Maurice Young Entrepreneurship and Venture Capital (EVC) Research Centre is

housed in the Faculty of Commerce and Business Administration (otherwise known as the Sauder School of Business). The Centre serves as a catalyst for innovative ideas in entrepreneurship and new venture creation. Through research partnerships with the public sector, the private sector, and other universities, the Centre maintains a very active research agenda.

To facilitate research, education and the dissemination of information, the EVC Research Centre undertakes a broad scope of activities including initiating and funding research projects, supporting degree programs, developing and offering professional programs in entrepreneurship, and communicating research in scientific journals and business publications.

Kathryn Coholan, Assistant
W. Maurice Young Entrepreneurship and
Venture Capital Research Centre
Faculty of Commerce and Business
Administration (otherwise known as the
Sauder School of Business)
The University of British Columbia
2053 Main Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-8491
Web: [www.sauder.ubc.ca/research/
research_centres/evc.cfm](http://www.sauder.ubc.ca/research/research_centres/evc.cfm)

WINE RESEARCH CENTRE

Hennie J.J. van Vuuren, Director
*A unit within the Faculty of
Agricultural Sciences*

The Wine Research Centre's (WRC) mission is to conduct research in enology and viticulture and to develop highly qualified human resources with relevant scientific expertise and enterprise who will promote the technological advancement of the wine industry. This new initiative is based on a concept of collaboration with researchers at UBC, at other educational and research institutions, and all facets of the wine industry.

Trained graduate students, experienced in experimental design, genetic, biochemical and molecular technology, fermentation technology, and viticulture will be positioned to play a major role in future technological developments and growth of the wine industry in Canada. Pioneering research in genomics/proteomics of wine yeast and the grape vine will contribute significantly to improve wine quality. More information is available on the Wine Research Center website (www.agsci.ubc.ca/wine).

WOMEN'S AND GENDER STUDIES, CENTRE FOR

S. Gunew, Director
A unit within the Faculty of Graduate Studies

The Centre for Women's and Gender Studies was created in 1991 as part of the University of British Columbia's commitment to ensuring equity in scholarship, research, and teaching. In establishing this Centre, UBC joined other major universities in Canada and elsewhere in supporting a multidisciplinary field of scholarship that has had a substantial impact on tradi-

tional ways of thinking in the humanities, social sciences, sciences, and professional areas.

The Centre reports to the Dean of the Faculty of Graduate Studies. Its graduate and research committee is composed of senior scholars from a wide range of departments and faculties.

The Centre's research and program initiatives are strongly collaborative, within UBC, with other institutions of higher learning, and with the broader community.

The Centre organizes a graduate student presentation day each spring to highlight feminist research on campus. Visiting scholars from a variety of disciplines actively participate in the activities and programs of the Centre and take part in a lecture series.

The Centre offers M.A. and Ph.D. programs in Women's Studies and Gender Relation, and graduate level courses. For a program description, see *Women's Studies and Gender Relations*, p. 286, in the Faculty of Graduate Studies, Degree Programs section.

For further information contact the Director or visit the Women's and Gender Studies website (www.wmst.ubc.ca).

Centre for Women's and Gender Studies
1896 East Mall
The University of British Columbia
Vancouver, BC, V6T 1Z1
Tel: 604-822-9171

INSTITUTES

ABORIGINAL HEALTH, INSTITUTE FOR

See the *College of Health Disciplines*, p. 292, within the "Faculty, Colleges and Schools" chapter for details on this Institute.

APPLIED MATHEMATICS, INSTITUTE OF

Michael Ward, Director
Dr. Marek Labecki, Research/IT Manager
A unit within the Faculty of Graduate Studies

The Institute of Applied Mathematics (IAM) promotes interdisciplinary research activities involving applied mathematics. The Institute organizes colloquia and special seminars; maintains a computing laboratory and visitors' office accommodations; and provides consultative assistance to those who use applied mathematics in their research.

The Institute provides an administrative structure to arrange graduate programs of an interdisciplinary nature for students with an interest in both mathematics and another field. IAM students can register through any department, but must clearly state their intention of following an IAM program. The availability of financial support and the location of a potential supervisor usually determine the student's department. The majority of IAM students are registered in the Mathematics Department.

Although the Institute of Applied Mathematics does not confer graduate degrees, it designs and

oversees interdisciplinary M.Sc. and Ph.D. programs for graduate students from different departments on campus interested in graduate work involving Applied Mathematics. The basic requirements for these programs are sufficiently flexible to accommodate the particular academic background and career objectives of an individual student. Fields of mathematics involved in interdisciplinary programs of graduate studies fall into six areas: Applied Analysis, Fluid Dynamics, Mathematical Biology, Optimization, Mathematical Finance, Engineering and Industrial Mathematics.

To enter a degree program supervised by the Institute, a student must first be admitted to an academic department which is closely related to the applicant's interests (e.g. Mathematics, Economics, Mechanical Engineering). The student's first-year program is planned with an IAM advisor appointed by the Director. After successful completion of this first-year program, an interdisciplinary committee is appointed to supervise the student's progress towards meeting the degree requirements. Please contact your academic department of interest or the Institute for further details on the requirements for interdisciplinary M.Sc. and Ph.D. programs. To obtain the necessary application forms, information on financial assistance, and detailed information on the Institute, students should write the Director of the Institute of Applied Mathematics.

Institute of Applied Mathematics
The University of British Columbia
6356 Agricultural Road, Room 311
Vancouver, BC V6T 1Z2
Tel: 604-822-4584
Fax: 604-822-0550
Email: iam@iam.ubc.ca
Web: www.iam.ubc.ca

ASIAN RESEARCH, INSTITUTE OF

P. Potter, Director

A unit within the Faculty of Graduate Studies

The Institute of Asian Research was established in 1978 to sponsor and co-ordinate research activities concerning Asia and the Pacific. The Institute also provides liaison for seminar presentations and special lectures by Asian area specialists working at or visiting UBC. The Institute actively encourages graduate student participation in its activities.

In 1992, the Institute was restructured to include five area research centres: the Centres for Chinese, Japanese, Korean, India and South Asia, and Southeast Asia Research. The centres serve as focal points on campus for research and community outreach activities on their specific areas of the Asia Pacific region, while the Institute promotes and conducts contemporary, issue-oriented, interdisciplinary research that cuts across regional boundaries. The aim of the Institute and its centres is to facilitate interaction among people from different disciplines and backgrounds, from both campus and community, who share a common interest in Asia and the Pacific. The Institute and the centres organize seminars, lectures, workshops, conferences, art exhibits and cultural perfor-

mances, produce a series of working papers and monographs, and publish the Asia Pacific Report, a bi-annual newsletter focusing on current activities both on campus and in the community that relate to Asia.

The main objective of the restructuring was to promote and develop high-quality research on the Asia Pacific region and its relations with Canada with particular emphasis on the policy implications of research undertaken. Research activities of the Institute are interdisciplinary, interregional, and long range. They cover many areas of intellectual inquiry, encompassing general processes of cultural, economic, political, social, and technological change in the Asia Pacific region. The Institute has welcomed new faculty and staff and continues to recruit for new positions to carry out its research activities in these areas. The Institute also acts as host for honorary research associates and visiting scholars who participate actively in the Institute's and centres' programs. In addition, the Institute has launched an International Associates Forum to promote mutual understanding between Canada and the Asia Pacific countries through long-term visits of government officials, corporate personnel, and academic researchers from the region to UBC. The Institute also houses a series of interdisciplinary and inter-area programs such as the Program for Australasian Research, Program on Canada Asia Policy Studies, the Contemporary Tibetan Studies Program, and the Religion and Public Policy Program. Guided by the theme of "Policy Relevance Informed by Local Knowledge", the Institute strives to disseminate knowledge and expertise about the peoples and places of Asia and the Pacific in ways that can inform policy discourses and build understanding. Through its constituent Research Centres, thematic Research Programs, regular lectures and seminars, community liaison activities, and the MAPPS teaching program, the IAR community remains fully engaged in the process of building local knowledge and making it available to deepen policy understanding about Asia and the Pacific.

Master of Arts in Asia Pacific Policy Studies

The program leading to the Master of Arts in Asia Pacific Policy Studies (M.A., Asia Pacific Policy Studies) is administered by the Institute of Asian Research. See *Asia Pacific Policy Studies*, p. 233, under Faculty of Graduate Studies, Degree Programs section.

To receive regular notification of centre- and institute-sponsored events, individuals are encouraged to join the centre of their choice or the Friends of Asian Research for a newsletter subscription.

The Institute of Asian Research
1855 West Mall
The University of British Columbia
Vancouver, BC V6T 1Z2
Tel: 604-822-4688
Fax: 604-822-5207
Email: iar@interchange.ubc.ca
Web: www.iar.ubc.ca

Centres Within the Institute of Asian Research

Centre for Australasian Research

Centre for Chinese Research,

A. Bailey, Director

Centre for India and South Asia Research,

A. Kotwal, Director

Centre for Japanese Research,

D. Edgington, Director

Centre for Korean Research,

D. Baker, Director

Centre for Southeast Asia Research,

M. Leaf, Director

COMPUTING, INFORMATION AND COGNITIVE SYSTEMS, INSTITUTE FOR

Rabab K. Ward, Director

The Institute for Computing, Information and Cognitive Systems (ICICS) was established to facilitate and foster collaborative research and graduate training in all areas related to computer, communication, and information technology systems. The Institute's research areas include computer communications and systems; VLSI design, architecture, and microelectronics; integrated systems design/software engineering; computational intelligence: perception, reasoning and action; controls, robotics, and CAD/CAM; numeric computation algorithms, complexity theory; graphics, visualization, image/video processing, multimedia, human-computer interaction, and more.

ICICS emphasizes inter- and multi-disciplinary studies. It actively promotes closer links with the computer and telecommunications industry as well as with external organizations. The Institute has 110 members and 16 associate members from various UBC faculties. Some associate members are from industry and other BC organizations. The Institute's advisory committee is made up of the Department Heads of Computer Science, Electrical and Computer Engineering, and Mechanical Engineering, and other senior researchers representing ICICS's diverse research groups. Details are available on the ICICS website (www.icics.ubc.ca).

EUROPEAN STUDIES, INSTITUTE FOR

A unit within the Faculty of Graduate Studies

The Institute for European Studies was established in 1998 as an interdisciplinary and teaching institute within the Faculty of Graduate Studies. The interests and the research it promotes, the seminars, workshops, and colloquia it hosts, as well as the graduate program in European Studies that it offers, represent a broad cross-section of the academic activities and research in place at the University. The objectives of the Institute include:

- encouraging graduate-level teaching and learning opportunities in European Studies at UBC and in Canada in general;
- facilitating and enhancing research with respect to Europe on the part of all

Canadian scholars, in particular in the social sciences and humanities;

- fostering improved communications and collaboration between Canadians and Europeans;
- facilitating interdisciplinary and comparative approaches to the study of complex issues involving Europe; and
- providing a forum for intellectual and public discourse on contemporary European issues.

The Institute holds a series of regular seminars led by distinguished visitors from outside UBC, UBC faculty members, and graduate students. The Institute also encourages short- and long-term visiting scholars and provides some post-doctoral fellowships. Close relationships with both European institutions and other Canadian universities and bodies make the Institute a national centre for activity related to Europe.

The Institute offers a program leading to the M.A. (European Studies) that addresses the growing needs and demands for Canadians to understand the complexities of Europe—past, present, and future. Drawing on the diversity and strengths of faculty members working on the subject of Europe, the Institute brings together teachers, researchers, and students from across the faculties and disciplines to engage in a genuinely interdisciplinary study of Europe that addresses the balance between national and supranational constructions of politics, identity and culture. For more information, see *European Studies*, p. 249, under Faculty of Graduate Studies, Degree Programs section.

Institute for European Studies
The University of British Columbia
C. K. Choi Building, Room 182
1855 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-1452
Fax: 604-822-3433
Email: europe@interchange.ubc.ca
Web: www.ies.ubc.ca

HEALTH PROMOTION RESEARCH, INSTITUTE OF

Annalee Yassi, Director
A unit within the Faculty of Graduate Studies

Established within the Faculty of Graduate Studies in 1990, the Institute of Health Promotion Research (IHPR) provides a UBC focus for interdisciplinary collaboration on research, education, and community partnerships to promote health.

The Institute's faculty, staff, graduate students, postdoctoral fellows, and visiting scholars approach health as a resource for communities, workforces, and individuals. Health promotion is a process that empowers individuals and their communities to take control of the determinants of their health so as to improve health. The IHPR seeks to bridge the University's research, education, and community capacity-building programs across the biomedical, clinical, health services, and population health pillars bringing the university into closer working

relationships with community groups and agencies.

The IHPR's program of research, education, and community capacity-building supports international, national, provincial, and local efforts to address health determinants, examining the global as well as local social, psychological, and environmental determinants of health and the factors that predispose, enable, and reinforce actions in relation to these determinants. Research projects include a wide array of studies of social, psychological, and environmental determinants of health and disease or injury, as well as design and evaluations of innovative approaches to bring about change in these factors, and studies of the implementation and diffusion of these innovations by policy makers, institutions, agencies, communities, practitioners, and populations.

Building on UBC's strengths in the health, social, and environmental sciences, some of this work occurs in collaboration with colleagues at other universities in BC, across Canada, and internationally. The Institute currently houses two CIHR-funded Community Alliances for Health Research (CAHR) research programs—one entitled "Making Healthcare a Healthier Place to Work" and the other CAHR addressing primary healthcare issues. IHPR houses a CIHR-MSFHR funded Strategic Research Training Program, "Partners in Community Health Research" (with clusters addressing vulnerable populations, the healthcare workforce and health services). IHPR also houses a large number of research grants in workplace health, international and global health, the health of vulnerable populations, community capacity building, and health services. IHPR has a particularly close working relationship with the Occupational Health and Safety Agency for Healthcare (OHSAH), a province-wide bi-partite governed agency dedicated to working with all members of the healthcare community to improve working conditions for healthcare workers and prevent illness, injury, and disability from a wide variety of hazardous exposures including infectious diseases, allergenic or toxic chemicals, violence, mental stress, and ergonomic hazards leading to musculoskeletal injuries.

Students may enrol for doctoral and master's programs through the Individual Interdisciplinary Studies Graduate Program (IISGP) by establishing individual programs under the guidance of a multi-departmental faculty committee. IHPR may also house students from departmental programs associated with the Institute's mission.

For more information contact
Annalee Yassi, Director.

Institute of Health Promotion Research
2206 East Mall
The University of British Columbia
4th floor, Library Processing Centre Bldg.
Vancouver, BC V6T 1Z3
Tel: 604-822-2258
Fax: 604-822-9210
Web: www.ihpr.ubc.ca

HEARING ACCESSIBILITY RESEARCH, INSTITUTE OF

M. R. Hodgson, Acting Director
A unit within the Faculty of Graduate Studies

The Institute of Hearing Accessibility Research (IHEAR) was established in 1994 to develop research, training, education, and service in the field of hearing accessibility. In pursuing this mission, the Institute coordinates the activities of scientists, professionals, manufacturers, and consumers to examine the problems facing hearing and hard-of-hearing people, to find appropriate solutions to these problems, and to promote hearing accessibility. One of the most important tasks of the Institute is to gather, evaluate, and disseminate information related to the field.

The Institute will serve the needs and interests of people who are normal hearing and, in particular, the hard-of-hearing—people with hearing loss ranging from mild to profound—who nevertheless communicate via speech and make use of whatever residual hearing they have left. Hard-of-hearing people comprise about 7% of the general population and are by far the largest group of people with hearing disorders. Yet the condition itself, and the varied and complex needs of hard-of-hearing people, are poorly understood.

Areas of activity include hearing accessibility issues in the home, in the educational setting, at the work place, in the health care setting, and the rehabilitation of the hard-of-hearing elderly. Psycho-social issues associated with hearing accessibility and hard-of-hearing people, the effect of the acoustical environment, hearing aids and assistive listening devices, and physiological and medical issues are also of major interest.

The disciplines involved in these activities include anthropology, architecture, audiology, educational psychology, electrical engineering, health promotion, law, mechanical engineering, occupational and environmental hygiene, otolaryngology, psychology, sociology, special education, and speech sciences.

The associates of the Institute are professors in various departments and faculties of the University. Practising professionals in the community and hard-of-hearing consumers who are actively participating in the work of the Institute can become affiliates. Professionals have the opportunity to propose and to participate in projects, and to pursue their own research interests. Consumers participate in the setting of research and program goals, work on specific projects, participate in community outreach, or raise funds. A number of seats on the advisory committee of the Institute are reserved for professional and hard-of-hearing consumer organizations.

For further information contact the
Acting Director, Dr. Murray R. Hodgson
(hodgson@mech.ubc.ca).

IHEAR

The University of British Columbia
3rd floor, 2206 East Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-3073
Fax: 604-822-9588

LIU INSTITUTE FOR THE STUDY OF GLOBAL ISSUES

P. Evans, Professor and Acting Director
A unit within the Faculty of Graduate Studies

The Liu Institute for Global Issues is an interdisciplinary unit within the Faculty of Graduate Studies. The Institute pursues interdisciplinary and policy-related research and advocacy on global public policy issues related to human security. Its research agenda embraces international relations, human security, peace and disarmament, global public opinion and democratization, the environment, conflict and development, and global health, and global justice issues.

Liu Institute for Global Issues
The University of British Columbia
6476 North West Marine Drive
Tel: 604-822-1558
Fax: 604-822-6966
Web: www.ligi.ubc.ca

PETER WALL INSTITUTE FOR ADVANCED STUDIES

Olav Slaymaker, Acting Director, 2006
A unit within the Vice President Research Office

The Peter Wall Institute for Advanced Studies was established to support fundamental, interdisciplinary research and creative activities that have the potential to result in significant advances to knowledge. As the name "Institute for Advanced Studies" suggests, the Institute focuses on basic research rather than policy. It facilitates research programs across a variety of disciplines. All research disciplines at UBC fall within the domain of interest to the Institute. As well as helping to bridge departmental and faculty boundaries within UBC, the Institute is committed to facilitating contacts between outstanding UBC researchers and distinguished researchers around the world. An overriding concern is to encourage research and creative activities that otherwise would not take place. The Institute was established by an endowment from Peter Wall and supplemented by a further endowment from the President's Office. The programs of the Institute fall into two broad categories: thematic and residential.

Thematic Programs

- **Major Thematic Grants** provide funding of up to \$500,000 over three years to a broad interdisciplinary team of UBC and external scholars to research a new area.
- **Exploratory Workshop Grants** bring together researchers from different disciplines at UBC with outstanding external experts in meetings of typically a few days' duration. The purpose is to work towards assessing research possibilities and developing a research agenda. A base level of

funding up to \$15,000 (\$25,000 under certain conditions) is provided.

- **Theme Development Workshops** are very informal meetings, typically for a few hours. The sessions allow researchers to come together with colleagues across the campus to share initial ideas on researching a particular theme.
- **Colloquia** program funds public talks by outstanding visiting scholars to UBC.

Residential Programs

- **Distinguished Professor** endowed chair is intended to attract or retain a world-class scholar. The Peter Wall endowment provides a five-year terms renewable salary support.
- **Distinguished Scholars in Residence** program appoints up to four outstanding senior UBC researchers for a calendar year. Each Scholar is given a research office at the Institute and a modest research budget. Applicants must be tenure-track faculty with demonstrated and recognized research excellence.
- **Early Career UBC Scholars** are tenure-track Assistant or Associate Professors who are within two years of their appointment or promotion. They must have a very strong research record and compatibility with the goals of the Institute. Researchers from any Faculty or department are eligible. A modest research budget is provided with the appointment.
- **Visiting Junior Scholars.** This program is under review; a replacement summer program is being planned.

The Institute has no direct role in teaching or in the development of curricula but the internal funding to UBC faculty members provides research opportunities for students. The externally-focused programs provide opportunities for students to come into contact with world-class artists and scholars.

The Director reports to the Board of Trustees and a management committee established by the Wall Endowment. Academic direction is provided by distinguished researchers drawn from all Faculties who serve on the Institute's Advisory, Adjudication, and Selection committees. Any faculty member acting as PI on an Institute competitive grant, receiving an individual Institute award, or serving on an Institute committee, becomes a Faculty Associate. Faculty Associates are invited to twice-monthly meetings at the Institute; these provide excellent informal opportunities for a broad exchange of ideas with colleagues from very different disciplines.

Visit the Institute's website (www.pwias.ubc.ca) for further information.

Peter Wall Institute for Advanced Studies
The Koerner University Centre
The University of British Columbia
6331 Crescent Road
Vancouver, BC V6T 1Z2
Tel: 604-822-4782
Fax: 604-822-4222
Email: info@pwias.ubc.ca

PULP AND PAPER RESEARCH INSTITUTE OF CANADA

The Pulp and Paper Research Institute of Canada (Paprican) is a non-profit research and educational organization dedicated to enhancing the technical competitiveness of its supporting member companies. The funding of the Institute is borne largely by the member companies which represent over 70% of the pulp and paper producers in Canada. Fundamental and applied research is carried out in laboratories in Pointe Claire and Vancouver. The Institute also collaborates in programs of post-graduate studies at McGill University, the University of British Columbia, and Ecole Polytechnique supporting research for advanced degrees under the supervision of faculty at these universities. The program at UBC is housed in the Pulp and Paper Centre (www.ppc.ubc.ca).

RESOURCES, ENVIRONMENT AND SUSTAINABILITY, INSTITUTE FOR

The Institute for Resources, Environment and Sustainability (IRES) was established by the amalgamation of the Resource Management and Environmental Studies interdisciplinary graduate program, the Westwater Research Centre, and the Sustainable Development Research Institute. The role of the Institute is to foster holistic approaches to issues related to the sustainable use of natural resources and the reciprocal interactions with the environment within which society functions. The Institute's research and teaching program initiatives are collaborative both within the University, with other educational institutions and with the broader community. More information can be found on the Institute for Resources, Environment and Sustainability (www.ires.ubc.ca) website.

Doctor of Philosophy, Master of Arts and Master of Science

For a description of programs offered in resource management areas, see *Resource Management and Environmental Studies*, p. 278, under Faculty of Graduate Studies, Programs.

Eco-Risk Research Unit

The mission of the Eco-Risk Research Unit is to contribute to the research and educational mission of the Institute for Resources, Environment and Sustainability, the School of Community and Regional Planning, and the Centre for Human Settlements. The unit conducts interdisciplinary research and associated activities that focus on decision-making for managing environment, health, and technology risks. For more information contact

Dr. T.L. McDaniels
(timmcd@interchange.ubc.ca) or telephone
604-822-9288.

Forest Economics and Policy Analysis Unit

The Forest Economics and Policy Analysis research unit is a national centre focusing on interdisciplinary aspects of the economics and policy imperatives in the Canadian forest sector. Canadian timber supply, forest-land amenities, competitiveness, and economic integration are the primary objectives of the research program. The unit develops its research programs in conjunction with an advisory committee to reflect the emerging and long-term issues of the forest sector in Canada. Graduate students are involved in the research programs of the unit and may enrol in a variety of graduate programs including Forestry, Commerce and Business Administration, and Resource Management and Environmental Studies. For more information contact Dr. I.B. Vertinsky (ilan.vertinsky@commerce.ubc.ca) or telephone 604-822-3886.

Sustainable Development Research Initiative (SDRI)

The Sustainable Development Research Initiative (formerly Institute) is an academic focus within the Institute for Resources, Environment and Sustainability. Established in 1991, the Initiative is a vehicle for the development and coordination of sustainable development, encouraging interdisciplinary collaboration among faculty departments and centres at UBC, provincial and federal agencies, and communities. The research focus is on applied policy, relevant interdisciplinary research, and the dissemination of knowledge to local, national, and international groups.

Westwater Research Unit

Westwater, established in 1971 in response to the growing concern about water resources, functions as a collaborative research unit conducting research on problems concerning water resources and their associated lands. Its general objective is to provide an improved foundation for decisions about policies and institutional arrangements through rigorous analysis of the alternative courses of action that might be taken. The research program involves natural and social scientists in the analysis of multi-dimensional problems. Students are associated with Westwater by working with faculty members on the projects of the unit.

Visit the Institute for Resources, Environment and Sustainability (and Resource Management and Environmental Studies) website (www.ires.ubc.ca) for further details.

Institute for Resources, Environment and Sustainability
The University of British Columbia
Vancouver, BC, V6T 1Z3
Tel: 604-822-9249
Fax: 604-822-9250
Email: rmesgrad@interchange.ubc.ca

RICK HANSEN INSTITUTE

Rick Hansen, C.C., O.B.C., President and Chief Executive Officer

"If you believe in a dream and have the courage to try, great things can be accomplished."

In August of 1997, Rick Hansen, Canada's Man in Motion, established the Rick Hansen Institute in collaboration with the University of British Columbia. Governed by a board of directors that is made up of both community and University representatives, and fueled by the belief that anything is possible, the Institute's goal is to accelerate the discovery of a cure for spinal cord injury. Through creative leadership and innovative local, national, and international partnerships, including UBC, the Institute supports research to both improve quality of life for people with spinal cord injuries, and ultimately, to find a cure.

For further information, please visit our website (www.rickhansen.com) or contact:

Rick Hansen Institute
5th Floor, 520 West 6th Avenue
Vancouver, BC V5Z 1A1
Tel: 604-876-6800; toll free: 1-800-213-2131
Fax: 604-876-6666

OTHERS

ADVANCED MATERIALS AND PROCESS ENGINEERING LABORATORY (AMPEL)

Dr. G. Sawatzky, Director

Situated in the Brimacombe Building, the Advanced Material and Process Engineering Laboratory (AMPEL) offers opportunities for graduate research in material-related topics. AMPEL is an interdisciplinary research laboratory with faculty members and students from the Faculties of Science and Applied Science and from the Departments of Chemistry, Electrical and Computer Engineering, Materials Engineering, and Physics and Astronomy. The Centre for Metallurgical Process Engineering is also located in the Brimacombe Building. For description of programs offered in materials-related areas, see *Materials Engineering*, p. 104, under the Faculty of Applied Science.

Students interested in doing graduate work at the laboratory may contact Dr. G. Sawatzky (sawatzky@physics.ubc.ca), Director at AMPEL, 2355 East Mall, UBC, Vancouver, BC, V6T 1Z4. Or, visit the AMPEL website (www.ampel.ubc.ca) for further information.

BAMFIELD MARINE SCIENCES CENTRE

In 1972 a consortium of five western Canadian universities, the Western Canadian Universities Marine Sciences Society (WCUMSS), established the Bamfield Marine Sciences Centre (BMSC) with support from the National Research Council, becoming the only facility of its kind on the outer coast between Oregon and Alaska. WCUMSS members are: the University of Alberta, UBC, University of Calgary, University of Victoria, and Simon Fraser University.

Located on the west coast of Vancouver Island (Barkley Sound), BMSC provides year-round research facilities and technical assistance to both WCUMSS member and non-member scientists, and offers undergraduate and graduate courses in all aspects of coastal and marine biological sciences. BMSC offers a public education program as well.

Facilities include general laboratories, a seawater system, research vessels (including a remotely-operated vehicle), SCUBA and shop facilities, stores and maintenance shop, fish/invertebrate museum, herbarium, lecture space, library, computer lab, fluid-dynamics lab (including a 12m x 1m x 2m flume and swim tunnel planned for mid-2006), confocal microscope, TOC analyzer, tree-canopy platform, and on-site food and housing services.

BMSC offers financial assistance in the form of awards, bursaries, teaching assistantships, post-doctoral fellowships, and researcher-in-residence funding.

For additional information please contact:

Bamfield Marine Sciences Centre
Bamfield, BC V0R 1B0
Tel: 250-728-3301
Fax: 250-728-3452
Email: info@bms.bc.ca
Web: www.bms.bc.ca

HUMAN EARLY LEARNING PARTNERSHIP (HELP)

Clyde Hertzman, Director
Hillel Goelman, Associate Director
A research institute within the Faculty of Graduate Studies

Established in 2001, the Human Early Learning Partnership (HELP) is a pioneering, interdisciplinary research partnership that is directing a world-leading contribution to new understanding and approaches to early child development. HELP is a network of faculty, researchers and graduate students from five BC universities (UBC, UVic, SFU, UNBC and UCC). HELP facilitates the creation of new knowledge in human early learning and child development, and helps apply this knowledge in the community by working directly with government and community programs. HELP is a partnership with the BC Ministry of Children and Family Development and the BC Minister of State for Early Childhood Development.

Drawn from such disciplines as neurology, pediatrics, biology, social sciences, epidemiology, psychology, education, and other fields, HELP engages in collaborative, multi-focused studies to create new knowledge that could not emerge from the perspective of any one discipline. HELP's research program traces the neurodevelopment, cognitive, socio-economic, familial, peer, biological, cognitive, community, and cultural factors in child development. Core research activities include the Early Child Development Mapping Project, the Consortium for Health Intervention, Learning & Development (CHILD), the Child and Youth Developmental Trajectories Research Unit (CYDTRU), and HELP Affiliate research projects. HELP

facilitates knowledge translation, interdisciplinary research coordination, and is a training for graduate students and new researchers.

HELP is making a significant contribution to the understanding of, and approaches to, early child development, education, and intervention in British Columbia, so that all children have the means to reach their full potential.

For further information contact the Managing Director, Jacqueline Smit Alex (smitalex@chspr.ubc.ca).

HELP

The University of British Columbia
Library Processing Centre
320-2206 East Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-1278
Fax 604-822-0640
Web: www.earlylearning.ubc.ca
ECD Mapping Portal: ecdportal.help.ubc.ca

MICHAEL SMITH LABORATORIES

Dr. Phil Hieter, Director

The Michael Smith Laboratories offer facilities and opportunities for graduate study in biotechnology through the academic departments of its faculty members. The academic appointments of the faculty members in the Michael Smith Laboratories span five faculties and ten departments at UBC. Research activities are organized into four separate areas: human/animal molecular biology, fermentation/process engineering, bioinformatics, and plant/forest molecular genetics.

Graduate students wishing to work with faculty members in the Michael Smith Laboratories should identify their research interests, associate these with specific faculty members, and phone or write to the faculty member directly. A brochure describing the process is available upon request from the Laboratories. Information is also available on the Michael Smith Laboratories website (www.michaelsmith.ubc.ca).

Michael Smith Laboratories
The University of British Columbia
301-2185 East Mall
Vancouver, BC V6T 1Z4
Tel: 604 822-4838
Fax: 604 822-2114

OCEAN STUDIES COUNCIL

L. M. Lavkulich (Institute for Resources, Environment and Sustainability), Chair

The Ocean Studies Council consists of faculty members from a number of disciplines with research interests in various aspects of the oceans. The Council has representatives from various constituencies, including the Faculties of Commerce and Business Administration, Forestry, Graduate Studies, and Law; the Departments of Anthropology and Sociology, Chemical and Biological Engineering, Earth and Ocean Sciences, Economics, Geography, Mathematics, Physical Education, Political Science, and Zoology; the Institute of Asian Research, the Lui Institute for Global Studies, and the Institute for Resources, Environment

and Sustainability; and other groups with related interests.

The Council has as its primary function the promotion of interdisciplinary research on ocean matters within the University. The council serves to facilitate contacts between scholars at UBC concerned with ocean research and other universities, government bodies, international agencies, and other interested groups off-campus. While the Council has no role in teaching or the development of curricula it does act to develop interdisciplinary seminars on ocean topics for both faculty and graduate students.

Interested individuals wishing to contact this council should forward their communication to the *Dean of the Faculty of Graduate Studies*, p. 217, for transmittal to the council.

REMOTE SENSING COUNCIL

B. Klinkenberg (Geography), Chair

The Remote Sensing Council coordinates studies in various aspects of remote sensing leading to master's and doctoral degrees in Agroecology, Astronomy, Computer Science, Earth and Ocean Sciences (Atmospheric Science, Geology, Geophysics, or Oceanography), Electrical and Computer Engineering, Forestry, and Geography.

Students enter the program by admission as a master's or doctoral candidate. The disciplinary department and the student's committee chair are selected from the department or faculty that represents the student's primary field of interest. Students are encouraged to seek representation on their committee from other University departments. In consultation with their committee, specialized programs of study can be developed for highly motivated and well-qualified individuals in any aspect of remote sensing, or in any application of remote sensing technology. Similarly, specialized research programs can be developed to suit a student's interest-area and can range from theoretical development of remote sensing technology (including image analysis and sensor development) to specialized applications of remote sensing (including geographic information systems (GIS), vegetation and land classification, land-use analysis, atmospheric and oceanographic studies).

Remote Sensing Council's research facilities are housed in the associated departments and include a wide range of modern equipment that is continually updated. Scholarships, fellowships, and teaching research assistantships are available for eight- and twelve-month periods.

Additional information on graduate studies in remote sensing may be obtained directly from the Faculty of Graduate Studies or from the Chair of the Remote Sensing Council. Answers to more specific questions on research direction in the various disciplines relative to remote sensing may be obtained directly from the department and individual faculty members concerned. For more information, contact one of the following Council members: P. Austin (paustin@eos.ubc.ca), Earth and Ocean Sciences; I. Cumming (ianc@ece.ubc.ca),

Electrical and Computer Engineering; H. Schreier (star@interchange.ubc.ca), Agroecology; R.J. Woodham (head.cs.ubc.ca), Computer Science.

TRIUMF

TRIUMF is Canada's largest national accelerator facility for research in particle and nuclear physics and related sciences. Located on the UBC campus, it is operated as a joint venture by the University of Alberta, the University of British Columbia, Carleton University, Simon Fraser University, the University of Toronto, and the University of Victoria. In addition, there are seven associated universities: the University of Guelph, the University of Manitoba, McMaster University, L'Université de Montréal, Queen's University, the University of Regina, and Saint Mary's University.

Facilities at TRIUMF, based on medium-energy, 0.5 GeV high-current cyclotron accelerator, are used primarily for fundamental physics experiments in nuclear physics, particle physics, material science, chemistry, and life sciences.

For the fundamental and applied science programs, proton beams from the cyclotron are used to produce intense secondary beams of exotic ions, neutrons, pions or muons. The beam is also used for proton therapy of cancer, in Canada's only such treatment centre.

In recent years the laboratory has built a new radioactive beams facility, ISAC, which is now the world's most powerful facility to produce exotic radioisotopes. This facility is used by an international community for a range of science areas, including nuclear physics, astrophysics, and material science. In addition, TRIUMF accelerator expertise is used to make 'in-kind' contributions on behalf of the Canadian Government to the Large Hadron Collider at CERN (the largest European facility, near Geneva).

Besides its large cyclotron, TRIUMF also operates four smaller models on site for the production of radioisotopes used primarily for medical diagnostic procedures (e.g., 'PET' scans at the hospital on campus). TRIUMF also provides Canadian users with infrastructure support for their experiments at TRIUMF and abroad, and its science and engineering efforts are effective in transferring high technology to Canadian industry.

TRIUMF

The University of British Columbia
4004 Wesbrook Mall
Vancouver, BC V6T 2A3
Tel: 604-222-1047
Web: www.triumf.info

VIZON SCITEC INC

Vizon SciTec Inc. is an integrated contract science and technology development company with a focus on chemical and biological technology development. Clients and business partners are offered competitive advantage through science and innovation to keep pace with the ongoing and rapid advancements in Technology, Chemistry, Biosciences,

Toxicology, Mining, Energy, Health & Safety, and Ship Dynamics. Vizon SciTec has helped create a number of successful enterprises based on leading-edge ideas and intellectual property.

Vizon SciTec's 185,000 square foot research and innovation complex, strategically located on the University of British Columbia campus in Vancouver, provides state-of-the-art analytical laboratories. Clients can choose from a spectrum of scientific services ranging from chemical process development, technology evaluation and pilot plant and bench-scale capabilities, to contract analysis. Vizon SciTec's scientists, engineers, and technologists are respected specialists in their fields, ensuring satisfactory results with minimal risk.

Vizon SciTec is recognised by the Standards Council of Canada as a GLP compliant facility, and accredited by the Canadian Association of Environmental Analytical Laboratories (CAEAL).

Vizon SciTec Inc.
BC Research Complex
3650 Wesbrook Mall
Vancouver, BC V6S 2L2
Tel: 604-224-4331
Fax: 604-224-0540
Email: info@vizonscitec.com
Web: www.vizonscitec.com
From the US:
Tel: 360-738-0958
Fax: 360-733-3590

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VIII UBC Library

INTRODUCTION

The University of British Columbia Library is the second largest research library in Canada. The Library encompasses 23 branches and divisions, including three branches at teaching hospitals (St. Paul's, Vancouver Hospital and Health Sciences Centre, and Children's and Women's Health Centre of BC), one at Robson Square campus in downtown Vancouver, and one at UBC Okanagan campus in Kelowna.

The Library's collections are large and diverse, attracting researchers from around the world and contributing significantly to establishing UBC as a leading academic institution. Our collection comprises (1) over 4.7 million books, as well as approximately 46,000 journal, ejournal, and series subscriptions; (2) 500 electronic indexes and databases; (3) 5 million microforms; and (4) 800,000 maps, archival materials, media, and other items. UBC Library also has the largest biomedical collection in Western Canada and the largest collection of Asian language materials in the country. It is a depository library for publications of the governments of BC, Canada, Japan, and the United Nations.

Catherine Quinlan, University Librarian
Library Information: 604-822-6375

THE UBC LIBRARY WEBSITE

The UBC Library website (www.library.ubc.ca) provides information about the Library and its services, and is a link to a world of scholarly information. Via the website, students have access to a wide range of information and services, including (1) connection to the Library's catalogue of books, journals, videos, pamphlets, and sound recordings; (2) access to online indexes and research databases, electronic journals and texts, government publications, and statistical sources; and (3) connection to other libraries in BC and around the world.

COMPUTER FACILITIES

There are around 450 workstations available in the UBC libraries. Workstations located in many branches provide MS Office software and access to the Internet, and some are equipped with soundcards enabling headphone use. Library networked print stations provide printing access with a UBC Copycard. Wireless internet access is available in all campus libraries and Internet access ports are available in some libraries for laptop computers with appropriate equipment. Information about loaner laptops is available on the UBC Library website (www.library.ubc.ca).

SERVICES

REFERENCE AND INFORMATION

Reference and information staff are available for consultation on information resources relevant to the various disciplines supported by the University. Staff may be contacted in person, by telephone, or by email. Subject specialists provide in-depth assistance with searching for bibliographic citations and other reference materials, advice on researching term papers or theses, and instruction in using electronic resources. Reference staff work closely with faculty members to ensure that the Library offers appropriate and relevant research assistance and instruction. The Library also publishes many maps and guides to its resources, services, and physical layout. These publications are available from the UBC Library homepage (www.library.ubc.ca) and in print at all library locations.

INFORMATION AND RESEARCH SKILLS INSTRUCTION

UBC Library's Instruction program provides training at all levels on getting the most from electronic and print information sources. Classes cover topics such as the essentials of searching the UBC Library website, subject-specific research skills, using specialized databases to find journal articles, and finding information on the Web. The program features hands-on workshops, self-paced online tutorials, and instructional sessions for credit courses, both during and outside class time. A schedule of drop-in classes is accessible from the UBC Library homepage (www.library.ubc.ca) by selecting the "Instruction" tab on the navigation bar.

THE IRVING K. BARBER LEARNING CENTRE AT UBC

The Irving K. Barbour Learning Centre at UBC (Point Grey) is an education and research support facility providing access to information resources, technology, and services for UBC and British Columbia. Phase One of the Learning Centre is now open. Phase One houses library collections and services, and a variety of group and individual study spaces, including the new Ridington Reading Room. The Learning Centre also provides circulation services, including access to collections located in the Automated Storage and Retrieval System. When complete in 2007, the Learning Centre will feature 250,000 square feet of new and renovated space, incorporating classrooms, lecture halls, academic units, library services, information resources, and state-of-the-art technology. The Learning Centre has been funded by the Univer-

sity of British Columbia, the Province of British Columbia, and a \$20 million donation from UBC alumnus, Irving K. Barber. For information and construction updates, please visit the Irving K. Barber Learning Centre website (www.ikebarberlearningcentre.ubc.ca).

THE CHAPMAN LEARNING COMMONS

The Chapman Learning Commons features peer assistance, instruction, academic support, community events, a laptop-lending program, and access to UBC's wireless network. It has support space for group and individual study. Between May 2005 and late 2007, the Chapman Learning Commons will be closed due to construction of The Irving K. Barber Learning Centre. Please visit The Chapman Learning Commons website (www.library.ubc.ca/chapmanlearningcommons) for alternate computer and study support facilities. The Chapman Learning Commons will reopen on the third level of the completed Learning Centre in 2007.

PEOPLE WITH DISABILITIES

Students, faculty, and staff with mobility or print disabilities may obtain Enhanced Services Library cards. Cardholders are entitled to book and journal retrieval, browsing assistance, catalogue assistance, and photocopying by library staff at the self-service price. Medical confirmation of a disability may be required. For more information about services for people with disabilities, contact Access and Diversity/The Disability Resource Centre at 604-822-5844 (voice) or 604-822-9049 (Telecommunications Device for the Deaf).

DISTANCE EDUCATION STUDENTS

UBC Library provides library and information services to UBC students who are living at a distance from the campus and taking credit distance education courses or completing some other UBC degree requirement. Library staff locate and send library materials (fees may be charged for this service) and provide other assistance needed to complete research assignments.

INTERLIBRARY LOAN

Materials not available at UBC or by self-service ordering can usually be borrowed from other institutions through the Library's Interlibrary Loan service. Certain items such as journal articles, technical reports, or theses are obtained as photocopies or microfilm or microfiche copies. There is no fee for borrowing books, photocopying short journal articles, or

making microfiche copies of short technical reports or other documents.

ORDER/DELIVERY SERVICES

Several document delivery services are available to students, faculty, and staff. Through UBC Library's own services, books, articles, and other materials in the Library's collection can be arranged for either physical or electronic pick up. UBC Vancouver and UBC Okanagan students can request library materials from any UBC library regardless of location. Fees are charged for some transactions. CISTI Orders is a self-service electronic ordering service for documents from the Canada Institute for Scientific and Technical Information (CISTI), Canada's largest library for science, engineering, and medicine. UBC Library covers the cost of CISTI Orders for students, faculty, and staff.

UBCCARD/LIBRARY CARD

The UBCCard is the University's official student identification card, and is also the student Library card. It is valid for up to four years. UBCCards are issued at the UBC Carding Office, located in UBC Bookstore, throughout the academic year. For more information, please visit the UBCCard website (www.ubccard.ubc.ca) or call 604-822-2406.

LIBRARIES AND COLLECTIONS

ASIAN LIBRARY

Since its acquisition of the Puban collection in 1960, the Asian Library has developed the largest research collection of Asian language materials in Canada. Its holdings in Chinese, Japanese, Korean, South Asian and Indonesian languages exceed 525,000 volumes. While comprehensive in a range of subjects, the collection is especially strong in the humanities and social sciences. Special materials include the valuable Puban collection, Swann collection, Song Xuepeng collection, Jing Yi Zhai collection, Japanese government publications, and Pearl Delta Area as well as Japanese Canadian studies collections. A growing collection of photographs on Chinese immigrants, and a database of historical Chinese language materials in British Columbia, have developed through research interests in Chinese settlement in BC. The Asian Library shares resources with numerous North American libraries and organizations beyond UBC Library. The Asian Library is located in the Asian Centre, 1871 West Mall.

DAVID LAM LIBRARY

The David Lam Management Research Library offers services and collections for research in all facets of business management and administration, including: accounting, collective bargaining, finance, marketing, and urban land economics. Notable collections focus on Asian business, transportation, international finance, sales and marketing. David Lam Library also has extensive resources offering corporate financial data on Canadian and international publicly traded companies. David Lam Library

is located in the Henry Angus Building, 2033 Main Mall.

EDUCATION LIBRARY

The Education Library's collection serves as a foundation for teaching and research in the Faculty of Education. The collection comprises children's books, school texts, and multimedia for K-12, as well as books and journals dealing with teaching strategies, curriculum evaluation, educational technology and research in education. The Education Library also has a number of electronic information resources, as well as materials in microform, audiocassette, and video-recording formats. A high priority is placed on materials that reflect Canadian content and approaches, and materials pertaining to BC Education. The Education Library is located on the main floor of the Neville Scarfe building, 2125 Main Mall.

FINE ARTS LIBRARY

The Fine Arts Division collects materials on art history, architecture, community and regional planning, costume, graphics, sculpture, design, artistic photography, and painting. The collection is particularly strong in Canadian art, Far Eastern art, and exhibition catalogues. Extensive picture collections include the Photographic Archive from the Chinese National Palace and Central Museums, Taiwan; the Carnegie Collection of photographs of Western art; the Chatsworth Collection of photographs of drawings; and the Marburg Index, an inventory of art in Germany. The Division's rare book collection includes important catalogue raisonnées of artists' works. Pamphlet files contain exhibition catalogues and notices with emphasis on the Vancouver area, as well as information on local buildings and galleries. The Fine Arts Division is located in the Irving K. Barber Learning Centre, 1961 East Mall.

LAW LIBRARY

The Law Library supports the study, reference, and research needs of the students and faculty of the Faculty of Law, and other members of the University community. Its research collection exceeds 215,000 volumes and is supplemented by many electronic indexes, databases, and electronic journals. Primary and secondary legal materials are acquired from major common law jurisdictions of the world: Canada, US, UK, Australia, New Zealand, as well as materials from other selected jurisdictions such as the European Community and the Pacific Rim. A specialized Asian law collection comprises resources in English and in the vernacular. The Law Library is located in the George F. Curtis Building, 1822 East Mall.

MACMILLAN LIBRARY

The MacMillan Library specializes in providing reference and instruction services and collections for forestry and the agricultural sciences. The collection includes books, journals, and other materials in the plant, soil and animal sciences, agroecology, food science and technology, animal welfare, wine research, landscape

architecture, environmental design, aquaculture, forestry conservation and wood science. MacMillan Library is located in the MacMillan Building, 2357 Main Mall.

MATHEMATICS LIBRARY

The Mathematics Library has materials on pure and applied mathematics. Subjects include calculus, complexity theory, differential equations, dynamical systems, geometry, logic, mathematical finance, mathematical physics, numerical analysis, number theory, probability, theoretical statistics and the history of mathematics. The Math Library is located in the Mathematics Building, 1984 Mathematics Road.

MUSIC LIBRARY

The Music Library, serving the research and teaching needs of the UBC School of Music, has one of the finest collections of music materials in Canada. The collection includes books and journals about music, musical scores, sound recordings, CD-ROMs, and video recordings. The Music Library is located in the Music Building, 6361 Memorial Road.

RARE BOOKS AND SPECIAL COLLECTIONS

Rare Books and Special Collections houses an outstanding research collection of rare books, Canadian history and literature, archival research materials, and collections of historic maps and photographs. Areas of specialization include selected British Columbia authors, books about BC, pre-Confederation Canada, Pacific and Arctic exploration, the fur trade, pre-1900 Canadian travel and exploration, Canadian, English and American children's literature, and the history of cartography. The manuscript collections are particularly strong in the areas of fishing, forestry, and mining, with important records relating to BC politics, literature, and history. Rare Books and Special Collections is located in the Irving K. Barber Learning Centre, 1961 East Mall.

SCIENCE AND ENGINEERING DIVISION

Science and Engineering provides reference service and collections for: chemistry, physics, geology, geophysics, palaeontology, computer science, chemical and bio-resource engineering; civil, electrical, mechanical and environmental engineering; atmospheric science, physical oceanography, transportation, and mathematics. The Science and Engineering Division is located in the Irving K. Barber Learning Centre, 1961 East Mall.

UBC LIBRARY AT ROBSON SQUARE

Supporting the needs of students, faculty, staff and community researchers at UBC's downtown campus, the Library at Robson Square provides a reference centre with digital/electronic and other resources. The UBC Library at Robson Square is located at 800 Robson Street, Plaza Level.

UBC OKANAGAN LIBRARY

The UBC Okanagan Library supports the full range of academic programs taught at UBC Okanagan. The collection is multi-formatted, including monographs, periodicals, dictionaries, directories, encyclopedias, government documents, multimedia, maps, microforms, and a GIS area. Students and faculty enjoy a broad selection of services such as reference, circulation, Interlibrary Loan, instruction, and an Information Commons. The UBC Okanagan Library is located at 3333 University Way in Kelowna, BC.

UNIVERSITY ARCHIVES

University Archives provides archival and records management services to the UBC community. It is a repository of documents, photographs, and other historical materials preserving the corporate memory of the University. To augment this information, University Archives acquires the private papers of selected faculty members, administrators and alumni, as well as the records of independent student, alumni, and employee organizations. University Archives serves in a public relations capacity by disseminating information about the University to interested individuals and promotes academic research through the provision of reference and other services. University Archives is located in the Irving K. Barber Learning Centre, 1961 East Mall.

WALTER C. KOERNER LIBRARY

Koerner Library houses materials on the humanities and social sciences, including economics, geography, history, languages and literature, philosophy, political science, psychology, religion, and sociology. The collection in Koerner includes CD-ROM databases, bibliographies, directories, encyclopedias, dictionaries, maps, microforms, numeric data files, newspapers, calendars of other universities, and a comprehensive collection of Canadian federal and BC government publications, with publications from international agencies, the US government, as well as from the governments of western European, south-east Asian, and Pacific Rim countries. The Walter C. Koerner Library is located at 1958 Main Mall.

WOODWARD LIBRARY

Woodward Library is one of a network of four Life Sciences Libraries. It houses the largest biomedical collection in western Canada. Woodward has materials in the health and life sciences, biology, botany, dentistry, medicine, nursing, nutrition, pharmaceutical sciences, zoology, and related fields. The Charles Woodward Memorial Room houses the William C. Gibson History of Medicine and Science Collection, an outstanding collection of more than 5,000 volumes on the history of medicine and the natural sciences. Woodward Library is located at 2198 Health Sciences Mall. The other libraries in the Life Sciences Libraries network are located off-campus in Vancouver hospitals, serving students and researchers affiliated with the Faculty of Medicine and allied health professions.

They are: Biomedical Branch Library at Vancouver General Hospital, 700 West 10th Avenue; Eric Hamber Library at Children's and Women's Health Centre of BC, 4480 Oak Street; and St. Paul's Hospital Library, 1081 Burrard Street.

X̱wi7̱wa LIBRARY

X̱wi7̱wa Library is the newest branch of the UBC Library. Its collections focus on Aboriginal peoples in British Columbia, including contextual materials on Canadian Aboriginal peoples, in addition to national and international issues relating to Aboriginal and indigenous peoples. X̱wi7̱wa is particularly interested in materials written from Aboriginal perspectives, such as materials produced by Aboriginal organizations, tribal councils, schools, publishers, researchers, writers, and scholars. X̱wi7̱wa Library is located at 1985 West Mall.

LIBRARY STAFF

University Librarian

C. Quinlan, B. Mus. (Qu.), M.L.S. (Dal.), M.B.A. (Memorial U.).

Deputy University Librarian (Interim)

W.P. Ward, B.A., M.A. (Alta.), Ph.D. (Qu.).

Assistant University Librarians

ARTS, HUMANITIES AND SOCIAL SCIENCES
T. Atkinson, B.Ed., M.L.S. (Br.Col.).

COLLECTIONS AND TECHNICAL SERVICES
J. Kreider, B.A. (Goshen Coll.), M.A.T., M.L.S. (Indiana).

SCIENCES
L. Starr, B.Sc. (Alta.), M.L.S. (Tor.).

Heads of Library Units

ASIAN LIBRARY
E. Yuen, B.A. (H.K.), A.L.A. (U.K.).

BORROWER SERVICES
L. Crema, B.A., M.A., M.L.S. (Br.Col.).

DAVID LAM MANAGEMENT RESEARCH LIBRARY
J. Wallace, B.A. (Tor.), M.A., M.Sc. (Col.).

EDUCATION LIBRARY
C. Ball, B.A. (Qu.), M.L.I.S. (W.Ont.).

FACILITIES AND HUMAN RESOURCES
D. Austin, CHRP.

FINANCE
B. Tee, M.B.A. (Calif.), C.A. (Br.Col.).

HUMANITIES AND SOCIAL SCIENCES
M. Friesen, B.A., B.L. S., M.L.I.S. (Br.Col.).

LAW LIBRARY
S. Wilkins, B.A., M.L.S., LL.B. (Alta.).

MUSIC LIBRARY
K. Walsh, B.Mus. (Br.Col.), M.A., M.L.S. (W.Ont.).

SCIENCE AND ENGINEERING
K. Lindstrom, B.A. (Alta.), M.L.I.S. (W.Ont.).

TECHNICAL SERVICES
M. Madewan, B.A. (Malaya), M.L.S. (McG.).

UBC OKANAGAN
M. Burton, B.A. (King's), M.L.S. (Alta.).

UNIVERSITY ARCHIVES
C. Hives, B.A., M.A. (W.Ont.), M.A.S. (Br.Col.).

WOODWARD LIBRARY
R. Dahlie, B.A., Prof. Cert. Education, M.L.S. (Br.Col.).

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Courses of Study and Degrees

The University offers instruction in each of its faculties and schools. Listed below are the bachelor, master's and doctoral degrees offered, along with diplomas and certificates. Doctoral and master's degrees are offered either by the Faculty of Graduate Studies or by a disciplinary Faculty. For complete information on graduate programs, see the Faculty of Graduate Studies section or the disciplinary Faculty or School sections. For a listing of graduate interdisciplinary programs offered, see Interdisciplinary Studies in the Faculty of Graduate Studies section. For a listing of Honorary Degrees, see the Calendar Chapter Establishment and Constitution.

APPLIED SCIENCE (ENGINEERING)

Bachelor of Applied Science	B.A.Sc.
Bachelor of Applied Science with Master of Engineering	B.A.Sc./M.Eng.
Master of Applied Science	M.A.Sc.
Master of Engineering	M.Eng.
Doctor of Philosophy	Ph.D.

ARCHITECTURE AND LANDSCAPE ARCHITECTURE

Bachelor of Environmental Design	B.En.D.
Master of Architecture	M.Arch.
Master of Advanced Studies in Architecture	M.A.S.A.
Master of Landscape Architecture	M.L.A.
Master of Advanced Studies in Landscape Architecture	M.A.S.L.A.

ARTS

Bachelor of Arts	B.A.
Bachelor of Fine Arts	B.F.A.
Master of Arts	M.A.
Master of Arts in Asia Pacific Policy Studies	M.A.P.P.S.
Master of Arts in Asia Pacific Policy Studies with Bachelor of Laws	LL.B./M.A.P.P.S.
Master of Fine Arts	M.F.A.
Doctor of Philosophy	Ph.D.

AUDIOLOGY AND SPEECH SCIENCES

Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.

COMMERCE AND BUSINESS ADMINISTRATION

Bachelor of Commerce	B.Com.
Bachelor of Business in Real Estate	B.B.R.E.
Master of Business Administration	M.B.A.
Master of Business Administration with Bachelor of Laws	M.B.A./LL.B.
Master of Management	M.M.
Master of Science in Business Administration	M.Sc. (Bus. Admin.)
Doctor of Philosophy	Ph.D.

COMMUNITY AND REGIONAL PLANNING

Master of Arts in Planning	M.A.P.
Master of Science in Planning	M.Sc.P.
Doctor of Philosophy	Ph.D.

DENTISTRY

Bachelor of Dental Science	B.D.Sc.
Doctor of Dental Medicine	D.M.D.
Master of Science/Diploma in Periodontics	M.Sc./Dip. Periodontics
Doctor of Philosophy	Ph.D.

EDUCATION

Bachelor of Education	B.Ed.
Master of Education	M.Ed.
Master of Educational Technology	M.E.T.
Master of Arts	M.A.
Doctor of Education	Ed.D.
Doctor of Philosophy	Ph.D.

FORESTRY

Bachelor of Science in Forestry	B.S.F.
Bachelor of Science in Forestry	B.Sc. (Forestry)
Bachelor of Science in Natural Resources Conservation	B.Sc. (Natural Resources Conservation)
Bachelor of Science in Wood Products Processing	B.Sc. (Wood Products Processing)
Master of Forestry	M.F.
Master of Science	M.Sc.
Master of Applied Science	M.A.Sc.
Doctor of Philosophy	Ph.D.

GRADUATE STUDIES

See Degrees Offered in the Faculty of Graduate Studies section of this chapter.

HUMAN KINETICS

Bachelor of Human Kinetics	B.H.K.
Master of Human Kinetics	M.H.K.
Master of Arts	M.A.
Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.

JOURNALISM

Master of Journalism	M.J.
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LAND AND FOOD SYSTEMS

Bachelor of Science in Agroecology	B.Sc. (Agroecology)
Bachelor of Science in Global Resource Systems	B.Sc. (Global Resource Systems)
Bachelor of Science in Food, Nutrition and Health	B.Sc. (Food, Nutrition and Health)
Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.

LAW

Bachelor of Laws	LL.B.
Master of Arts in Asia Pacific Policy Studies with Bachelor of Laws	M.A.P.P.S./LL.B.
Bachelor of Laws with Master of Business Administration	LL.B./M.B.A.
Master of Laws	LL.M.
Master of Jurisprudence in Common Law	M.Jur.
Doctor of Philosophy	Ph.D.

LIBRARY, ARCHIVAL AND INFORMATION STUDIES

Master of Library and Information Studies	M.L.I.S.
Master of Archival Studies	M.A.S.
Master of Archival Studies with Master of Library and Information Studies	M.A.S./M.L.I.S.
Master of Arts (Children's Literature)	M.A.
Doctor of Philosophy	Ph.D.

MEDICINE

Bachelor of Medical Laboratory Science	B.M.L.Sc.
Bachelor of Midwifery	B.Mw.
Doctor of Medicine	M.D.
Doctor of Medicine with Doctor of Philosophy	M.D./Ph.D.
Master of Health Administration	M.H.A.
Master of Health Science	M.H.Sc.
Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.

MUSIC

Bachelor of Music	B.Mus.
Bachelor of Arts	B.A.
Master of Music	M.Mus.
Master of Arts	M.A.
Doctor of Musical Arts	D.M.A.
Doctor of Philosophy	Ph.D.

NURSING

Bachelor of Science in Nursing	B.S.N.
Master of Science in Nursing	M.S.N.
Doctor of Philosophy	Ph.D.

OCCUPATIONAL AND ENVIRONMENTAL HYGIENE

Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.

PHARMACEUTICAL SCIENCES

Bachelor of Science in Pharmacy	B.Sc. (Pharm.)
Master of Science	M.Sc.
Doctor of Pharmacy	Pharm.D.
Doctor of Philosophy	Ph.D.

REHABILITATION SCIENCES

Master of Occupational Therapy	M.O.T.
Master of Physical Therapy	M.P.T.
Master of Rehabilitation Science	M.R.Sc.
Master of Science	M.Sc.
Doctor of Philosophy	Ph.D.

SCIENCE

Bachelor of Science	B.Sc.
Bachelor of Computer Science	B.C.S.
Master of Science	M.Sc.
Master of Software Systems	M.S.S.
Doctor of Philosophy	Ph.D.

SOCIAL WORK AND FAMILY STUDIES

Bachelor of Social Work	B.S.W.
Bachelor of Arts	B.A.
Master of Arts	M.A.
Master of Social Work	M.S.W.
Doctor of Philosophy	Ph.D.

DIPLOMAS

Accounting
Applied Creative Non-Fiction
Art History
Collaborative Piano Studies
Computer Science
Education
Film Production
Forestry (Advanced Silviculture)
Forest Engineering
Linguistics
Meteorology
Music Performance
Periodontics (in conjunction with an M.Sc. in Dental Science)
Urban Land Economics

CERTIFICATES

Advanced Study (Library, Archival and Information Studies)
Graduate Certificate in Rehabilitation
Oral Medicine and Oral Pathology
Post-Graduate Certificate in Real Property Valuation
Post-Graduate Certificate in Technology-based Distributed Learning
Post-Graduate Certificate in Technology-based Learning for Schools
Real Property Assessment
Theatre Design and Technology

1 The Faculty of Applied Science

Dean's Office

M. Isaacson, Dean
P. E. Adebar, Associate Dean
A. B. Dunwoody, Associate Dean
S. G. Hatzikiriakos, Associate Dean

5000–2332 Main Mall
Vancouver, BC V6T 1Z4
Telephone: 604-822-6413
Fax: 604-822-7006
Engineering Student Services: 604-822-6556
Applied Science Website (www.apsc.ubc.ca)

The Faculty of Applied Science offers undergraduate and graduate programs in engineering, architecture, and nursing. The Faculty offers engineering programs through the Departments of Chemical and Biological Engineering, Civil Engineering, Electrical and Computer Engineering, Mechanical Engineering, Materials Engineering, and Mining Engineering, and three boards of study: Engineering Physics, Geological Engineering, and Integrated Engineering. The two schools in the Faculty offer programs in their respective disciplines, which are described in *The School of Architecture and Landscape Architecture*, p. 111, and *The School of Nursing*, p. 361. In cooperation with the Faculty of Forestry and the Institute of Forest Engineering of British Columbia, the Faculty of Applied Science offers the Diploma in Forest Engineering.

Extension of engineering studies to the graduate level is becoming increasingly important. The Faculty offers graduate programs leading to the degrees of Master of Applied Science, Master of Engineering, and Doctor of Philosophy, and provides research facilities in many areas of engineering. The requirements for admission to these programs are listed in *The Faculty of Graduate Studies*, p. 217. The Master of Engineering requirements are listed under *Master of Engineering*, p. 107 in this section. The Master of Engineering may be obtained by part-time study in all departments. Part-time study towards the Master of Applied Science is permitted in some departments.

BACHELOR OF APPLIED SCIENCE

The Faculty offers programs of undergraduate study leading to the Bachelor of Applied Science in the following areas of engineering: Chemical

and Biological Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Engineering Physics, Geological Engineering, Integrated Engineering, Mechanical Engineering, Materials Engineering, and Mining Engineering.

The Faculty of Applied Science admits suitably qualified applicants directly from secondary school into first-year engineering. These students will normally complete the Bachelor of Applied Science in four years, except in the case of the Engineering Physics and Chemical Engineering-Chemistry Honours programs which require five years' study. Students may also enter the engineering program after spending one or more years in the Faculty of Science, either because they wish to avail themselves of a broader range of electives or because they do not meet the entrance requirements for admission directly from secondary school (see *Admission from BC/Yukon Grade 12 (or equivalent)*, p. 95). Depending on the transfer credit in engineering received from first-year Science (see *Admission from Science*, p. 96), such students may be able to complete an engineering degree with three further years of study, otherwise they will require four further years.

Scheduled field trips, and the activities of professional and technical societies all contribute to the rounding out of the undergraduate programs and students are expected to participate in them as fully as circumstances permit.

The Faculty will consider proposals from qualified applicants for part-time study towards the Bachelor of Applied Science. Since the flexibility for such study may be limited, approval must be obtained from the Dean's Office.

ACADEMIC ADVISING

Academic advising duties are shared between the Engineering Student Services Office and departmental advisors. The Engineering Student Services Office is located at 2332 Main Mall, Room 1100. Departmental offices have the names of the departmental advisors. The Engineering Student Services Office handles advising for all first-year students and for courses given by other faculties. Departmental advisors deal with questions regarding courses taken within the student's own department.

ADMISSION

Application for admission to the engineering program must be made through Enrolment Services no later than February 28. All supporting documents, including official transcripts, must be received by Enrolment Services by June 30, otherwise the application will not be considered. The applicant is responsible for ensuring that official transcripts are received by June 30.

Due to limited resources, the Faculty has been authorized to restrict enrolment in first-year engineering, and within individual engineering programs at the second-year level. Attainment of the minimum academic requirements listed below means that the applicant is eligible for selection, but does not provide assurance of admission. The selection is based on academic standing. For most engineering programs, the competition for places is such that standing above the minimum prescribed requirements is necessary to ensure admission.

The attention of applicants is drawn to the importance of mathematics as a preparation for engineering courses. Experience has shown that UBC students with grades below 65% in mathematics (below 'B' at a college) are likely to have difficulty with many engineering courses.

Admission from BC/Yukon Grade 12 (or equivalent)

In addition to satisfying university admission requirements, applicants must have completed mathematics, physics, and chemistry at the British Columbia Grade 12 level, or the equivalent. Students will be selected on the basis of their standing in Grade 12 courses in mathematics, chemistry, physics, and English. Applicants from schools where either Physics 12 or Chemistry 12 is not available may petition to be excused this deficiency.

The University is prepared to offer early admission to secondary school students graduating in June based on interim or projected final grades submitted by the schools.

In addition to high academic standards, the Faculty of Applied Science recognizes the benefits of previous technical work and extracurricular activities. Admissible applicants from BC and Yukon secondary schools whose interim grades (and final grades where applicable) fall below 85% will be sent a supplementary application

form. The form requests information from the applicant in areas such as:

- career objectives in the context of the present application to enter engineering;
- experiences related to athletic, cultural, family, community, or other activities requiring considerable personal initiative;
- science projects requiring design, construction, and use of specialized equipment and/or software;
- summer jobs in technical organizations or environments; and
- technical courses completed.

This information will be used by the Admissions Committee of the Faculty of Applied Science in the selection of up to 15% of the students entering engineering.

Admission from Science

Applicants who have taken first-year Science at UBC are eligible to be considered if they have achieved an overall average of at least 55% on all courses, including any failed courses, and at least 60% in each of chemistry, physics, and mathematics (60% average in MATH 100 and 101, minimum 60% in MATH 101). Applicants from a college or another university are eligible for consideration if they have achieved an overall grade point average of at least 2.5, including any failed courses, with a grade point average of at least 2.7 in mathematics, physics, and chemistry with no grade less than 'C' in these subjects.

Applicants registered in Science who have taken 60 or more credits must normally have an average of at least 60% on all courses taken in their most recent 60 credits of study in Science, including any failed courses.

Applicants from first year at an approved university or college should normally have taken the following 30 credits of prerequisite subjects: CHEM 121 and 123, ENGL 112 or another first-year English course, MATH 100 and 101 (or 120 and 121), PHYS 101 and 102 (or 121 and 122), plus nine credits of appropriate electives.

Students transferring into engineering with 6 credits of first-year Chemistry may substitute a 3-credit engineering graphics course for APSC 150.

Applicants who are deficient in one or more of these subjects should consult the Dean's Office.

Applicants with more than 24 credits of transfer credit in first-year engineering may be eligible for second-year engineering, depending on the program which they wish to enter and the transfer credit received. Advice on transfer credit is available from the Applied Science Dean's Office. Applicants admitted to second year may be able to complete their engineering program in three years following first-year Science, depending on the first-year engineering courses that they lack and the arrangements that they can make for completing these courses. These applicants must obtain a 'Second Year Program Preference' form from the

Dean's Office and return the completed form to the Dean's Office by June 15.

Exemptions are given for courses in first-year Applied Science for the following courses normally taken in first-year Science at UBC:

EXEMPTIONS FOR APPLIED SCIENCE

Course	Exemption
CHEM 121 and 123	CHEM 154
PHYS 101 and 102	PHYS 153

The following courses, which can be taken as electives in first-year Science, also give the exemptions indicated:

EXEMPTIONS FOR SCIENCE

Course	Exemption
MATH 221 or 223	MATH 152
PHYS 216	PHYS 170

MATH 221, or equivalent, is required for students wishing to enter the Departments of Electrical and Computer Engineering or Mechanical Engineering.

Successful completion of Science One (from UBC) provides transfer credit for first-year engineering for CHEM 154, MATH 100, MATH 101 and PHYS 153.

Applicants with 24 or fewer credits of transfer credit in engineering will normally enter first-year engineering and take a program similar to the one described in the table, *Typical Transfer Program Following First-Year Science*, p. 99. They will normally require four years following first-year Science to complete their engineering programs.

Admission from UBC Engineering Transfer Programs

Students who have completed first-year engineering at a college offering a UBC transfer program are eligible to be considered for admission to second-year engineering provided that they have obtained an overall grade point average of at least 2.5.

Admission Following Two-Year Technology Diploma Programs

Students are eligible to be considered for admission if they have completed an appropriate two-year technology diploma program with an overall average of at least 70%. Admission is normally into first-year engineering.

Camosun Bridging Program

Students with a two-year diploma in Civil or Mining Technology will be admitted to third year of the B.A.Sc. program in Civil Engineering or Mining Engineering upon successful completion of the Engineering Bridging program offered by Camosun College. Applications for entry into the bridging program are considered on an individual basis and approval for admission must be obtained from both the Faculty of Applied Science and Camosun College before registering in any of the bridging courses. Students may be required to take additional first- or second-year UBC courses to make up deficiencies. Mature applicants may be admitted into the Bridging Program notwithstanding the fact they might not meet the normal admission requirements if, in the

judgment of the Faculty of Applied Science and Camosun College, equivalent experience has been obtained.

Mature Students

Applicants who do not meet the normal University or Faculty requirements for admission, but who have relevant work experience in engineering, may be considered for admission. Mature student applications are considered on an individual basis; this applies to residents of BC only.

ACADEMIC REGULATIONS

Dean's Honour List

Students in any Winter Session with a sessional average of at least 80% while taking 30 or more credits will receive the notation 'Dean's Honour List' on their record.

Degree with Distinction

A student will be granted a degree with distinction upon graduation if he or she achieves an overall average of at least 80% on all 200-level and higher courses while registered in the B.A.Sc. program. The Faculty may also grant a degree with distinction in exceptional circumstances to students who do not meet the above criterion.

Student Classification

The required courses and electives for the Winter Session are shown in the following sections. Historically, the average credit load taken by students is 33 per session, and normal completion time is four to five years. Students may take higher loads than those shown below with the approval of the Dean's Office.

Regular students are considered to be "full-time" or "part-time" as follows:

In order to be considered as full-time, a student must carry a credit load in the Winter Session which is equal to at least 80% of the standard credit load for the year and program in which the student is registered. Note that the Faculty's definition of full-time status may not be the same as that used by *Student Financial Assistance and Awards*, p. 60, in determining eligibility for financial assistance. Students wishing to ensure that they are eligible for consideration for scholarships or other forms of award should check with Student Financial Assistance and Awards.

A student who has approval for a credit load in a Winter Session which is less than that required for full-time status shall be considered as a part-time student. A part-time student will not normally be eligible for scholarships or for a Degree with Distinction.

A student who is taking courses from more than one year level shall normally be given year status based on the program year of the majority of credits being taken.

Examinations

Examinations are held in December and in April. In any course which includes both lecture and laboratory work, a student must complete

the laboratory assignments with satisfactory standing before being admitted to the written examination of the course and must pass in the material of both components before standing will be granted in the subject. The minimum passing mark in each course is 50%.

Applications for special consideration for examinations missed on account of illness or domestic affliction must be submitted to the Dean before or immediately after the missed examination(s). For information regarding medical certificates see *Academic Concession*, p. 50.

Advancement

In order to pass the year, a student must both obtain an overall average of at least 55% in the Winter Session and pass in 65% of credits taken. A student who fails a year will be required to discontinue studies in the Faculty for at least one year but is eligible to apply for readmission after that year. A student who fails a second time will be required to withdraw. In a failed year a student will be granted credit for all courses passed.

A student who withdraws during Term 2 of Winter Session after obtaining less than 55% on the December examinations will not be readmitted for the following Winter Session but is eligible to apply for readmission after that year.

In order to advance in the Faculty of Applied Science, students normally must have met the Language Proficiency Index (LPI) requirement by April 30 to be eligible for admission to a program at the second-year level. (See *Language Proficiency Index Requirement for First-Year English*, p. 120.) They must also complete ENGL 112 (or equivalent) prior to promotion to third year, and APSC 201 prior to promotion to fourth year.

Term essays and examination papers may be refused a passing mark if they are noticeably deficient in English.

Supplemental Examinations

There are no supplemental examinations for any courses offered within the Faculty of Applied Science, with the exception of 400-level courses. Additionally, supplemental examinations may not be offered in all 400-level courses within the Faculty. Supplemental examinations are only available to students who have passed their year. A student must have failed a course, but received a final grade of at least 40% in order to be eligible to write a supplemental examination in that course. Supplemental examinations are only offered during the deferred/supplemental examination period of July to August.

Supplemental examinations for courses which terminate in December will normally be made available to students only during the supplemental examination period in July to August.

Appeals

Current students may appeal year standing decisions to the Faculty of Applied Science

Committee on Admissions, Standing, and Courses.

Applications for readmission from non-current students should be directed to Enrolment Services.

Field Trips

Students who are required to participate in field trips will be responsible for expenses incurred in such trips.

DEGREE REQUIREMENTS

A student shall be granted a Bachelor of Applied Science only after obtaining credit for all courses listed in the program of study for a given engineering program. This requirement will normally be met by completing four Winter Sessions with full credit load (five Winter Sessions for the Engineering Physics Program). With the approval of the Dean's Office, a student may be allowed to study on a part-time basis. Credit will be granted for courses completed during the Summer Session.

A student transferring from an engineering program at another university or from a science faculty may be granted transfer credit for courses if the student has completed courses of equivalent content.

Elective Courses in Engineering

Students are advised that enrolment in elective courses offered within the Faculty may be restricted.

English Requirement

The Faculty of Applied Science recognizes that good communication skills in English are essential to the understanding of course material and to the successful practice of engineering. To qualify for the B.A.Sc., a student must complete ENGL 112 (or equivalent) and APSC 201 (or equivalent). Students admitted directly from secondary schools are required to take English in their first year if eligible to do so. To be eligible, students must have met the Language Proficiency Index (LPI) requirement (see *Language Proficiency Index Requirement for First-Year English*, p. 120. Once admitted to UBC, students will not normally be permitted to satisfy the English requirements at another institution. Students should take particular notice of the English requirements for advancement in the Faculty (see *Advancement*, p. 97).

Complementary Studies Courses

Students must take complementary studies courses totalling at least 20 credits. The minimum requirements are as follows:

- 1) Professional development – APSC 450 (2) or equivalent
- 2) English – ENGL 112 (3) or another first-year English course, APSC 201 (3)
- 3) Engineering economics (3). All engineering programs include a 3-credit engineering economics course, usually taken in third or fourth year. Approved courses include: CHBE 459, CIVL 403, EECE 450, MECH 431, MINE 396, and MTRL 455.

- 4) Impact of technology on society (3). Acceptable courses include: APSC 261 (3), APSC 262 (3), CIVL 200 (3), CPSC 430 (3), ECON 339 (3), GEOG 122 (3), GEOG 310 (3), HIST 215 (3), HIST 425 (6), PHIL 435 (3/4), POLI 361 (3/6), SOCI 260 (3/6), URST 200 (3). Civil Engineering students must take CIVL 200 to satisfy this requirement. Students may seek approval from the Dean's Office for other courses in this area.
- 5) Humanities and social sciences electives – minimum 6 credits. In general, scientific geography courses, statistical courses, studio/performance courses in fine arts, music and theatre, will not satisfy this requirement. Courses that teach language skills are not acceptable.

MINOR IN COMMERCE

Students desiring a stronger foundation in business are encouraged to consider the Minor in Commerce. Upon successful completion of this minor program, the notation 'Minor in Commerce' will be placed on the student's transcript.

Enrolment in this program is limited. Applications for admission can be obtained from Engineering Student Services. The completed form must be returned by May 15. For an application to be considered, the student must be eligible for at least third-year standing in the Faculty of Applied Science with a cumulative average of at least 68% in the previous two years. Meeting the stated minimum requirements does not guarantee admission into the minor. Preference will be given to students who have already completed ECON 310 and 311 (or ECON 101 and 102). The program will consist of the following:

ECON 310 and 311 (or 101 and 102) ¹	6
COMM 457	3
COMM 465	3
One of COMM 329, 458 or 473	3
An engineering economics course appropriate for the department in which the student is enrolled.	3

¹ Students who have completed ECON 101 and 102 prior to entry into the program may use this course in lieu of ECON 310 and 311. Either Economics course may be used as the humanities and social sciences elective component of the complementary studies courses. Some programs will allow a maximum of 3 credits of Commerce courses to count towards the technical electives requirement.

In general, completing the Minor in Commerce will take an additional term.

MINOR IN INFORMATION TECHNOLOGY

Students wishing to improve their computer-related skills are encouraged to consider the Minor in Information Technology. Upon successful completion of this minor, the notation 'Minor in Information Technology' will be placed on the student's record.

A student completing the Minor in Information Technology will not be able to replace a professional trained in information technology. However, that student will be able to apply

information technology within their field of specialization. Specifically, they will have an understanding of information technology on three levels; hardware, software, and systems. Where their own understanding of an issue is insufficient, they will be able to work knowledgeably with information technology professionals to resolve the problems.

This minor is not open to students in the Electrical and Computer Engineering Department, in the Electro-Mechanical option of the Mechanical Engineering program or in the Electrical or Computer Science options of the Engineering Physics program. Application for admission must be made through Engineering Student Services by May 15. Applicants must be eligible for third-year standing in the Faculty of Applied Science with a cumulative average of at least 68% over the previous two years. Due to limited enrolment, meeting the stated minimum requirements does not guarantee admission into them minor.

MINOR IN INFORMATION TECHNOLOGY

APSC 160	3
APSC 380	3
CPSC 260	3
EECE 314	3
6 credits from the following courses:	
CIVL 584	3
COMM 335	3
COMM 437	3
COMM 438	3
EECE 369	3
EECE 456	3
EECE 478	3
MECH 595	2
MINE 432	3

In general, completion of the Minor in Information Technology will require an additional term.

CO-OPERATIVE EDUCATION PROGRAM

The Engineering Co-operative Education Program is intended to provide motivated and qualified students with paid, faculty-monitored work experience which is directly related to their academic program. Currently, the Co-op Program is available in Chemical and Biological Engineering, Civil Engineering, Computer Engineering, Electrical Engineering, Geological Engineering, Integrated Engineering, Mechanical Engineering, Electro-mechanical Engineering, Materials Engineering, Mining Engineering, and Engineering Physics.

The program is an optional, year-round program that normally requires completion of five work terms including one winter and one fall placement. The Co-op Program requires an additional year to complete the Bachelor of Applied Science requirements.

Students intending to enter these programs may apply between January of first year and September of second year. Specific deadlines are available from the Co-op office.

Faculty advisors or coordinators visit students at their places of work and provide advice on the technical reports that are a requirement of the program.

Students who wish to be considered for the program must meet all requirements of the Faculty of Applied Science (engineering) and will be selected on the basis of academic performance, written and oral communication skills, and general suitability for the work environment.

The total enrolment is subject to the availability of appropriate work placements. Students who are accepted to the program will register in, and pay for, the appropriate 3-credit Co-operative Education course (see *Program and Course Fees*, p. 28) for each work term once a suitable position is confirmed.

In order to graduate in the year-round Co-operative Education Program, a student must have satisfactorily completed the required number of work placements, in addition to the normal academic requirements.

Normally, students transferring from other institutions may be given credit for work terms completed at their former institution if they meet the following requirements:

- the student must be accepted into the UBC Co-op Program;
- the program in which the work term was undertaken is accredited;
- the work term is officially recognized, (i.e., noted on the transcript), by the institution where the work term originated; and
- the work term was granted for experience in the same or similar discipline into which the student is transferring.

Regardless of the number of work terms accepted, students will be required to complete at least 50% of the required work terms in the new program into which they are transferring. Acceptance into a co-op program at one institution does not guarantee acceptance into UBC's Co-op Program. Application for transfer of work terms must be made to the director of Co-operative Education prior to undertaking any additional work terms at UBC.

For further information on Co-operative Education Programs please contact the Engineering Co-operative Education Office, 6298 Biological Sciences Road, Vancouver, BC, Canada, V6T 1Z4, telephone 604-822-3022, fax 604-822-3449, or visit the Co-operative Education website (www.coop.apsc.ubc.ca).

DUAL DEGREE PROGRAM IN ARTS AND APPLIED SCIENCE

This program offers capable students the opportunity to earn a Bachelor of Arts and a Bachelor of Applied Science degree in five years of study, in most combinations of one Arts degree program and one Engineering degree program. A board of studies administers and oversees admission to the program. Please contact Arts Advising or Engineering Student Services for more information.

Admission

Application for admission to the program is made to the board of studies through either the Arts Advising Office or Engineering Student Services. Applicants may be registered in either faculty but must be admissible to the other faculty at the time of admission to the program. Acceptance into the program will be determined based on a review of the applicant's transcript, an interview, and on a review of a portfolio or other such material that the applicant wishes to submit. Normally, application for admission will be made immediately upon acceptance into either faculty. Admission to the program at a later date is also possible but may imply a longer time to complete the program.

Requirements

Students must satisfy all of the program requirements for both the Bachelor of Arts and Bachelor of Applied Science degrees in their chosen programs. Individual courses may be considered to satisfy program requirements for both degrees. Courses taken within the Faculty of Applied Science will have the same standing as courses taken within the Faculty of Science for the purpose of satisfying requirements for a Bachelor of Arts for students enrolled in this program. The regulations governing the granting of a second degree apply to this program, with either of the two degrees being considered as the 'second' degree even though both are being taken simultaneously. Where possible, students should meet with an advisor from the board of studies prior to enrolling in their first year of courses.

CURRICULUM AND FIRST YEAR

First Year

Students admitted into the engineering program directly from secondary school will take the first-year curriculum.

The typical transfer program is appropriate for most students transferring into the Faculty from the first year of a science program at UBC or another university or college. Applicants with more than 24 credits of engineering transfer credit may be eligible for second-year engineering. See *Admission from Science*, p. 96.

Other students will need to contact Engineering Student Services for advice on their first-year program.

FIRST-YEAR CURRICULUM

First Year	
APSC 122	0
APSC 150 ¹	6
APSC 160	3
CHEM 154 ¹	3
ENGL 112 ²	3
MATH 100	3
MATH 101	3
MATH 152	3
PHYS 153	6
PHYS 170	3

First Year (Continued)

Complementary Studies Electives ³	3
Total Credits	36

¹ Students transferring into Engineering with CHEM 121 and 123 will take APSC 151 in lieu of APSC 150, and will not be required to take CHEM 154.

² Or another first-year English course

³ See *Complementary Studies Courses*, p. 97.

Typical Transfer Program Following First-Year Science

First Year

APSC 122	0
APSC 151	3
APSC 160	3
APSC 201	3
MATH 152	3
MATH 253	3
MATH 255	3
PHYS 170	3
STAT 251	3
Complementary Studies Electives ¹	6
Total Credits	30

¹ See *Complementary Studies Courses*, p. 97.

Second, Third, and Fourth Years

The curriculum tables which follow show the requirements for each program year as they are in the current session. However, because of possible curriculum revisions, these requirements will not necessarily be the same in future sessions. Students should therefore be aware that the requirements which they will have to satisfy in subsequent years may not be the same as those which appear in this publication.

Options in Third and Fourth Years

In some departments selected groups of courses are offered as options which represent different areas of interest. High-quality performance in any option or field qualifies the student to continue his studies at the graduate level if he chooses to do so. Students entering third year should consult representatives of the departments concerned before registering for the courses offered.

CHEMICAL AND BIOLOGICAL ENGINEERING

Students entering Chemical and Biological Engineering may choose from three programs of study:

- Chemical Engineering – Process Option,
- Chemical Engineering – Environmental Option, or
- Chemical and Biological Engineering.

The Environmental Option of Chemical Engineering and the Chemical and Biological Engineering program are modifications to the regular Process Option of Chemical Engineering in which students, while continuing to study core chemical engineering principles, have some courses replaced by environmental or biological courses. For these options, technical electives are to be taken from a constrained list. Inter-

ested students should apply for the Chemical Engineering or Chemical and Biological Engineering program of their choice after completing first year engineering, or after second year if applying from another institution. Prospective students should be aware that the number of available spaces in any of the three programs of study may be limited.

CHEMICAL ENGINEERING OR CHEMICAL AND BIOLOGICAL ENGINEERING

Second Year

APSC 201	3
CHBE 230	3
CHBE 241	3
CHBE 242	3
CHBE 251	3
CHBE 262	3
CHEM 250	2
CHEM 251	3
CHEM 260	3
MATH 253	3
MATH 256	3

Plus one of the options listed below.

Chemical Engineering: Process Option

APSC 278	3
Chemical Engineering: Environmental Option	
BIOL 112	3
Chemical and Biological Engineering	
BIOL 112	3
Total Credits	35

Third Year

CHBE 344	2
CHBE 345	4
CHBE 346	3
CHBE 351	3
CHBE 356	3
CHBE 362	2
CHBE 376	3
STAT 251	3

Complementary Studies Electives¹

Plus one of the options listed below.

Chemical Engineering: Process Option

CHBE 363	2
Technical Electives	6
Chemical Engineering: Environmental Option	
CHBE 364	2
CHBE 373	3
Technical Electives	3

Chemical and Biological Engineering

CHBE 365	2
CHBE 381	3
Technical Electives	3
Total Credits	34

Fourth Year

APSC 450	2
CHBE 455	3
CHBE 457	3
CHBE 459	3
CHBE 464	3
EECE 263	3

Fourth Year (Continued)

Complementary Studies Electives ¹	3
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Plus one of the options listed below.

Chemical Engineering: Process Option

CHBE 454	6
CHBE 456	3
CHBE 474	3
Technical Electives	6

Chemical Engineering: Environmental Option

CHBE 452	6
CHBE 484	3
CHBE 485	3
Technical Electives	6

Chemical and Biological Engineering

CHBE 453	6
CHBE 481	3
Technical Electives	9
Total Credits	38

¹ See *Complementary Studies Courses*, p. 97.

CHEMICAL ENGINEERING-CHEMISTRY HONOURS

Enrolment in this program is suspended effective September 2004. Inquiries regarding the program should be made to the Department of Chemical and Biological Engineering.

The Chemical Engineering-Chemistry Honours program is jointly administered by the Departments of Chemical and Biological Engineering, and Chemistry.

The completion of the Bachelor of Applied Science in Chemical Engineering-Chemistry Honours will normally take five years of study. Entry to the program is normally from first-year Applied Science. To obtain permission to enter the program students must consult faculty advisors in the Departments of Chemical and Biological Engineering, and Chemistry.

The five-year Chemical Engineering-Chemistry Honours program has an integrated sequence of Chemistry courses which are different from those in the regular four-year Chemical Engineering program. Because of this and other differences between the programs, transfer from one to the other becomes progressively more difficult after first year. Students who complete four years of the combined program (including fourth-year Chemical Engineering) would have a number of deficiencies to make up if they wished to graduate at that point with a Bachelor of Applied Science in Chemical Engineering.

Students who satisfactorily complete the program and who obtain a minimum overall 65% average in their chemistry courses numbered 300 and higher, will receive a Bachelor of Applied Science in Chemical Engineering-Chemistry Honours.

CHEMICAL ENGINEERING-CHEMISTRY HONOURS

Second Year

APSC 201	3
APSC 278	3
CHBE 241	3
CHBE 242	3

Second Year (Continued)

CHBE 251	3
CHEM 201	3
CHEM 202	3
CHEM 203	4
CHEM 204	4
MATH 253	3
MATH 256	3
Total Credits	35

Third Year

CHBE 330	3
CHBE 344	3
CHBE 346	3
CHBE 351	3
CHBE 356	3
CHBE 362	2
CHBE 363	2
CHBE 376	3
CHEM 211	4
CHEM 304	3
CHEM 307	3
CHEM 311	4
CHEM 312	3
Total Credits	39

Fourth Year

APSC 450	2
CHBE 444	3
CHBE 454	6
CHBE 455	3
CHBE 456	3
CHBE 457	3
CHBE 459	3
CHBE 464	3
CHBE 474	3
CHEM 330	4
STAT 251	3
Total Credits	36

Fifth Year

CHBE 491 ¹	1
CHBE 492 ¹	5
CHEM 309	3
CHEM 310	3
CHEM 320	3
CHEM 333	3
CHEM 449 ¹	6
CHEM Electives ¹	3
Complementary Studies Electives ²	6
Total Credits	33

¹ In the total program students must take one of CHEM 449, or CHBE 491 and 492. If CHEM 449 is not taken it must be replaced by 6 credits of 400-level CHEM electives. The CHEM electives must include at least one course chosen from CHEM 405, CHEM 406, or CHEM 412. If CHBE 491 and 492 are not taken they must be replaced by 6 credits of CHBE electives.

² See *Complementary Studies Courses*, p. 97.

CIVIL ENGINEERING

Within the Civil Engineering program, students may enrol in an Environmental Engineering Option which begins in third year. The Environmental Engineering Option is a modification of the regular Civil Engineering program in which environmental courses replace some of the regular program core courses in the third and fourth years of study. Interested students should apply for Civil Engineering (Environmental Engineering Option) after completing first-year Engineering, or after second year if transferring from another institution. Prospective students should be aware that an enrolment limit applies.

CIVIL ENGINEERING

Second Year

APSC 201	3
APSC 278	3
APSC 279	1
CIVL 200 ¹	3
CIVL 210	4
CIVL 215	4
CIVL 225	3
CIVL 228	3
CIVL 230	4
CIVL 231	3
CIVL 235 ²	4
EOSC 210	3
MATH 253	3
MATH 255	3
Total Credits	44

Third Year

CIVL 301	3
CIVL 311	4
CIVL 315	4
CIVL 316	4
CIVL 320	3
CIVL 322	3
CIVL 331	4
CIVL 332	3
CIVL 340	3
MATH 257	3
STAT 251	3
Complementary Studies Electives ³	3
Total Credits	40

Fourth Year

CIVL 400	3
CIVL 402 ⁴	2
CIVL 403	3
CIVL 405	3
CIVL 406	3
CIVL 410	3
CIVL 430	3
CIVL 436	3
Design Elective ⁵	3
Technical Electives ⁶	9
Total Credits	35

¹ This course counts towards requirement 4 under *Complementary Studies Courses*, p. 97.

² End of Term 2, first year.

³ See *Complementary Studies Courses*, p. 97.

⁴ This course counts towards requirement 1 under *Complementary Studies Courses*, p. 97.

⁵ To be chosen from a list of design-oriented electives available from the Department.

⁶ To be chosen in consultation with departmental advisors.

ENVIRONMENTAL ENGINEERING OPTION

Third Year

BIOL 112	3
CHEM 301	3
CIVL 301	3
CIVL 311	4
CIVL 315	4
CIVL 316	4
CIVL 320	3
CIVL 332	3
CIVL 340	3
MATH 257	3
STAT 251	3
Complementary Studies Elective ¹	3
Total Credits	39

Fourth Year

CIVL 400	3
CIVL 402 ²	2
CIVL 403	3
CIVL 405	3
CIVL 406	3
CIVL 407	3
CIVL 408	3
CIVL 416	3
CIVL 430	3
EOSC 429	3
Design Elective ³	3
Technical Electives ⁴	3
Total Credits	35

¹ See *Complementary Studies Courses*, p. 97.

² This course counts towards requirement 1 under *Complementary Studies Courses*, p. 97.

³ To be chosen from a list of design-oriented electives available from the Department.

⁴ To be chosen in consultation with departmental advisors.

ELECTRICAL AND COMPUTER ENGINEERING

The Department of Electrical and Computer Engineering offers a program leading to the Bachelor of Applied Science in Computer Engineering and to the Bachelor of Applied Science in Electrical Engineering. An Honours Mathematics option is available in both programs and a Software Engineering option is available in the Computer Engineering Program.

Traditional Second Year

(Common to both Computer Engineering and Electrical Engineering)

APSC 201	3
CPSC 260	4
EECE 251	2
EECE 253	2
EECE 254	3

EECE 256	3
EECE 259	3
EECE 261	3
EECE 280	2
EECE 281	2
EECE 285	3
MATH 263	4
MATH 265	2
MATH 267	3
Total Credits	39

Project Integrated Program (PIP)

(Common to both Computer Engineering and Electrical Engineering)

This program is a project-based learning alternative to the traditional common second-year Electrical Engineering Program and Computer Engineering Program. Engineering design projects are used to motivate both the learning of academic course material and the development of analytical skills. The appropriate second year academic material is presented prior to each design project. Each of two modules per term contains a design project. The four projects per year are carefully selected to span the full second-year curriculum. Design teams of four to six students share access to assigned meeting rooms, workstations containing common engineering design tools and reference materials.

APSC 201	3
CPSC 260	4
EECE 201	11
EECE 202	12
MATH 263	4
MATH 265	2
MATH 267	3
Total Credits	39

Computer Engineering

Third Year

EECE 310	3
EECE 315	4
EECE 320	3
EECE 353	3
EECE 359	3
EECE 360	3
EECE 374	4
EECE 375	6
STAT 251	3
Complementary Studies Electives ¹	6
Total Credits	38

Fourth Year

APSC 450	2
EECE 419	5
EECE 450	3
EECE 456	3
EECE 465	3
EECE 476	3
EECE 494	3
EECE 496	5

Fourth Year (Continued)

Technical Electives ²	9
Total Credits	36

¹ See *Complementary Studies Courses*, p. 97.

² To be chosen from a list of electives available from the Department.

SOFTWARE ENGINEERING OPTION
Students who satisfactorily complete the following program will be given recognition as receiving the Bachelor of Applied Science in Computer Engineering (Software Engineering Option).

Third Year

CPSC 304	3
EECE 310	3
EECE 315	4
EECE 320	3
EECE 321	3
EECE 353	3
EECE 369	3
EECE 375	6
STAT 251	3
Complementary Studies Electives ¹	6
Total Credits	37

Fourth Year

APSC 450	2
EECE 415	3
EECE 419	5
EECE 450	3
EECE 456	3
EECE 476	3
EECE 494	3
EECE 496	5
Software Electives ²	9
Total Credits	36

¹ See *Complementary Studies Courses*, p. 97.

² To be chosen from a list of electives available from the Department.

Electrical Engineering

Third Year

EECE 314	3
EECE 352	3
EECE 353	3
EECE 356	4
EECE 359	3
EECE 360	3
EECE 361	2
EECE 364	4
EECE 373	4
STAT 251	3
Complementary Studies Electives ¹	6
Total Credits	38

Fourth Year

APSC 450	2
EECE 450	3
EECE 474	6
EECE 496	5

Fourth Year (Continued)

Technical Electives ²	21
Total Credits	37

¹ See *Complementary Studies Courses*, p. 97.

² To be chosen from a list of electives available from the Department.

Honours Mathematics Option in either Electrical Engineering or Computer Engineering

It is possible for students to complete, in addition to their program, the basic Mathematics requirement of a combined Honours degree in Mathematics, by:

- obtaining 80% overall average in MATH 263, MATH 265, and MATH 267.^{1,2}
- obtaining a 68% overall average in MATH 300, 301, 320, 321, and 9 additional credits chosen from MATH 322, 331, 345, 402, 403, 405, 412, 416–429, 437, 443, and 449.³

¹ MATH 215, 226, and 227, with 68% in MATH 226, may be permitted as a replacement, upon approval of an advisor.

² The requirement of MATH 220 for entry into MATH 320 will be waived on the basis of this 80% overall average.

³ MATH 316, 400, and 401 are recommended for students in Electrical Engineering, and MATH 322 and 418 are recommended for students in Computer Engineering

Students who satisfactorily complete such a program will be given recognition as receiving the Bachelor of Applied Science in Electrical Engineering (Honours Mathematics Option) or Bachelor of Applied Science in Computer Engineering (Honours Mathematics Option). Students who enter engineering directly from secondary school are advised that some summer courses or additional Winter Session terms will probably be necessary in order to accommodate the extra load of the Honours Mathematics Option.

Students interested in undertaking this program should consult undergraduate student advisors in the Departments of Electrical and Computer Engineering, and Mathematics.

ENGINEERING PHYSICS

Engineering Physics is a program under the jurisdiction of the Dean of Applied Science and is administered by the Department of Physics and Astronomy. All inquiries regarding the program and student advising should be made through the Engineering Physics Program Director, Dr. A. Marziali, Room 341 in the Hennings Building.

The completion of a Bachelor of Applied Science in Engineering Physics will normally take five years of study. There are two routes to achieve this goal: the direct route and the transfer route.

The direct route is for students who enter first-year Applied Science directly from Grade 12. Having completed first-year Applied Science, students must then complete four years in the Engineering Physics program as described below. Students must submit a second-year program preference form, indicating Engineering

Physics as first choice, to the Applied Science Dean's Office by June 15.

The transfer route is for students who have completed first-year Science or the equivalent before entering the Faculty of Applied Science. Students must apply for the Engineering Physics program at the time of their application for admission into the Faculty of Applied Science. The deadline is February 28.

Students completing first-year Science will normally have the following course deficiencies: APSC 121, APSC 151, CPSC 152, MATH 152, and PHYS 170. If students have not taken CPSC in first-year Science, they should plan on taking the necessary courses as soon as possible, preferably during the summer before entering Engineering Physics. Students who are considering entering this program via the transfer route are advised to consult the program director regarding transfer credits and course scheduling.

The mission of the Engineering Physics program is to provide the best possible broad-based engineering degree which emphasizes the fundamentals of physics and mathematics and which is relevant to technology companies. Students will follow one of four options in the Program: Computer Science, Electrical Engineering, Mechanical Engineering, or Mechatronic Science. While following one of these four options, technical elective courses may be taken to obtain specialized training in sub fields of Earth and Ocean Sciences, Applied Physics, Applied Mathematics, or Materials Engineering. Prospective students should be aware that the number of available spaces in any of the options may be limited and may not always be available. Students should be prepared to make an alternative choice.

Most students choose to obtain technical work experience in addition to that offered in the regular curriculum. Students wishing to obtain technical work experience outside the Co-operative Education Program should confer with the Director of Engineering Physics.

The following program-year curriculum tables are specific to students registered in the corresponding years of Engineering Physics during the 2006/2007 Academic Year.

ENGINEERING PHYSICS

Second Year

APSC 201	3
APSC 278 ¹	3
CPSC 260	4
EECE 251	2
MATH 217 ²	4
MATH 255	3
MATH 307 ^{3, 4}	3
PHYS 250 ⁴	3
PHYS 253 ⁴	3
PHYS 257 ⁴	2
PHYS 258 ⁵ or MECH 260 ⁶	2 (3)
PHYS 259	2
PHYS 270 ⁴	2

Second Year (Continued)

Complementary Studies Electives ⁷	3
Total Credits	39 (40)

- ¹ Taken by correspondence while on Jan-May Co-op placement.
- ² If unable to take MATH 217, replace with MATH 253 and MATH 317.
- ³ Can be substituted with a different course with special permission from the Director of Engineering Physics. The rationale for the substitution must be based on satisfying a prerequisite for later year elective courses, and it will only be allowed for students with a strong Math background.
- ⁴ Taken during the summer academic term.
- ⁵ Students following Electrical or Computer Science Option.
- ⁶ Students following Mechanical or Mechatronic Science Option.
- ⁷ See *Complementary Studies Courses*, p. 97.

Third Year

APSC 279	1
EECE 253	2
MATH 257	3
MATH 300	3
MATH 318	3
MECH 280	3
PHYS 350	3
PHYS 352	2
PHYS 354	3
PHYS 454	3

Plus one of the options listed below.

Computer Science Option

CPSC 213	4
EECE 254	3
EECE 256	3
EECE 320	3

Electrical Option

EECE 254	3
EECE 256	3
EECE 259	3
EECE 320	3

Mechanical Option

MECH 466	4
MECH 360	3
MECH 364	4
MECH 375	3

Mechatronic Science Option

EECE 254	3
EECE 450	3
MECH 366	3
MECH 375	3
Total Credits Computer Science Option	39
Total Credits Electrical Option	38
Total Credits Mechanical Option	40
Total Credits Mechatronic Science Option	38

Fourth Year

APSC 459	5
MATH 301	3
PHYS 450	3

Fourth Year (Continued)

Complementary Studies Electives ¹	3
Plus one of the options listed below.	

Computer Science Option

CPSC 313	3
CPSC 320	3
EECE 310	3

Electrical Option

EECE 359	3
EECE 360	3
Technical Elective ^{2,3}	3

Mechanical Option

MECH 431	3
Technical Electives ^{2,3}	6

Mechatronic Science Option

EECE 374	4
MECH 360	3
MECH 364	4

Total Credits Computer Science Option	23
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Total Credits Electrical Option	23
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Total Credits Mechanical Option	23
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Total Credits Mechatronic Science Option	25
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¹ See *Complementary Studies Courses*, p. 97.

² The technical elective courses should be chosen to ensure a consistent package of courses in one discipline of the appropriate Engineering option. Students are advised to consider electives for fourth and fifth year and to ensure that the prerequisites have been taken.

³ Chosen in consultation with the director.

Fifth Year

APSC 450	2
APSC 479	4
MATH 400	3
PHYS 455	3
PHYS 458	4
One of PHYS 473, PHYS 474	3
Plus one of the options listed below.	

Computer Science Option

EECE 450	3
CPSC courses chosen in consultation with the Director of Engineering Physics, and the CPSC member of the board of studies of Engineering Physics	9

Technical electives from a relevant Engineering discipline ¹	9
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Electrical Option

EECE 356	4
EECE 450	3
EECE 453	3
EECE 454	3

MTRL 478	3
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Technical electives relevant to Electrical Engineering ¹	6
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Mechanical Option

EECE 485	3
MECH 327	3

MECH 375	3
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MECH 466	4
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Fifth Year (Continued)

Technical electives relevant to Mechanical Engineering	6
Total Credits Computer Science Option	40
Total Credits Electrical Option	41
Total Credits Mechanical Option	38

¹ Chosen in consultation with the director.

Honours Mathematics Option

It is possible for students to complete, in addition to the Engineering Physics degree, the basic Mathematics requirement of a combined Honours degree in Mathematics, by:

- obtaining 68% in MATH 226/227 or 226/317 or 220/217¹;
- obtaining a 68% overall average in the following courses, over and above those required of the regular Engineering Physics degree: MATH 320/321/401 and 3 credits chosen from MATH 322, 323, 345, 401, 402, 403, 404, 405, 412, 416–429, 433–440, 443, or 449.

Students who satisfactorily complete such a program will receive a Bachelor of Applied Science in Engineering Physics with Honours Mathematics Option, as well as the usual recognition for completing one of the normal Options in the program. This implies that students will take more than the normal load for the degree. Students intending to take this program should consult the Director of Engineering Physics or advisors in the Department of Mathematics.

¹ Students who obtain 80% or higher in Math 217 are not required to complete Math 220 and are qualified to take Math 320.

Co-operative Education Sequence of Placements

The degree will normally require the students to take nine academic (“Acad”) semesters and four co-operative education placements (“Coop#”). Students who have deficiencies in their program before entering Engineering Physics are encouraged to complete as many of those as possible during the “open” summer semester. Please seek the advice of an advisor in Engineering Physics.

CO-OP SEQUENCE OF PLACEMENTS

Year	Term 1	Term 2	Summer
1 Applied Science	Acad	Acad	Open
2 Engineering Physics	Acad	Coop#1	Acad
3 Engineering Physics	Acad	Acad	Coop#2
4 Engineering Physics	Coop#3	Acad	Coop#4
5 Engineering Physics	Acad	Acad	

Students accepted into Engineering Physics who are interested in the Co-operative Education program must contact the Science Co-op Office (www.sciencecoop.ubc.ca), located in Room 170 of the Chemistry/Physics Building.

GEOLOGICAL ENGINEERING

Geological Engineering is an interdisciplinary program under the jurisdiction of the Dean of the Faculty of Applied Science and administered by a board of study. Inquiries regarding

the program and student advising should be made through Dr. R. Beckie, Director, Geological Engineering, Room 261, Department of Earth and Ocean Sciences, telephone 604-822-6462.

GEOLOGICAL ENGINEERING

Second Year

APSC 201	3
CIVL 210	4
CIVL 215	4
CIVL 228	3
CIVL 230	4
CIVL 235 ¹	4
EOSC 210	3
EOSC 223 ²	3
MATH 253	3
MATH 255	3
EOSC 220	3
EOSC 221	3
Total Credits	40

¹ End of Term 2, first year.

² Plus one week, end of Term 2.

Third Year

CIVL 311	4
EOSC 323	3
EOSC 329	3
EOSC 330	3
MATH 257	3
MINE 303	3
EOSC 328 ¹ or EOSC 428 ¹	3
One of EOSC 320, EOSC 321, EOSC 322	3
One of CIVL 315, CIVL 316, EOSC 370, EOSC 371, MINE 304, MINE 331, MINE 391	3
Technical Electives ²	6
Complementary Studies Electives ³	6
Total Credits	40

¹ End of third year.

² Program Technical Electives must contain one of EOSC 327, EOSC 353, EOSC 422 in third or fourth year.

³ See *Complementary Studies Courses.*, p. 97

Fourth Year

CIVL 402	2
CIVL 403 or MECH 431	3
CIVL 410	3
EOSC 350	3
EOSC 433	3
EOSC 434	3
EOSC 447	6
MECH 430 or STAT 251	3
One of CIVL 406, CIVL 408, CIVL 413, CIVL 415, CIVL 417, CIVL 418, EOSC 431, MINE 491	3
Three of CIVL 405, CIVL 411, EOSC 331, EOSC 351, EOSC 429, EOSC 430, MINE 403	9
Technical Electives ¹	3
Total Credits	41

¹ Program Technical Electives must contain one of EOSC 327, EOSC 353, EOSC 422 in third or fourth year.

INTEGRATED ENGINEERING

Integrated Engineering (IGEN) is a multidisciplinary engineering program that places a strong focus on team-based engineering design by means of three full-year project courses. In addition to developing a broad foundation in engineering, the student develops primary and secondary knowledge in specific engineering disciplines via 18 credits of technical electives in third and fourth year.

Completion of a B.A.Sc. in Integrated Engineering will normally take four years of study. Students may enter the program from first-year Applied Science or via transfer from the first-year Science or Engineering transfer program at a community college. Students entering from first-year Science will normally have course deficiencies that must be made up. Consult the IGEN Student Advisor for assistance in such cases.

There is a co-operative education option (Co-op) where students normally take eight academic semesters and five Co-op semesters over a five-year period. Students normally apply for Co-op between January of first year and September of the second year of the program. The *Co-op Office*, p. 98, should be contacted for details.

All inquiries concerning the program should be directed to the Program Director. See the IGEN website (www.igen.ubc.ca) for contact information.

INTEGRATED ENGINEERING PROGRAM

Second Year

APSC 201	3
APSC 230	6
APSC 278	3
APSC 279	1
CHBE 241	3
CHBE 242	3
CIVL 215 ¹	4
EECE 251	2
EECE 253	2
EECE 280	2
MATH 253	3
MATH 255	3
MECH 260	3
Total Credits	38

Third Year

APSC 330	6
CHBE 344	2
EECE 365	3
MECH 360	3
MECH 375 ¹	3
MTRL 280	3
STAT 251	3
One of CHBE 356, EECE 360	3
Technical Electives ²	6
Complementary Studies Electives ³	3
Total Credits	35

Fourth Year	
APSC 430	6
APSC 450	2
CIVL 405	3
MINE 482	3
MTRL 380	3
MTRL 381	1
One of CIVL 403, EECE 450, MECH 431, MINE 396, MTRL 455	3
Technical Electives ²	12
Complementary Studies Electives ³	3
Total Credits	36

¹ CIVL 215 (in second year) and MECH 375 (in third year) may be replaced by CHBE 251 (in second year) and CHBE 351 (in third year).

² Of the 18 credits of technical electives, 9 credits must be in one engineering discipline and 6 in another discipline. Several elective streams are possible. Consult the IGEN Student Advisor for assistance.

³ See *Complementary Studies Courses*, p. 97.

MATERIALS ENGINEERING

Materials Engineering is concerned with the characterization, processing, and use in design of metallic and non-metallic materials. An optional cooperative education program is available which permits students to obtain twenty months of related experience in the last three years of the program. Interested students should apply to the Applied Science Co-operative Education Program during the first week of second year.

MATERIALS ENGINEERING

Second Year	
APSC 201	3
APSC 278	3
APSC 279	1
MATH 253	3
MATH 255	3
MECH 260	3
MTRL 250	4
MTRL 252	4
MTRL 263	4
MTRL 280	3
Complementary Studies Electives ¹	6
Total Credits	37

Third Year	
MTRL 350	4
MTRL 358	3
MTRL 359	1
MTRL 361	4
MTRL 363	3
MTRL 365	3
MTRL 378	3
MTRL 380	3
MTRL 381	1
MTRL 382	4
MTRL 389	1
MTRL 390	1
MTRL 394	4
MTRL 398	1

Third Year (Continued)	
STAT 251	3
Total Credits	39

¹ See *Complementary Studies Courses*, p. 97.

Fourth Year	
APSC 450	2
MTRL 455	3
MTRL 464	3
MTRL 465	3
MTRL 466	3
MTRL 467	3
MTRL 489	1
MTRL 498	1
Technical Electives	20
Total Credits	39

FOURTH YEAR ELECTIVES
CHBE 477 (3); EECE 263 (3), 370 (3); MECH 360 (3); MTRL 451 (3), 452 (2), 454 (2), 456 (3), 458 (3), 460 (3), 462 (3), 469 (3), 472 (3), 474 (3), 478 (3), 479 (2), 482 (3), 484 (2), 486 (2), 493 (2), 494 (3), 495 (3), 496 (3).

MECHANICAL ENGINEERING

In addition to the regular Mechanical Engineering program, options in Mechatronics and Thermofluids are available.

MECHANICAL ENGINEERING

Second Year	
APSC 201	3
MATH 253	3
MATH 256	3
MECH 220 ¹	4
MECH 221	13
MECH 222	7
MECH 223	7
Total Credits	40

Third Year	
EECE 365	3
MECH 304	4
MECH 325	4
MECH 326	3
MECH 327	3
MECH 328	3
MECH 360	3
MECH 364	4
MECH 375	3
MECH 380	3
MECH 392	2
MTRL 329	3
Total Credits	38

Fourth Year ²	
APSC 450	2
EECE 485	3
MECH 430	3
MECH 431	3
MECH 457	6
MECH 466	4
Technical Electives ³	12

Fourth Year ² (Continued)	
Complementary Studies Electives ⁴	6
Total Credits	39

¹ Taken prior to Term 1 of second year.

² Students pre-register for fourth-year courses with a faculty advisor toward the end of third year.

³ To be chosen from a course list available in the Department Office.

⁴ See *Complementary Studies Courses*, p. 97.

Mechatronics Option

The Mechatronics Option in Mechanical Engineering allows students interested in mechanical systems integrated with embedded electronics, sensors, actuators, and related systems to have a course and project concentration in these areas.

Second-year students will take the same courses as regular mechanical engineering students.

Students will be admitted to the option at the end of first year by permission of the program director, based on a demonstrated interest in mechanical engineering and electronic design, and the grade point average obtained in the first year of engineering.

To complete this option, students will modify the standard Mechanical Engineering third- and fourth-year programs.

Third Year	
CPSC 260	4
EECE 314	3
EECE 355	3
EECE 363	3
EECE 376	3
MECH 303	2
MECH 325	4
MECH 326	3
MECH 328	3
MECH 360	3
MECH 364	4
MECH 366	3
MECH 392	2
Total Credits	40

Fourth Year	
APSC 450	2
MECH 375	3
MECH 420	3
MECH 421	3
MECH 422	3
MECH 430	3
MECH 431	3
MECH 451	3
MECH 452	3
MECH 467	4
Technical Electives ¹	3
Complementary Studies Electives ²	3
Total Credits	36

¹ Chosen in consultation with the program advisor.

² See *Complementary Studies Courses*, p. 97.

Thermofluids Option

The Thermofluids Option in Mechanical Engineering allows students interested in aircraft, naval architecture, engines, and related systems to have a course and project concentration in these areas.

Students will be admitted to the option at the end of second year by permission of the program director, based on a demonstrated interest in engineering thermofluids.

The Thermofluids Option replaced the previous Naval Architecture and the Industrial Aerodynamics and Aircraft Options.

Students can continue into the Thermofluids Option in the Master of Engineering degree program if they have a strong interest in a particular area of thermofluids and are eligible for graduate studies.

To complete this option, students will modify the standard Mechanical Engineering third- and fourth-year programs.

Third Year	
APSC 450	2
EECE 365	3
MECH 304	4
MECH 325	4
MECH 327	3
MECH 328	3
MECH 360	3
MECH 364	4
MECH 375	3
MECH 380	3
Complementary Studies Electives ²	6
Total Credits	38

Fourth Year	
MECH 386	3
MECH 430	3
MECH 431	3
MECH 457	6
MECH 466	4
MECH 479	3
MECH 489	4
Technical Electives ¹	12
Total Credits	38

¹ Chosen in consultation with the program advisor.

² See *Complementary Studies Courses*, p. 97.

Honours Mathematics Option

It is possible for students to complete, in addition to the Mechanical Engineering degree, the basic Mathematics requirement of a combined Honours degree in Mathematics, by:

- obtaining 68% in MATH 257;
- obtaining a 68% overall average in MATH 300, 301, 317, 320, 321, 400, and 6 credits chosen from MATH 318, 345, 401–405, 412, 416–429, 433–440, 443, 449, 450.

Students who satisfactorily complete such a program will receive a Bachelor of Applied Science in Mechanical Engineering (Honours Mathematics Option). Extra Winter Session terms will probably be necessary to accommo-

date the substantial extra load of the Honours Mathematics Option. Students interested in undertaking this program should consult with undergraduate student advisors in the Departments of Mechanical Engineering and Mathematics.

Electro-Mechanical Design Engineering (B.A.Sc./M.Eng.)

Enrolment in this program is suspended. Inquiries regarding the program should be made to the Department of Mechanical Engineering.

Admission into this option is normally limited to students selected by interview during their first year of engineering studies. Courses completed in second, third, fourth, and fifth years of study culminate in the awarding of two degrees simultaneously: the Bachelor of Applied Science in Mechanical Engineering (Electro-Mechanical Design Option) and the Master of Engineering. A Summer Session is required between fourth and fifth years. Entry into the fifth year of the program is subject to meeting graduate studies admission requirements in their third and fourth years (see *The Faculty of Graduate Studies*, p. 217) and subject to availability of an approved industrial masters project. Students not meeting these requirements can complete a Bachelor of Applied Science in Mechanical Engineering (Electro-Mechanical Design Option). Students wishing to switch from the Master of Engineering to the Master of Applied Science can apply during their fourth year. Candidates successfully completing the degree requirements will be awarded a Master of Applied Science instead of a Master of Engineering. For further details, consult the Department of Mechanical Engineering and Faculty of Graduate Studies admission offices.

B.A.Sc./M.Eng. in Electro-Mechanical Design Engineering

Second Year	
APSC 201	3
CPSC 252	4
EECE 256	3
EECE 259	3
EECE 263	3
MATH 253	3
MATH 256	3
MECH 201	3
MECH 202	3
MECH 203 ¹	1
MECH 250	1
MECH 260	3
MECH 265	3
MECH 270	3
MECH 280	3
Total Credits	42

Third Year	
APSC 278	3
APSC 279	1
EECE 254	3
EECE 283	2
EECE 314	3

Third Year (Continued)	
EECE 374	4
MECH 303	2
MECH 351	8
MECH 360	3
MECH 365	2
MECH 375	3
MECH 392	2
MTRL 380	3
Total Credits	39

Fourth Year	
APSC 450	2
EECE 356	4
EECE 379	3
EECE 494	3
MECH 352	3
MECH 430	3
MECH 431	3
MECH 465	4
MECH 466	4
Complementary Studies Electives ²	6
Total Credits	35

Fifth Year	
MECH 551 ³	6
MECH 552	6
Technical Electives ⁴	18
Total Credits	30

¹ Taken at end of Term 2 of second year or prior to Term 1 of third year.

² See *Complementary Studies Courses*, p. 97.

³ Project work to be started at the end of fourth year.

⁴ Electro-Mechanical Electives: MECH 462, MECH 491, EECE 465, EECE 466, EECE 374, EECE 478, EECE 487, EECE 570, EECE 574, EECE 594, 500-level MECH courses. A maximum of 6 credits of undergraduate courses is permitted. Students are encouraged to complete 6 credits of these electives during their fourth year.

Students Switching from the M.Eng. to the M.A.Sc.

Students wishing to switch from the Master of Engineering to the Master of Applied Science program may do so by applying at the beginning of their fourth year to the Faculty of Graduate Studies. Those admitted begin the following plan of study in fifth year.

ELECTRO-MECHANICAL DESIGN ENGINEERING	
Fifth Year	
MECH 551 ¹	6
MECH 598	2
Technical Electives ²	10
M.A.Sc. Thesis ^{3, 4}	12
Total Credits	30

¹ Project work to be started at the end of fourth year.

² Electro-Mechanical Electives: MECH 462, MECH 491, EECE 465, EECE 466, EECE 374, EECE 478, EECE 487, EECE 570, EECE 574, EECE 594, 500 level MECH courses. A maximum of 6 credits of undergraduate courses is permitted. Students are encouraged to complete 6 credits of these electives during their fourth year.

³ Subject to designation of an appropriate Mechanical Engineering advisor.

⁴ Completion of thesis normally takes two years.

Students Leaving Electro-Mechanical Design Engineering

Students leaving the Electro-Mechanical Design Engineering program will receive a Bachelor of Applied Science in Mechanical Engineering (Computer-Aided Automation) by successfully completing the third and fourth year of the Electro-Mechanical Design Engineering program with the following modifications: drop EECE 356, 379 and 494; add MECH 457 or 458 and 6 credits of Mechanical Engineering Technical Electives.

MINING ENGINEERING

Mining Engineering is concerned with the optimal exploitation of mineral resources while minimizing environmental impact. The discipline requires a broad knowledge of engineering and scientific subjects.

MINING ENGINEERING

Second Year

APSC 201	3
CIVL 210	4
EOSC 210	3
EOSC 324	3
MATH 253	3
MATH 255	3
MECH 260	3
MECH 280, CIVL 215 or CHBE 251	3 (4)
MINE 290	3
MINE 293	1
MINE 295	3
STAT 251	3
Complementary Studies Electives ¹	3
Total Credits	38 (39)

Third Year

APSC 278	3
APSC 279	1
EECE 263	3
MINE 302	3
MINE 304	3
MINE 305	4
MINE 331	3
MINE 333	3
MINE 338	3
MINE 391	3
MINE 393	1
MINE 396	3
Technical Electives ²	6
Total Credits	39

Fourth Year

APSC 450	2
EECE 370	3
MINE 402	3
MINE 404	3
MINE 410	3
MINE 432	3
MINE 480	2

Fourth Year (Continued)

MINE 491	4
MINE 493	1
MINE 403 and MINE 482 or MINE 434 and MINE 462	6
Technical Electives ²	3
Complementary Studies Electives ¹	3
Total Credits	36

¹ See *Complementary Studies Courses*, p. 97.

² Selected with the approval of the Department.

JOINT UNBC/UBC PROGRAM: ENVIRONMENTAL ENGINEERING

The Environmental Engineering program is a four and a half year (nine semester) joint degree between the University of British Columbia and the University of Northern British Columbia.

The program starts with a two-year foundation in mathematics and the basic sciences from the College of Science and Management of the University of Northern British Columbia. In the third and fourth years, the program provides a thorough education and training in engineering fundamentals, engineering analysis and engineering design, largely through courses in Civil Engineering and Chemical and Biological Engineering at the University of British Columbia. The final term at UNBC will expose students to practical environmental engineering problems.

The Environmental Engineering program is a joint program under the jurisdiction of the Dean of the Faculty of Applied Science at UBC and the Dean of the College of Science and Management at the University of Northern British Columbia. The program is administered by a joint board of study.

The program has been developed to satisfy Canadian Engineering Accreditation Board (CEAB) requirements for accreditation of engineering programs.

There is a co-operative education option (Co-op) where students normally take five work semesters in addition to the nine academic semesters. Accounting for summer work terms, this option results in a total duration of five and one-half years.

ENVIRONMENTAL ENGINEERING

First Year (taken at UNBC)¹

BIOL 101-4	4
BIOL 102-4	4
CHEM 100-3	3
CHEM 101-3	3
CHEM 120-1	0.5
CHEM 121-1	0.5
CPSC 110-3	3
ENSC 100-1	1
MATH 100-3	3
MATH 101-3	3
NRES 100-3	3
PHYS 110-4	4

First Year (taken at UNBC)¹ (Continued)

PHYS 111-4	4
CORE 101-3	3
Total Credits	40

Second Year (taken at UNBC)¹

CHEM 200-3	3
CHEM 220-3	3
ENSC 200-3	3
ENSC 201-3	3
ENSC 202-3	3
ENSC 350	3
FSTY 205-3	3
MATH 200-3	3
MATH 220-3	3
MATH 230-3	3
MATH 342-3	3
Total Credits	33

Third Year (taken at UBC)⁵

CHBE 241	3
CHBE 242	3
CHBE 364	2
CHBE 373	3
CHBE 484	3
CIVL 200	3
CIVL 210	4
CIVL 315	4
CIVL 316	4
Technical Elective ³	3
Total Credits	35

Fourth Year (taken at UBC)⁵

APSC 450	2
CHBE 351	3
CHBE 459	3
CHBE 485	3
CIVL 315	4
CIVL 316	4
CIVL 408	3
CIVL 416	3
MINE 391	3
Design Elective ²	3
Technical Electives ³	6
Total Credits	37

Fifth Year (taken at UNBC)¹

ENPL 401-3	3
ENSC 417-6	6
ENSC 418-3	3
Electives ⁴	6
Total Credits	18

¹ Course numbers are those of the UNBC course numbering system.

² Design elective to be chosen from a list of design-oriented courses.

³ Technical electives to be chosen from a constrained list.

⁴ Minimum 3 credits in humanities or social science.

⁵ The curriculum tables show the requirements for each program year as they are in the current session.

See UNBC course descriptions at the UNBC website (www.unbc.ca/calendar/undergraduate/course_descriptions.html).

MASTER OF ENGINEERING

INTRODUCTION

The Master of Engineering (M.Eng.) is a study program suited to students who wish to pursue their engineering education in a preferred discipline beyond the undergraduate level, but who do not wish to pursue a thesis research program. A typical completion time for the M.Eng. is 12 to 18 months (two to three terms) for full-time students. Students who are planning on taking the M.Eng. program on a part-time basis must obtain approval from their departmental advisor prior to the commencement of the program.

Administration of the Master of Engineering program was moved to the Faculty of Applied Science from the Faculty of Graduate Studies in 2005. Through the transition, many of the guidelines will remain as they were in the Faculty of Graduate Studies. For further information please see the program website (www.apsc.ubc.ca/student_info/Engineering/graduate) or contact the M.Eng. Coordinator (MEngInfo@apsc.ubc.ca) in the Dean's Office.

Financial assistance is generally not available to M.Eng. students. The M.Eng. program is not recommended as preparation for the Doctor of Philosophy. Applicants who are considering taking a Ph.D. in the future should apply for admission to either the Master of Applied Science (M.A.Sc.) or Ph.D. program through the Faculty of Graduate Studies.

Students interested in applying to a Master of Engineering program must contact the individual departments in the Faculty of Applied Science.

For Academic Regulations see Chapter 5 "Academic Regulations" and *Academic Regulations*, p. 223, in the Faculty of Graduate Studies section in Chapter 9.

The requirement for the M.Eng. is satisfactory completion of 30 credits of courses. At least 24 of these credits must be courses numbered 500 and above; at least 12 of these 24 credits must be in the preferred discipline; and 6 of these 24 credits may be for a supervised project report. Individual programs have specific degree requirements in addition to the primary requirements.

DIPLOMA IN FOREST ENGINEERING

The Faculty of Applied Science (Department of Civil Engineering), in cooperation with the Faculty of Forestry and the Forest Management Institute of British Columbia, offers the *Diploma in Forest Engineering*, p. 213.

The program is designed for professional foresters, engineers, and geoscientists specializing in forest engineering practice in BC who wish to improve their job-related knowledge, work performance, and business opportunities. It

focuses on advanced engineering principles, recent research, and current practices.

The Diploma in Forest Engineering will be awarded upon successful completion of the program.

ADMISSION

Admission to the Diploma program requires a combination of academic and work experience qualifications. Applicants must be:

- a Registered Professional Forester (R.P.F.) with the Association of British Columbia Professional Foresters; and/or
- a Registered Professional Engineer (P.Eng.) with the Association of Professional Engineers and Geoscientists of British Columbia; and/or
- a Registered Professional Geoscientist (P.Geo.) with the Association of Professional Engineers and Geoscientists of British Columbia.

Applicants normally will have a minimum of five years of relevant work experience. Applicants normally are practicing forest engineers who are employed with government, industry, or a consulting firm and who are engaged in forest engineering or related forest management work.

DIPLOMA REQUIREMENTS

The Diploma requires the completion of six course modules, each of two weeks' duration, for a total of 12 weeks of education. Extensive pre-course reading assignments are also required prior to each course module. The program normally takes three years to complete. In order to qualify for the Diploma, the student must complete all requirements within a maximum of five years.

RESIDENCE REQUIREMENTS AND TRANSFER OF CREDIT

Students are required to attend full-time day and evening sessions for at least 10 consecutive days for each course module. Classroom sessions are held in several off-campus locations in British Columbia. There is no transfer of credit available either to or from the Diploma program.

PROFESSIONAL ASSOCIATIONS

The right to practise engineering and accept professional responsibility in Canada is limited to those who are registered members of the Association of Professional Engineers in the Province concerned. During the period between graduation and registration, the graduate who intends to practise in BC should be enrolled with the Association as an "Engineer in Training."

All of the Bachelor of Applied Science programs at UBC are accredited by the Canadian Engineering Accreditation Board (CEAB) of the Canadian Council of Professional Engineers (www.cpe.ca). Graduates of CEAB-accredited programs are accepted as being fully qualified academically for professional engineering regis-

tration anywhere in Canada. However, there are also experience qualifications and professional practice requirements that must be fulfilled before full registration is granted. These qualifications vary within Canada and applicants should obtain the necessary details from the appropriate association(s).

M.Eng., M.A.Sc., or Ph.D. degrees alone do not form an acceptable basis for application to Associations of Professional Engineers in Canada.

ACADEMIC STAFF

DEPARTMENT OF CHEMICAL AND BIOLOGICAL ENGINEERING

K. J. Smith, Head

Professors Emeriti

R. Branion, B.A.Sc. (Tor.), M.A.Sc. (Tor.), Ph.D. (Sask.), P.Eng., F.C.I.C.; N. Epstein, M.Eng. (McG.), Eng.Sc.D. (N.Y.), P.Eng., F.C.I.C., F.A.I.Ch.E.; C. W. Oloman, B.Eng. (Syd.), M.A.Sc. (Br.Col.), P.Eng., M.C.I.C.; K. L. Pinder, M.Eng. (McG.), Ph.D. (Birm.), P.Eng., F.C.I.C.; A. P. Watkinson, B.Eng. (McM.), M.A.Sc., Ph.D. (Br.Col.), P.Eng., F.C.I.C.

Professors

B. D. Bowen, B.A.Sc., Ph.D. (Br.Col.); S. Duff, B.Sc. (Guelph), M.E.Sc. (W.Ont.), Ph.D. (McG.); P. Englezos, B.Eng. (N.T.U., Athens), M.Sc., Ph.D. (Calg.), P.Eng., M.C.I.C., M.A.I.Ch.E.; J. R. Grace, B.E.Sc. (W.Ont.), Ph.D. (Cantab.), P.Eng., F.C.I.C., M.I.Ch.E.; S. Hatzikiriakos, Dip. (Thessaloniki), M.A.Sc. (Tor.), Ph.D. (McG.), P.Eng., M.C.S.Ch.E., Soc. of Rheology; C. A. Haynes, B.S. (Texas), Ph.D. (Calif., Berkeley), P.Eng.; R. J. Kerekes, B.A.Sc., M.A.Sc. (Tor.), Ph.D. (McG.), P.Eng., F.C.A.E.; C. J. Lim, B.Sc. (Chem. Eng.) (Sing.), M.A.Sc., Ph.D. (Br.Col.), P.Eng., M.C.I.C.; J. M. Piret, B.A. (Harv.), M.Sc., Ph.D. (M.I.T.), Joint Biotech. Lab; K. J. Smith, M.Sc. (Eng.), (Natal), Ph.D. (McM.), P.Eng., M.C.I.C.; D. P. Wilkinson, B.A. Sc. (Br.Col.), Ph.D., P.Eng.

Associate Professors

S. A. Baldwin, B.Sc. M.Sc. (Cape T.), Ph.D. (Tor.), P.Eng.; C. P. J. Bennington, B.Sc., M.A.Sc., Ph.D. (Br.Col.), P.Eng.; X. Bi, B.S.Ch.E., M.S.Ch.E. (Tsinghua), Ph.D. (Br.Col.), P.Eng.; J. J. Feng, B.S., M.S. (Peking), Ph.D. (Minnesota); K. E. Kwok, B.Sc., Ph.D. (Alta.), P.Eng.; A. K. P. Lau, B.Sc., M.Sc. (Guelph), Ph.D. (Br.Col.), P.Eng.; M. Martinez, B.A.Sc., M.A.Sc. (Tor.), Ph.D. (Br.Col.); M. Mohseni, B.Sc. (Amirkabir), M.A. Sc., Ph. D. (Tor.), P.Eng.; R. J. Petrell, B.A. (Minn.), M.Sc. (Penn. State), Ph. D. (Flor.), P.Eng.

Assistant Professors

N. Ellis, B.Sc. (Hons.) (Wat.), M.E.Sc. (W.Ont.), Ph.D. (Br.Col.); E. Gyenge, B.Eng. (Hons.) (Babes-Bolyai, Cluj, Romania), M.A.Sc. (Br.Col.), Ph.D. (Br.Col.), P.Eng.; F. Taghipour, B.Sc. (Sharif), M.Sc. (Azad), M.A.S., Ph.D. (Tor.), P.Eng.

Senior Instructors

A. L. Creagh, B.Sc. (Alta.), M.Sc., Ph.D. (Calif. Berkeley), P.Eng.; D. Kannangara, B.Sc. (S. Lanka), Ph.D. (Ott.); D. Posarac, B.Sc. M.Sc., Ph.D. (Novi Sad).

Adjunct Professors

A. E. M. Adris, B.Sc. (Cairo), M.Sc. (Salford, Engl.), Ph.D. (Br.Col.); Y. Bolkan, B.Sc. (Bogazici), M.Sc. (Calg.), Ph.D. (Calgary/W.Ont.); C. Brereton, B.A.Sc., Ph.D. (Br.Col.); A. A. Guenkel, Dip. Ing. (Aachen), Ph.D. (McG.), P.Eng.; R. Sheikholeslami, B.Sc.

(Kansas), M.A.Sc., (Ph.D. (Br.Col.)), P.Eng., F.I.E. Aust; S. A. Sokhansanj, B.Sc. (Tehran), M.Sc. (Mich.), Ph.D. (Mich.).

Associate Member

D. G. Kilburn, B.A.Sc. (Br.Col.), Ph.D. (Univ. Coll., Lond.).

DEPARTMENT OF CIVIL ENGINEERING

E.R. Hall, Head

Professors Emeriti

D.L. Anderson, B.Sc. (Alta.), M.S. (Ill.), Ph.D. (Stan.), P.Eng., F.C.S.C.E.; P.M. Byrne, B.E. (Nat. Ireland), M.A.Sc., Ph.D. (Br.Col.), P.Eng.; R.G. Campanella, B.S., M.S., Ph.D. (Calif., Berkeley), P.Eng., M.A.S.C.E., M.C.G.S., M.A.S.T.M.; S. Cherry, B.Sc. (Manit.), M.S. (Ill.), Ph.D. (Brist.), P.Eng., F.A.S.C.E., F.C.S.C.E., M.E.I.C., Hon. M.E.E.R.I.; W.D.L. Finn, B.E. (Nat., Ireland), M.Sc., Ph.D. (Wash.), P.Eng., M.A.S.C.E., M.E.I.C., M.C.G.S., M.CANCOLD, M.I.S.M.F.E., M.SIAM.; R.O. Foschi, B.Sc. (Rosario), M.Sc., Ph.D. (Stan.), P.Eng., F.C.S.C.E., F.I.A.W.S.; K.J.F. Hall, B.S.A. (Guelph), Ph.D. (Wis.), A.S.L.O.; S. Mindess, B.A., B.Sc. (C.E.) (Manit.), M.S., Ph.D. (Stan.), P.Eng.; F.P.D. Navin, B.Eng. (Civil) (McM.), M.S. (Miss.), Ph.D. (Minn.), Ph.D. (Hon.) (McM.), P.Eng., F.I.T.E., F.C.S.C.E.; W.K. Oldham, B.A.Sc. (Br.Col.), Ph.D. (Texas), P.Eng., M.W.P.C.F., F.C.S.C.E.; M.C. Quick, B.Sc., Ph.D. (Brist.), P.Eng., F.C.S.C.E., M.A.S.C.E.; S.O. Russell, M.Sc., Ph.D. (Belf.), P.Eng., M.A.S.C.E., F.C.S.C.E.; R.G. Sexsmith, B.A.Sc. (Br.Col.), M.Sc., Ph.D. (Stan.), P.Eng., F.C.S.C.E., M.A.S.C.E., F.I.A.B.S.E.; Y.P. Vaid, B.Sc. (Punjab), M.A.Sc., Ph.D. (Br.Col.), F.E.I.C.

Professors

P.E. Adebbar, B.E. (Lake.), M.A.Sc., Ph.D. (Tor.), P.Eng., M.E.E.R.I., F.A.C.I., M.C.A.E.E.; N. Banthia, M.Tech. (I.I.T., India), Ph.D. (Br.Col.), P.Eng., F.A.C.I., F.C.A.E., F.I.C.I.; S. Chieng, B.Sc. (Nat. Taiwan), M.Sc., Ph.D. (McG.), P.Eng.; R.J. Fannin, B.Sc. (Belf.), D.Phil. (Oxon.), P.Eng., M.C.G.S.; E.R. Hall, B.Sc., M.Sc., Ph.D. (McM.), P.Eng.; M. Isaacson, M.A., Ph.D. (Cantab.), P.Eng.; G.A. Lawrence, B.E. (W. Aust.), M.S., Ph.D. (Calif., Berkeley), P.Eng., M.C.S.C.E., M.A.S.C.E., M.A.G.U., M.A.P.S., M.A.S.L.O., M.I.A.H.R.; B.J. Lence, B.S., M.S., Ph.D. (Ill.), M.A.G.U., M.C.S.C.E., M.I.A.H.S.; K.V. Lo, B.Sc. (Nat. Taiwan), M.Sc. (Hawaii), Ph.D. (Mass.), P.Eng., F.C.S.A.E.; D.S. Mavinic, B.A.Sc., M.A.Sc., Ph.D. (Windsor), P.Eng., M.W.E.F., M.I.W.A., M.C.A.W.Q., F.C.S.C.E., F.C.A.E., F.E.I.C.; A.D. Russell, B.A.Sc., M.A.Sc. (Br.Col.), Ph.D. (M.I.T.), Eng., F.C.S.C.E., M.A.S.C.E., M. A.A.C.E.Intl., M.I.N.F.O.R.M.S.; T.A. Sayed, B.Sc. (Ain Shams), M.A.Sc., Ph.D. (Br.Col.), P.Eng.; S.F. Stiemer, Vordiplom, Hauptdiplom, Dr. Ing. (Ph.D.) (Strutt.), P.Eng., M.A.G.A.D., F.C.S.C.E., A.v.H.S., F.S.; R. Vaziri, B.Sc. (Lond.), M.A.Sc., Ph.D. (Br.Col.), P.Eng. M.A.A.M., M.A.I.A.A.; C.E. Ventura, B.A.Sc. (San Carlos), M.C.E., Ph.D. (Rice), P.Eng., M.A.S.C.E., F.C.S.C.E., M.E.E.R.I., M.C.A.E.E.

Associate Professors

J.W. Atwater, B.A.Sc., M.A.Sc. (Br.Col.), P.Eng., M.C.S.C.E., M.E.I.C.; T.M. Froese, B.A.Sc., M.A.Sc. (Br.Col.), Ph.D. (Stan.), P.Eng., M.A.S.C.E., M.C.S.C.E.; J.A. Howie, B.Sc. (Glas.), M.Sc. (Qu.), Ph.D. (Br.Col.), P.Eng., M.C.G.S.; L. Li, M.Eng. (McG.), M.Sc., Ph.D. (Qu.), P.Eng., M.C.G.S., M.C.S.C.E.; R.G. Millar, B.Sc. (Q'ld.), M.A.Sc., Ph.D. (Br.Col.); H.G.L. Prion, (Hons) B.Eng. (Stell.), Ph.D. (Tor.), P.Eng., F.C.S.C.E., M.E.E.R.I.; D.A. Shuttle, B.Sc., Ph.D. (Manch.), C.Eng., M.I.C.E., M.A.S.C.E., M.C.G.S.; R.A. Spencer, B.E., Ph.D. (Auck.), P.Eng.; D. Wijewickreme, B.Sc. (S.Lanka), M.A.Sc., Ph.D.

(Br.Col.), P.Eng., M.A.S.C.E., M.E.E.R.I., M.C.A.E.E., M.C.G.S.

Assistant Professors

P. Bérubé, B.A.Sc., M.A.Sc. (Tor.), Ph.D. (Br.Col.), P.Eng.; K. Elwood, B.A.Sc. (Br.Col.), M.S. (Ill.), Ph.D. (Calif., Berkeley), P.Eng. M.A.C.I., M.E.E.R.I., M.N.E.E.S.; T. Haukaas, Sivilingenior (Norway), M.Sc. (Calif., Berkeley), Ph.D. (Calif., Berkeley), P.Eng., M.E.E.R.I.; J. Jenkins, B.A.Sc. (Wat.), M.E., Ph.D. (Texas A&M), P.Eng.; B. Laval, B.A.Sc. (Br.Col.), M.Sc. (McG.), Ph.D. (W. Aust.); S. Staub-French, B.Sc. (Santa Clara), M.Sc., Ph.D. (Stan.).

Instructors

V. Martin, B.Sc. (Novi Sad U., Y.U.), M.A.Sc., Ph.D. (Br.Col.), P.Eng.; S. Nesbit, B.A., B.A.Sc., Ph.D. (Br.Col.), P.Eng., M.C.S.Ch.E., M.A.S.E.E.

Adjunct Professors

K.I. Ashley, B.Sc., M.Sc., M.A.Sc., Ph.D. (Br.Col.), C.F.S.; G. S. Bhuyan, B.Eng. (Bhopal), M.Tech. (I.I.T., Madras), Ph.D. (Nfld.), P.Eng.; D.J.L. Forgie, B.Eng., M.Sc. (Sask.), Ph.D. (Tor.), P.Eng.; G. Fu, B.Eng. M.A.Sc. (Tianjin U., P.R. China), Ph.D. (Regina U.); D. J. Halliday, B.Sc. (Glas.), P.Eng., C.Eng., F.I.Mech.E., M.I.Prod.E.; J. M. O. Hughes, B.E., M.E. (Auck.), Ph.D. (Cantab.), P.Eng.; G. W. Johnson, B.A.Sc. (Br.Col.), B.Arch., M.Arch., (Montr.), M.A.I.B.C., M.R.A.I.C., P.Eng.; H.G. Kelly, B.A.Sc., M.Eng. (Br.Col.), P.Eng.; P.F. McGrath, B.Sc. (Sask.), M.A.Sc., Ph.D. (Tor.), P.Eng.; D.R. Morgan, B.Sc. Eng. (Wits.), M.Sc.Eng. (Calg.), Ph.D. (N.S.W.); B. Rabinowitz, B.Sc., M.Sc. (Cape T.), Ph.D. (Br.Col.), P.Eng.; B.M. Samuels, B.Eng. (McG.), M.B.A. (Br.Col.), LL.B., P.Eng.; B.S. Shapiro, B.A. (Manit.), LL.B. (Br.Col.); Z.K. Shawwash, B.Sc. (New Eng.), M.A.Sc., Ph.D. (Br.Col.); R.A. Simm, B.A.Sc., M.A.Sc., Ph.D. (Br.Col.), P.Eng. (Br.Col., Ont.); A. Sy, B.E. (Q'ld.), M.Eng., Ph.D. (Br.Col.), P.Eng.; D.J. Vanier, B.Eng. (R.M.C.), M.Eng. (Concordia), Ph.D. (Montr.); T. Vassos, B.A.Sc., M.Eng., Ph.D. (Br.Col.), P.Eng. (Br. Col., Manit.); P.R.B. Ward, B.Sc., M.Sc. (Lond.), Ph.D. (Calif., Berkeley), P.Eng.; R. Woodhead, B.Eng. (Sheff.), M.Sc., Ph.D. (Calg.), P.Eng.; R. Zapf-Gilje, B.Eng. (McG.), M.A.Sc., Ph.D. (Br.Col.).

Associate Members

A.A. Mufti, B.Eng. (Karachi), M.Eng., Ph.D. (McG.), P.Eng., F.A.S.C.E., F.C.S.C.E., F.I.I.F.C., F.C.A.E., F.E.I.C., F.R.S.A.M.C.; W.D. Ramey, B.Sc., Ph.D. (Br.Col.).

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Professors Emeriti

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Professors

H.M. Alnuweiri, B.S., M.S. (Petr. Miner, Dhahran), Ph.D. (S.Calif.), Mem. I.E.E.E.; V. K. Bhargava, B.Sc., M.Sc., Ph.D. (Qu.), P.Eng. (Ont.), Fellow A.S.I., F.I.E.E.E., F.E.I.C., F.C.A.E., F.R.S.C.; G.A.M. Dumont, Ing. Dipl. (Ensam, Paris), Ph.D. (McG.), F.I.E.E.E., Mem. PAPTAC, Mem. T.A.P.P.I., Fellow A.S.I., Distinguished University Scholar; A. Ivanov, B.Eng., M.Eng., Ph.D. (McG.), P.Eng., Sen. Mem. I.E.E.E., Fellow A.S.I.; N.A.F. Jaeger, B.Sc. (Pacific), M.Sc., Ph.D. (Br.Col.), P.Eng., Mem. I.E.E.E., Mem. S.P.I.E., Mem. O.S.A., Mem. A.I.P., Fellow A.S.I.; V. Krishnamurthy, B.E. (Aukl.), Ph.D. (Aust.), F.I.E.E.E., S.I.A.M., Fellow A.S.I., Tier 1 Canada Research Chair in Signal Processing; P. Kruchten, Ing. Dipl. (France), Ph.D. (France), P.Eng., Sen. Mem. I.E.E.E., Mem. I.F.I.P., Mem. A.C.M., Mem. INCOSE; P.D. Lawrence, B.A.Sc. (Tor.), M.Sc. (Sask.), Ph.D. (Case West. Reserve), P.Eng., Mem. I.E.E.E., Fellow A.S.I., NSERC Chair in Design Engineering; C.S.K. Leung, B.Sc. (Lond.), M.S., Ph.D. (Stan.), P.Eng., Mem. I.E.E.E.; V.C.M. Leung, B.A.Sc., Ph.D. (Br.Col.), F.I.E.E.E., Mem. A.C.M., Telus Mobility Research Chair in Advanced Telecommunication Eng.; J.R. Marti, Elec. Eng. (Venezuela), M.E.E.P.E. (Rensselaer), Ph.D. (Br.Col.), P.Eng., F.I.E.E.E.; D.L. Pulfrey, B.Sc., Ph.D. (Manch.), P.Eng., F.I.E.E.E., F.C.A.E.; S. Salcudean, B.Eng., M.Eng. (McG.), Ph.D. (Calif., Berkeley), P.Eng., F.I.E.E.E., Fellow A.S.I., CRC (Canada Research Chair), F.C.A.E.; R. Saleh, B.S. (Car.), M.S., Ph.D. (Calif., Berkeley), Mem. I.E.E.E., NSERC/PMC Sierra Industrial Research Chair; T. Tiedje, B.A.Sc. (Tor.), M.Sc., Ph.D. (Br.Col.), P.Eng., Mem. I.E.E.E., Fellow A.P.S. (Joint appointment with the Department of Physics and Astronomy); R.K. Ward, B.Eng. (Cairo), M.Sc., Ph.D. (Calif., Berkeley), P.Eng., F.I.E.E.E., F.I.E.C., F.C.A.E., F.R.S.C.

Associate Professors

W.G. Dunford, B.Sc. (Eng.), A.C.G.I., M.Sc., D.I.C. (Lond.), Ph.D. (Tor.), P.Eng., Sen. Mem. I.E.E.E., Mem. I.E.E. and Mem. S.A.E.; S.S. Fels, B.A.Sc. (Wat.), M.S.C., Ph.D. (Tor.), P.Eng., Mem. A.C.M., Mem. I.E.E.E.; P. Nasiopoulos, B.Sc. (Thessaloniki), B.A.Sc., M.A.Sc., Ph.D. (Br.Col.), Mem. I.E.E.E.; P. Palmer, B.Sc. (Eng.), A.C.G.I. (Lond.), M.A. (Camtab., Ph.D. (Lond.), C.Eng., Mem. I.E.E.E., Mem. I.E.E.E.; R.F.B. Turner, B.Sc., M.Sc., Ph.D. (Alta.), Mem. C.I.C., C.S.C. (Joint appointment with Michael Smith Laboratories); S.J.E. Wilton, B.Eng. (Vic.B.C.), M.A.Sc., Ph.D. (Tor.), Sen. Mem. I.E.E.E.; M. Yedlin, B.Sc. (Alta.), M.Sc. (Tor.), Ph.D. (Br.Col.).

Assistant Professors

T. Aamodt, B.A.Sc., M.A.Sc., Ph.D. (Tor.); R. Abugharbich, B.Sc. (Jordan), M.Sc. (Sweden), Ph.D. (Sweden), Mem. I.E.E.E., Mem. I.A.P.R.; K. Beznosov, B.Sc. (Novosibirsk State University), M.Sc., Ph.D. (Florida International University), Mem. I.E.E.E., Mem. A.C.M.; K. Cheung, B.S. (Calif., Berkeley), Ph.D. (Calif., Berkeley/San Francisco); L. Chrostowski, B.Eng., (McG.), Ph.D. (Calif., Berkeley), Mem. I.E.E.E.; E. Cretu, M.Sc. (Polytech., Bucharest), Ph.D. (Delft); C. Hansen, B.Sc. (Br.Col.), Ph.D. Cal.Tech.) (joint with Physics); L.A. Iverson, B.Eng. (Prin.), M.Eng., Ph.D. (McG.), Mem. I.E.E.E., Mem. A.C.M.; J. Jatskevich, B.S.E.E. (UNAU), M.S.E.E., Ph.D. (Purdue), Mem. I.E.E.E.; L. Lampe, Dipl. Ing., Ph.D. (Germany), Mem. I.E.E.E., V.D.E.; G. Lemieux, B.A.Sc., M.A.Sc., Ph.D. (Tor.), Mem. I.E.E.E., Mem. A.C.M.; J. Madden, B. Sc.Hon. (Physics), M.Eng. (McG.), Ph.D. (M.I.T.), Mem. I.E.E.E.; D. Michelson, B.A.Sc., M.A.Sc., Ph.D. (Br.Col.), Sr.Mem., I.E.E.E.; S. Mirabbasi, B.A.Sc. (Sharif, Tehran), M.A.Sc., Ph.D. (Tor.), Mem. I.E.E.E.; M. Ripeanu, B.Sc. (Polytech., Bucharest), M.Sc. (Chic.), Ph.D. (Chic.); R. Rohling, B.A.Sc. (Br.Col.), M.Eng. (McG.), Ph.D. (Cantab.), P.Eng., Mem. I.E.E.E., Mem. S.A.E.; R. Schober, Dip. Ing., Ph.D. (Erlangen-Nurnberg), Mem. I.E.E.E.,

V.D.E., Canada Research Chair (Tier II) in Wireless Communications; **Z.J. Wang**, B.S. (Beijing), M.S.E. (Conn.), Ph.D. (Conn.); **W.S.V. Wong**, B.Sc. (Man.), M.A.Sc. (Wat.), Ph.D. (Br.Col.), Mem. I.E.E.E.; **J. Yan**, B.A.Sc., M.A.Sc. (Br.Col.), Ph.D. (Calif., Berkeley), Mem. I.E.E.E.

Instructors

J. Calvino-Fraga, B.Sc. (Bolívar), M.A.Sc. (Br.Col.), Ph.D. (Br.Col.), Stud.Mem. I.E.E.E.; **P. Davies**, B.Sc. (Swansea), Mem. I.E.E.E., C.Eng.; **C. Jaeger**, B.A.Sc. (Qu.), M.A.Sc. (Br.Col.), Mem. I.E.E.E.; **L. Linares**, E.Eng. (Venezuela), M.A.Sc., Ph.D. (Br.Col.); **L. Stocco**, B.A.Sc. (Br.Col.), Ph.D. (Br.Col.), Mem. IEEE, Member ASME, P.Eng.

Adjunct Professors

H. Ahmadi-Noubari, B.Sc., M.A.Sc., Ph.D. (Polytech., N.Y.), Mem. I.E.E.E., Mem. S.I.A.M.; **M. Barnes**, B.Sc., Ph.D. (Asfon), P.Eng., C.Eng., Euring, Mem. I.E.E.E., M.I.E.E.E.; **G. Birch**, B.A.Sc., Ph.D. (Br.Col.); **G. W. Bond**, B.Sc. (Cal.), M.Eng., Ph.D. (Car.), Mem. I.E.E.E., Mem. ACM, Mem. A.A.A.I.; **A. Capel**, Ph.D. (Toulouse), Mem. I.E.E.E.; **P. Hui**, B.Sc., M.Sc., Ph.D. (Polytechnic, N.Y.), Mem. I.E.E.E.; **K. Iniewski**, M.Sc., Ph.D. (Warsaw), N. Kharma, B.Eng. (City Nth. Sq.), Ph.D. (Lond.), D.I.C.; **R. L. Kirlin**, B.Sc., M.Sc. (Wyoming), Ph.D. (Utah State); **P. Kundur**, B.E. (Mysore), M.E. (I.I.Sc.), M.A.Sc., Ph.D. (Tor.), P.Eng., F.I.E.E.E., F.C.A.E.; **J.D.D. Lavoie**, B.Eng., Ph.D. (Polytech., Montr.), Mem. IEEE; **T. Mathiopoulos**, M.Eng., Ph.D. (Ott.), Mem. I.E.E.E.; **J. A. McEwen**, B.A.Sc., Ph.D. (Br.Col.), P.Eng., Mem. I.E.E.E., Mem. A.A.M.I., Mem. C.M.B.E.S.; **G. E. Stewart**, B.Sc., M.Sc. (Dal.), Ph.D. (Br.Col.); **M. Stuchly**, M.Sc., Ph.D. (Poland), Mem. I.E.E.E.; **S. Tafazolli**, B.A.Sc., M.A.Sc. (Sharif, Tehran), Ph.D. (Br.Col.), Mem. I.E.E.E.; **Y. Wu**, B.Sc., M.Sc., Ph.D. (Br.Col.), Mem. I.E.E.E., Mem. T.T.T.C.; **Y. Zorian**, B.Sc. (Aleppo), M.Sc. (VSC), Ph.D. (McG.), EMBA (Wharton), Mem.I.E.E.E.

Sessional Lecturers

B. Jolliffe, B.Sc. (Br.Col.), M.Math. (Wat.); **J.M. Pavelich**, B.A. (Br.Col.), M.A. (Dal.); **S. Sarkaria**, B.Sc., Ph.D. (Asten).

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Associate Professors

P.V. Barr, B.Sc., M.Sc. (New Br.), Ph.D. (Br.Col.), P.Eng; **D.G. Dixon**, B.S., Ph.D. (Nevada), P.Eng; **G. Fernlund**, Civ. Ing., M.Sc. (Sweden), M.A.Sc., Ph.D. (Tor.), P.Eng; **M. Miltzer**, Dip. Phys. (Dresden), Ph.D. (Acad. Sciences, GDR), Dofasco Chair; **M.A. Wells**, B.Eng. (McG.), Ph.D. (Br.Col.), P.Eng.

Assistant Professors

A. Alfantazi, B.Eng. (Laur.), M.A.Sc., Ph.D. (Qu.), P.Eng; **D.M. Majjer**, B.A.Sc., Ph.D. (Br.Col.), P.Eng; **C.W. Sinclair**, B.Eng., Ph.D. (McM.); **R. Wang**, B.E. (Zhejiang), M.Sc., Ph.D. (Harbin Inst. Tech., China), P.Eng.

Adjunct Professors

A. Akhtar, B.Sc., B.E. (India), Ph.D. (Br.Col.), P.Eng; **F. Ellyin**, Dip. Eng., M.Sc. (Iran), Ph.D. (Wat.); **D. Ghosh**, B.Tech (India), M.Eng, Ph.D. (McM.); **J.A. Gonzalez Dominguez**, B.Sc., M.Sc. (Mexico), Ph.D. (Br.Col.); **L.S. Gormely**, B.Sc., Ph.D. (Br.Col.); **R.P. Hackl**, B.Sc., M.Sc., Ph.D. (Br.Col.); **F. Hossein-Babaei**, B.Sc. (Iran), M.S., D.I.C., Ph.D. (Lond.); **D.J. Lloyd**, B.Sc., Ph.D. (Wales); **G. Oprea**, B.Sc., M.Sc., Ph.D. (Romania), P.Eng; **P. Patnaik**, B.Sc., M.Tech. (India), M.Eng., Ph.D. (McM.); **G.G. Richards**, B.A.Sc., Ph.D. (Br.Col.), P.Eng; **G. Van Weert**, B.Sc., M.Sc. (Netherlands), M.A.Sc.(Tor.), Ph.D. (Netherlands).

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P.Eng; **E. Hauptmann**, B.Sc. (Alta.), M.S., Ph.D. (Cal.Tech.); **P. G. Hill**, B.Sc. (Hons.) (Qu.), M.Sc. (Birm.), Sc.D. (M.I.T.), P.Eng., F.R.S.C., Mem. A.S.M.E., Fellow S.A.E., Fellow C.S.M.E.; **S. G. Hutton**, B.Sc. (Nott.) M.Sc. (Calg.), Ph.D. (Br.Col.), P.Eng., Mem. A.S.M.E., Mem. S.N.A.M.E.; **M. Iqbal**, B.A., B.Sc.Eng. (Punj.), M.Eng., Ph.D.; **D. W. McAdam**, B.Sc. (Alta.), Ph.D. (Br.Col.), P.Eng.; **H. Ramsey**, B.Sc. (Alta.), M.S., Ph.D. (Stanf.); **M. E. Salcudean**, B.Eng., Ph.D. (Romania), Honorary Doctorate (Ott.), P.Eng., Fellow C.S.M.E., F.C.A.E., F.R.S.C., Mem. A.S.M.E., Weyerhaeuser Industrial Research Chair in Computational Fluid Dynamics; **H. Vaughan**, B.Sc. (Brist.), M.Sc. (Cantab.), Ph.D. (Glas.), Fellow Royal Inst. of Naval Architects, C.Eng.

Professors

Y. Altintas, B.Sc. (Istanbul Tech. U.), M.Sc. (New Bruns.), Ph.D. (McM.), P.Eng., Fellow A.S.M.E., Fellow S.M.E., Active Mem. C.I.R.P., NSERC-Pratt&Whitney Industrial Research Chair; **C. W. de Silva**, B.Sc. Eng. (Hons.) (Ceyl.), M.A.Sc. (Tor.), Ph.D. (Cantab.), Ph.D. (M.I.T.), P.Eng., Fellow I.E.E.E., Fellow A.S.M.E., F.I.T., Emeritus A.S.I., NSERC Professor of Industrial Automation; **R. L. Evans**, B.A.Sc. (Br.Col.), M.A.Sc. (Tor.), Ph.D. (Cantab.), P.Eng., C.Eng., F.C.A.E., F.I. Mech. E., Fellow S.A.E., Methanex Professor of Clean Energy Systems; **M. S. Gadala**, B.Sc., M.Sc. (Cairo), Ph.D. (McM.), P. Eng., Patrick Campbell Design Chair; **S. I. Green**, B.A.Sc. (Tor.), M.S., Ph.D. (Cal.Tech.), P.Eng., Mem. A.S.M.E., Mem. P.A.P.T.A.C., Mem. T.A.P.P.I.; **M. Hodgson**, B.Sc. (Hons.) (Qu.), M.Sc., Ph.D. (S'ton.), C. Eng; **T. R. Oxland**, B.A.Sc., M.A.Sc. (Wat.), M.S., M.Phil., Ph.D. (Yale), P. Eng., Mem.O.R.S., Mem. A.S.B., Mem. A.S.M.E.; **N. Rajapakse**, B.Sc.(Hons.) (S.Lanka), M.Eng, D. Eng (A.I.T., Thailand), P.Eng., F.C.A.E., Mem. A.A.M., Mem. A.S.M.E., Fellow C.S.C.E.; **F. Sassani**, B.Sc. (Sharif, Tehran), M.Sc., Ph.D. (Manc.), P.Eng., Fellow A.S.M.E., Fellow I. Manf., Mem. C.S.M.E., Mem. A.S.E.E.; **G. S. Schajer**, B.A., M.A. (Cantab.), M.S., Ph.D. (Calif., Berkeley), P.Eng., P.E., C.Eng., Eur. Ing., Fellow A.S.M.E., Mem. S.E.M., F.I.Mech.E.; **I. Yellowley**, B.Sc. (Nott.), M.Sc., Ph.D. (Manc.).

Associate Professors

W. K. Bushe, B.Sc. (Alta.), Ph.D. (Cantab.), P.Eng; **E. A. Croft**, B.Sc. (Br.Col.), M.A.Sc. (Wat.), Ph.D. (Tor.), P.Eng., Mem. I.E.E.E., Mem. A.S.M.E.; **A. B. Dunwoody**, B.A.Sc. (Br.Col.), Ph.D. (M.I.T.), P.Eng; **I.A. Frigaard**, B.Sc. (Cardiff), M.Sc., D.Phil. (Oxon), C.Math. Mem. S.P.E., Mem. S.I.A.M.; **A. J. Hodgson**, B.A.Sc., M.A.Sc. (Br.Col.), Ph.D. (M.I.T.; Harv.), Mem. A.S.M.E., Mem. I.E.E.E., Mem. I.S.B., Mem. C.A.O.S.; **C. F. Ollivier-Gooch**, B.A., B.S. (Rice), M.S., Ph.D. (Stan.), P.Eng., Mem.A.S.M.E., Mem.A.I.A.A., Mem. C.F.D.S.C.; **J. A. Olson**, B.A.Sc., Ph.D. (Br.Col.), Mem. C.P.P.A., Mem. T.A.P.P.I.; **S. N. Rogak**, B.A.Sc. (Br.Col.), M.S., Ph.D. (Cal.Tech.), P.Eng., Mem. A.A.A.R.; **D. P. Romilly**, B.A.Sc., Ph.D. (Wat.), P.Eng, Councillor C.A.S.I.

Assistant Professors

M. Chiao, B.S., M.S. (N. Taiwan), Ph.D. (Calif., Berkeley); **P. A. Crompton**, B.Sc. (Dal.), B.Eng. (T.U.N.S.), M.Sc., Ph.D. (Qu.), P. Eng., Mem. O.R.S., Mem. S.A.E., Mem. I.S.B., Mem. A.S.T.M.; **M.H. Davy**, B.Eng. (Univ. Coll., Lond.), Ph.D., (Univ. Coll., Lond.), C.Eng., M.I.Mech.E.; **D. Grecov**, B.Eng. (U.P.B.), Ph.D. (I.N.P.G.), P.Eng; **O. Kesler**, B.S.E. (Penn.), S.M (M.I.T.), Sc.D. (M.I.T.), Mem. M.R.S., Mem. E.C.S.; **X. Lu**, B.S., M.S. (Tsinghua), Ph.D. (M.I.T.); **W. Merida**, B.Sc. (Trent), M.A.Sc. (Vic.B.C.), Ph.D., (Vic.B.C.); **R. N. Rohling**, B.A.Sc. (Br.Col.), M.Eng. (McG.), Ph.D. (Cantab.), P.Eng; **B. Stoeber**, M.Sc. (T.U. Darmstadt), M.Sc. (E.C. Lyon), Ph.D. (Calif., Berkeley), Mem. Soc. of Rheology, Mem.

A.P.S.; **D. Yip-Hoi**, B.Sc. (U.W.I.), M.Sc. (Sunny, Buffalo), Ph.D. (Mich.), Mem. A.S.M.E., Mem. S.M.E.

Senior Instructor

P. Cramond, B.A.Sc. (Br.Col.), P.Eng.

Instructors

J. Mikkelsen, B.A.Sc., M.A.Sc. (Br.Col.), P.Eng., Mem.S.N.A.M.E., Mem. A.S.M.E.; **P. Ostafichuk**, B.A.Sc., Ph.D. (Br.Col.), Mem. S.N.A.M.E., Mem. A.S.M.E.

Lecturer

M. Fengler, B.A.Sc. (Br.Col.), P.Eng.

Associate Members

R.A. Hall, B.Sc. (U.N.B.), M.Sc., Ph.D. (Qu.), P.Eng., Mem. C.I.M., Mem. S.M.E., Mem. A.S.M.F.; **K. M. MacLean**, B.S. (Stan.), M.S., Ph.D. (M.I.T.); **D. Wilson**, B.Eng. (McG.), D.Phil. (Oxon.), Mem. O.R.S., Mem. O.A.R.S.I.

DEPARTMENT OF MINING ENGINEERING

M. J. Scoble, Head

Professors

J. A. Meech, B.Eng. (McG.), M.Sc. (Eng.), Ph.D. (Qu.), P.Eng., F.C.I.M.; **M. J. Scoble**, A.C.S.M. (Camborne), M.Sc. (Leic.), Ph.D. (Nott.), P.Eng., M.C.I.M., M.I.M.M.; **G. W. Wilson**, B.Sc. (Manit.), Ph.D. (Sask.), P.Eng. P.Geo.

Associate Professors

W. S. Dunbar, B.Sc. (Br.Col.), M.Sc. (Tor.), Ph.D. (Stan.), P.Eng., M.C.I.M.; **R. A. Hall**, B.Sc. (N.B.), M.Sc., Ph.D. (Qu.), P.Eng., M.C.I.M., M.S.M.E., M.A.S.M.E.; **B. Klein**, B.A.Sc., Ph.D. (Br.Col.), M.C.I.M., M.S.M.E.; **R. C. Pakalnis**, B.Eng. (McG.), M.A.Sc., Ph.D. (Br.Col.), P.Eng., M.C.I.M.; **M. M. Veiga**, B.Sc. (Cath. U. Rio de Janeiro), M.Sc. (Fluminense Federal), Ph.D. (Br.Col.) P.Eng., M.C.I.M.

Assistant Professor

M. Pawlik, B.Sc. (Poland), Ph.D. (Br.Col.), M.C.I.M.

Adjunct Professors

T. Atkinson, D.Sc. (Nott.), D. Eng. (Witw.), Ph.D. (Lond.); **G. R. Balden**, B.Sc., M.Sc. (Qu.), Ph.D. (McG.), P.Eng., M.C.I.M.; **M. M. Ghomshei**, M.Sc. (Tehran), Ph.D./D.Eng (France); **R. W. Lawrence**, B.Sc., Ph.D. (Wales); **M. G. Lipsett**, B.Sc., Ph.D. (Qu.); **M. Morin**, B.Eng. (McM.), M.Sc., Ph.D. (Qu.), P.Eng., M.C.I.M., M.S.M.E., M.C.L.R.A.; **W. E. Stanley**, B.Sc. (Mich. Tech.), P.Eng.

DEAN'S OFFICE

Co-operative Education Programs

J. Kagetsu, Director

N. Benda, Coordinator; **S. Brooks**, Coordinator; **J. Copland**, Coordinator; **N. Kamal**, Coordinator; **S. Myers**, Coordinator; **D. Stephenson**, Coordinator; **S. Swallow**, Coordinator.

Technical Communication Centre

T. N. Teslenko, B.A., Ph.D. (Ukraine), Ph.D. (S.Fraser), Instructor, Director

A. Y. Berndt, B.A. (Br.Col.), M.A. (Carl.), Instructor; **T. N. Teslenko**, B.A., Ph.D. (Ukraine), Ph.D. (S.Fraser), Instructor.

2 The School of Architecture and Landscape Architecture

A SCHOOL WITHIN THE FACULTY OF APPLIED SCIENCE

Director's Office

Christopher Macdonald, Interim Director

402-6333 Memorial Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-2779
Fax: 604-822-3808

Environmental Design

Admissions and Administration

Tel: 604-822-6916
Fax: 604-822-2184
Admissions Email: ends@interchange.ubc.ca
Web: www.ends.ubc.ca

Architecture

Admissions and Administration

Tel: 604-822-2779
Fax: 604-822-3808
Admissions Email:
soaadmit@interchange.ubc.ca
Web: www.arch.ubc.ca

Landscape Architecture

Admissions and Administration

Tel: 604-822-6916
Fax: 604-822-2184
Admissions Email: larc@interchange.ubc.ca
Web: www.larc.ubc.ca

The School of Architecture and Landscape Architecture offers graduate professional programs in Architecture (Master of Architecture, M.Arch.) and Landscape Architecture (Master of Landscape Architecture, M.L.A.) as well as the post-professional Master of Advanced Studies in Architecture (M.A.S.A.) and Master of Advanced Studies in Landscape Architecture (M.A.S.L.A.). An undergraduate degree in Environmental Design (Bachelor of Environmental Design, B.En.D.) is also offered as a non-professional program anticipating graduate professional studies or related careers engaged with the broad role of design in society.

Architecture, landscape architecture and environmental design more generally are disciplines that are directly concerned with shaping the human environment. As academic constituents of the University, they relate to the humanities, sciences, technology and creative arts. Each program of study demands a sound academic background and the capacity to contribute to the realm of creative problem solving.

A description of each constituent program, degree requirements, academic regulations, and admissions procedures are outlined below. Fur-

ther and more current information may be found at the School's website (www.sala.ubc.ca).

MASTER OF ARCHITECTURE

The Master of Architecture (M.Arch.) program is an accredited professional graduate program for those with an undergraduate degree who wish to pursue professional studies in architecture, as a prerequisite to becoming a registered architect.

The full program is 119 credits. Students entering the program with an undergraduate degree normally take three and one-half years of full-time study to complete the requirements. Students holding a pre-professional architecture degree will be considered for advanced placement. An undergraduate degree in a field related to architecture may be advantageous in reducing the length of the program but it is not a required prerequisite. Demonstration of interest and aptitude in the field occurs as part of the application process. At the time of application, the School's Admissions Committee will determine the extent of advanced placement on the basis of the applicant's undergraduate transcript and portfolio.

ACADEMIC ADVISING

Students entering the program are assigned an advisor for their first year of study. In addition, during the first year, and in subsequent years, students may seek advice from their studio or thesis mentor, administrative faculty, specifically the chair of Standings and Promotion and the head of the Master of Architecture program, as well as the administrative staff.

ADMISSION

The selection of university courses anticipating graduate studies in architecture should emphasize a breadth and mix of academic experience including exposure to some aspect of visual communication. Irrespective of specific degree requirements within various faculties or universities, university-level course work in mathematics, physics, english literature, and composition is desirable. Beyond specific academic experiences, students entering the Master of Architecture program should

demonstrate interest and potential in the creative arts and architecture.

For prospective applicants seeking information and guidance in preparation for entry, a School Prospectus is available on request and at the Architecture website (www.arch.ubc.ca).

Candidates for admission to the Master of Architecture program are generally required to hold the academic equivalent of a four-year baccalaureate degree from UBC. In at least four years of study, candidates should have obtained a B+ average in third- and fourth-year coursework. Applicants must in addition demonstrate creative potential and aptitude for the study of architecture.

Applicants must submit all of the following by the end of the first week of January:

- Application form. A completed official application form for the Faculty of Graduate Studies along with a non-refundable fee. An online application can be made at grad.ubc.ca/apply/online.
- Biographical statement. A brief summary (in resumé form) including work experience, travel or other relevant experience. A single page in prose form to flesh out or give depth to the resumé is also required.
- Statement of interest. A brief statement of the reasons for desiring to study architecture as well as reasons for selecting Architecture at UBC.
- Portfolio. A portfolio of work demonstrating aptitude and experience in creative endeavours and evidence of graphic skills. Additional information and instructions pertaining to the presentation of the portfolio are provided in the Prospectus.
- Transcripts. Two official transcripts of all post-secondary study completed to date (up to, and including, December grades) received in sealed, endorsed envelopes. If an applicant is currently completing a degree, an evaluation will be made on the transcripts to date. Acceptance will be conditional on the successful completion of the bachelor's degree according to the academic requirements, and receipt of a final, official transcript confirming the degree awarded.
- Letters of reference. A minimum of three letters of reference from persons who can best assess the applicant's initiative and academic, analytical and creative abilities.

These must be received in sealed, endorsed envelopes.

Places are awarded on a competitive basis as interest in the program far exceeds available resources and facilities. The Admissions Committee reserves the right to not admit applicants who nominally meet the entrance requirements. All admissions must be approved by the Faculty of Graduate Studies.

A weeklong workshop course in late August is mandatory for entering students. Details about the workshop course are provided with the letter of offer. Students who are unable to attend must re-apply for admission at a later date.

Readmission and Reinstatement

For regulations concerning readmission and reinstatement see *Withdrawal, Reinstatement and Readmission*, p. 226, under the Faculty of Graduate Studies, Academic Regulations.

ACADEMIC REGULATIONS

Students in the Master of Architecture program fall under academic regulations in place for master's programs as set out by the Faculty of Graduate Studies. The following apply specifically to the Master of Architecture program:

A grade of at least 60% is required in any course taken in the program with no more than 15 credits of Pass-level standing (60–67%) being counted towards degree requirements. In addition, a grade of at least 65% is required in ARCH 500 and at least 68% in ARCH 540 and 549. Failure to obtain credit for a total of three design studios will require the student to withdraw from the program and the student will not be permitted to re-register in the program.

Should a student not attain 65% or above in ARCH 500, the following conditions would apply:

- If the mark is less than 60% the student would be required to withdraw from the program for eight months and retake ARCH 500 in the subsequent Winter Session Term 1;
- If the mark is between 60% and 65% the student will not be granted credit for ARCH 500. The student will be required to re-register for ARCH 500 the following term.

A minimum mark of 74% must be obtained when repeating a failed course.

Portfolio

All students are required to keep a portfolio of their work in each design studio for review by faculty members at the end of each term in which the studio is held. The portfolio must contain, at a minimum, all the presentation drawings from each project in a studio, but these may be digital files or reproductions of originals and photographs of other presentation materials such as models, etc. The portfolio is to be kept available for review in case of an appeal of grade in a studio or other dispute regarding the student's standing.

Advanced Placement

As noted under *Admission*, p. 111, advanced placement is normally established at the time of admission, subject to confirmation of previous experience by appropriate School faculty.

Supplementary Work

No supplementary work is available in tutorials.

For courses other than tutorials, the normal University regulations apply. Only in exceptional circumstances will a student be allowed to undertake supplementary work in those other Architecture courses which are assessed on a continuing basis throughout the term.

Appeal Procedures

Students may protest decisions relating to their academic studies. In this event, it is recommended that the student first consult the faculty member directly involved in the decision. At any point in seeking resolution, a student should feel free to seek the advice of the chair of the program's Standings and Promotion Committee. If satisfactory resolution is not forthcoming at this point, the appeal process should continue with a written request of appeal to the head of the program.

When the protest relates to a decision in a design studio, the program head would establish an appeal committee to hear the case. The appeal committee would consist of three full-time design faculty plus the program head, ex-officio, and has the authority to interview all persons involved and to recommend to the program head that the grade be affirmed or changed. The appeal would only be heard if it is initiated within thirty days from the time the decision has been communicated to the student, whether it be by letter or by posting on the Student Services Centre.

If the matter has not reached satisfactory resolution, the student would then contact the following sequence of individuals as necessary: the Director of SALA, the Dean of Applied Science, and finally the Dean of the Faculty of Graduate Studies. Any change of grade must be approved by the Dean of the Faculty of Graduate Studies. Normally resolution can be achieved through the above processes, however the following additional procedures are in place. In matters of academic judgment, students may request a Review of Assigned Standing through Enrollment Services. For details, see *Review of Academic Standing*, p. 50. With respect to matters of procedure, resolution may be sought through the Registrar to the Senate Committee on Appeals on Academic Standing. For details, see *Senate Appeals on Academic Standing*, p. 51.

DEGREE REQUIREMENTS

Instruction in the School is offered through several types of courses:

- The Introductory Workshop, mandatory for all incoming students for a period one week prior to Labour Day, involves the engagement of environmental and architectural concerns of the West Coast through field trips, design exercises, and seminars.
- Lecture courses and seminars

- Design tutorials – required core studios and vertical options – explore selected topics in architectural design. Students are expected to present and defend their proposals in the course of critical dialogue with faculty members, visiting professionals and their peers during reviews.

To qualify for the Master of Architecture, students must satisfactorily complete a minimum of 119 credits including a sequence of structured core coursework, 15 credits of electives, and a major graduation project as follows:

- Workshop Course – ARCH 502
- Lecture/Seminar Courses – ARCH 503, 504¹, 505¹, 511¹, 512¹, 513¹, 515, 517, 523, 531, 532, 533, 541, 543, and one of 538³ or 561
- Design Courses – ARCH 500, 501, 520, 521, 540
- 15 credits of electives which may be selected from – ARCH 522, 524, 525, 537, 538, 544, 545, 561, 571, 572, 573, 577.
- Graduation Project – ARCH 548, 549

¹ These courses are prerequisite to more advanced-level courses and should therefore be completed in the first and second year of the program.

² Other history/theory offerings may be available for credit.

³ Winter Session study abroad.

Students holding a pre-professional architecture degree, as noted in the Admission section, will, in general be eligible to qualify for the Master of Architecture by completing fewer credits than 119; the minimum requirement being 82 credits. The exact number of credits to be completed and the program of study will be established at the time of admission and will vary according to the applicant's previous education and level of achievement.

A student may be granted exemption from a required course if he/she has completed a similar course at a prior date. For this to take place, a student must validate the equivalence with both the faculty member responsible for the course as well as with the Standings and Promotion Committee. An exempted course is to be replaced by another of the same credit value so that there is no change to the number of credits required for completion of the degree.

Students may undertake courses outside Architecture for credit toward their degree. Such courses must be demonstrated to be relevant to the student's program of study. Students must submit a request for permission to enrol in the course for credit towards the Master of Architecture, in writing, to the Standing and Promotion Committee.

See Course Descriptions (www.students.ubc.ca/courses) for complete university course information. More detailed and current information regarding Architecture courses is available in the Prospectus and at the Architecture website (www.arch.ubc.ca).

Study Abroad Program

A student who enrolls in the full-term Study Abroad Program may substitute ARCH 538 (Study of Architecture Abroad) for elective credits and ARCH 539 (Architectural Design Abroad) for ARCH 520 or 540, so as to make up a full term's work abroad.

Co-op Education Program

The added co-op component to the Master of Architecture program provides motivated, qualified students with paid employment experience directly relevant to their academic program under the supervision of practicing professionals.

The optional program consists of two consecutive terms; placement begins in either January or May. The co-op experience must be followed by two terms of academic study.

Students will be selected on the basis of academic performance, written and oral communication skills, and general suitability for the work environment. Students may apply during their fourth term of studio. Specific deadlines are available at Architecture's administrative offices.

Faculty advisors or coordinators visit students at their places of work and provide advice on the work term reports that is a requirement of the program.

Students are responsible for finding their own work placements, although the Architecture office keeps a file of interested firms. Students participating in the program will be registered in ARCH 555 and ARCH 556 for a total of 6 credits and pay the usual graduate fees. These credits are considered elective credits. In addition, the requirement of ARCH 543 will be waived if a Professional Practice Workbook is completed.

Program Specific Expenses

Apart from the cost of living and tuition, certain additional expenses must be anticipated to include books, equipment, the Introductory Workshop (ARCH 502) and support technology and equipment.

Students electing to participate in a Study Abroad Program must be prepared to meet further expenses.

Graduation Project

The Graduation Project, consisting of ARCH 548 and ARCH 549, provides an opportunity for students in the professional M.Arch program to identify, delineate, and explore a topic of their choice leading to a proposal for a specific architectural project clearly situated in a fully articulated context. Students are required to demonstrate their ability to define an architectural project, to acknowledge the varied scales of resolution appropriate to the task, and to take responsibility for the management of the process to complete the project on schedule.

The Graduation Project is overseen by the Graduation Project Review Committee (GPRC), a subcommittee of the faculty.

Complete details on the criteria for and completion of the Graduation Project can be found within the Graduation Project Guidelines available at the Architecture website (www.arch.ubc.ca).

GRADUATION PROJECT PART I:

ARCH 548

The purpose of Part I of the Graduation Project is to explore a chosen topic, to discover and define the architectural project that is inherent or implicit within it, and to develop an outline program through which the project may be explored in terms of its design ramifications. ARCH 548 is a one-term, 3 credit course. In order to be eligible to enrol in ARCH 548, a student must have successfully completed all requirements for second year.

GRADUATION PROJECT PART II:

ARCH 549

The purpose of Part II of the Graduation Project is to explore in deliberate design terms the material of Part I. ARCH 549 is a one-term, 9 credit course. In order to enrol in ARCH 549, in addition to passing ARCH 548, a student must have reduced any outstanding course requirements beyond ARCH 549 to a maximum of 18 credits.

The final grade will be determined by the supervising committee in consultation with guests and other faculty in attendance at the final presentation. A minimum of 68% is required in order to obtain credit for the course. It should be noted that in cases where the time taken to complete the Graduation Project has been extended, the final grade will fully reflect the period of time taken to complete the project.

Should a grade of less than 68% be attained for ARCH 549, the student would then be required to take a leave from the program for a period of twelve months. The student would then be required to submit a new Part II proposal and, with the approval of the GPRC, begin again with a new topic and a new supervisory committee. It would be necessary for the student to undertake any needed preparatory work acceptable to the new committee chair without credit, prior to re-registering.

Should a student receive a grade of less than 68% after a second attempt, the student would be required to withdraw from the program and would not be permitted to re-register.

GRADUATION PROJECT FINAL REPORT

The Graduation Project Final Report consists of an amalgam of the work of Part I and Part II, submitted with the purpose of, in part, providing a bound copy of the project to be held in the Architecture Reading Room. Adherence to specified format requirements is expected.

Time Limit for Completion of Degree Requirements

University regulations establish a five-year time limit for the completion of a master's program. For provisions regarding on-leave status, see *On Leave Status*, p. 223, under Classification of Students in the section Faculty of Graduate Studies.

PROFESSIONAL ASSOCIATION AND CERTIFICATION

The Canadian Architectural Certification Board (www.cacb.ca) accredits the M.Arch. professional degree. As an accredited degree program, successful completion of the M.Arch. leads directly to the certification of educational credentials, that in turn serves as prerequisite to seeking professional licensure.

Requirements for architectural registration vary within jurisdictions and applicants should confirm current details from the appropriate professional association. In general, the practice of architecture in Canada is governed by legislation enacted by the individual provinces. The right to practice architecture and accept responsibility is limited to those who are registered architects in the province where the work is being completed.

In British Columbia, the practice of architecture is regulated by the Architectural Institute of British Columbia (AIBC). Students are encouraged to make contact with the profession by applying for admission to the AIBC as a Student Associate. Interested students should contact the AIBC (www.aibc.ca) directly.

Statement of Certification: In Canada, all provincial associations recommend a degree from an accredited professional degree program as a prerequisite for licensure. The Canadian Architectural Certification Board (CACB), which is the sole agency authorized to accredit Canadian professional degree programs in architecture, recognizes two types of accredited degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformance with established educational standards.

Master's degree programs may consist of a pre-professional undergraduate degree and a professional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the pre-professional degree is not, by itself recognized as an accredited degree.

MASTER OF ADVANCED STUDIES IN ARCHITECTURE

INTRODUCTION

The Master of Advanced Studies in Architecture (M.A.S.A.) is a post-professional graduate program primarily for those with a professional degree in architecture or a related field who wish to expand their knowledge in a particular branch of architectural studies. It is a 30-credit program culminating in a thesis. The degree can be completed in 16 months with two terms of full-time residency required. This program is not accredited and therefore does not fulfil the educational requirements for architectural registration.

ADMISSION

The M.A.S.A. program allows a student to investigate an area within the broad field of architecture in collaboration with one or more members of the faculty. The demonstrated ability to carry out independent research is critical. A well-defined Statement of Research Intent is the primary indicator of the student's potential in the selected area. Major research thrusts within the program include environmental imperatives, history and cultural studies, advanced design research, urban design and community activism, and advanced research in digital applications. Information on research interests of the faculty is available at the Architecture website (www.arch.ubc.ca).

Information for prospective M.A.S.A. applicants is available in the Prospectus on request and at the Architecture website (www.arch.ubc.ca). The Prospectus is available on request. Students are selected on a competitive basis dependent on the research interests of the faculty. Prior to formal submission applicants are encouraged to send a brief outline of a potential research topic to the Program Chair for an initial assessment of suitability.

Applicants must submit the following by February 15:

- Application form and fee. An online application can be made at grad.ubc.ca/apply/ online.
- Transcripts. Two official transcripts of all post-secondary study should be received in sealed, endorsed envelopes. The admission requirements of the Faculty of Graduate Studies (grad.ubc.ca) must be fulfilled prior to being considered by the program's Admissions Committee.
- Letters of reference. Three letters of reference from persons who can best assess the applicant's ability in an independent research program. Letters must be received in sealed, endorsed envelopes.
- Test of English as a Second Language (TOEFL). Applicants whose first language is not English must pass the TOEFL exam with a minimum score of 250 on the computer-based exam (600 on the paper-based exam).
- Biographical statement. A chronological listing in resumé form including education, work experience, travel, and other relevant experience. Prose form can be used to elaborate on key areas of the resumé.
- Portfolio of professional or academic work.
- Statement of research intent. A minimum 500 -word statement discussing background education and work experience in the selected area of study and giving a clear outline of the area of research to be pursued.

ACADEMIC REGULATIONS

Students in the Master of Advanced Studies in Architecture (M.A.S.A.) program fall under academic regulations in place for master's programs as set out by the Faculty of Graduate Studies (grad.ubc.ca).

DEGREE REQUIREMENTS

Course Work

Students must complete a minimum of 30 credits including the following:

- ARCH 568 (3 credits) Research Methodology in Architecture. This course is to be taken in Winter Session Term 1 during the first year. Students will develop a preliminary proposal for their thesis by the end of the course.
- 15 credits of course work or directed study selected in consultation with the advisor. A minimum of 9 credits must be at the graduate (500) level. In some cases makeup courses will be required beyond the total number of credits of course work. It is intended that the course work will be completed by the end of the second term. At this time the student orally presents the thesis proposal for critical discussion by faculty and students.

Thesis

ARCH 598 (12 credits) Thesis. Depending on the area of study, the form of the thesis may be written, digital media, or a design investigation. An oral defense of the thesis is required for all M.A.S.A. students.

Time Limit for Completion of Degree Requirements

University regulations establish a five-year time limit for the completion of a master's program.

MASTER OF LANDSCAPE ARCHITECTURE

INTRODUCTION

Formerly located in the Faculty of Agricultural Sciences (now Land and Food Systems). Landscape Architecture is concerned with the design, planning, and management of the land. It involves the physical design of sites or places with particular emphasis on resource conservation, sustainability, social responsiveness, and aesthetics. It is one of several professions concerned with both the natural and human environments, with both nature and culture, and as such, places heavy emphasis on interdisciplinary knowledge and cooperation. As an academic discipline, landscape architecture is concerned with design as an act of critical inquiry, design criticism, and issues of critical regionalism.

ADMISSIONS

Applicants for admission to the program must have a strong academic record and demonstrate potential for creative problem solving. The Landscape Architecture Program selects students from a variety of disciplines on which

to build landscape architectural understanding, competence, and the sharing of knowledge. Students entering the program should demonstrate interest and potential in the broad fields of environment, the creative arts, and landscape architecture.

Students are accepted into the three-year M.L.A. from all disciplines; applicants seeking admission into the two-year M.L.A. variant must be in possession of a four-year undergraduate degree in Architecture, Environmental Design, or Landscape Architecture. Approximately eighteen students will be admitted to either the three-year or two-year program each year. Certain students may be expected to fulfill additional requirements in order to adequately prepare them for design and environmental studies.

In addition, students are required to submit examples of their creative abilities in the form of an application portfolio and demonstrate, in writing, their understanding of the profession. Please contact us for detailed admission information.

Landscape Architecture
Admissions and Administration
393 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-6919
Fax: 604-822-2184
Email: larc@interchange.ubc.ca
Web: www.larc.ubc.ca

ACADEMIC REGULATIONS

The faculty will conduct a year-end evaluation at the conclusion of year one. Students who, in a consensus opinion of full-time program faculty, are not making satisfactory progress will be asked to leave the program.

A grade of 68% is required as a passing grade for all design studio courses (LARC 501, 502, 503, 504) or any substituting classes.

APPEAL PROCEDURES

Students may protest decisions relating to their academic studies. In this event, the student should first consult the faculty member directly involved in the decision. If satisfactory resolution is not forthcoming at this point, the appeal process should continue, with a written request of appeal to the head of the program.

When the protest relates to a decision in a design studio, the program head establishes an appeal committee to hear the case. The appeal would only be heard if it is initiated within thirty days from the time the decision has been communicated to the student, whether it be by letter or by posting on the Student Service Centre.

If the matter has not reached satisfactory resolution, the student would then contact the following sequence of individuals as necessary: the Director of SALA, the Dean of Applied Science, and finally the Dean of the Faculty of Graduate Studies. Any change of grade must be approved by the Dean of the Faculty of Graduate Studies.

Normally resolution can be achieved through the above processes. However, the following additional procedures are in place:

- In matters of academic judgment, students may request a Review of Assigned Standing through Enrolment Services. For details, see *Review of Assigned Standing*, p. 50.
- With respect to matters of procedure, resolution may be sought through the Registrar to the Senate Committee on Appeals on Academic Standing. For details, see *Senate Appeals on Academic Standing*, p. 51.

DEGREE REQUIREMENTS

The Master of Landscape Architecture (M.L.A.) degree is designed for candidates seeking admission to the profession. Full-time students normally complete this program in three years. Students with a UBC-recognized undergraduate degree in Architecture, Environmental Design, or Landscape Architecture may apply for admission to a two-year 72-credit variant of the professional M.L.A. Program. This variant is comprised of approximately two years of M.L.A. design studio courses, as well as courses required for professional degree accreditation by the Canadian Society of Landscape Architects. The particular course requirements will be determined by the graduate advisor for each student upon acceptance and entry into the program, based on prior experience and a portfolio review.

The master's degree is awarded upon the completion of 109 credits of work, including a major graduating project. The core curriculum includes a structured first year of 38 credits and 56 additional required credits in years two and three. All students must declare a study stream and take nine credits in the chosen area, plus six elective credits. Designated study streams include site design, urban design, and regional design.

Detailed information on specific, yearly course requirements are available on the M.L.A. website (www.larc.ubc.ca).

PROFESSIONAL ASSOCIATION AND CERTIFICATION

The Accreditation Council of the Canadian Society of Landscape Architects accredits the M.L.A. professional degree. As an accredited degree program, successful completion of the M.L.A. leads directly to the certification of educational credentials that in turn serves as prerequisite to seeking professional licensure.

Requirements for landscape architectural registration vary within jurisdictions and applicants should confirm current details from the appropriate professional association. In general, the practice of landscape architecture in Canada is governed by legislation enacted by the individual provinces. In most provinces, the right to practice landscape architecture and accept responsibility is limited to those who are registered landscape architects in the province where the work is being completed.

In British Columbia, the practice of landscape architecture is regulated by the British Columbia Society of Landscape Architects (BCSLA). Students are encouraged to make contact with the profession by applying for admission to the BCSLA as a Student Member. Interested students should contact the BCSLA (www.bcsla.org).

MASTER OF ADVANCED STUDIES IN LANDSCAPE ARCHITECTURE

INTRODUCTION

The Master of Advanced Studies in Landscape Architecture (M.A.S.L.A.) is a 31-credit program. The program provides students an opportunity to examine and research specific issues relating to landscape, place and environment. This post-professional program is not intended to fulfill the requirements for membership as established by the British Columbia Society of Landscape Architects or similar organizations in other provinces of Canada. Those wishing professional credentials should enrol in the Master of Landscape Architecture (M.L.A.) program.

ADMISSIONS

Applicants for admission to the M.A.S.L.A. program must have a four-year bachelor's degree in a design discipline as well as some experience in a design practice. All candidates must also meet the basic academic requirements of the Faculty of Graduate Studies. In addition, all applicants must submit a design portfolio. The minimum TOEFL score required of international applicants is 580. For additional information, please visit the program's website (www.larc.ubc.ca).

ACADEMIC REGULATIONS

Part-time study is allowed with prior approval from the Graduate Program Committee. Full-time students normally complete this program within two academic years.

DEGREE REQUIREMENTS

The course of study is comprised of LARC 500, 520, 541, 599, 6 credits of 500-level electives, and 6 credits of 300-level and above electives. At least one of the elective courses must focus on design research methodologies. Research activities and thesis development will be focused within the two broad areas of advanced design, design theory and design education, and environmental design, planning, and management at the site-specific scale.

TIME LIMIT FOR COMPLETION OF DEGREE REQUIREMENTS

University regulations establish a five-year time limit for the completion of a master's program.

BACHELOR OF ENVIRONMENTAL DESIGN

The Bachelor of Environmental Design (ENDS) Program is a four-year, non-professional honours degree offered by the School of Architecture and Landscape Architecture in the Faculty of Applied Science. It is intended as a preparatory degree for students interested in pursuing a Master of Architecture, Landscape Architecture or Planning degree, or for those who wish to have a greater understanding of the role of design in the broad environmental decision-making processes of society.

Students pursue a program of study of their choice in the first two years of their degree. Admission to ENDS occurs in the third year. The third and fourth years of the program emphasize design learning supported by ecological, social, theoretical, and technical courses.

ADMISSION

Students apply for admission to the Bachelor of Environmental Design Program for autumn, third-year matriculation. Prospective students enrol in a first-year university program of their choice at a recognized university or college. For first-year admission requirements students are directed to the admission requirements of those institutions and their respective programs of study. Students must complete the UBC equivalent of 60 credits during their first two years of study. First- and second-year coursework must include the equivalent of 6 credits of first-year English (ENGL 110, 112), Geography (GEOG 101, 6 credits), and Physics (100 or 170, 3 credits). Additional recommendations for preparatory study are listed on the program website.

Admission to the ENDS Program is competitive; the program accepts a maximum of 30 students per year. Admission is based on the student's academic standing, submission of a portfolio demonstrating general creative abilities, completion of an admissions questionnaire, and a letter expressing interest in the program. A complete list of the required documents is available on the ENDS website (www.ends.ubc.ca). Students seeking transfer from other universities and colleges may be granted advanced credit for parallel courses in the first two years of the UBC curricula where standings obtained are above minimum passing grade at those institutions.

Basic skill with design-oriented digital media and processes is fundamental to effective participation in ENDS design and media courses. Prior to autumn matriculation, students admitted to ENDS must register for the Digital Media Workshop (fee-based class).

To petition out the Design Media Workshop, students must show evidence of competency with all of the following digital media skills:

- graphic/digital image processing (e.g., Photoshop)
- layout applications (e.g., InDesign, Illustrator)
- 2D drawing (e.g., AutoCAD, Vectorworks)
- 3D modeling (e.g., FormZ, Maya)

For detailed Program and Admission information, interested students must visit the ENDS website (www.ends.ubc.ca). Inquiries can be made to the ENDS Program Office (ends@interchange.ubc.ca) directly.

DEGREE REQUIREMENTS

First and Second Years:
60 credits, including

GEOG 101 or equivalent
ENGL 112 or equivalent
ENGL 110 or equivalent
PHYS 100 or 170 or equivalent

**Credits
(where
applicable)**

Third Year

ARCH 403	3
ARCH 404	3
ENDS 301	9
ENDS 302	9
ENDS 320	3
ENDS 420	3
LARC 422	3
LARC 440	3
Total Credits	36

Fourth Year

ARCH 405	3
ARCH 437	3
ENDS 401	9
ENDS 402 and ARCH 411 ¹	9+3
or	
ENDS 403 and LARC 431 ²	9+3
ENDS 410	3
ENDS 440	3
PLAN 425	3
Total Credits	36

Minimum Credits for Degree 132

¹ Students declaring a Pre-Architecture option.

² Students declaring a Pre-Landscape/Planning option.

F.C.S.L.A., A.S.L.A.; **Stephen Sheppard**, B.A., M.A. (Oxf.), M.Sc. (Br.Col.), Ph.D. (Calif., Berkeley), A.S.L.A.; **George S. Wagner**, B.A. (Bard Coll., N.Y.), M.Arch. (Wash.), R.A. (Mass.); **Deborah E. B. Weiner**, B.A. (Calif., Berkeley), M.A. (Calif., L.A.), M.A., Ph.D. (Prin.).

Assistant Professors

John W. Bass, B.F.A., B.Arch. (Rhode Island School of Design); **Mari Fujita**, B.A. (Col.), M.Arch. (Prin.); **Oliver Lang**, Dipl. Ing. Arch. (Berlin), M.S.A.A.D. (Col.), AK-NW; **Oliver Neumann**, Dipl. Ing. Arch. (Berlin), MSAAAD (Col.), AK (Berlin); **Inge Roecker**, B.E.S., M.Arch. (Man.), AK-BW; **Joel Shack**, B.Arch. (Tor.), M.O.A.A. (on leave).

Senior Instructor

Stephen I. Taylor, B.A.Sc. (Br.Col.), M.S. (Cal.Tech.), P.Eng., A.P.E.G.B.C., M.A.I.B.C. (Honorary).

Lecturers in Practice (2005/06)

Martin Lewis, B.Arch. (Tor.), MRAIC; **William Pechet**, B.A., B.F.A. (Vic.B.C.), B.Arch. (Br.Col.).

Sessional Lecturers and Adjunct Professors (2005/06)

Michael Alborg, B.A.Psyc. (Calif.), M.L.A. (A&M, Texas); **Omer Arbel**, B.E.S. (Hons.), B.Arch. (Hons.) (Wat.); **Peter Busby**, B.A. (Tor.), B.Arch. (Br.Col.), A.I.A., M.A.I.B.C., M.A.A.A., M.O.A.A., B.C.I.D.; **Duncan Cavens**, B.L.A., M.Sc. (Br.Col.); **Steven Clarke**, B.E.S. (Manit.), M.L.A. (Manit.); **Helena Grdadolnik**, B.E.S., M.Arch. (Wat.); **Greg Johnston**, B.Ap.Sc. (Mech. Eng.) (Br.Col.), B.Arch. (Montr.), MAIBC, MRAIC, APEGBC; **Dina Krunic**, B.Arch. (Arkansas), M.Arch. (U.C.L.A.); **Michel Labrie**, B.Arch. (Laval), M.A.S.A. (Br.Col.), M.R.A.I.C., M.O.A.Q.; **William M. Marsh**, B.A. (Central Mich.), M.A. (Missouri), Ph.D. (Mich.); **Kelty McKinnon**, B.E.S. (Manit.), M.L.A. (Minn.), C.S.L.A., B.C.S.L.A.; **Daniel M. Millette**, B.A. (Hons.) (Ott.), M.A., M.A.S.A., Ph.D. (Br.Col.); **Stacy Moriarty**, B.S. (Mass.), B.F.A. (E.C.I.A.D.), M.L.A. (Mass.); **Zwanette Pereboom**, B.Sc., M.Arch., LL.B. (Br.Col.), M.A.I.B.C.; **Annabel Vaughan**, B.A. (York), M.Arch. (Br.Col.).

ACADEMIC STAFF

Professors

Raymond J. Cole, B.Sc. (Civ.Eng.) (City Univ., Lond.), Ph.D. (Wales), M.A.I.B.C. (Honorary); **Patrick Condon**, B.Sc., M.L.A. (Mass.), A.S.L.A.; **Ronald Kellett**, B.E.S. (Manit.), M.Arch. (Oregon); **Christopher Macdonald**, B.E.S. (Man.), A.A. Dipl. (Hons.) (Arch. Assoc., U.K.), F.R.A.I.C., ARB; **Patricia Patkau**, B.I.D. (Manit.), M.Arch. (Yale), M.A.I.B.C., F.R.A.I.C., H.F.A.I.A., H.F.R.I.B.A., R.C.A., C.M.; **Moura Quayle**, B.L.A. (Guelph), M.L.A. (Calif., Berkeley), D.Sc. (Guelph), F.C.S.L.A. (on leave); **Jerzy Wojtowicz**, B.Arch. (Hon.) (Manit.), M.Arch. (Dist.), Dr.Des. (Harv.), M.A.I.B.C., O.A.A.

Associate Professors

Linda D. Brock, B.A. (Montana), M.Arch. (Utah), M.Des.S. (Bldg. Tech.) (Harv.), M.A.I.B.C., A.I.A.; **Cynthia Girling**, B.E.S. (Manit.), B.L.A. (Oregon), M.L.A. (Oregon), B.C.S.L.A., C.S.L.A., A.S.L.A., registered in Oregon and B.C.; **Susan Herrington**, B.L.A. (N.Y. State), M.L.A. (Harv.); **Sherry McKay**, B.A., M.A., Ph.D. (Br.Col.); **Patrick F. Mooney**, B.Mus. (Br.Col.), M.L.A. (Guelph), A.S.L.A., C.S.L.A.; **Douglas D. Paterson**, B.Sc. (Manit.), M.L.A. (Mich.),

3 The Faculty of Arts

Dean's Office

Nancy Gallini, Dean
John X. Cooper, Associate Dean
J. Evan Kreider, Associate Dean
Darrin Lehman, Associate Dean
Anne-Marie Fenger, Assistant Dean

B130–1866 Main Mall
Vancouver, BC V6T 1Z1
Telephone: 604-822-3828
Fax: 604-822-6096

Arts website (www.arts.ubc.ca)

The Faculty of Arts, through its schools and departments, offers undergraduate programs leading to the following degrees: Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music, and Bachelor of Social Work. The Faculty also offers Diplomas in Applied Creative Non-Fiction, Applied Linguistics, Art History, and Film Studies, and the Certificate in Theatre Design and Technology. For information on the Bachelor of Music see *The School of Music*, p. 353. The Bachelor programs for Social Work and Family Studies are described in *The School of Social Work and Family Studies*, p. 439.

The Faculty also offers graduate programs leading to degrees of Master of Arts, Master of Archival Studies, Master of Fine Arts, Master of Journalism, Master of Library and Information Studies, Master of Music, Master of Social Work, Doctor of Philosophy, and Doctor of Musical Arts. See *the Faculty of Graduate Studies*, p. 217, for further details. The Master of Journalism is described further in *The School of Journalism*, p. 299. Programs leading to the Master of Archival Studies and the Master of Library and Information Studies are described in detail within *The School of Library, Archival and Information Studies*, p. 315.

Email Communication

Email is the preferred means of the Faculty of Arts and Arts faculty members for communicating important messages to students. It is the responsibility of all Arts students to ensure that their current email is accurately recorded on UBC's Student Service Centre (www.students.ubc.ca/ssc), and to read email sent to that account on a regular basis. Free email accounts are available to all UBC students, but any email account may be registered through the SSC. See www.netinfo.ubc.ca for more information.

University staff are not responsible for resending returned messages or for the consequences of messages not received due to full mailboxes, spam blockers, inactive addresses, etc. Students should inquire about and follow their instructors' policies on email communication. All use of email is governed by UBC's Policy #104, *Responsible Use of Information Technology Facilities and Services* (www.universitycounsel.ubc.ca/policies/policies.html).

BACHELOR OF ARTS

The Faculty of Arts offers four-year degree programs leading to the Bachelor of Arts. The Faculty offers the B.A. with Honours, a major, double major, or an Interdisciplinary Studies program in one or more of its departments. The four-year B.A. program features intensive study in the social sciences, performing arts, and humanities. The first two years of study are dedicated to building a solid foundation in communication and reasoning. The final two years offer specialized studies as selected by students, in many subjects leading to degrees, including:

- Specialized programs in one or more of the departments in the Faculty of Arts.
- Interdisciplinary programs in Asian Area Studies, Canadian Studies, Critical Studies in Sexuality, Interdisciplinary Studies, International Relations, Medieval Studies, Modern European Studies, Religion and Literature, and Women's Studies.
- Concentrations in Archaeology, Commerce, Museum Studies, Nineteenth-Century Studies, Russian and Slavic Languages and Literatures, Science, Science Studies, Slavic Area Studies, and Urban Studies.

ACADEMIC ADVISING

Degree, program, and course advice is provided through the Faculty of Arts Academic Advising Services and through departmental and Interdisciplinary Studies advisors.

The staff of Academic Advising Services assist first- and second-year students to plan their programs and offer advice about Faculty of Arts regulations to students in the Faculty. They also administer regulations governing the Bachelor of Arts and Bachelor of Fine Arts, and evaluate and approve (as appropriate) requests for

course changes, withdrawals, academic concessions (for medical, emotional, or other reasons), and letters of permission for study elsewhere. This office does not advise students about the requirements for admission to, or continuation in, other faculties. Students should contact other faculties directly for such information.

Departmental advisors, who are located in the relevant department, advise students about major, minor, double major, and honours programs in that department. Advisors for students in the Interdisciplinary Studies Program can be contacted through the Academic Advising Services. See *Program Planning*, p. 117 (below) and *Program Requirements*, p. 122.

Academic Advising Services is located in Room A201 of the Buchanan Building and is open throughout the year, Monday to Thursday, from 9:30 am to 4:00 pm, and Friday, from 9:30 am to 1:00 pm.

Daily and weekly appointments are available to students who wish to speak with advisors in Academic Advising Services. To schedule an appointment with an Academic Advisor, students may contact the office in person or by telephone, 604-822-4028.

Program Planning

Every student is responsible for drawing up a program of study that meets Faculty, departmental, and degree program requirements. All students should consult appropriate Academic Advising staff and departmental or Interdisciplinary Studies advisors (as applicable), in the preparation of their program of study. However, the responsibility for meeting requirements is the student's.

Although most degree programs are of four years' duration (implying successful completion of 30 credits per year), students may take more or less time than this to complete degree requirements. Credit obtained in Summer Sessions can be combined with that obtained in Winter Sessions. Students wishing to register for more than 12 credits in Summer Session must obtain permission to do so from Academic Advising Services. Likewise, students wishing to register for more than 30 credits in any Winter Session must obtain permission to do so from Academic Advising Services, unless they are enrolled in a program that requires more than 30 credits in the session. In Summer and Winter

Sessions, such authorization is normally given only to students with high academic standing.

Students who register in fewer than 27 credits per Winter Session are not normally eligible for scholarships; those registered in fewer than 27 credits are ineligible for recognition on the Dean's List.

ADMISSION

Admission requirements are specified in *Admissions*, p. 13. Students who are accepted on transfer from other post-secondary institutions must either have met the English requirement or be eligible to enrol in first-year English before they will be permitted to register in any courses for credit.

Advanced Credit and Advanced Placement

The Faculty of Arts may grant advanced placement and/or course credit to students who complete certain International Baccalaureate, Advanced Placement, or other enriched secondary school courses with appropriate grades. When granted, the credit/placement will be indicated on the student's notification of acceptance to UBC.

ACADEMIC REGULATIONS

Attendance

Regular attendance is expected of students in all their lectures, laboratories, tutorials, and seminars. Students who neglect their academic work and assignments in a course may be excluded from its final examination. Students who are unavoidably absent from scheduled classes because of illness or disability should report to their instructors immediately on their return. Students whose attendance or academic performance is severely affected by medical, emotional, or other problems should apply for special consideration through Academic Advising Services. (See *Academic Concession*, p. 118, in this chapter (below) and *Academic Concession*, p. 50, in the chapter "Academic Regulations" of this Calendar).

Change of Registration

In the Winter Session, students can drop one-term courses within two weeks of their commencement and two-term courses within three weeks of commencement. All record of registration in the course(s) will be removed from the student's transcript. Thereafter, students may withdraw from a one-term course up to the end of the sixth week of classes, and from a two-term course up to the end of the twelfth week of classes. Courses dropped during this latter period will be indicated by a 'W' on the student's transcript. Students can withdraw from courses using the Student Service Centre (www.students.ubc.ca/ssc). After these dates, students are not normally permitted to withdraw from courses but can apply for *Academic Concession*, p. 118 (see below).

Students who cease to attend or otherwise fail to complete exams, assignments, or other course requirements will receive a grade reflecting requirements completed in the course. (See

also *Change of Registration*, p. 49, and *Withdrawal*, p. 50).

Academic Concession

Students whose attendance or academic performance is severely affected by medical, emotional, or other problems should apply for special consideration from their instructor or Arts Academic Advising as soon as possible.

Students are advised to contact their instructor if they are unable to complete tests or other graded work because of short-term illness or for other reasons, and arrange how they can make up for missed work according to written guidelines given to them at the start of the course (see *Grading Practices*, p. 47). Students also have the right to request Academic Concession from Arts Academic Advising.

Students absent from final examinations held in the official examination period must request Academic Concession from Arts Academic Advising, or, if they are Bachelor of Music students in the School of Music or Bachelor of Social Work students in the School of Social Work and Family Studies, from the Director of their school. Absences from final examinations held in the official examination periods in any term must be reported as soon as possible after the missed examination.

Students requesting Academic Concession will be required to complete an application form and provide supporting documentation as requested. In some cases it will be necessary for the student to attend an interview. Academic concessions are granted only by the senior staff of Academic Advising Services, and are a privilege not a right. Among academic concessions that may be granted are permission to drop or withdraw from a course after the normal deadlines are passed (see *Change of Registration*, p. 49), Deferred Standing, Aegrotat Standing, and Withdrawal from the University.

Deferred Standing may be granted when a student has a valid reason for not completing course requirements as scheduled. Students granted deferred standing in Winter Session courses must complete all outstanding course requirements no later than August 24 following. Students granted Deferred Standing in Summer Session courses must complete all outstanding work no later than December 23 following. Students granted deferred standing are responsible for making satisfactory arrangements with their instructors for completion of outstanding course requirements. If a student fails to complete deferred requirements by the dates specified, the deferred standing will be replaced with a grade or standing that reflects requirements completed in the course. Students unable to meet the specified deadlines because of further medical, emotional, or other difficulties must make an additional application for Academic Concession no later than August 31 (for Winter Session courses) or December 31 (for Summer Session courses) following the original deferral. (See also *Academic Concession*, p. 50, and *Grading Practices*, p. 47, in the chapter "Academic Regulations" of this Calendar.)

Aegrotat Standing allows a student credit for a course, although the student has not completed course requirements due to medical, emotional, or other difficulties. This standing is awarded only if the course instructor and the Dean (or designate) agree that the student has demonstrated the ability to deal with the course material satisfactorily. When AEG standing is awarded, a letter grade is assigned; this will be converted to the minimum percentage for that category for the calculation of averages.

Students with Standing Deferred credits should reduce the maximum load in the session immediately following (Summer or Winter) by the equivalent number of credits. For example, if a student has three credits deferred from the Winter session until August, that student should not enrol in more than nine credits in the following Summer session, although the permitted maximum is 12. Should a student require an extension of a Standing Deferred, he or she may be blocked or deregistered from the equivalent number of credits during the extension period.

Transfer Credit

Students entering the Faculty of Arts from a college or another university will receive credit for appropriate courses completed there, subject to the provisions listed in *Applicants from a College or University*, p. 21, and in *Degree Requirements*, p. 120.

Students who are accepted on transfer from other post-secondary institutions must either have met the English requirement (see *Degree Requirements*, p. 120) or be eligible to enrol in first-year English (see note 1, *English Requirement*, p. 120) before they will be permitted to register in any courses for credit. Students who have accumulated 60 or more credits either at UBC or elsewhere, and who have not fulfilled the English requirement, will not be permitted to enrol in courses other than first-year English until the requirement is met.

Students in the Faculty of Arts who wish to interrupt their UBC studies and take courses in other institutions for credit toward a UBC degree must obtain, in advance, a Letter of Permission from the Academic Advising Office.

Students currently registered in UBC courses may not take courses for credit toward the Bachelor of Arts at other institutions without specific written permission from Academic Advising Services.

The Faculty has no obligation to grant transfer credit unless a Letter of Permission has been obtained.

Students will not normally be permitted to complete the Faculty of Arts English requirement at another institution. (See also *Attendance*, p. 45.)

Granting of Credit

Credit is granted for all courses completed with at least the minimum passing grade (normally 50%), provided they are eligible under the requirements specified for the degree.

Evaluation of Written Work

In all courses taught in the English language in the Faculty of Arts, students' written work will be evaluated in part on grammatical and syntactical correctness.

Failed Courses

A student may repeat a failed course only once. This restriction does not apply to courses required to satisfy the Faculty of Arts language requirement or to MATH 100, 101, 102, 103, 104, and 105, any of which may be repeated twice.

Supplemental Examinations

The Faculty of Arts does not offer supplemental examinations in any of its courses.

Letter of Permission

See *Transfer Credit*, p. 118.

Scholarships and Awards

Information on scholarships and awards available to academically outstanding students can be found at Student Financial Assistance and Awards website (www.students.ubc.ca/finance). See also the "Fees, Financial Assistance, and Scholarships" chapter in this Calendar.

Dean's List

Students who complete 27 credits or more in any Winter Session with an overall average of 85% or higher receive the notation "Dean's List" on their permanent records.

Students in the Arts Co-operative Education Program who complete a Co-operative Work Term in Term 1 or Term 2 of any Winter Session and 15 credits in the other Term of the same Winter Session with an overall average of 85% or higher receive the notation of "Dean's List" on their permanent records.

Promotion Requirements

Promotion is dependent on successful completion of a minimum number of credits as listed below.

Students who have completed 27 credits are promoted to second year. Students who have completed 54 credits are promoted to third year. Students who have completed 84 credits are promoted to fourth year.

Continuation Requirements

Students in the Faculty of Arts who do not achieve a level 5 on the *LPI examination*, p. 120, before completing 30 credits of Arts-eligible courses, taken either at UBC or another post-secondary institution, will not be permitted to register in any additional credit courses until they successfully complete the LPI.

Students who do not meet the 6-credit first-year English requirement before completing 60 credits of Arts-eligible credits, taken either at UBC or another post-secondary institution, will not be permitted to enrol in courses other than first-year English until that requirement is satisfied.

Continuation Requirements are listed in the table *Summary of Continuation Requirements*, p. 119 (below). Subject to the above conditions,

students who attain a sessional average of 55% or more will be assigned a 'Pass' standing and will be eligible to continue their studies.

Students who register in (and do not officially withdraw from) 12 or more credits in a Winter Session and attain a sessional average of between 45% and 54.9% will be placed on Academic Probation (ACPR). This will be noted on their statement of grades. They will be eligible to continue their studies unless a 'Fail' or 'ACPR' has appeared previously in their record, in which case they will be assigned a 'Fail' standing and required to withdraw from the Faculty.

Students who register in fewer than 12 credits in a Winter Session and attain a sessional average of between 45% and 54.9% will be assigned a standing based on past performance:

- 1) If their cumulative average is 55% or more, they will be assigned a 'Pass' standing and will be eligible to continue,
- 2) If their cumulative average is less than 55%, they will be assigned ACPR standing. This will be noted on their statement of grades. They will be eligible to continue unless a 'Fail' or 'ACPR' has appeared previously on their record, in which case they will be assigned a 'Fail' standing and required to withdraw from the Faculty.

Students who attain a sessional average of less than 45% in a Winter Session will be assigned a 'Fail' standing. They will be required to withdraw from the Faculty, unless this sessional

average is based on fewer than 12 credits and there is no 'Fail' or 'ACPR' on their previous record, in which case they will be eligible to continue.

Students required to withdraw from the Faculty may apply for readmission after one full year, but no student required to withdraw has a right to readmission.

Students required to withdraw before completing 54 or fewer Arts-eligible credits can qualify for readmission by completing the following amount of work at a BC college or similar institution and attaining an overall G.P.A. equal to or better than that required of any other transfer student applicant:

Credits Completed	College Transfer Credits Required
36 or fewer	30
39 to 45	24
48 to 54	21

Students required to withdraw after completing 54 Arts-eligible credits are encouraged to take courses at a college or similar institution, even though some of the credits so earned may not be transferable to UBC. Applications for readmission will be adjudicated by the Arts Appeals Committee. In considering an application for readmission, the Arts Appeals Committee will take into account any and all evidence of a student's ability to perform satisfactorily at the university level.

Summary of Continuation Requirements

Credits Attempted	Winter Session Average	Cumulative Average	ACPR or Fail already on Record	Sessional Standing	Continuation Status
12 or more	55% or more	N.A.	N.A.	Pass	Eligible to continue
	45% to 54.9%	N.A.	No	ACPR	Eligible to continue
			Yes	Fail	Required to withdraw
Fewer than 12	less than 45%	N.A.	N.A.	Fail	Required to withdraw
	55% or more	N.A.	N.A.	Pass	Eligible to continue
				45% to 54.9%	55% or more
	less than 55%	No	ACPR	Eligible to continue	Eligible to continue
				Yes	Fail
less than 45%	N.A.	No	Fail	Eligible to continue	
			Yes	Fail	Required to withdraw

DEGREE REQUIREMENTS

Bachelor of Arts, Bachelor of Fine Arts, Bachelor of Music

All programs leading to the Bachelor of Arts (B.A.), Bachelor of Fine Arts (B.F.A.), and Bachelor of Music (B.Mus.) require a minimum of 120 credits.

No more than 60 credits completed at other post-secondary institutions can be counted toward the Bachelor of Arts at UBC. This restriction on the number of transfer credits permitted towards degrees does not include credits taken by students in their first year at *Herstmonceux*, p. 444, as part of the Canadian Universities Study Abroad program. The exact UBC equivalents for Herstmonceux courses are determined on a case-by-case basis by Arts Advising.

No more than 60 credits of UBC Distance Education and Technology (DE&T) courses can be counted toward the Bachelor of Arts; no more than 42 such credits may be taken after the completion of 60 credits toward the degree program.

Unless special permission is given in writing, in advance, by Academic Advising Services, students must complete their final 30 credits at UBC. At least 30 of the final 60 credits toward the degree must be completed at UBC (or through UBC DE&T courses).

Students are not permitted to register in more than four Science courses, a maximum of 16 credits (six courses including Mathematics and Computer Science for a further seven credits), before completing 30 credits in the Faculty of Arts.

All students in the Bachelor of Arts and Bachelor of Fine Arts programs must complete the following:

- 1) The Faculty of Arts English requirement;
- 2) The Faculty of Arts language requirement;
- 3) The Faculty of Arts science requirement; and
- 4) The Faculty of Arts literature requirement.

Each requirement is specified in more detail below. Students are encouraged to complete these requirements in the first 60 credits. Students who fail to meet the English requirement before completing 60 Arts-eligible credits will not be permitted to register in courses other than first-year English until this requirement is satisfied. Students who have not satisfied the language requirement are advised to maintain their registration in course(s) leading to its fulfilment through all Winter and Summer Sessions attended until the requirement is met.

Students intending to enter the Interdisciplinary Studies program must satisfy the language requirement before registering in that program.

All students in the Bachelor of Music program must complete the Faculty of Arts English and literature requirements.

English Requirement

In order to fulfil the English requirement, students must successfully complete six credits of first-year English, or Arts One, or Foundations. Students admitted to the Bachelor of Arts

program must take immediate steps to satisfy the English requirement. The following notes apply:

- 1) Students admitted directly from secondary school are required to take English in their first year if eligible to do so. To be eligible, students must have written the Language Proficiency Index (LPI) examination and obtained a score of level 5. For details on this examination, and exemptions from it, see Language Proficiency Index Requirement for first-year English, below.
- 2) Students admitted directly from secondary school who have not obtained a score of level 5 on the LPI should not register for more than 12 credits per term and are advised to take a non-credit course from the University Writing Centre.
- 3) Students in the Faculty of Arts who do not achieve a level 5 on the LPI examination before completing 30 credits of Arts-eligible courses, taken either at UBC or another post-secondary institution, will not be permitted to register in any additional credit courses until they successfully complete the LPI.
- 4) Students who are accepted on transfer from other post-secondary institutions, or who are readmitted to the Faculty after being required to discontinue, must either have met the English requirement or be eligible to enrol in first-year English before they will be permitted to register in any courses for credit.
- 5) Students who do not complete 6 first-year English credits in their first 60 Arts-eligible credits, taken either at UBC or another post-secondary institution, will not be permitted to enrol in courses other than first-year English until the English requirement is met.
- 6) Students who fail a first-year English course (i.e., ENGL 110, 111, 112, 120, or 121) may repeat that course once only.
- 7) Once admitted to UBC, students will not normally be permitted to satisfy the English requirement at another institution.

The Language Proficiency Index (LPI) Requirement for First-Year English

All programs at UBC require at least 3 credits of first-year English; most require 6 credits. In order to remain registered in any first-year English course, Arts One, and the Arts Foundations Program at UBC, students must complete all sections of the Language Proficiency Index (LPI) and achieve a minimum score of level 5 (30/40) on the essay section of the examination.

Unless a student meets the LPI requirement by exemption, the LPI test must be taken **on or before** the deadline mentioned below. Restrictions for registering in other courses may be applied to the student if the English requirements of a faculty are not met.

THE LPI EXAMINATION

The LPI is an examination that provides the University with a way to determine a student's competence in summary and essay writing and

in the recognition of common errors in English usage and sentence structure. It also involves the composition of an argumentative essay of between 300 and 400 words. Performance on the essay will determine a student's eligibility for first-year English courses, but students must complete all parts of the examination.

An information booklet entitled *Preparing to Write the LPI* is available from the LPI Office. Visit the LPI website (www.lpi.ubc.ca) for further details.

Results

Student results are available within four weeks of writing the examination and are forwarded to the English Department, Arts One, and the Arts Foundations Program immediately upon the completion of marking. The English Department does not release results. Students should keep the report of their results; they may be asked to present results in their English classes in September. Students can also use the LPI website (www.lpi.ubc.ca) to request a Personal Score Report that will be sent as a PDF file via email.

Students with scores of level 5 or 6 on the essay section will retain their registered spaces in their first-year English courses, Arts One, or the Arts Foundations Program; those with a level 4 or below at the deadline will not be permitted to remain either in a first-year English course or in Arts One or Arts Foundations Program. Students in this latter category are encouraged to enrol in Writing 098, a non-credit course offered by the University Writing Centre. For more information on Writing 098, see *University Writing Centre*, p. 446, in the "Alternative Study Options" chapter.

Exemptions

Students in the following categories are exempt from the LPI requirement; all other students must complete the LPI:

- those with a final grade (school mark plus government exam mark) of 80% in BC English 12 or BC English Literature 12;
- those with a final grade of (80%) English Language and Literature or Studies in Literature (ENG4U or OAC English) for Ontario applicants;
- those with a final grade of "A" or 80% (equivalent) in grade 12/senior year English in an English curriculum secondary school, operating in a country where the primary language is English;
- those with a final grade of 4 or better in the Advanced Placement (AP) course in literature and composition;
- those with a final grade of 5 or better in Standard or Higher level International Baccalaureate English A;
- those who have completed 6 credits of first-year English or the equivalent, acceptable for transfer to UBC;
- those who have attained a score of at least 5.0 on the essay section of the Canadian English Language Proficiency Index Test - Academic (CELPIT-A), a portion of the Canadian English Language Proficiency Index Program (CELPPIP) that may be used

to satisfy the English Language Admission Standard;

- those with a passing grade in UBC's English Composition Test (ECT) prior to September 1992.

Deadlines for Completion of the LPI

In order to be eligible for **Term 1 (September 2006)** first-year English courses, Arts One, and the Arts Foundations Program students must complete the LPI **on or before** the following deadlines:

- BC students: Saturday, July 15, 2006
- Out-of-Province students: Saturday, August 5, 2006
- International students: Saturday, September 2, 2006

This includes students residing and attending school outside Canada at the time of the July or August deadlines. This sitting of the LPI is specially arranged for International students arriving in Vancouver from outside Canada in late August. Such students must obtain prior permission to write on this date by emailing the program in which they intend to enrol: First-Year.English@ubc.ca; or Artsone@interchange.ubc.ca; or Arts.Foundations@ubc.ca.

In order to be eligible for **Term 2 (January 2007)** first-year English courses, students must complete the LPI **on or before** the following deadlines:

- All Students: Saturday, October 28, 2006
- Writing 098/099 Students: Saturday, December 2, 2006

In order to be eligible for **Summer Session, Term 1 and Term 2 (Summer 2007)** English courses (ENGL 110 or 112), students must complete the LPI **on or before** Saturday, February 24, 2007.

Any student who misses the LPI deadline must contact the First-Year English Office (first-year.english@ubc.ca). For assistance, telephone 604-822-4247 or 604-822-4259.

Registration for the LPI

BC Students: The LPI is offered a number of times and at a number of locations around BC each year. **Students must register for the examination at least two weeks in advance.**

On the registration form, or in a personal letter, students should include their name, address and postal code, telephone number, and the date, time, and place the student wishes to write the examination.

The registration fee of CAD\$49.00 (either VISA, MasterCard, money order, or personalized cheque with the student's name clearly indicated, payable to LPI) must accompany the application. The application can be faxed (if the payment is by VISA or MasterCard), mailed, or brought to the LPI Office, University of British Columbia, Room 6, 2125 Main Mall, Vancouver, BC, V6T 1Z4. Fax: 604-822-9144. Examination admission tickets will then be mailed to students approximately two weeks before the examination date. Any student who has not

received a ticket prior to the examination date should contact the LPI Office at 604-822-4145 immediately.

Online registration and book ordering is available at www.lpi.ubc.ca. Students may print their own admission tickets, in which case they will not receive a ticket from the LPI office.

Students must present their Test Admission Tickets (with an attached passport-size photograph as described on the LPI website) and present acceptable photo identification in order to be admitted to the examination room on the day of the sitting.

Out-of-Province Students: Students living outside BC may arrange a private sitting of the examination in their own area. To do so, they should contact a secondary school, college, university administrator, or counsellor who would be willing to supervise their writing of the LPI. The administrator or counsellor should contact the LPI Office (on official letterhead) by fax at 604-822-9144 or at the address listed above, and indicate willingness to undertake the supervision. The registration fee (CAD\$75.00 outside of BC but within Canada, CAD\$100.00 outside of Canada), may be paid by VISA, MasterCard, or personalized cheque payable to 'Language Proficiency Index (LPI)'. Application and payment may be made by fax or by mail as indicated above. Note that a passport-size photo must be submitted to the Test Supervisor in order to write the LPI at a private sitting. This photo will be attached to the Test Admission Ticket.

Upon receipt of the application, payment, and a letter from the supervisor, the LPI Office will send a copy of the examination to the supervisor, who can then arrange with the student where and when the examination will be written. (Any charge for invigilation services is the responsibility of the student.) The supervisor must return the examination paper to the LPI Office within two weeks unless a later date has been specified in writing to the LPI Office.

Further Enquiries

For further information about the LPI, visit the LPI website (www.lpi.ubc.ca) or contact the LPI Office, Room 6, 2125 Main Mall, University of British Columbia, Vancouver, BC, V6T 1Z4; telephone 604-822-4146; fax 604-822-9144. For further information about eligibility for first-year English courses, contact the First-Year English office; telephone 604-822-4247 or 604-822-4259.

Language Requirement

In order to fulfil the language requirement, students must:

- 1) have successfully completed a Grade 12 course in an approved language other than English while in secondary school, or
- 2) write an examination, if they have knowledge of an approved language, but no secondary school or university transcript to prove it, or
- 3) reach the language level taught in any of the following courses: Arabic 400, Asian Languages 400, Chinese 111 or 112, First

Nations Languages 200, French 112, German 210, Greek 200, Hebrew 405, Hindi-Urdu 200, Indonesian 200, Italian 202 (previously 200 or 201), Japanese 103 or 151, Korean 200, Latin 200, Polish 300, Portuguese 202, Punjabi 200, Russian 110 or 200, Sanskrit 200, SCAN 402 (Swedish), Spanish 112 or 202 (previously 105 and 110), Ukrainian 225.

Most of these courses have prerequisites. Students with Grade 11 in any of the above languages can expect to enter the listed courses directly; those that do not have Grade 11 or equivalent must fill the prerequisites.

Students with secondary-school or native language background wishing to register in any of the above languages must check with the departments to see whether they are required to write a placement test before the beginning of classes.

Students may satisfy the language requirement in any of the above languages by proving the appropriate competency through examination. Arrangements for such examination must be made through the academic department providing instruction in the language. No course credit will be awarded for satisfaction of the language requirement in this manner.

Students who wish to present a language other than those identified above to satisfy the language requirement may be permitted to do so through a challenge examination, where appropriate expertise to test the student's competency in the language is available. Arrangements for such examination must be made through the Academic Advising Services. No course credit will be awarded for satisfaction of the language requirement in this manner.

Science Requirement

The requirement can be met by successful completion of:

- 1) 6 credits in the Faculty of Science, or
- 2) GEOG 101, or GEOG 102 and 3 additional credits in a Faculty of Science course; or GEOG 103 and 3 additional credits in a Faculty of Science course; or GEOG 102 and GEOG 103, or
- 3) WMST 201 and 3 additional credits in a Faculty of Science course, or GEOG 102, or GEOG 103, or
- 4) FRST 300.

COGS 200 and COGS 400 and PSYC Science courses (those with the last two digits numbered 60 or higher) may not be used to satisfy the 6 Science credits required for a B.A. degree.

Science courses that include laboratory work are recommended. Students may, however, choose to meet the science requirement through successful completion of 6 credits from the following list of courses: AGRO 260; ASTR 310, 311; BIOL 343, 344, 345, 346, 446; EOSC 310, 311, 312, 314, 315; FNH 200, 255, 330; MATH, all courses; PHYS 340, 341, 343; STAT, all courses.

Literature Requirement

Students must successfully complete 6 credits, in the Faculty of Arts, of work in literature in addition to the English requirement.

Courses in composition and writing (such as ENGL 301, ENGL 303, CRWR 202, CRWR 301) and courses intended to develop fluency in reading newspapers, etc. in languages other than English (e.g., CHIN 300, GERM 430, JAPN 315, 416, 417), do not satisfy this requirement. With these restrictions, eligible courses are:

Subject	Course Requirement
Arabic (ARAB)	400
Asian Studies (ASIA)	308, 341, 342, 347–352, 357–360, 364, 368, 398, 444, 447, 457, 460, 464
Central, Eastern, and Northern European Studies	202, 303
Chinese (CHIN)	all 300- and 400-level literature courses except 300–302, 310–312, 330–332, 482
Classical Studies (CLST)	310, 313, 314, 315, 317, 318
Drama (DRAM)	200, 201, 300, 301, 400
English (ENGL)	all 200-, 300- and 400-level literature courses, except 229, 301–340, 352, 399, 408, 409, 412, 419
French (FREN)	220, 221, 300, 320, 321, 330, 348, 349, 400, 403, and all 400-level literature courses except 402, 426, 427, 499
German (GERM)	301, 302, all 300- and 400-level literature courses
Greek (GREK)	all 300- and 400-level literature courses
Hindi-Urdu (HINU)	400
Italian (ITAL)	all Italian 300- and 400-level literature courses except 499
Italian Studies (ITST)	231, 232, and all 400-level literature courses
Japanese (JAPN)	all 300- and 400-level courses except 300–303, 310, 315, 410, 411, 416, 417, 420, 421, 440
Korean (KORN)	410
Latin (LATN)	all 300- and 400-level literature courses
Medieval Studies (MDVL)	301, 302
Philosophy (PHIL)	375
Religion, Literature and the Arts (RGLA)	371, 372, 471
Religious studies (RELG)	202, 311
Romance Studies	220, 420
Russian (RUSS)	206, 207, 305, 306, 407–412
Sanskrit (SANS)	300 ²
Scandinavian (SCAN)	411–414
Slavic Studies (SLAV)	307
South Asian Languages (SOAL)	440

Subject (Continued)	Course Requirement
Spanish (SPAN)	220, 312; all 300- and 400-level literature courses except 449
Theatre (THTR)	245
Women's Studies (WMST)	224

¹ Prerequisites for 300- and 400-level English courses are 6 credits of first-year English and third-year standing.

² With the permission of the Department of Asian Studies.

PROGRAM REQUIREMENTS

Students are advised to plan their 100- and 200-level courses with their entire program in mind, although they formally declare their specific program of study only on completion of at least 54 (and not more than 75) credits.

Students in their first 30 credits of university-level study may register in any 100-level Arts or Science course for which they have the appropriate prerequisite. In addition, there are a limited number of 200- and higher-level Arts courses for which they may be eligible.

Students seeking entry into 200-level (or in exceptional cases 300-level) language courses should consult the appropriate department for placement.

Students granted advanced credit or advanced placement may register in appropriate courses numbered 200 to 299 in the subjects in which they have received such credit/placement.

Students accepted into Creative Writing (CRWR) 202 with written permission from the Department of Creative Writing may include that course in their first 30 credits.

Students registered in their second 30 credits (31 to 60 credits in total) may take up to 6 credits of 300-level courses for which they have the appropriate prerequisites. For restrictions, see below.

Students who have completed 60 credits may register in any course for which they have the appropriate prerequisites. For restrictions, see below.

Students must complete at least 120 Arts-acceptable credits for the degree.

The following courses are acceptable for credit toward the Bachelor of Arts:

- all courses in the Faculties of Arts and Science;
- all B.A.Sc. courses for students enrolled in the Combined B.A./B.A.Sc. degree program. Only 18 credits of Applied Science courses may be counted towards the B.A. if a student drops out of the Combined B.A./B.A.Sc. program;
- all courses in music history, music theory, ethnomusicology, or music composition and a maximum of eight credits from the ensemble courses in musical performance;
- all courses designated Family Studies (FMST); and
- 18 credits in courses outside Arts and Sciences, other than those specified above.

In the 120 credits required and acceptable for the degree, there may be:

- no more than 72 credits in courses at the 100 and 200 level; and
- no more than two courses at the 500 level (a maximum of eight credits). For further information on enrolment in graduate courses, see *Enrolment in Graduate Courses*, p. 124.

After completing at least 54 credits and no more than 75 credits, students must enter one of the following programs listed below.

Depending on the program chosen they must make application to do so, or identify their program using the Student Service Centre (www.students.ubc.ca/ssc). Refer below, under individual programs, for those requiring formal application, and the procedures to be followed in applying for them.

- **Major program.** This program involves specialization in a single field of study. It may lead to graduate study if a sufficiently high average is obtained.
- **Combined Major program.** This program combines courses from two distinct fields of study into a single major. A Combined major introduces students to the core methodologies of two complementary disciplines and offers opportunities for the development of significant substantive knowledge in each of them. This program is intended to encourage students to work across the boundaries of cognate disciplines and to date is available only in the following combinations: Economics and Mathematics, Economics and Philosophy, Economics and Political Science, and Economics and Statistics. Further details regarding each of these Combined Majors may be found under the relevant subject listings.
- **Double Major program.** This program involves specialization in two fields of study. It is an ambitious program allowing a dual focus with few electives outside the subjects of the Major.
- **Honours program.** This program involves intense specialization in a single field of study. It is the preferred route to graduate study in many fields. Entry requires high academic standing.
- **Combined Honours program.** This program involves intense specialization in two fields of study. Entry requires high academic standing.
- **Double Major in Arts and Science.** This program involves specialization in one Arts field of study and one Science field of study. It is an ambitious program, which requires careful planning; students are advised to see an Arts advisor as early as possible to ensure that they are choosing the correct courses in first and second year.
- **Interdisciplinary Studies program.** This program permits a student to select courses that will provide a broad liberal education, encompassing several disciplines with a limited concentration in one discipline. See *B.A. Program in Interdisciplinary Studies*, p. 138.

All students must draw up a plan of study and consult the relevant departmental or program advisor(s) on entering a Major, Double Major, Honours, or Interdisciplinary Studies Program. The Honours or Major programs can be combined with a Minor. Further consultation with an advisor is recommended on completion of 90 credits toward the Bachelor of Arts. Students must, however, recognize their responsibility for ensuring that they meet all Faculty and program requirements.

Major Program

To graduate with a Major, a student must include in the 120 credits required for the degree at least 42 credits but no more than 60 credits in one subject (discipline) or field of specialization. At least 30 of these credits must be in courses numbered 300 or above. Students may graduate with a Major in Creative Writing on completion of 36 credits in that discipline, provided all are numbered 300 or above.

For the purposes of this regulation, subjects (disciplines) are defined by their course titles. Fields of specialization (such as International Relations, Women's Studies, or Canadian Studies) are defined by the courses specified under these fields. When departmental regulations allow credit for a course (or courses) numbered 300 or above in other departments as part of the Major (or other) program, such courses must always be counted as credits toward that Major (or other) program if completed by students in that program.

Cross-listed courses (indicated in Course Descriptions (www.students.ubc.ca/calendar/courses.cfm) as "Equivalent: xxx", e.g., ARTH 351/RELG 341) must be counted in the 60-credit limit if the student is a Major in either department.

Combined Major Program

To graduate with a Combined Major, a student must include in the 120 credits required for the degree at least 60 credits but not more than 72 credits from the two subjects (disciplines) or fields of specialization involved in the Combined Major program. These credits must satisfy the following requirements:

- 1) at least 30 of these credits must come from each of the two subjects (disciplines) or fields of specialization involved;
- 2) at least 36 of these credits, including at least 18 from each of the two subjects (disciplines) or fields of specialization, must be in courses numbered 300 or above (this requirement differs for the Economics and Mathematics Combined Major program); and
- 3) these credits must satisfy the Combined Major Program requirements as set out by the appropriate departments. The general definitions of subjects and cross-listed courses in the Major apply to the Combined Major (see *Major Program*, p. 123, above). Cross-listed courses must be counted in the 72-credit limit if the Combined Major includes either department.

Double Major Program

To graduate with a Double Major, a student must include in the 120 credits required for the degree at least 42 credits (and no more than 48 credits) in each of two subjects (disciplines) or fields of specialization. At least 30 credits in each subject/field must be in courses numbered 300 or above.

The general provisions regarding the definition of subjects, cross-listed courses, and courses outside the Faculties of Arts and Science in the Major apply to Double Major programs (see *Major Program*, p. 123).

Double Major Program in Arts and Science

To graduate with a Double Major in Arts and Science, students must complete the requirements of a Major in Arts and a Major in Science. The Double Major in Arts and Science program will normally require the completion of more than 120 credits. Students must complete at least 42 and no more than 48 credits in the Arts Major and follow the rules of the Faculty of Science to complete their Major in Science. A Science Major is normally declared in second year. Students in the following B.A. Major programs may not complete a B.Sc. major in the same subject area: Geography, Mathematics, Combined Major in Mathematics and Economics, Psychology.

Honours Program

To graduate with an Honours degree, a student must complete at least 60 but no more than 72 credits in one subject (discipline) or field of specialization. At least 48 of these credits must be in courses numbered 300 or above, and at least 54 of the total required credits must be in courses numbered 300 or above. Departments (and some individual programs) may require more than 120 credits for the completion of an Honours degree.

Honours programs are open only to students who, in the opinion of the department, have shown special aptitude and capacity to profit from working intensively in the subject or field. An average of at least 68% on all credits attempted is required for entry into and graduation from Honours programs; some departments may have more stringent requirements, or require higher marks on certain courses. Departments may also require students to maintain a specified average in order to continue in an Honours program.

Combined Honours Program

Students who wish to pursue a course of study combining more than one Honours program may do so with written approval, from both departments and Academic Advising Services, of a program of study specified in advance. Approval should normally be obtained before completion of the first 60 credits toward the Bachelor of Arts. Such programs almost invariably require completion of more than 120 credits.

Minor Programs

Students in a Major program may construct their program to include a Minor in a subject (discipline) or field of specialization other than the Major. To complete a Minor, a student must include in the 120 credits required for the degree at least 30 credits and no more than 42 credits in a single subject or field of specialization other than that of the Major, including any courses specified as required for a Minor in the discipline or field of specialization. At least 18 of these credits must be in courses numbered 300 or above. Some Interdisciplinary Minors are defined as 18 to 21 credits in specified courses numbered 300 or above, and their prerequisites.

At least 24 of the 120 credits required for the degree must be in subjects or fields other than those of the Major and Minor.

The general provisions regarding the definition of subjects and cross-listed courses in the Major apply to the Minor (see *Major Program*, p. 123, above). Only courses in the Faculties of Arts and Science can be credited toward the Minor.

Students registered in other degree programs may apply to have completion of the requirements for a Minor in the Faculty of Arts noted on their transcript. Students are encouraged to consult an advisor in their faculty and see a departmental advisor in Arts, preferably before taking the necessary courses.

Students who wish to pursue an Honours program together with a Minor must meet all the requirements for the Honours program as well as all the requirements for a Minor program (i.e., at least 30 credits in a subject or field of specialization other than that of the Honours program) of which at least 18 credits must be in courses numbered 300 or above. At least 24 credits must be in subjects or fields other than those of the Honours and Minor. The combination of an Honours and Minor program almost invariably requires completion of more than 120 credits.

MINOR IN COMMERCE

Enrolment in this program is strictly limited. An application for admission can be obtained from the Arts Academic Advising Services Website (advising.arts.ubc.ca). The completed form must be returned by May 31. At the time of application, students must be eligible for third-year standing in the Faculty of Arts with a cumulative average of at least 68% in the previous two years. Meeting the stated minimum requirements does not guarantee admission into the Minor.

The Minor in Commerce consists of the following courses: ECON 310 (3), 311 (3), COMM 457 (3), COMM 493 (3), and two of the following courses: COMM 329, 458, 465 and 473. Students who have completed ECON 101 must use this course in lieu of ECON 310. Students who have completed ECON 102 must use this course in lieu of ECON 311. Upon admission to, and successful completion of, this Minor program, the notation 'Minor in Commerce' will be placed on the student's transcript.

MINOR IN HEALTH AND SOCIETY

Students wishing to study a range of courses relating to Health and Society (heso.arts.ubc.ca) may do so by taking a Minor in this area as part of their B.A. program. The Health and Society Minor Coordinating Committee maintains a list of courses approved for the Minor. Students wishing to take the Minor must have their course selection approved by the Committee, which may be contacted through Arts Academic Advising. A knowledge of statistics may be useful for some students in this Minor, but it is not mandatory.

First and Second Years

Students take 12 credits of approved courses, including IHHS 200 (3), which may be taken in third year as a co-requisite for the Minor. Students may not count junior courses that are prerequisites for their majors in these 12 credits without permission. Students must ensure that they have prerequisites for any senior course they plan to take in their third and fourth years.

Third and Fourth years

Students take 18 credits of approved courses, including HESO 400 (3).

MINOR IN SCIENCE

Arts students can also take a Minor in Science. An acceptable program must comprise courses recognized in the Faculty of Science that are for credit toward a Bachelor of Science and consist of at least 18 credits numbered 300 or higher in a single subject or field of specialization, together with any necessary prerequisites. Students should design a coherent and academically sound course of studies for their proposed Minor, which must be approved by a senior advisor in Faculty of Arts Advising Services at the beginning of the second year. All courses must be acceptable for a Science Major in the proposed subject area or field. The following restrictions apply:

- B.A. Geography majors may not minor in any one of the following disciplines: Geography, Geology, Geophysics, or Oceanography;
- B.A. Mathematics majors may not minor in B.Sc. Mathematics; and
- B.A. Psychology majors may not minor in B.Sc. Psychology.

Double-Counting

Students enrolled in a combined program (e.g., Double Majors, Major/Minor, or Honours/Minor) are allowed to double-count courses (i.e., count one course to fill area requirements in both areas of specialization). Thus ENGL 340 can fill area requirements for both Medieval Studies and English, or ASIA 308 for both Asian Studies and Religion and Literature. Double-counting cannot be used for credit requirements. In order to graduate, Double Majors students must have 60 upper-level credits, Major/Minor students must have 48 upper-level credits, Honours/Minor students must have 66, and that number of credits cannot be arrived at by double-counting. Students may double-count a maximum of 6 credits toward a program with a minor and a maximum of 9 credits for a double major program.

Enrolment in Graduate Courses

Outstanding students in their fourth year may apply to the Faculty of Graduate Studies to register in two courses (or a maximum of 8 credits) at the 500-level toward the Bachelor of Arts. Students must receive the permission of the course instructor, Arts Academic Advising, and Graduate Studies. Normally such permission will be given only to students in an Honours program who have completed 75% of their 300- and 400-level requirements with a minimum overall average of 80%.

Summary

The table below, “Summary of Program Requirements”, summarizes the minimum credits required for the various programs described above.

As some departments require more than the minimum 120 credits for the Honours degree, students should read carefully the individual program descriptions on the pages that follow.

FIRST YEAR PROGRAMS

The Faculty of Arts offers three first-year enrolment options for students entering UBC directly from secondary school:

- 1) Arts One. An 18-credit, integrated, team-taught program focused on a general theme of concern within the humanities. Themes vary by year.
- 2) Foundations. A 24-credit integrated academic program focusing on broad interdisciplinary perspectives and research approaches in the Humanities, Social Sciences, and Creative and Performing Arts.
- 3) Standard Program. Individually designed programs chosen by students to meet the Degree requirements while also permitting exploration of specific courses.

Arts One Program

Students entering the first year may enrol in Arts One, an 18-credit program of liberal education. Arts One is organized in teaching groups, each consisting of a maximum of 100 students and five faculty members from various University departments, who address a theme of basic human concern. The theme is approached through the study of major works in their historical context, and the aim of the curriculum is to provide a coherent program of study. The impact of the program, made possible by the ratio of one faculty member for every five students, comes through weekly lectures, twice weekly seminars of 20 students, and weekly tutorials of four which focus on

student writing. A sense of membership in a community of learners is created through use of the Arts One Building, located near the centre of the campus.

Arts One satisfies the Faculty of Arts requirement for *first-year English*, p. 120, and departmental requirements for first-year History and Philosophy.

On successful completion of Arts One and additional courses equivalent to 12 credits, students receive second-year standing in the University.

Students who enrol in Arts One are expected to remain in the program for the complete session, but they may drop it without penalty during the period officially allowed for course changes.

For detailed information see the Arts One website (www.arts.ubc.ca/arts1), or contact our office. Email: artstone@interchange.ubc.ca; telephone: 604-822-3430.

Foundations Program

The Foundations Program offers first-year students an enriched, cross-disciplinary introduction to university life and to the themes of the Faculty of Arts, including the humanities, the social sciences, and the fine and performing arts. It provides a supportive and challenging learning environment directed by faculty members of proven scholarly and teaching excellence. Students spend equal time in lectures and in seminars. The teaching of good writing and critical thinking is a primary goal of the Program.

The setting for an effective learning community is provided by the new Foundations Commons, which contains seminar rooms, a faculty-student lounge, and a study area for students in the Program.

The curriculum contains three broad, 8-credit courses: FDNS 101, Routes to the 21st Century; FDNS 102, Knowledge Bases; and FDNS 103, Approaches to Social Understanding. Each is team-taught by three faculty members from different departments or specialties. Each course has a weekly two-hour lecture and two-hour seminars. The Foundations experience centers upon small seminar groups, each having a maximum of 20 students.

Full-time students in the Program must ordinarily take all three courses. Students whose intended major programs require more than 6 credits of first-year electives may, with the permission of the Director, postpone one Foundations course to their second year. Part-time students may postpone one course to their subsequent year. Registration involves no special

Summary of Program Requirements for B.A.*

	Major	Major+ Minor	Double Major	Honours	Combined Major
Total Credits	120	120	120	120	120
of which courses 300+	48	48	60	54	48
Total within specialty(ies)	42	42+30	42+42	60	30+30
of which courses 300+	30	30+18	30+30	48	18+18
Total outside specialty(ies)	60	24	24	48	48

* B.A. (COGS) and all specialties in the B.F.A. require different credit numbers in the specialty (see specialty descriptions).

procedures for those taking all three courses; those intending to postpone a course must contact the Foundations office before their assigned registration time. During the initial period in which course changes are allowed, students may not drop a Foundations course unless they are dropping the Program.

Upon completion of the Foundations Program students are granted equivalency credits in a number of Arts degree programs. Completion of 16 Foundations credits satisfies the *first-year English requirement*, p. 120, in Arts. Second-year standing is obtained upon completion of the 24 Foundation credits and 6 additional elective credits.

For detailed information, see the Foundations website (foundations.arts.ubc.ca) or contact the Foundations Office (arts.foundations@ubc.ca); telephone: 604-822-0217.

DUAL DEGREE PROGRAM IN ARTS AND APPLIED SCIENCE

This Program offers capable students the opportunity to earn a Bachelor of Arts and a Bachelor of Applied Science degree in five years of study, in most combinations of one Arts degree program and one Engineering degree program. A Board of Studies administers and oversees admission to the Program. Please contact Arts Academic Advising Services or Applied Science for more information.

Admission

Application for admission to the Program is made to the Board of Studies through either Arts Advising Services or Engineering Student Services. Applicants may be registered in either Faculty but must be admissible to the other Faculty at the time of admission to the program. Acceptance into the Program will be determined based on a review of the applicant's transcript, an interview, and a review of a portfolio or other such material that the applicant wishes to submit. Normally, application for admission will be made immediately upon acceptance into either Faculty. Admission to the Program at a later date is also possible but may imply a longer time to complete the Program.

Requirements

Students must satisfy all of the program requirements for both the Bachelor of Arts and Bachelor of Applied Science degrees in their chosen programs. Individual courses may be considered to satisfy program requirements for both degrees. Courses taken within the Faculty of Applied Science will have the same standing as courses taken within the Faculty of Science for the purpose of satisfying requirements for a Bachelor of Arts for students enrolled in this program. Where possible, students should meet with an advisor from the Board of Studies prior to enrolling in their first year of courses.

AFRICAN STUDIES

Minor in African Studies

African Studies offers an interdisciplinary approach to the study of Africa, as well as the African diaspora. The African Studies Coordinating Committee maintains a list of approved courses available for credit toward the Minor. This list changes annually. Students registered in the Minor must have their course selection approved by a member of the Coordinating Committee. A detailed description of the program, the approved list of courses, the names of advisors and affiliated faculty, and other information may be obtained from the AFST Coordinating Committee. Contact the Arts Advising Office 604-822-4028 for the name, telephone number, and email address for the Chair of the AFST Coordinating Committee, or link to the AFST website through the Arts Website (www.arts.ubc.ca/Departments_Schools_Programs.260.0.html).

FIRST AND SECOND YEARS
Students take 12 credits formally approved by the Coordinating Committee.

THIRD AND FOURTH YEARS
Students take 18 credits of 300- and 400-level courses, including at least 3 credits of AFST 350 and electives from the approved list.

ANTHROPOLOGY

The Department of Anthropology and Sociology offers programs of study that lead to the degrees of Doctor of Philosophy, Master of Arts, and Bachelor of Arts. For information on graduate programs, see *Anthropology*, p. 231, in the Graduate Studies section. See also *Museum Studies*, p. 144. The Department also collaborates with Canadian Studies, Classical Studies, First Nations Languages, First Nations Studies, International Relations, Latin American Studies, Linguistics, and Science Studies. For details about current offerings, consult the departmental website (www.anso.ubc.ca).

Major in Anthropology

A total of 42 credits (but no more than 60 credits) within Anthropology and Sociology, at least 30 credits of which must be numbered 300 or higher. All students considering the Major in Anthropology are encouraged to meet with the Anthropology undergraduate advisor prior to enrolling in the program and periodically during their third and fourth years.

FIRST AND SECOND YEARS
ANTH 100; ANTH 103 and/or 140; ANTH 200; 3 credits chosen from other Anthropology courses at the 200 level.

THIRD AND FOURTH YEARS
At least 30 credits in Anthropology and Sociology, including:

Group A

- 1) ANTH 300 and 400
- 2) At least 3 credits from courses in each of the following groups:
 - (a) Methodology – ANTH 305, 317 or 417, 407, 431
 - (b) Archaeology and Physical Anthropology – ANTH 318–326.

- (b) Archaeology and Physical Anthropology – ANTH 318–326.

Group B

- 1) 6 credits from the following ethnographic area courses: ANTH 302–304, 315, 350–353, 401–403, 404, 416.

Three primary areas of concentration are possible within the Anthropology Major: Archaeology, Museum Studies, and Socio-Cultural Anthropology. Students should consult with a departmental advisor to select courses that are most appropriate to their preferred concentration.

A course in statistics, such as STAT 200 or 203, is also recommended as part of the Major and Honours program in Anthropology.

Honours in Anthropology

A total of 60 credits (but not more than 72 credits) in Anthropology and Sociology, at least 48 of which must be numbered 300 or higher. All students considering the Honours program in Anthropology are encouraged to seek advising with the Anthropology undergraduate advisor prior to enrolling in the program and periodically during their third and fourth years.

ADMISSION TO THIRD YEAR

Admission to third year requires a high 'B' average in first and second years and credit for ANTH 100, ANTH 103 and/or 140, ANTH 200, and 3 credits chosen from other Anthropology courses at the 200 level.

ADMISSION OR CONTINUATION TO FOURTH YEAR

At least 48 credits in Anthropology and Sociology, including:

Group A

- 1) ANTH 300 and 400
- 2) At least 3 credits from courses in each of the following areas:
 - (a) Methodology – ANTH 305, 317 or 417, 407, 431
 - (b) Archaeology and Physical Anthropology – ANTH 318–326.

Group B

- 1) 6 credits from the following ethnographic area courses: ANTH 302–304, 315, 350–353, 401–403, 404, 416.

Three primary areas of concentration are possible within the Anthropology Honours program: Archaeology, Museum Studies, and Socio-Cultural Anthropology. Students should consult with a departmental advisor to select courses that are most appropriate to their preferred concentration.

A course in statistics, such as STAT 200 or 203, is also recommended as part of the Major and Honours program in Anthropology.

Minor

All students considering the Minor in Anthropology are encouraged to seek advising with the Anthropology undergraduate advisor prior to enrolling in the program.

FIRST TO FOURTH YEARS

At least 30 credits (but no more than 42 credits) in Anthropology and Sociology including ANTH 100. At least 18 of these credits should be at the 300 level or above, including at least 3 credits from Group A and at least 3 credits from Group B below:

Group A

Any courses from Group A of the Anthropology Major (see third- and fourth-year requirements under *Major in Anthropology*, p. 125).

Group B

Any courses in the ethnographic areas list (see third- and fourth-year requirements under *Major in Anthropology*, p. 125.)

Undergraduate Courses

ANTH 100, 103, 140, 201, 202, 204, 205, 206, 213, 214, 215, 217, 218, 220, 221, 222, 225, 231, 232, and 329 are general courses open to all students. ANTH 329 cannot be taken for credit in the Major or Honours program.

Other courses listed in Course Descriptions (www.students.ubc.ca/calendar/courses.cfm) under "ANTH" are intended primarily for students in the Major and Honours programs. Except for ANTH 449, these are open to non-Majors and students in the General B.A. Program with appropriate prerequisites or permission of the instructor.

ANTH 100 is a prerequisite to all courses in the Department except those described above as "general", unless specific permission of a departmental advisor is obtained.

First Nations

Students who wish to concentrate in the study of First Nations and cultures may choose from among the following courses beginning in the second year: ANTH 220, 221, 222, 231, 232, 304, 321, 329, 401, 411, 420.

The following courses also regularly include material relating to indigenous cultures: ANTH 331, 332, 341, 407, 408, 424; ARTH 261, 262, 376, 377, 469; HIST 302, 427, 475.

ARABIC

See *Religious Studies*, p. 148.

ARCHAEOLOGY

Students may emphasize archaeology both at the undergraduate and graduate levels by selecting courses offered in a number of departments, especially the Departments of Anthropology and Sociology, Art History, Visual Art, and Theory; and Classical, Near Eastern, and Religious Studies. In each case, a Major or Honours program can be developed with an emphasis on archaeology. The University is strong in areas complementary to archaeology, such as ethnology, ecology, geography, geology, metallurgy, biology, and quantitative methods; and students are urged to begin courses in these fields at an early date. They are encouraged to acquire a broad knowledge of different geographical areas, techniques, and theories. Several possibilities are listed below under

Course Descriptions (www.students.ubc.ca/calendar/courses.cfm) and *Courses Which are Ancillary to Archaeology*, p. 126.

Within the Department of Anthropology and Sociology, the focus is on anthropological archaeology, cultural ecology, the economic patterns of hunters and gatherers and agriculturists, and the nature of complex societies.

Instruction covers field techniques, analysis, and the study of various culture areas (such as Western North America, Mesoamerica, and East Asia) and includes a local field school. The Laboratory of Archaeology located in the *Museum of Anthropology*, p. 69, building offers extensive archaeological facilities and houses collections from various parts of the world.

Classical Archaeology, p. 129, in the Department of Classical, Near Eastern, and Religious Studies covers the art and cultural history of the Greek and Roman world from the Bronze Age to the founding of Constantinople. Though primarily descriptive, courses include a certain amount of archaeological material and method, and discussion of relevant social and historical processes. Some attention is paid also to ancillary disciplines such as epigraphy and numismatics. Field experience is acquired through a summer practicum on a classical site in Europe. There is a small teaching collection in the Museum of Anthropology.

The Department of Earth and Ocean Sciences offers several courses that may prove of value to the student of archaeology, particularly in the fields of mineralogy and the analysis of materials.

The Department of Art History, Visual Art, and Theory offers a number of courses at the undergraduate and graduate level that depend to a greater or lesser extent on material deriving from archaeological work; these courses are concerned with archaeological interpretations and may be of great value to students specializing in archaeology.

The Department of Geography offers courses of value to the archaeologist in a variety of fields. Students can undertake combined programs with Anthropology in the fields of subsistence and cultural ecology.

The Department of History offers various courses on cultural history relevant to those working in archaeology. The Department also offers an introductory course in historical archaeology that concentrates on material culture in the period of written records, with an emphasis on North America.

Courses in biology, botany, and zoology that deal with the basic structures and functions of the plants and animals found in archaeological sites are also listed below.

Courses

ANTH 103, 231, 232, 305, 306, 318, 319, 321, 322, 323, 406, 410, 411, 420, 424, 510, 517, 520, 527

CLST 204, 306, 330, 335, 429, 430, 431, 501, 502, 503, 504, 505, 506, 508, 509, 510, 511, 512, 513, 514, 518, 519

HIST 205

RELG 300¹, 306, 341²

Courses Ancillary to Archaeology

ANTH 140, 225, 325, 360, 431, 451, 452
ARTH 251, 261, 262, 330, 331, 332, 333, 352, 353, 358, 359, 364, 365, 370, 371, 372, 373, 376, 377

BIOL 204, 205, 209, 210, 324, 343, 412, 421

EOSC 220, 221, 222, 320, 425

GEOG 101, 207, 308, 315, 317, 318, 329, 370, 372, 373, 422, 472, 495

¹ Also listed as ARTH 327.

² Also listed as ARTH 351.

ARCHAEOLOGY (CLASSICAL STUDIES)

See "Classical Studies" for information on *Archaeology and History of Greece, Rome, and the Near East*, p. 129.

ART HISTORY, VISUAL ART, AND THEORY

The Department of Art History, Visual Art, and Theory (www.finearts.ubc.ca) offers programs of study that lead to the Doctor of Philosophy, Master of Arts, Master of Fine Arts, Bachelor of Arts, Bachelor of Fine Arts, and the Diploma in Art History. These programs have one common goal: the development of critical approaches to visual art. They may be pursued for general educational purposes or for professional activity in the field.

In Art History, the Department offers a Bachelor of Arts (Major and Honours), Master of Arts, and Doctor of Philosophy, and a Minor in Art History. The Diploma in Art History is available for students who have a first degree in another discipline and who wish a foundation in art history equivalent to the undergraduate Major. See *Diploma in Art History*, p. 155.

In Visual Art, the Department offers a Bachelor of Arts, Bachelor of Fine Arts (Major and Honours), Master of Fine Arts, and the Minor in Visual Arts. The B.A. is available for those intending to pursue a post-graduate program in secondary education, but it is also often taken by those with other career goals. The B.F.A. program is a focused program in Visual Art. While it is particularly designed for students who contemplate a career in the Arts, it is also well suited to students who seek a liberal education via the practice of art and study of art within a lively academic setting. See *Bachelor of Fine Arts*, p. 152.

Formerly Fine Arts (FINA), the Department of Art History, Visual Arts, and Theory courses are now listed under ARTH and VISA. Brochures that introduce art history and studio goals, programs, and courses are available from the Department. For information on graduate programs, see *Art History, Visual Art, and Theory*, p. 233, in the Graduate Studies section.

Major in Art History

FIRST AND SECOND YEARS

Students take any 12 credits in ARTH. Students may count 6 credits of VISA towards these 12 credits. Students enter the Major program in the third year.

THIRD AND FOURTH YEARS

The minimum requirements for the Major in the third and fourth years are as follows:

- ARTH 300 (3) Seminar in theory and approaches to Art History;
- 15 credits of Art History courses numbered 300 or above in one of the following three areas: Western art and architecture, Indigenous art of the Americas, or Asian art;
- 3 credits in Art History courses numbered 300 or above in each of the two areas not selected for concentration;
- 3 credits in a 400-level Art History seminar.

All of these courses must be at the 300 level or above.

The B.A. student is allowed a maximum of 60 and a minimum of 42 credits in ARTH over the four years of the program. The minimum credits of upper-level ARTH courses in the third and fourth years is 30 and the maximum is 48.

Students may take a 6-credit visual art course as an elective within the maximum of 60 credits in ARTH allowed for a BA program.

No more than 6 credits of cross-listed courses (indicated in Course Descriptions in the UBC Calendar as “Equivalent: xxx”, i.e. ARTH 329/CLST 330) offered by other departments, excepting ARTH 329 (Classical Studies CLST 330), may be counted toward the minimum requirements for the Major.

Cross-listed courses, even though they may be taken under the department offering the course, must be counted in the 60-credit limit of ARTH courses if the student is a Major in either department.

Honours in Art History

Students entering the Honours Program in the third year, like those in the Major program, will be expected to have previously completed 12 credits in Art History courses, of which at least 6 credits must be in art history. It is normally expected that the Honours students will have a high B average in all first- and second-year course work and a minimum A- average in art history courses. If the same minimum average is not maintained in third-year art history courses, the student will be advised to revert to the Major program.

THIRD AND FOURTH YEARS

The Honours program is the same as the Major program with two additional requirements:

- 12 additional upper-level credits in art history;
- the Honours Essay (ARTH 499, 6 credits).

Completion of these additional requirements will give the honours student a total of a minimum of 48 credits in art history over the third and fourth years.

Minor in Art History

The Minor in Art History follows the general regulations for minor programs established by the Faculty of Arts.

To complete a minor in Art History, the student must take at least 30 credits and no more than 42 credits in this field of specialization. At least 18 of these credits must be in courses numbered 300 or above.

See *Faculty of Arts Minor Programs*, p. 123.

Major and Minor in Visual Art

See *Visual Art*, p. 151.

ARTS STUDIES

The Faculty of Arts offers special topics and interdisciplinary courses for upper-division students in the Faculty of Arts, and two second-year level courses in the *UBC-Ritsumeikan Joint Program*, p. 444.

- Distinguished Visitors (ASTU 401) (3–6). Special topics course offered by distinguished visitors in the Faculty of Arts. Topics announced annually.
- Interdisciplinary Studies in Arts (ASTU 400). The Faculty of Arts offers interdisciplinary courses taught by Faculty members from two or more departments. These courses appear cross-listed under the relevant departments. Topics announced annually.
- UBC-Ritsumeikan Joint Program (ASTU 201, ASTU 202). These two courses explore the relations between, and compare facets of, Canadian and Japanese societies. Offered as part of a joint academic program with Ritsumeikan University in Kyoto, they are taught jointly by UBC and Ritsumeikan faculty members, and normally include students from both universities.

Descriptions of these courses can be found under Arts Studies (ASTU) in Course Descriptions (www.students.ubc.ca/calendar/courses.cfm). Further details are available from the relevant departments, from the director of the UBC-Ritsumeikan Joint Program (UBC-Ritsumeikan House), and from the senior Academic Advising Office (Buchanan A201).

ASIAN STUDIES

The Department of Asian Studies offers programs of study that lead to the degrees of Doctor of Philosophy, Master of Arts, and Bachelor of Arts. For information on graduate programs, see *Asian Studies*, p. 234, in the Graduate Studies section. The department also collaborates with Film Studies, International Relations, Linguistics, Museum Studies, Philosophy, Religion, Literature and the Arts, and Women's Studies. For current offerings, consult the departmental website (www.asia.ubc.ca).

The courses offered at the undergraduate level fall into two categories:

- 1) Courses on the contemporary and historical cultures of South, Southeast, and East Asia that do not require knowledge of an Asian language (these are listed under the heading Asian Studies); and

- 2) Courses in language, including advanced reading courses, that introduce the student to literary, philosophical, and historical works in their original language (these courses are listed under the specific language headings).

Courses in category 1 (see above) are open to all students in the Faculty of Arts. Courses in category 2 (see above) are designed to provide the essential training for those who wish to proceed to further scholarly studies in the field of Asian Studies at the graduate level. However, in the more elementary courses, language training at the appropriate level is also provided for those who wish to obtain some knowledge of Chinese, Indonesian, Japanese, Korean, or South Asian languages (Hindi, Punjabi, Sanskrit, Urdu) as part of their general education or with a view to later practical use.

Study of the necessary languages should begin as early as possible in a student's academic career. A good foundation in language studies is a prerequisite for admission to graduate studies. Those who do not have the necessary preparation when they apply will be asked to make up this deficiency. Credit is not normally given to graduate students for such preparatory work.

Major in Asian Area Studies

48 total credits of coursework on Asia are required, of which at least 30 credits must be from courses numbered 300 or above which focus on ASIA. Those 48 credits must include:

- ASIA 100 and 101;
- 6 credits from ASIA 200, 208, and 209;
- at least 12 credits of one language taught in the Department of Asian Studies;
- at least 6 credits from upper-division courses on Asia taught in one other department.

No more than 12 credits from courses taught in other departments can be applied to a major in Asian Area Studies. The following courses are pre-approved:

- ANTH 315(3/6), 402 (3/6), 410 (3/6)
- ARTH 358 (3), 359 (3), 360 (3), 361 (3), 364 (3), 365 (3), 366 (3), 367 (3)
- ECON 342 (3), 343 (3)
- FILM 338 (3)
- GEOG 380 (3)
- HIST 380 (6), 381 (6), 382 (6), 383 (6), 384 (6), 385 (6), 386 (6), 387 (3), 388 (3), 389 (6)
- PHIL 378 (3), 388 (3)
- POLI 321 (3/6), 322 (3), 323 (3/6), 324 (3/6), 330 (3), 331 (3), 365 (3/6), 368 (3)
- RELG 354 (6), 364 (3), 365 (3), 366 (3), 367 (3), 368 (3)
- SOCI 315 (3/6)

Other courses may be approved under advisement from the Department.

- At least 15 upper-division credits from courses offered in the Department of Asian Studies. No more than 6 of those credits can be from CHIN, HINU, INDO, JAPN, KORN, PUNJ, SANS, or SOAL courses.
- 3 credits from an ASIA course at the 400 level.

Those students who wish to major in Asian Area Studies will be required to have an average of at least 64% in the lower-division ASIA courses required for the major (ASIA 100, 101, and two of ASIA 200/208/209), as well as an overall average of at least 64% in the courses they took at UBC before they declared their major.

The Major does not allow for double-majoring within the Department. The Minor cannot be combined with the Major in Asian Area Studies.

Minor in Asian Area Studies

The Minor in Asian Area Studies requires:

- 12 credits of one Asian language at the appropriate level;
- 18 credits of upper-level ASIA courses. As many as 6 of these 18 units may be from courses on Asia taught in one other department.

The Minor cannot be combined with the Major in Asian Languages and Cultures.

Major in Asian Language and Culture

Students who wish to major in Asian Language and Culture must have an overall UBC average of at least 64% before they declare their major.

The major requires 42 credits, of which at least 30 must be from courses numbered 300 or above.

Those 42 credits must include:

- Between 12 and 18 credits of upper-division credit in one language taught in the Department of Asian Studies, which must include at least 6 credits at the 400 level (if Chinese is the language of specialization, CHIN 330 is required; in the case of South Asian languages, 12–18 credits of upper-level courses in Sanskrit-Hindi-Urdu or Sanskrit-Punjabi are required).
- Students with little or no prior knowledge of the language they wish to focus on may be required to earn up to 24 credits in that language before they take any 300 level language courses. However, they will still be required to earn 30 upper-division credits in addition to those 24 lower-division credits.
- Between 12 to 18 upper-division ASIA credits, of which at least 3 credits must be from an area beyond that of the language of specialization.
- 3 credits from a 400-level ASIA course.

No more than 6 credits of courses on Asia taught in other departments may be applied toward the requirements for an Asian Language and Culture major.

In order for students to advance from one level of classes in one language to the next level in

that same language, they must earn at least an average of 68% in the classes in that language at the level immediately below the level they wish to advance into. This would apply to all the students in our language classes, not just the language majors.

The Major does not allow for double-majoring within the Department. The Minor cannot be combined with the Major in Asian Languages and Culture.

Minor in Asian Languages and Culture

A total of 30 credits of coursework, as follows:

- 12 credits of coursework in one language taught in the Dept. of Asian Studies.
- 6 to 12 credits of the same language at the upper level.
- 6 to 12 credits of ASIA courses at the upper level, of which as many as 6 may be from courses on Asia taught in one other department.

The Minor cannot be combined with the Major in Asian Area Studies.

Visit the Department of Asian Studies Website (www.asia.ubc.ca) for more details.

Honours Program in Asian Studies

The Honours Program in Asian Studies requires the successful completion of 60 credits.

- 1) Included among the 48 upper-level credits, at least 12 credits must be in language, via study abroad at an approved UBC Exchange program (note: this option may require a fifth year of study); or
- 2) Included among the 48 upper-level credits, at least 6 credits of Classical Chinese or Japanese for students using one of these as the language of specialization; and, at least 6 additional credits of a fourth-year (400-level) content course on Asia.

Students who wish an honours degree in Asian Language and Culture must have an overall UBC average of at least 74.

CANADIAN STUDIES

The Canadian Studies Major program provides an opportunity for contact with the way disciplines in the humanities and social sciences have shaped understanding of Canada.

Students in the program will be required to take courses in each of five areas: culture, geography, history, politics and economics, and society. In their third year they will enrol in CDST 350. In their fourth year they will enrol in CDST 450, the Senior Seminar in Canadian Studies, to be taught by the distinguished Canadianist holding the Brenda and David McLean Chair in Canadian Studies.

Admission is by application; all applications must be accompanied by transcripts of the first and second year. The program must be approved by a Canadian Studies advisor. For further information please consult the Canadian Studies website (www.canadianstudies.ubc.ca). For enquiries, email (cdst@interchange.ubc.ca) the chair of the program.

Major in Canadian Studies

FIRST AND SECOND YEARS

First and second years of the program require that students complete all three of the following:

- 1) 6 credits of: CHIN 100, 101, 200, 201; either FREN 121 and FREN 122, or FREN 122 and FREN 123¹; FNLG 100 and/or FNLG 200; GERM 131; GREK 100, 200; HEBR 305, 405; HINU 102, 200; INDO 102, 200; ITAL 100, 101, 105, 200, 201; JAPN 100, 101, 102, 103, 104, 200, 201; KORN 102, 104, 200; LATN 100, 200; PORT 102, 202; PUNJ 102, 200, 205; RUSS 100, 101, 102, 200; SANS 102, 200; SCAN 302, 303; SOAL 100; SPAN 100, 105, 200, 205; UKRN 125, 225
- 2) ECON 101 (3) and 102 (3) or POLI 101² (3)
- 3) 6 credits (total) from the following courses: ANTH 201 (3/6), 220 (3), 221 (3), 222 (3); ECON 101² (3), 102² (3); ENGL 222 (3); GEOG 290 (3); HIST 135 (6); POLI 101² (3); SOCI 100 (6), 210³ (3/6); WMST 205 (3), 210 (3).

In planning the first and second years students should take into account the prerequisites for the 300- and 400-level courses they intend to take in subsequent years.

¹ Students intending to meet more than the minimum program requirements in French are advised to complete FREN 222 (3) and FREN 223 (3).

² Neither ECON 101, ECON 102 nor POLI 103 can be used to satisfy more than one of these requirements.

³ Students planning to take 300- and 400-level Sociology courses must complete SOCI 100.

THIRD AND FOURTH YEARS

In consultation with a Canadian Studies advisor, students will compose a program which includes:

- 1) CDST 350 (3/6). Prerequisite for CDST 450.
- 2) CDST 450 (3/6)
- 3) 6 credits of work in each of the five major areas of study which follow, for a total of 30 credits. Note: In special circumstances, and with the permission of the program chair, other courses may be substituted for those listed. Credit value is determined by the department offering the course.
 - Culture – ARTH/FINA 343 (3), 344 (3), 443 (3); ENGL 470 (3–12); FREN 335 (3/6), 403 (6)
 - Geography – GEOG 327 (3), 328 (3), 499 (3)
 - History – HIST 302 (6), 307 (6), 326 (6), 329 (6), 401 (6), 426 (6), 427 (3), 430 (6), 437 (6)
 - Politics and Economics – POLI 301 (3), 303 (3), 305 (3), 363 (3/6); ECON 336 (6)
 - Society – ANTH 329 (3/6); SOCI 310 (6), 410 (3/6).
- 4) Up to 15 credits from the following courses (unless already taken, and with care that all senior-level credits are fulfilled). The total number of upper-division courses in

any one discipline may not exceed 12. The amount of Canadian content in these courses may vary from year to year; please check with the instructor. Credit value is determined by the department offering the course.

- ANTH 304 (6), 321 (3), 329 (3/6), 331 (3/6), 332 (3/6), 420 (3/6)
- ARTH/FINA 343 (3), 344 (3), 348 (3), 349 (3), 376 (3), 377 (3), 443 (3), 448 (3), 469 (3)
- ECON 317 (3), 336 (6), 345 (6), 350 (3), 351 (3), 355 (3), 360 (3), 361 (3), 365 (3), 370 (3), 371 (3), 374 (3), 384 (3), 450 (3), 456 (3), 460 (3), 461 (3), 480 (3)
- ENGL 464 (3–12), 466 (3–12), 474 (3–12), 476 (3–12), 478 (3–12)
- FMST 320 (3), 440 (3)
- FILM 200 (3), 438 (3)
- FREN 330 (3/6), 335 (3/6), 403 (6), 419 (3/6), 422 (3–6), 430 (3/6)
- GEOG 317 (3), 327 (3), 328 (3), 353 (3), 363 (3), 426 (3), 428 (3), 450 (3), 468 (3), 497 (3), 499 (3)
- HIST 302 (6), 303 (6), 307 (6), 326 (6), 329 (6), 401 (6), 404 (6), 430 (6), 437 (6)
- LING 433 (3), 434 (3), 445 (3/6)
- MUSC 403E
- POLI 301 (3), 302 (3/6), 303 (3), 304 (3), 305 (3), 306 (3), 307 (3), 363 (3/6), 401 (3/6), 402 (3/6), 403 (3/6), 404 (3/6), 405 (3/6), 406 (3)
- RELG 312 (3), 420 (6)
- SOCI 310 (6), 360 (3/6), 361 (6), 410 (3/6), 420 (3/6), 425 (3/6), 470 (3/6)

Minor in Canadian Studies

The Minor is comprised of 12 credits (with no more than 6 credits in any one discipline) from ANTH 201, 220, 221, 222; ECON 101, 102; ENGL 222; FREN 121, 122, 123; GEOG 290; HIST 135; POLI 101; SOCI 100, 210; together with CDST 350, and a minimum of 15 additional upper-level credits from at least 3 of the five major areas of study listed above.

CENTRAL, EASTERN AND NORTHERN EUROPEAN STUDIES

The Department of Central, Eastern and Northern European Studies offers programs of study that lead to the degrees of Doctor of Philosophy, Master of Arts, and Bachelor of Arts in German. For information on graduate programs in German, see German (www.german.ubc.ca). For information on graduate programs in European studies, see *European Studies*, p. 249, in the Graduate Studies section.

The Department offers Honours, Major, and Minor programs in German, and a Minor in Russian Language. For Russian and Slavic Languages and Literature, and Slavic Area Studies, see the relevant sections below.

Courses are offered in German, Scandinavian (including Swedish and Danish), Slavic (including Russian and Polish), Modern European Studies, and Central, Eastern and Northern European Studies.

The Department also collaborates with Integrated Drama; Film Studies; Medieval Studies; Modern European Studies; Religion, Literature and the Arts; and Women's Studies.

Not all courses are given every year. For current offerings, consult the departmental website (www.german.ubc.ca).

The Department provides information on study and work opportunities in Europe for students interested in furthering their language skills and subject area knowledge. Students are encouraged to participate in UBC's exchange programs as a part of their program of study.

Major, Honours and Minor in German

See *German*, p. 136.

Minor in Russian

See *Russian and Slavic Languages and Literatures*, p. 149.

CHINESE

See *Asian Studies*, p. 127.

CLASSICAL STUDIES

The Department of Classical, Near Eastern and Religious Studies offers programs leading to the Bachelor of Arts in Classical Studies (including *Archaeology and History*, p. 129, and *Myth and Literature*, p. 130). For other Bachelor programs, see the listings for *Classics*, p. 130 (including Greek and Latin), *Near Eastern Studies*, p. 145, and *Religious Studies*, p. 148. For information on graduate programs, see *Classics*, p. 240, or *Religious Studies*, p. 277, in the Graduate Studies section. The Department also collaborates in programs offered by Archaeology; Art History, Visual Art and Theory; Drama; International Relations; Italian and Italian Studies; Medieval Studies; Modern European Studies; Museum Studies; Philosophy; Religion, Literature and the Arts; Science Studies; and Women's Studies.

Classical Studies courses are designed to investigate the life, literature, and thought of the Greek and Roman world of antiquity. Knowledge of Greek or Latin is not required for Classical Studies courses. CLST 305, 310, 313, 314, 317, 318, 330, and 331 may be taken in second year.

For details concerning current courses and programs, consult the departmental website (www.cnrs.ubc.ca).

Major in Classical Studies

FIRST AND SECOND YEARS
Students take 12 credits of Classical Studies courses.

THIRD AND FOURTH YEARS
Students take 30 credits of third- and fourth-year Classical Studies courses including CLST 310, 330, and 331. CLST 305 is recommended.

Those who wish to concentrate on art and archaeology should take CLST 335, 429, 430,

and 431; on literature, CLST 313, 314, 315, 317, and 318; on history, two or more of CLST 351, 352, 353, 354, 355, and 356. Greek or Latin courses numbered 300 or above may be substituted for 12 of the 30 credits of Classical Studies. Majors in Classical Studies may take 12 credits of 100- and 200-level Greek or Latin courses as part of their required 48 credits of upper-level Arts courses. LATN 200 or GREK 200, NEST 301, 302, 303, and 304, and PHIL 310 and 311 are accepted within the Classical Studies Major.

Honours in Classical Studies¹

FIRST AND SECOND YEARS
Students take 12 credits of Classical Studies and/or Latin and/or Greek with at least a 68% average, and the permission of the Department. Students are encouraged to take courses in the ancient languages.

THIRD AND FOURTH YEARS
Students take 48 credits of Classical Studies, including CLST 310, 330, 331, and 449.

Latin or Greek courses numbered above 200 may be substituted for 6 of the 48 credits of Classical Studies.

Students in the Classical Studies Honours program may take 12 credits of 100- and 200-level Greek or Latin courses as part of their required 54 credits of upper-level Arts courses.

¹ The Honours programs in Classical Studies and Classics may be combined with other disciplines (e.g., English, French, Hispanic and Italian Studies, and Religious Studies).

Minor in Classical Studies

30 credits of CLST, which may include up to 12 credits at the 100 or 200 level.

Major in Archaeology and History of Greece, Rome, and the Near East

Students take 42 credits which normally include the courses listed below.

FIRST AND SECOND YEARS
Students take 12 credits of Classical, Near Eastern, and Religious Studies.

THIRD AND FOURTH YEARS
Students take the following:

- 18 credits of required courses in Classical and Near Eastern Archaeology and Ancient History: CLST 330 and 331, NEST 302; plus
- 12 credits chosen from CLST 306 (3), 307 (3), 308 (3), 311 (3), 312 (3), 335 (6), 351 (3), 352 (3), 353 (3), 354 (3), 355 (3), 356 (3), 360 (3–12), 429 (3/6), 430 (3), 431 (3); RELG 306 (3), 314 (6), 315 (6), 340 (3), 341 (3/6), 407 (3); NEST 301 (3), 303 (3), 304 (3).

Honours in Archaeology and History of Greece, Rome, and the Near East

Students take 60 credits which normally include the courses listed below.

FIRST AND SECOND YEARS
Students take 12 credits of Classical Studies and/or Latin and/or Greek with at least a 68% average, and the permission of the Department.

Students are encouraged to take courses in the ancient languages.

THIRD AND FOURTH YEARS

Students take the following:

- 24 credits of required courses in Archaeology and History: NEST 302; CLST 330, 331; and the Honours Essay, CLST 449 or RELG 499 (each 6 credits only); plus
- 24 credits to be chosen from the list given above for the Major.

Minor in Archaeology and History of Greece, Rome, and the Near East

Students must obtain 6 (or 12) credits of CLST 100, CLST 204, or RELG 100 and 24 (or 18) credits of 300- or 400-level courses in Classical, Near Eastern, and Religious Studies including CLST 330 and 331, and NEST 302.

Major in Myth and Literature in Greece, Rome, and the Near East

42 credits which normally include:

FIRST AND SECOND YEARS

- 12 credits: CLST 100 (6) and RELG 202 (6).

THIRD AND FOURTH YEARS

- 12 credits of required courses in Myth, chosen from: CLST 305 (6), CNRS 370 (3), and RELG 304 (3); plus
- 18 credits chosen from: CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 315 (3), 317 (3), 318 (3); RELG 302 (3), 311 (3), 314 (6), 315 (6), 385 (3), 403 (3), 407 (3), 414 (3), 415 (3); CNRS 316 (6). GREK 200, LATN 200, or HEBR 405 can be counted for a maximum of 6 credits toward these 18 credits.

Honours in Myth and Literature in Greece, Rome, and the Near East

Students take 60 credits which normally include the courses listed below.

FIRST AND SECOND YEARS

Students take 12 credits, consisting of CLST 100 (6) and RELG 202 (6).

THIRD AND FOURTH YEARS

Students take the following:

- 18 credits of required courses in Myth chosen from:
CLST 305 (6), CNRS 370 (3), and RELG 304 (3), and either CLST 449 (6) or RELG 499 (6); plus
- 30 credits chosen from:
CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 315 (3), 317 (3), 318 (3), 336 (3); CNRS 316 (6); RELG 302 (3), 304 (3), 311 (3), 314 (6), 315 (6), 385 (3), 403 (3), 407 (3), 414 (3), 415 (3). GREK 200, LATN 200, or HEBR 405 can be counted for a maximum of six credits toward these 30 credits.

Minor in Myth and Literature in Greece, Rome, and the Near East

30 credits as follows:

- CLST 100 (6) and/or RELG 202 (6);
- CLST 305 (6);

- From 9 to 15 credits as required from:
CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 315 (3), 317 (3), 318 (3); CNRS 316 (6); RELG 302 (3), 311 (3), 314 (6), 315 (6), 385(3), 403 (3), 407 (3), 414 (3), 415 (3).

Near Eastern Studies

For information on the Major, Minor, and Honours programs in Near Eastern Studies see *Near Eastern Studies*, p. 145.

Religious Studies

For information on the Major, Minor, and Honours programs in Religious Studies see *Religious Studies*, p. 149.

CLASSICS

The Department of Classical, Near Eastern and Religious Studies offers programs in Classics leading to the Bachelor of Arts. For other Bachelor programs, see the listings for *Classical Studies*, p. 129, *Near Eastern Studies*, p. 145, and *Religious Studies*, p. 148. For information on graduate programs, see *Classics*, p. 240, or *Religious Studies*, p. 277, in the Graduate Studies section. For information on current offerings, see the departmental website (www.cnrs.ubc.ca). The Department also collaborates in programs offered by Archaeology; Art History, Visual Art and Theory; Drama; International Relations; Italian and Italian Studies; Medieval Studies; Modern European Studies; Museum Studies; Philosophy; Religion, Literature and the Arts; Science Studies; and Women's Studies.

Major in Classics

Students take 30 credits including at least 18 credits of Latin and/or Greek courses at 300-level and above, plus additional credits as necessary from Classical Studies courses at the 300-level and above, or HEBR 305.

Honours in Classics

Students take 48 credits including GREK 301 and LATN 301, at least 18 credits of Greek and Latin courses numbered 325 or above, plus additional credits as necessary from Classical Studies and Near Eastern courses at the 300-level and above, ARBC 300 or HEBR 305.

Minor in Greek

18 credits of GREK plus 12 further credits (in any combination) of GREK or LATN or CLST.

Minor in Latin

18 credits of LATN plus 12 further credits (in any combination) of LATN or GREK or CLST.

COGNITIVE SYSTEMS

The Cognitive Systems (COGS) Major program provides B.Sc. and B.A. degrees in Cognitive Systems through interdisciplinary investigation of mental functioning in humans, other animals, and artificial systems from the perspective of one of the following three disciplinary streams:

- 1) Cognition and the Brain (B.Sc. or B.A., supervised by Psychology); or

- 2) Language (B.A. only, supervised by Linguistics); or
- 3) Computational Intelligence and Design (B.Sc. only, supervised by Computer Science).

Cognitive Systems includes the study of the nature of intelligence, perception, learning, memory, knowledge, meaning, reasoning, language, attention, affect, consciousness, and the control of action. Students registered in the Faculty of Arts can enrol in either the Cognition and Brain stream (Psychology) or the Language stream (Linguistics). Faculty of Science students can enrol in the Cognition and Brain stream (Psychology) or the Computational Intelligence and Design stream (Computer Science).

Although the subject matter of Cognitive Systems is inherently interdisciplinary, the aim is to ensure that graduates of the program possess the background competence to be able to enter graduate programs in at least one of the supervisory disciplines (Computer Science, Linguistics, Psychology) or in Cognitive Systems itself. All students in the program are required to take team-taught courses at introductory (COGS 200), intermediate (COGS 300), and advanced levels (COGS 401, 402), as well as background courses in Computer Science and Philosophy.

Admission to the Cognitive Systems program depends on academic performance. Admission requires a minimum GPA of 68% overall, and a minimum grade of 68% in COGS 200. However, meeting these minimum requirements does not guarantee acceptance into the program. Students are admitted to the program at the end of either the first or second year, and must maintain at least a 68% yearly average for continuation.

For specific program and admission information about the B.A. and B.Sc. degrees in Cognitive Systems, see the Faculty of Arts entries for *Linguistics*, p. 141, and *Psychology*, p. 148, and the Faculty of Science entries for *Psychology*, p. 428, and *Computer Science*, p. 411. For current information about the people, institutions, and events associated with the Cognitive Systems program, see the Cognitive Systems website (www.cogsys.ubc.ca).

COMPARATIVE LITERATURE

See *Comparative Literature*, p. 240, under Faculty of Graduate Studies degree programs.

CRITICAL STUDIES IN SEXUALITY

Minor in Critical Studies in Sexuality
Critical Studies in Sexuality offers a multidisciplinary exploration of how lesbian, gay, bisexual, heterosexual, transgender, and other sexualities affect the many academic areas studied in the Faculty of Arts and other faculties. The CSIS Coordinating Committee maintains an approved list of courses available for credit toward the Minor. This list changes annually. Students registered in the minor must have their course selection approved by a member of the Coordinating Committee. A detailed description of the program, the approved list of courses, the names of advisors and affiliated faculty, and other information

may be obtained from the CSIS Coordinating Committee. Contact the Arts Academic Advising Office (604-822-4028) for the name, telephone number, and email address of the Chair of the Coordinating Committee, or visit the CSIS website (www.sexuality.arts.ubc.ca).

FIRST AND SECOND YEARS
Students take 12 credits formally approved by the Coordinating Committee.

THIRD AND FOURTH YEARS
Students take 18 credits of 300- and 400-level courses, including at least 3 credits of CSIS 300 and electives from the approved list:

- CSIS 300 (3/6) Introduction to Critical Studies in Sexuality;
- CSIS 450 (3–6) Topics in Critical Studies in Sexuality;
- CSIS 490 (3/6) Directed Topics;
- CSIS 500 (3/6) Critical Studies in Sexuality: Multidisciplinary Approaches.

DRAMA

The Integrated Drama Program (IDP) offers a set of courses that leads to a Bachelor of Arts in Drama. The program is designed to serve a multiplicity of purposes: it provides students with a survey of all forms and periods of drama; it enables them to compare drama to related disciplines such as film, dance, and opera; it introduces them to performative elements that correlate page and stage; and it persuades them to discover the intellectual wealth of drama and theatre studies in all its cross-disciplinary potential.

The program offers both a Major and a Minor. Students will be required to seek advising and approval before embarking in the program.

Major in Drama

Students take 42 credits. Corequisite or prerequisite: DRAM 200 and DRAM 201.

THIRD AND FOURTH YEARS
Students take DRAM 300, DRAM 400 and:

- at least 18 credits chosen from List A (see below);
- at least 6 credits from List B (see below).

Minor in Drama

Corequisite or prerequisite: DRAM 200 and DRAM 201.

THIRD AND FOURTH YEARS
Students take at least 18 credits of courses from List A and B (see below). At least 9 of these credits must be chosen from List A.

List A: Drama Concentration Courses

CLST 317, 318; DRAM 300, 301, 400, ENGL 348, 367, 405, or any of the period or genre courses in English that emphasize the drama; FREN 423; GREK 402; SCAN 411; THTR 320, 323, 325, 340, 420, 425, 440, 443, 445, 498.

List B: Cross-Media Courses

CRWR 306, 307, 404, 406, 407, 417; FILM 332, 430, 432, 434; FREN 427; LLED 333, 334, 335, 435; MUSC 135, 235, 336.

Other Courses

Other courses include courses in the performing arts, such as opera workshops or performance work in the Theatre program (by permission or audition).

Students are advised that some of these courses may have prerequisites, and that the List A and B curricula are subject to change. Majors and Minors are advised to consult with the Drama advisor about eligible courses.

ECONOMICS

The Department of Economics offers programs of study that lead to the degrees of Doctor of Philosophy, Master of Arts, and Bachelor of Arts. For information on graduate programs, see *Economics*, p. 244, in the Graduate Studies section. The Department also collaborates with Canadian Studies, International Relations, Mathematics, Modern European Studies, Philosophy, Political Science, Statistics, Urban Studies, Women's Studies, and the Faculty of Commerce and Business Administration. For details about current offerings, consult the departmental website (www.econ.ubc.ca).

Admission to the Major or Honours Program

Admission to the Major or Honours program in Economics is not automatic. To be admitted students must submit a formal application. Because there are a limited number of places, some students who satisfy the minimum prerequisites may not be admitted.

Selection for admission is based on the average standing in all credits of post-secondary coursework attempted, with the exception of 12 credits that may be excluded from the calculation. The average is calculated on at least 54 credits, including 6 credits of first-year English, 6 credits of Principles of Economics, 6 credits of first-year Calculus, and 6 credits of second- or third-year-level courses in Economics. Students not admitted to the Major in Economics who are eligible to take ECON 490 may be admitted to the final 30 credits of the program, but only if places become available, which is unlikely.

Students who are considering a Major, Combined Major, or Honours program in Economics are encouraged to seek advice on their program from department advisors upon completion of their first 54 credits (or, if possible, on completion of their first 30 credits).

Application

A written application for admission to the Major or Honours program should be received by June 15, prior to registering for the final 60 credits, to ensure that the student will be considered for admission. Application forms are available on the Economics website (www.econ.ubc.ca) or from the Undergraduate Admissions Secretary, Department of Economics, The University of British Columbia, 997–1873 East Mall, Vancouver, BC, V6T 1Z1.

The application form must be accompanied by a copy of the student's permanent record from UBC (unless application is post-marked May 20 or earlier) and official transcripts of the stu-

dent's record from all other post-secondary educational institutions attended.

Major in Economics

To be admitted to the Major program, a student must have obtained 54 credits applicable to the Bachelor of Arts, including 6 credits of first-year English, 6 credits of Principles of Economics, 6 credits of first-year Calculus, and 6 credits of second- or third-year level courses in Economics.

In addition to the above prerequisites and Faculty requirements the program must include:

- ECON 301 (or 201 or 206 or 304) and 302 (or 202 or 207 or 305);
- ECON 325 and 326;
- ECON 490;
- 6 additional credits of economics at the 400 level; at least 9 additional credits in ECON at the 300- or 400-level so that the total number of credits taken in Economics is 42.

Students should note the prerequisites for senior courses and plan their programs accordingly. Particular attention should be paid to the prerequisites for ECON 490: ECON 325 and 326 (or their equivalent) must be successfully completed before the student may enrol in ECON 490.

For guidance on the course selections that enable students to emphasize different interests within Economics (e.g., international, development and history, environment, public policy, etc.), see the departmental website (www.econ.ubc.ca). Students with over 80% average in their first-year economics and mathematics courses are strongly advised to apply for the Honours Program.

Graduate School Track

Graduate studies in Economics require a strong background in economic theory, econometrics, and mathematics. Therefore, students who intend to pursue graduate studies in Economics are strongly advised to take ECON 303 or ECON 306, ECON 307, ECON 421, ECON 425, MATH 200, and MATH 221.

Combined Major in Economics and Political Science

Admission to the program is subject to the admission restrictions and application process that pertain currently to the Majors in Economics and Political Science. In addition to Faculty requirements, the program has Economics and Political Science requirements. Students completing the Foundations Program will be exempted from the requirement of POLI 100.

ECONOMICS REQUIREMENTS

Students take an 18-credit core, plus ECON 490 and 9 credits of electives in Economics of which at least 3 credits must be at the 300/400-level. The 18-credit core consists of ECON 101, 102, 301 (or 201 or 206 or 304), 302 (or 202 or 207 or 305), 325, and 326.

POLITICAL SCIENCE REQUIREMENTS

Students take a 15-credit core plus 15 credits of electives at the 300/400-level. The 15-credit

core consists of POLI 100, 101, 240, and 350 (or 352), plus three credits chosen from POLI 220 or 260.

Combined Major in Economics and Philosophy

Admission to the program is subject to the admission restrictions and application process that pertain currently to the Major in Economics. In addition to Faculty requirements, the program has Economics and Philosophy requirements.

ECONOMICS REQUIREMENTS

Students take an 18-credit core, plus ECON 490 and 9 credits of electives in Economics of which at least 3 credits must be at the 300/400-level. The 18-credit core consists of ECON 101, 102, 301 (or 304 or 201 or 206), 302 (or 305 or 202 or 207), 325, and 326. Students are strongly advised to take ECON 318 and ECON 319.

PHILOSOPHY REQUIREMENTS

Students take an 18-credit core plus 12 credits of electives at the 300/400-level. The 18-credit core consists of PHIL 220, 230, 240, 330, and 340 plus 3 credits of history of philosophy from PHIL 310, 311, 314, or 315.

B.A. Combined Major in Economics and Mathematics

Admission to the program is subject to the admission restrictions and application process that pertain currently to the Major in Economics. For the B.Sc. Combined Major in Mathematics and Economics, see the listing under the Faculty of Science.

FIRST AND SECOND YEARS

In addition to Faculty requirements, students take the following courses:

- ECON 101 and 102¹;
- ECON 304 (or 206), and ECON 305 (or 207);
- MATH 104 (or 100 or 102 or 180 or 184 or 120);
- MATH 105 (or 101 or 103 or 121);
- MATH 200 (or 226), 215, 220, 221.

¹ Students can take ECON 307 and three additional credits of Economics numbered 300 or higher instead of ECON 101 and 102.

THIRD AND FOURTH YEARS

In addition to Faculty requirements, students take the following courses:

- ECON 306, 325², 326, 490;
- MATH 320;
- 6 additional credits of Economics numbered 300 or higher, of which at least 3 credits must be at the 400 or 500 level;
- 9 additional credits of Mathematics numbered 300 or higher. Suitable electives include MATH 302, 303, 321, 402, 403, 418, 419, and 443.

² STAT 200 can substitute for ECON 325.

B.A. Combined Major in Economics and Statistics

Admission to the program is subject to the admission restrictions and application process that pertain currently to the Major in Economics. For the B.Sc. Combined Major in Statistics and Economics, p. 429, see the listing under the Faculty of Science.

First and Second Years

In addition to Faculty requirements, students take the following courses:

ECON 101, 102 ¹	6
MATH 104 (or one of 100, 102, 120, 180, 184)	3
MATH 105 (or one of MATH 101, 103, 121)	3
CPSC 111, 211 (or MATH 210)	8 or 7
ECON 301 (or 201 or 206 or 304), 302 (or 202 or 207 or 305)	6
ECON 325 or STAT 200 ²	
MATH 200 (or 226), 220, 221 (or 223)	9
STAT 302	3

Third and Fourth Years

In addition to the Faculty requirements, students take the following courses:

ECON 303 (or 306) ³	3
ECON 326 or STAT 306 ³	3
ECON 425	3
ECON 490	3
3 additional credits of Economics numbered 300 or higher	3
MATH 303 or 307	3
STAT 305	3
STAT 404	3
3 additional credits of Statistics courses numbered 300 or higher	3
3 additional credits of Economics numbered 400 or higher	3

¹ A student can take ECON 307 and 3 additional credits of Economics numbers 300 or above instead of ECON 101 and 102.

² If STAT 200 is selected, an additional ECON elective numbered 300 or higher must be taken at some point in the program, to ensure the total number of ECON credits is at least 30.

³ If STAT 306 is selected, an additional ECON elective numbered 300 or higher must be taken at some point in the program, to ensure the total number of ECON credits is at least 30.

Honours in Economics

To be admitted to the Honours program, a student must have obtained 60 credits applicable to the Bachelor of Arts, with an overall average of 68% or better on all credits attempted and have completed successfully: 6 credits of first-year English, 6 credits of first-year Calculus, 6 credits of Principles of Economics, and 6 credits of Economics courses at the 200-level (or 300-level) (with at least a 68% average in the best 12 credits of Economics courses).

Students considering an Honours program in Economics should consult the Department's Honours advisor on completion of their first 60 credits (or, if possible, on completion of their first 30 credits).

In addition to the prerequisites the program must include:

- ECON 325 and 326;
- ECON 304 (or 206) and 305 (or 207);
- ECON 306 and 307 with at least a 68% average;
- another 12 credits in Economics courses at the 400-level;
- another 9 credits in Economics courses at the 300- or-400 level;
- ECON 495 and 499.

Graduate studies in Economics require a strong background in economic theory, econometrics, and mathematics. Students who intend to pursue graduate studies in Economics are strongly advised to take ECON 421, ECON 425, MATH 200, and MATH 221.

To proceed to the final 30 credits of the Honours program, a student must have attained at least a 68% average in all courses taken in Economics.

Minor in Economics

Students who are enrolled in a Major program other than Economics, and who obtain at least 30 credits and no more than 42 credits in Economics, with at least 18 of these credits in courses numbered 300 or above, qualify to graduate with a Minor in Economics.

None of ECON 308, 309, 310, or 311 can be included in the requirement of 18 credits in courses numbered 300 or above. Economics courses which do not have 6 credits of Principles of Economics as a prerequisite, or for which unassigned transfer credit may have been granted, may not be included in the 30 credits required for a Minor in Economics.

Courses for Students not Specializing in Economics

ECON 310 and ECON 311 are designed for upper-year students who want a survey course in Economics but who do not want to specialize in the field.

Non-specialists should also note that most 300-level courses have as prerequisites no more than 6 credits of Principles of Economics.

Students are referred to the Department of Economics (www.econ.ubc.ca) undergraduate timetable for updated information on courses to be offered each session.

ENGLISH

The Department of English offers programs of study that lead to the degrees of Doctor of Philosophy, Master of Arts, and Bachelor of Arts. The Department offers Honours and Major programs in English with emphasis in either literature or language. For information on graduate programs, see *English*, p. 248, in the Graduate Studies section. The Department also collaborates with Canadian Studies, Children's Literature, Comparative Literature, Critical Studies in Sexuality, Integrated Drama, Linguistics, Medieval Studies, Nineteenth-Century Studies, Religion, Literature and the Arts, and Women's Studies.

In March, the Department compiles detailed information about the courses to be offered in the next academic year, including course descriptions, instructors, timetabling information, and the credit value of variable credit courses. Interested students should visit the Department of English website (www.english.ubc.ca). A print copy of this information is available later in the spring in the Department office.

6 credits of first-year English, or Arts One, or Foundations, and third-year standing are prerequisite to all English courses numbered 304 or above, except as noted. The designation '(3/6)' means that the Department will offer the course at some times for one term (3 credits) and at other times for two terms (6 credits). The designation '(3-12)' means that during their complete programs of study, students may take up to 12 credits of work in any course so marked if the specific topic of that course changes from term to term.

Major in English

Admission to the Major Program is by written application. Application forms, due mid-May following completion of second year, are available at www.english.ubc.ca or from the Majors Secretary, Department of English, 397-1873 East Mall, UBC, Vancouver BC V6T 1Z1, telephone 604-822-9817. Transfer students must enclose official transcripts with their application.

MINIMUM PREREQUISITES

Prerequisites for the Major

- 6 credits of first-year English or Arts One or Foundations;
- 6 credits of second-year English;
- literature majors must take ENGL 220 and one of 221, 222, 223, or 224 (or under special conditions will be asked to take 407);
- language majors must take ENGL 229 and one of ENGL 220 to 228, 230;
- an average of at least 72% (B) in 6 credits of second-year English for Literature Majors or an average of at least 68% (B-) for Language Majors.

Applicants will be ranked by the average of their best 6 credits of 200-level English. Because space is limited, some who satisfy the minimum prerequisites may not be admitted. Students will be notified by early June whether they have been accepted, rejected, or placed on a ranked waiting list. Exceptional late applications will be added to this waiting list. Wait-listed applicants will be notified if space becomes available or can reapply the following year.

THIRD AND FOURTH YEARS

Students must choose either the literature emphasis program or the language emphasis program.

LITERATURE EMPHASIS PROGRAM

The Literature Emphasis Program requires that students complete at least 30 credits in courses numbered 304 or higher. They must take:

- 1) at least three courses from Groups A (ENGL 343 to 354) and B (ENGL 357 to 369), with at least one course from each;

- 2) one (only) Majors Seminar (490), preferably in fourth year;
- 3) one course in Canadian Studies from Group D (ENGL 470 or 476) or ENGL 202 or 222 (or any other course in which there is a large selection of Canadian literature) with the approval of a Major Advisor;
- 4) the remainder of their required 30 credits from Groups A to F with a maximum of 6 credits from Group F (ENGL 304 to 340).

Literature Emphasis Course Groups

- A. ENGL 343, 344, 346, 347, 348, 349, 354;
- B. ENGL 357, 358, 359, 362, 364, 369;
- C. ENGL 402, 405, 406, 407, 408, 409, 412, 417, 418, 419;
- D. ENGL 462, 464, 466, 468, 470, 472, 474, 476, 478;
- E. ENGL 490 (Majors Seminar);
- F. ENGL 304, 307, 308, 309, 310, 311, 320, 321, 322, 323, 326, 328, 329, 340, 352.

LANGUAGE EMPHASIS PROGRAM

At least 30 credits distributed as follows:

Category 1 (12 credits)

- ENGL 320;
- ENGL 329.

Category 2 (12 credits), with at least 3 credits in each of three of the following areas (a)-(d):

Category 2 Area	Content	Courses
a	History of the English Language	ENGL 326 ¹ , ENGL 340, ENGL 343, ENGL 344, ENGL 346, ENGL 347, ENGL 348, ENGL 352, ENGL 490 ²
b	Structure of the English Language	ENGL 321, ENGL 323, ENGL 326 ¹ , ENGL 328, ENGL 490 ²
c	Approaches to Discourse	ENGL 308, ENGL 312, ENGL 322, ENGL 326 ¹ , ENGL 490 ²
d	Rhetorical Theory	ENGL 307, ENGL 309, ENGL 310, ENGL 311, ENGL 490 ²

¹ Topics in ENGL 326 vary. Depending on the topic covered in any specific year, the course may satisfy category a, b, c, or d.

² If the content of ENGL 490 offered in a particular year is in the Language area, it may satisfy category a, b, c, or d, depending on the specific topic covered.

Category 3 (6 credits), in one or more of the following:

- courses in English literature or composition: ENGL 304, ENGL 349, ENGL 354, ENGL 357 to 364, ENGL 369 to 478;
- selected courses outside the English department: ANTH 417, AUDI 400, LING 300, LING 305, LING 311, LING 319, LING 327, LING 445, LLED 478, PHIL 425, PSYC 336;
- Category 2 (a-d).

Students should note that a total of only 18 credits outside the Faculty of Arts (including

transfer credit, elective courses, and courses permitted by the major) may count towards an Arts degree.

Students who have attained an average grade of 75% or above in LING 200 and 201 may, with the permission of an advisor, be exempted from ENGL 329 for the purposes of the English Language Major. However, students still need to complete 30 credits in English for the Major.

Note: Students considering a career in teaching English at the secondary school level should check the Faculty of Education website (www.educ.ubc.ca/teacher_ed/bachelor.html) for prerequisites.

Honours in English

Admission to the Honours program requires a grade of at least 76% in either ENGL 210 and 211; ENGL 201; or in ENGL 220 plus 3 other credits from ENGL 221 to 224. For admission requirements to ENGL 210 see course listing.

THIRD AND FOURTH YEARS

Students must observe the following requirements:

- 1) Students must take at least one course from each of the areas below (minimum 9 credits):
 - Old and Middle English Studies: ENGL 340, 343, 344, 346, 352, 356;
 - Sixteenth-Century Studies: ENGL 347, 348, 367;
 - Seventeenth-Century Studies: ENGL 349, 354, 376.
- 2) Students must take at least one course from two of the following areas (minimum 6 credits), one of which must be in Canadian Literature unless that requirement has already been met in the second year:
 - Eighteenth-Century Studies: ENGL 357, 358;
 - Nineteenth-Century Studies: ENGL 359, 362, 364, 369;
 - Twentieth-Century Studies: ENGL 462, 464, 466, 470 to 478.
- 3) Students must take at least 3 credits of language or rhetoric courses from the following: ENGL 307, 308, 309, 310, 311, 312, 320, 321, 322, 323, 326, 328, 329, 340, 352.

In addition, students are required to take 6 credits of senior seminars in each of their two senior years. One of these seminars must be a section of ENGL 491, which will focus on theory. Students are also required to take ENGL 499 (Graduating Essay) in their fourth year. 60 credits are required in the third and fourth years: at least 48 credits in English courses numbered 304 and above.

Minor in English (Literature)

FIRST YEAR

Students must take 6 credits from ENGL 110 to 121, or Arts One, or Foundations.

SECOND YEAR

Students must take 6 credits from ENGL 210 to 230; ENGL 220 is recommended.

THIRD AND FOURTH YEARS

Students must take 18 credits of senior English (ENGL 343 or higher), at least 6 of which must be in the Literature Emphasis Course Groups A and/or B, and the other 12 from Groups A through D. Courses outside the English Department or from Group F cannot be counted toward the Literature Minor.

Minor in English (Language)

FIRST YEAR

Students must take 6 credits from ENGL 110 to 121, or Arts One, or Foundations.

SECOND YEAR

Students must take 6 credits from ENGL 210 to 230; ENGL 229 (or an introductory course in language, rhetoric, or communication) is recommended.

THIRD AND FOURTH YEARS

Students must take 18 credits of senior English language courses, distributed as follows:

- ENGL 329;
- either ENGL 320 (Language emphasis) or ENGL 310 to 311 (Rhetoric emphasis);
- 6 additional credits from ENGL 307 to 328, 340 to 348, 352.

Note: Students considering a career in teaching English at the secondary level should check the Faculty of Education website (www.educ.ubc.ca/teacher_ed/bachelor.html) for prerequisites.

Suggested Courses for Intending Secondary School English Teachers

The Department of English, in collaboration with the Faculty of Education, recommends the following courses for Majors who wish to prepare themselves to teach English in secondary schools.

SECOND YEAR

Any 6 credits of second-year English. ENGL 220 is particularly recommended.

THIRD AND FOURTH YEARS

A total of 36 upper-level credits, including:

- ENGL 303 or 304 or CRWR 301 (note that ENGL 303 does not count toward the major or for upper-level credit);
- ENGL 320 or 329 or LING 420;
- 6 credits of pre-twentieth-century literature;
- 6 credits of twentieth- or twenty-first-century literature.

Students in this program must complete all the normal requirements of an English Major. For more information, see the pre-admission worksheet provided by the Faculty of Education (www.educ.ubc.ca/teacher_ed/sa-forms/english-05.pdf).

ETHNIC AND INTERCULTURAL STUDIES

Ethnic and Intercultural Studies refers to the study of ethnic groups and intercultural group relations in Canadian society and abroad. Work is normally centred on an ethnic group, on relationships between ethnic groups, or on comparisons of different ethnic group conditions across Canada and other countries. Ethnic and

Intercultural Studies involve numerous disciplines (e.g., anthropology, sociology, history, political science, language, literature, health, education) and are carried on in various departments, schools, and faculties within the University. Subjects may vary widely (e.g., from ethnomusicology to ethnopolitical conflict and conflict management, racism, multicultural policy, the social construction of ethnicity, identity maintenance, boundary negotiation, and the intersection of class and gender with 'race' and ethnicity). An interdisciplinary approach involving a variety of theoretical and methodological perspectives is emphasized.

Although there is no Department of Ethnic and Intercultural Studies and no formal program leading to a degree in this field at UBC, many departments throughout the University offer courses relevant to Ethnic and Intercultural Studies. Students who wish to concentrate on Ethnic and Intercultural Studies at the undergraduate or graduate level will normally be located in a home department where they will pursue a degree program. Undergraduate students should consult the program chair for guidance in planning their coursework by the end of their second year. They should contact Arts Academic Advising for the name and contact information for the current program chair.

FAMILY STUDIES

The School of Social Work and Family Studies offers students in the Faculty of Arts the Family Studies Major, an academic program in social science leading to the Bachelor of Arts. See the *School of Social Work and Family Studies*, p. 439. The School also offers a Master of Arts program in Family Studies, a Bachelor of Social Work, a Master of Social Work, and a Ph.D. in Social Work and Family Studies. For information on graduate programs in Family Studies, see *Family Studies*, p. 249, in the Graduate Studies section.

Major in Family Studies

The Family Studies Program (Bachelor of Arts) offers a life-course perspective to understanding families and other intimate relationships as they develop over time. This incorporates both the study of family dynamics in diverse contexts and the predictable ways families change. The program takes a research-based multidisciplinary approach that extends from the individual to interactional processes to cultural influences. Rooted in the curiosity-driven inquiry of the liberal arts, the program provides theoretical foundations and research skills for understanding relationships and families, while valuing the application of social science knowledge gained from the study of families.

FIRST AND SECOND YEARS

During the first two years of study, students should complete the general requirements of the Faculty of Arts including English composition, Science, Literature, and Language, as well as introductory courses in Family Studies.

Introductory Family Studies courses include:

- FMST 200 Contemporary Family Relationships;

- FMST 210 Family Context of Human Development;
- FMST 238 Family Resource Management;
- STAT 203 Statistical Methods.

THIRD AND FOURTH YEARS

During the third and fourth years of the Bachelor of Arts Family Studies Major program, students are required to complete:

- FMST 323 Family Research Methods;
- FMST 420 Family Theories.

The remaining 24 credits required to complete a Major in Family Studies may be selected from any Family Studies (FMST) courses. Students must earn a mark of 55% or better in all of their Family Studies courses.

Minor in Family Studies

- Students take at least 30 credits from Family Studies courses which must include 18 credits numbered 300 or above. The credits must include: FMST 200, 210, 238, and 420.

The remaining 21 credits required for the Minor may be selected from Family Studies courses.

Preparation for Certification in Family Life Education

The Family Studies program is an approved program for providing training for the Certificate in Family Life Education (CFLE) from the National Council on Family Relations. Students interested in this program should contact the Family Studies Undergraduate Coordinator for details on the appropriate choice of courses and the practicum (FMST 415).

FILM PROGRAM

The Department of Theatre, Film, and Creative Writing offers programs of study that lead to the degrees of Bachelor of Arts in Film Studies, Bachelor of Fine Arts in Film Production, and the Diploma in Film Production. For information on the Bachelor of Fine Arts program, see *Bachelor of Fine Arts*, p. 152. For information on the Diploma program, see *Diploma in Film Production*, p. 155. For information on graduate programs, see *Film Studies*, p. 250 in the Graduate Studies section. The Film Program also collaborates with Asian Studies and Canadian Studies. For details about current offerings, consult the Film Program website (www.film.ubc.ca).

Major in Film Studies

FIRST AND SECOND YEARS

Students are required to take the following courses: FILM 100, 200, 210, and 220.

THIRD AND FOURTH YEARS

Students should take at least 30 credits from the following list of courses:

FILM 331, 332, 334, 336, 338, 430, 432, 434, 436, 438; ASIA 354; ITST 432; MUSC 345; SCAN 411; SLAV 307; SPAN 404. Other courses may be approved by the Major advisor.

Minor in Film Studies

FIRST AND SECOND YEARS

As for Major.

THIRD AND FOURTH YEARS

Students should take at least 18 credits from the following list of courses: FILM 331, 332, 334, 336, 338, 430, 432, 434, 436, 438; ASIA 354; ITST 432; MUSC 345; SCAN 411; SLAV 307; SPAN 404. Other courses may be approved by the Minor advisor.

FIRST NATIONS LANGUAGES

The FNLG program is part of UBC's commitment to community-based collaboration with First Nations peoples, in recognition of the vital importance of the First Nations languages of British Columbia and of the cultural traditions they represent. In all, there are 26 extant First Nations languages in British Columbia, belonging to eight genetically distinct language families. Each of these is seriously threatened. The loss of any one of these languages, which have persisted for millennia being passed from generation to generation as rich and vibrant oral traditions, would constitute an irreplaceable loss not only to the First Nations communities whose linguistic heritage is at risk, but also to both science and humanity at large.

Through partnership with the Musqueam Indian Band, the Faculty of Arts' First Nations Languages (FNLG) program offers a four-year sequence of university-level classes in the traditional language and cultural heritage of the Musqueam (Coast Salish) people, on whose ancestral territory UBC is situated. All classes are held at the Musqueam Indian Reserve, and are taught in collaboration with members of the Musqueam community. As well, classes in Nle'kepmxcin (Thompson River Salish) and Kaska (Northern Athapaskan) are also currently offered. Through special arrangement, other First Nations languages or language credit may also be available.

FNLG courses are of particular interest to students in Anthropology, Canadian Studies, Ethnic and Intercultural Studies, First Nations Studies, Linguistics (see Major/Minor in First Nations Languages and Linguistics), Museum Studies, and the Native Indian Teacher Education Program (NITEP).

For further information, please contact:

Dr. Patricia A. Shaw, Director
First Nations Languages Program
Faculty of Arts
Tel: 604-822-6481 or 604-822-2512
Email: shawpa@interchange.ubc.ca

FIRST NATIONS STUDIES

The Interdisciplinary Major and Minor programs in First Nations Studies are available to students wishing to learn more about the histories, cultures, and contemporary circumstances of Aboriginal peoples in Canada. Students in the Major will pursue specialized courses in the program and supplement these with courses chosen from an array of relevant offerings in other departments. Majors students are strongly advised to complete a double

major or a minor in a related area of study. Students in the Minor must complete FNSP 200 (6) and a further 18 credits in approved courses from at least three departments.

Requirements for the B.A. Degree Major

Students must have their plan of course studies approved by an advisor of the First Nations Studies Program.

100- AND 200-LEVEL

It is recommended that students take FNSP 200 (6) in second year. In planning the first and second years students should take into account the prerequisites for the 300- and 400-level courses they intend to take in subsequent years as well as the general requirements for the B.A.

300- AND 400-LEVEL

- FNSP 310 (3) Theory Seminar. Prerequisite or corequisite: FNSP 200;
- FNSP 320 (3) Methods Seminar. Prerequisite or corequisite: FNSP 200;
- FNSP 400 (6) Practicum/Advanced Research Seminar. Prerequisites: FNSP 310 and FNSP 320;
- an additional 18 300- and 400-level credits from an approved list as designated for a particular year by the Director of the First Nations Studies program. FNSP 433 (3/6) Directed Studies may be counted as part of the 18. However, it is available to selected students and only as resources permit;
- at least 6 further credits from the approved list at any level (100 to 400).

Minor

Students are required to take FNSP 200 (6) and 18 credits at the 300- or 400-level selected from an approved list as designated for a particular year by the Director of the First Nations Studies program. At least 6 further credits from the approved list at any level (100 to 400) are also required. Students must take their 300- and 400-level courses from three different departments (e.g., 3 credits of History, 6 credits of Anthropology, 9 credits of Linguistics). Students in the minor will be admitted to 300- and 400-level FNSP courses only if space permits.

FRENCH

The Department of French, Hispanic, and Italian Studies offers programs of study in French that lead to the degrees of Doctor of Philosophy, Master of Arts, and Bachelor of Arts. For information on graduate programs, see *French*, p. 252, in the Graduate Studies section.

In March, the Department produces its own booklets which give detailed information about the courses to be offered in the next academic year. Interested students should contact the Department's office (BuTo 797) for a copy of the relevant booklet, or visit the Department's website (www.fhis.ubc.ca).

Major in French

FIRST AND SECOND YEARS

Students must take: FREN 122, 123, 220, 221, 222, and 223¹.

THIRD AND FOURTH YEARS STUDENTS MUST COMPLETE:

- FREN 353, 370 and one of FREN 320, 321 or 330;
- 21 additional credits of 300- and 400-level French courses (excluding 341–344, 348–349), of which at least 15 must be from the 400-level.²

Honours in French

FIRST AND SECOND YEARS

Students must take: FREN 122, 123, 220, 221, 222, and 223.¹

THIRD AND FOURTH YEARS STUDENTS MUST COMPLETE:

- FREN 353, 370, one of 320 or 321 or 330, and 499;
- 36 additional credits of 300- or 400-level French courses (excluding 341 to 349), of which at least 21 must be from the 400-level.²

Minor in French

FIRST AND SECOND YEARS

Students must take: FREN 122, 123, 220, 221, 222, and 223.¹

THIRD AND FOURTH YEARS STUDENTS MUST COMPLETE:

- FREN 353, 370 and one of FREN 320, 321, 330;
- 9 additional credits of 300- and 400-level French courses (excluding 341 to 343, 345 to 349).²

¹ Students who have earned transfer credit for IB or AP French need not take FREN 122 or 123. Students who have earned transfer credit for AP French Literature need not take FREN 220 or 221. Students who have completed French 12 (Français langue 12) with high academic standing in secondary school may take FREN 224 (3) and FREN 225 (3) in place of all of FREN 122, FREN 123, FREN 222, and FREN 223. Other students seeking advanced placement should speak with a departmental advisor and should take the appropriate placement test, available on the Department's website (www.fhis.ubc.ca).

² 300- and 400-level courses may be taken by students in any year of their program, provided that the prerequisites for individual courses have been satisfied.

GEOGRAPHY

The Department of Geography offers programs of study that lead to the degrees of Doctor of Philosophy, Master of Arts, Bachelor of Arts, Master of Science, and Bachelor of Science. See the Faculty of Science for information regarding the Bachelor of Science and Atmospheric Science, a program offered cooperatively by the Departments of Geography and Earth and Ocean Sciences. For information on graduate programs, see *Geography*, p. 253, in the Graduate Studies section. The Department also collaborates with Archaeology, Canadian Studies, Arts Studies, European Studies, International Relations, Latin

American Studies, Urban Studies, and Women's Studies.

In March, the Department circulates its own booklet, *A Guide to Geography*, which gives detailed information about the programs offered by the Department. It also produces a guide for *Geography Graduate Courses*. Interested students should contact the Department for copies. Details about current offerings and course information can also be found on the departmental website (www.geog.ubc.ca).

Major in Geography

FIRST AND SECOND YEARS

Students must take at least 6 credits from: GEOG 121, 122, 210, and 290; and at least 6 credits from GEOG 101, 102, 103, 200, 204, 205, and 207.

Students intending to major in Geography with an emphasis on environmental studies should take: GEOG 101 (or 102 and 103), 200 or 204, 205, 207, 210, and 6 credits of mathematics. Students intending to emphasize economic or urban geography should take 6 credits of mathematics.

THIRD AND FOURTH YEARS

30 credits of Geography courses numbered 300 and above, as follows:

- 6 credits from methodology and techniques courses: GEOG 345, 370, 371, 372, 373, 374, 376, 379, 471, 472, 475;
- 3 credits from courses on major world regions: GEOG 380, 391, 395, 496;
- 9 credits from courses on key themes in Geography¹: GEOG 31x, 32x, 35x, 36x;
- 3 credits from 400-level seminar courses². Must be taken in the student's fourth year; and
- 9 additional credits.

Honours in Geography

Unlike Geography departments in many other universities, the Department does not consider the Honours program the preferred route to graduate study in Geography at UBC. Students hoping to proceed to graduate studies should therefore consult a departmental advisor.

The Honours program in Geography differs from the Major in two respects: degree of specialization and standing, which must be at least 74% average of all courses taken (for entry and graduation).

Students who are interested in the Honours program should consult the Department before the end of their second year or at the beginning of their third year. Individual Honours programs require the approval of the Department. The total number of Honours students may be restricted to match available teaching resources.

FIRST AND SECOND YEARS

As for Major.

THIRD AND FOURTH YEARS

48 credits of Geography courses numbered 300 and above, as follows:

- 9 credits from methodology and techniques courses: GEOG 345, plus six credits from 370, 371, 372, 373, 374, 376, 379, 471, 472, 475;
- 3 credits from courses on major world regions: GEOG 380, 391, 395, 496;
- 9 credits from: GEOG 31x, 32x, 35x, 36x;
- 9 credits from Geography fourth-year seminar courses². Must be taken in the student's fourth year; and
- 18 additional credits.

Minor in Geography

FIRST AND SECOND YEARS

As for Major.

THIRD AND FOURTH YEARS

18 credits of Geography courses numbered 300 and above as follows:

- three credits from courses on major world regions: GEOG 380, 391, 395, 496;
- six credits from courses on key themes in geography: GEOG 31x, 32x, 35x, 36x; and
- nine additional credits.²

Undergraduate Courses

Students choose from the following courses:

- Introductory courses – GEOG 101, 102, 103, 121, 122, 200, 204, 205, 207, 210, 250, 270, 281, 290; URST 200;
- Major and Honours seminars – GEOG 345, 440, 444, 446, 447, 448;
- Technique and field courses – GEOG 270, 309, 371–374, 376, 379, 471, 472, 475;
- Regional courses³ – GEOG 380, 390, 391, 395, 481, 484, 485, 493, 494, 495, 496, 497, 499;
- Cultural-historical courses – GEOG 321, 327, 328, 329, 411, 422, 423, 424, 425, 426, 428;
- Courses on economic geography – GEOG 360, 361, 362, 363, 460, 464, 468;
- Environmental courses – GEOG 310, 311, 312, 315, 316, 317, 318, 319, 410, 411, 412, 423, 497;
- Urban courses – GEOG 321, 331, 350, 352, 357, 450, 456, 457, 464, URST 400;
- Courses on Canada – GEOG 290, 327, 328, 426, 428, 497, 499; and
- Pacific Rim courses – 380, 395, 425, 468, 481, 484, 485, 494, 495.

The following courses have Science credit:

GEOG 101, 102, 103, 200, 204, 205, 207, 270, 300, 304, 306, 307, 308, 309, 370, 372, 373, 376, 401–409, 444, 449, 471, 472. Several courses in Geography involve field expenses. Students should check with advisors.

¹ The Department recommends that the courses on key themes in Geography be chosen from more than one of the four categories. Consult the course guide and the departmental advisor.

² Each year, several 400-level courses will be run as limited-enrolment seminars, with priority in registration for Honours and Major students in Geog-

raphy up to August 15. Some of these courses will be offered only in alternate years. For the current year's seminar offerings, please consult the third- and fourth-year course guide available from the Department of Geography Office.

³ Regional focus varies. See instructor.

GERMAN

The Department of Central, Eastern, and Northern European Studies (www.german.ubc.ca/) offers Honours, Major, and Minor programs in German Language. Courses are offered in German. For further information on these programs and other programs in Slavic and Scandinavian Languages and Literatures and Modern European Studies, see *Central, Eastern, and Northern European Studies*, p. 129, or contact the Department for further details.

Major in German

FIRST AND SECOND YEARS

Students choose one of the following sequences depending upon their previous knowledge of the language:

- no previous knowledge: GERM 100, 110; 200, 210;
- with German 11 or 12, or with untutored knowledge: GERM 200, 210; or 300, 310; or 213, 313.

Students with secondary-school German or German-language background are required to contact the Department and to take a placement test before the beginning of classes. Students with a superior level of proficiency in German will replace 12 credits of language with German literature or cultural studies courses. In no case may a student take more than one German language course in the same semester as another, with the exception of GERM 314 (Business German).

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- GERM 300, 310; 400, 410;
- one of GERM 360/370; one of GERM 380/390; one of GERM 406/408;
- 3 additional credits from the above list of courses or from GERM 314, 401, 402, 405, 407, 420, 430;
- 6 credits from any of the above courses or, after consultation with the departmental advisor and from the A/B/C lists in the *Modern European Studies Undergraduate Handbook*, provided that the course(s) have a significant German component. Note: These 6 credits may, therefore, be in a language other than English.

Students with advanced proficiency in the German language may take credits towards the Major in first or second years.

FIRST AND SECOND YEARS (FOR STUDENTS WITH PREVIOUS KNOWLEDGE OF GERMAN)

Students choose one of the following sequences depending on their previous knowledge of the language:

- No previous knowledge: GERM 100, 110, 200, 210;

- With German 11 or 12, or with untutored knowledge: GERM 200, 210. Students with secondary-school German or German-language background are required to contact the Department and to take a placement test before the beginning of classes.

THIRD AND FOURTH YEARS (FOR STUDENTS WITH PREVIOUS KNOWLEDGE OF GERMAN)

Third and Fourth years of the program require that students complete:

- GERM 300, 310; 400, 410;
- one of GERM 360/370; one of 380/390; one of 406/408; and
- 9 additional credits from German courses 301 to 450 (excluding 339, 433, 434, 439, 449).

Honours in German

FIRST AND SECOND YEARS
As for Major.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- GERM 300, 310; 400, 410;
- one of GERM 360/370; one of 380/390; one of 406/408;
- GERM 339 and 439;
- 9 additional credits from GERM 314, 401, 402, 405, 407, 420, or 430;
- students may submit a 6-credit Honours essay (GERM 449) in place of GERM 339 or any other 6 credits of senior work, aside from required courses;
- one university-level course in a language other than English or German;
- a course with significant German content chosen from lists A/B/C in the *Modern European Studies program handbook*. Note: This course may, therefore, be in a language other than English. See Honours advisor.

Students with an advanced proficiency in the German language may take credits towards the Honours in first or second years.

FIRST AND SECOND YEARS
(FOR STUDENTS WITH PREVIOUS
KNOWLEDGE OF GERMAN)
As for Major.

Minor in German

FIRST AND SECOND YEARS
As for Major.

THIRD AND FOURTH YEARS

Students must take 18 credits of senior courses in German (excluding GERM 339, 433, 434, 439, 449). Alternatively, up to 3 of these credits may be chosen, after consultation with the departmental advisor, from lists A/B/C in the *Modern European Studies Undergraduate Handbook*, provided that the course(s) have a significant German component. Note: these 3 credits may, therefore, be in a language other than English.

Students with advanced proficiency in the German language may take credits towards the Minor in first or second years.

GERMANIC STUDIES

See *Central, Eastern and Northern European Studies*, p. 129, and *German*, p. 136, for more information.

GREEK

See *Classics*, p. 130.

HEBREW

See *Religious Studies*, p. 148.

HINDI

See *Asian Studies*, p. 127.

HISPANIC STUDIES

The Department of French, Hispanic and Italian Studies offers undergraduate programs of study that lead to the Bachelor of Arts in Hispanic Studies. For information on graduate programs, see *Hispanic Studies*, p. 257, in the Graduate Studies section.

In March the Department produces its own booklets, which give detailed information about the courses to be offered in the next academic year. Interested students should contact the Department's office (Buto 797) for a copy of the relevant booklet, or should visit the French, Hispanic and Italian Studies (www.fhis.ubc.ca) website.

Major in Spanish

FIRST AND SECOND YEARS
Students intending to proceed towards a Major degree are required to take: SPAN 101, 102, 201, 202, and 220. (Students may take a placement test to determine their entry level.)

THIRD AND FOURTH YEARS

- SPAN 301, 302, 357, 358, 364 and 365; and
- 12 credits from SPAN 401 to 430, 450 to 490; PORT 392; RMST 420.

Minor in Spanish

FIRST AND SECOND YEARS
Students intending to proceed towards a Minor degree are required to take: SPAN 101, 102, 201 and 202. (Students may take a placement test to determine their entry level.)

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- SPAN 301 and 302
- at least six credits from SPAN 357, 358, 364, 365
- at least six credits from SPAN 321, 322, 401 to 430, 450 to 490, PORT 392, RMST 420.

HISTORY

The Department of History offers programs of study that lead to the degrees of Doctor of Philosophy, Master of Arts and Bachelor of Arts. For information on graduate programs, see *History*, p. 257, in the Graduate Studies section. The Department also collaborates

with Anthropology; Archaeology; Art History, Visual Art and Theory; Arts One; Canadian Studies; Critical Studies in Sexuality; Foundations; Geography; International Relations; Latin American Studies; Medieval Studies; Modern European Studies; Museum Studies; Nineteenth-Century Studies; Political Science; History and Philosophy of Science; Sociology; Women's Studies and Interdisciplinary Graduate Studies. For details about current offerings, consult the departmental website (www.history.ubc.ca).

Major in History

FIRST AND SECOND YEARS

Students must take 12 credits from any of the 100- or 200-level courses in History (which may include MDVL 200, WMST 205 and WMST 210), or the equivalent taken at other institutions.

Students who intend to Major in History are advised to include in their program some basic courses in the social sciences, and the appropriate historical surveys of:

- literature, in the various departments of language;
- thought, in the Departments of Philosophy, Classical, Near Eastern and Religious Studies, and Political Science; and
- the arts, in the departments of Art History, Visual Art and Theory; Theatre, Film and Creative Writing; and the School of Music.

THIRD AND FOURTH YEARS

Students must take 30 credits of third- and fourth-year History courses chosen in consultation with a departmental advisor. These 30 credits may include:

- up to 6 credits from CLST 311, 312, 331, 351, 353, 354, 355, 356
- and/or 6 credits from ASIA 418; ECON 334, 336, 437; GEOG 327 and 328, 426 and 428; MEDH 400 and 401.

A History Major may, in order to build a suitable program, obtain special permission from the Department to count a course other than one of those listed above. Students must take 6 credits of substantially pre-modern history. Courses at the 100- or 200-level may be used to meet this requirement. A list of courses with substantial pre-modern content is available from departmental advisors.

A 3-credit seminar (HIST 490) is open to History Majors in their fourth year. For information on the topic of the seminar, consult the *Upper-Division Course Guide* available in the Department or on the website.

Major in History and Philosophy of Science

The only requirement for admission is consultation with the advisor. In addition to Faculty requirements, the program requires the following:

FIRST AND SECOND YEARS (12 CREDITS)
Students must complete HIST/PHIL 260, and at least 9 credits of first and second year HIST or PHIL courses. The following are recommended: HIST 120, 150, 202, 215; PHIL 125, 220, 230, 240.

THIRD AND FOURTH YEARS

(30 CREDITS)

Students must complete HIST/PHIL 360. They must take an additional 18 credits from the following list, with no fewer than 6 credits in PHIL and 6 credits in HIST: HIST 423, 442, 455, 456, 487; PHIL 321, 362, 363, 427, 460, 461, 462, 464, 469. The remaining 9 credits will normally be taken from upper-division HIST or PHIL courses (excluding PHIL 400, 401). Students may substitute any of the following: BIOL 446; CLST 306; ENGL 309; GEOG 345; MATH 446; MATH 447; PHYS 340; PSYC 312.

Honours in History

The Honours program in History requires the successful completion of 132 credits, 72 of which are in History courses. Of these 72 credits, only 12 may be in 100- and 200-level courses. Students considering the Honours program should consult the History Honours advisor before the end of their first year.

FIRST AND SECOND YEARS

Students must take 12 credits from any of the 100- or 200-level courses in History (or the equivalent taken in other institutions) with an average of at least 80% in six of these credits. The 12 credits may include MDVL 200.

THIRD YEAR

Third year of the program requires that students complete:

- HIST 321, and 333
- HIST 322 or 12 credits of courses in History or related areas, chosen in consultation with the Honours advisor; and
- 6 credits outside the Department.

FOURTH YEAR

Fourth year of the program requires that students complete:

- HIST 421, 433, and 449
- 6 credits outside the Department; and
- an oral examination on the graduating essay.

Honours in History with International Relations

The History with International Relations Program requires the successful completion of 132 credits. Students considering this Honours program should consult the History Honours advisor before the end of their first year.

FIRST AND SECOND YEARS

First and second years of the program require that students complete:

- 12 credits from any of the 100- or 200-level courses in History with an average of at least 80% in 6 of these credits
- POLI 260
- prerequisites for courses to be taken in the upper years; and
- reading knowledge of French or a foreign language.

THIRD YEAR

Third year of the program requires that students complete:

- HIST 321 and 333

- 6 credits in History and
- in consultation with an advisor, 12 credits selected from courses listed in the International Relations Major program under the headings Asian Relations, International Economy and Development, International Security and Peace Studies, and Soviet and Eastern Europe.

FOURTH YEAR

Fourth year of the program requires that students complete:

- HIST 421 and 449
- HIST 432
- 6 credits elective; and
- an oral examination on the graduating essay.

Undergraduate Courses in History

- World History – HIST 101, 102, 103, 104, 105.
- Medieval, Renaissance and Reformation History – HIST 101, 102, 313, 360, 370, 372, 373, 374, 375, 376, 377, 378, 413, 470. See also *Medieval Studies*, p. 143.
- Modern European History – HIST 202, 215, 220, 306, 315, 316, 319, 334, 335, 400, 405, 406, 407, 425, 431, 432, 435, 438, 441, 442, 462, 463.
- Modern British History – HIST 310, 311, 415, 416, 417, 418, 419, 460.
- Canadian History – HIST 205, 235, 302, 303, 304, 307, 326, 329, 401, 404, 426, 427, 429, 430, 437, 442, 475, 485. For supporting courses, see *Canadian Studies*, p. 128.
- American History – HIST 201, 237, 327, 328, 330, 331, 332, 338, 428, 437, 444, 445, 446, 447.
- Asian History – HIST 170, 171, 270, 271, 380, 381, 382, 383, 384, 385, 386, 422, 423, 434, 480, 481, 482, 483, 484, 486.
- Latin American History – HIST 250, 252, 351, 352, 353, 354, 432, 450, 452, 454.
- International and Contemporary History – HIST 102, 103, 402, 403, 425, 432, 442, 448, 475, 487.
- Theory and Methodology – HIST 304, 490, 495.
- History of Science – HIST 260, 360, 455, 456, 487.
- Majors Courses¹ – HIST 490.
- Honours Courses² – HIST 321, 322, 333, 421, 433, 449.

Many of the courses classified as national or regional emphasize social themes.

Brochures are available from the Department describing in detail the courses offered each year in HIST 100 to 499 or visit the departmental website (www.history.ubc.ca).

¹ For Majors students only.

² For Honours students only.

INDONESIAN

See *Asian Studies*, p. 127.

INTERDISCIPLINARY STUDIES

The Interdisciplinary Studies (IDST) B.A. Program offers the independent, capable student a multidisciplinary alternative to the traditional, department-based Major. Students admitted to the program usually design their own cross-disciplinary course of study, and then consult with an IDST advisor to obtain approval. The Program may be appropriate as preparation for professional programs in Arts and in other faculties, including Elementary Education, Journalism, Law, Library/Information Studies, Medicine, Social Work and Architecture. The Program is distinct from departmental majors and honours programs, and students should note that further preparation may be required of candidates for Secondary Education and Graduate Studies. Students intending to apply to the Faculties of Dentistry or Medicine may also find it appropriate, but they are advised to note that these faculties require specific science courses for admission. The program may provide an appropriate route to further study in the creative and performing arts. It is administered by the IDST Board of Studies.

Admission

To be admitted to the Interdisciplinary Studies B.A. Program, students must have completed at least 54 and usually no more than 75 credits towards the Bachelor of Arts (students granted special permission to enter the program with more than 75 credits may be required to complete more than 120 credits to obtain their degree); obtained an overall average of at least 60% in all previous courses attempted towards the Bachelor of Arts; satisfied the first-year Faculty of Arts English requirement and have completed or have in progress the other Arts Faculty requirements; and obtained approval of their proposed course of study.

Applications will be evaluated three times a year, and must be received before the deadlines. Application forms and deadline information are available on the Interdisciplinary Studies website (www.interdisciplinary.arts.ubc.ca). Inquiries should be addressed to the Interdisciplinary Studies B.A. Program, Faculty of Arts, Room A201 Buchanan Building; telephone 604-822-4028.

Requirements

Acceptable disciplines and courses are classified by the Board into four categories: Humanities, Social Sciences, Creative and Performing Arts, and Sciences. Disciplines are as defined by the board and do not necessarily coincide with existing departmental divisions in the Faculty (e.g., courses in English and other “language departments” are allocated to either “Language,” or “Literature”, which constitute separate disciplines in the B.A. in Interdisciplinary Studies).

Students must complete:

- 1) at least 30 credits of 300/400-level course work in the Primary Category, including an 18-credit ‘primary concentration’ in one discipline; and

- 2) at least 12 credits of 300/400-level course work in the Secondary Category.

Students may complete no more than 18 credits of 300/400-level course work in any one discipline. However, students with at least a 75% average may, with approval, complete up to 24 credits in the Primary Category, in an individual program. Also students may include in their degrees up to 18 credits in courses outside the Faculties of Arts and Science. For IDST students, these courses may be included in Electives only. After completing 90 credits, students must consult with an assigned advisor and obtain specific approval of their remaining course work. For graduation, students must complete all Faculty of Arts requirements, including the English, literature, language, and science requirements.

Further information may be found on the Interdisciplinary Studies B.A. Program website (www.interdisciplinary.arts.ubc.ca). This program was formerly known as the General B.A. Program.

INTERNATIONAL RELATIONS

The International Relations (www.iir.ubc.ca/Programs.asp) program offers a Bachelor of Arts. Students who wish to study International Relations at UBC at the graduate level can do this as part of their program within an established department (e.g., the Departments of History or Political Science).

Students who want to go on to graduate work in International Relations after completing their Bachelor of Arts are advised to consider the special Honours programs in History (with International Relations) and in Political Science (with International Relations) or to make sure they have at least 24 credits of 300- and 400-level courses in one of the core disciplines (economics, history, political science).

Major in International Relations

Admission to the Major program in International Relations is not automatic. Students who do not have a sufficiently high average cannot be admitted to the Major.

Depending upon the number of applicants in a given year, an average of approximately 76% will be required for admission into the Major.

Admission is based on the average grade obtained for all post-secondary course work attempted. The average is calculated on at least 54 credits. To be eligible to apply to the IR program students need to have completed their first-year English requirement (6 credits) and one of the lower division required IR courses (ECON 101 or 102, ECON 255, HIST 125 or 150 or POLI 260). However, it is strongly recommended that students complete all of these courses before applying to the program. Students may complete their language requirements in their third or fourth year. Arts One and Foundations students can only count their English credits towards the IR program. They will, therefore, need to fulfil all of the lower division requirements.

Application forms will be available after January 1 from the International Relations Program Office (Buchanan C382).

Completed applications are due by May 15 prior to registration for third year. They should be handed in to the International Relations Program Office or mailed to International Relations Program, c/o Department of Political Science, C472-1866 Main Mall, University of British Columbia, Vancouver, BC, V6T 1Z1.

Applicants should arrange for transcripts from all post-secondary institutions they have attended, other than UBC, to be mailed to the above address.

Applicants will be notified by June 15 whether they have been accepted, rejected, or put on a waiting list.

All courses listed below are 6 credits unless otherwise indicated.

FIRST 60 CREDITS

The first 60 credits of the program require that students complete:

- ECON 101 and 102 (or ECON 310 or 311)
- ECON 255
- HIST 125 or 150¹
- POLI 260 (3); and
- 12 credits of one language other than English, in addition to the Faculty of Arts language requirement. The language can be the one used to satisfy the Faculty of Arts requirement carried to a higher level, or it can be an additional language.

While it is advisable to complete all of these requirements prior to the third year, it is permissible to complete some of them in the third year.

60 TO 120 CREDITS

A minimum of 33 credits in International Relations. These 33 credits must include the following:

- ECON 355² (3) or ECON 356 (3)
- HIST 425, HIST 432, or HIST 445 (3) and 446 (3)
- One of POLI 360 (3/6), 361 (3/6), 362 (3), 364 (3/6), or 367 (3/6)
- in their last 30 credits, students must take one of the required International Relations seminars. These are ECON 457 (3), HIST 402 (3), HIST 403 (3), the section of POLI 464 (3) reserved for International Relations Majors, or one of the other seminars that may be designated by the chair of the program. (A list of designated seminars for the following year will be available from the International Relations Program Office in the spring. These seminars are not available to third-year students. With permission of the chair of the International Relations Program, students are permitted to take more than one of these seminars.)
- 18 credits from the lists below. Of these 18 credits, at least either 12 credits must be from List 1 or 12 credits must be from List 2. The remaining 6 credits can be from Lists 1, 2, or 3.

¹ Arts One does not satisfy this requirement.

² The prerequisite for this course is ECON 101 and 102, or ECON 310 and 311.

For the purposes of the International Relations Major, no course can be double-counted, i.e., used to satisfy two requirements (e.g., if POLI 360 is used to satisfy the political science requirement (see above), it cannot be counted as part of these 18 credits).

- 1) International Diplomacy, Security, and Peace Studies
 - (a) ANTH 415
 - (b) ASIA 410 (3), 430 (3)
 - (c) CLST 331, 352 93), 353 (3), 354 (3), 355 (3), 356 (3)
 - (d) GEOG 316 (3), 329 (6)
 - (e) HIST 310 (3), 311 (3), 425, 430, 441 (3), 445 (3), 446 (3), 448 (3)
 - (f) POLI 329 (3), 333A (3), 334 (3), 360 (3/6), 361 (3/6), 362 (3), 363 (3/6), 364 (3/6), 367 (3/6), 369 (3/6), 370 (3/6), 373 (3), 374 (3), 460 (3/6), 461 (3), 462 (3), 465 (3)
 - (g) SOCI 360 (3/6), 461 (3/6)
- 2) International Economy and Development
 - (a) ANTH 330 (3), 360 (3)
 - (b) FRE 306(3), 340 (3), 420 (3), 475 (3)
 - (c) ECON 312 (3), 313 (3), 317 (3), 318 (3), 319, 334, 335 (3), 336, 339 (3), 341 (3), 342 (3), 343 (3), 351 (3), 355 (3) or 356 (3), 371 (3), 374 (3), 387 (3), 441 (3), 442 (3), 444 (3), 455 (3), 456 (3), 471 ((3), 472, 487 (3)
 - (d) GEOG 310 (3), 312 (3), 321 (3), 352 (3), 353 (3), 361 (3), 362 (3), 410 (3), 411 (3), 423 (3), 468 (3)
 - (e) HIST 423, 431
 - (f) FNH 355 (3)
 - (g) PHIL 335 (3), 435 (3)
 - (h) POLI 329 (3), 333A (3), 364 (3/6), 366 (3), 375 (3), 403 (3/6), 463 (3)
 - (i) SOCI 301 (3/6), 360 (3/6), 361 (3/6)
 - (j) WMST 403 (3), 405 (3)
- 3) Area Studies
 - (a) Africa – HIST 317 (3)
 - (b) Asia – ANTH 302 (3/6), 303 (3/6), 315 (3/6), 350 (3/6), 351 (3/6), 402 (3/6), 403 (3/6), 416 (3/6); ASIA 309 (3), 310 (3), 311 (3), 314 (3), 315 (3), 317 (3), 318 (3), 319 (3), 321 (3), 328 (3), 337 (3), 338 (3), 339 (3), 379, 418 (3), 422, 428 (3), 434, 438 (3), 480, 488 (3); ASIA 309 (3), 310 (3/6), 314 (3), 315 (3), 317 (3), 318 (3), 319 (3), 328 (3), 337 (3), 338 (3), 379 (6), 382 (3), 418 (3), 428 (3), 438 (3); GEOG 380 (3), 468 (3), 481 (3), 484 (3), 485 (3); HIST 342 (3), 380, 385, 389, 422, 434, 475 (3), 480, 482 (3), 483 (3), 486 (3); POLI 321 (3/6), 322 (3/6), 323 (3/6), 324 (3/6), 328 (3/6), 330 (3), 365 (3/6), 368 (3); SOCI 416 (3/6), 460 (3/6)
 - (c) Canada and the Americas – ANTH 353 (3); ECON 337 (3); GEOG 395 (3), 495 (3); HIST 328 (3), 332, 338, 351

(3), 352 (3), 353 (3), 354 (3), 437, 450 (3/6), 451 (3), 452 (3); LAST 301 93), 303 (3); POLI 320 (3/6), 332 (3/6)

- (d) Europe and Eurasia – GEOG 391 (3), 493 (3), 494 (3); HIST 324, 334, 406, 406, 407, 409 (3), 419 (3), 435, 438, 462 (3), 463 (3); POLI 325 (3), 326 (3), 327 (3)

Minor in International Relations

A Minor consists of at least 30 credits, but not more than 42 credits, selected from the courses listed as part of the International Relations Major, of which at least 18 must be numbered 300 or above. At least 9 credits of the following must be included among the courses taken: ECON 101 and 102 (or ECON 310 and 311), ECON 255, HIST 125 or 150, and POLI 260.

At least 18 credits of these International Relations courses must be outside the discipline in which the student is doing a Major. Students are also required to take at least 6 credits of a language other than English, in addition to the Faculty of Arts language requirement. The language can be the one used to satisfy the Faculty of Arts requirement carried to a higher level, or it can be an additional language. Students undertaking a Minor in International Relations do not need to submit an application or secure permission to do so. Language courses do not count toward the required 30 to 42 credits in International Relations.

Honours in International Relations

The International Relations program does not offer an Honours program. However, students wishing to do an Honours degree in International Relations can do so in conjunction with the Honours programs of the Departments of History or Political Science. Students must apply directly to one of these departments for admission into the Honours program during their second year.

Students may not count more than 60 credits of International Relations courses (i.e., required courses and those on Lists 1, 2, and 3 [see above]) toward the Bachelor of Arts. (Language courses do not count as part of these 60 credits.)

ITALIAN AND ITALIAN STUDIES

The Department of French, Hispanic and Italian Studies offers undergraduate programs of study in Italian that lead to the Bachelor of Arts.

Major in Italian

Currently the Department of French, Hispanic and Italian Studies does not offer a major in Italian.

Minor in Italian

FIRST AND SECOND YEARS
Students with Italian 11 or 12 or exposure to the Italian language or dialects must consult the Italian undergraduate advisor for placement in appropriate language courses. Students take ITAL 101–102 (or 103), 201–202 (or 203), or 342–343; ITST 231–232. RMST 220 is recommended.

THIRD AND FOURTH YEARS

Students choose at least 9 credits from List A (these must include one of ITAL 303–304) and at least 9 credits from list B.

Please check the departmental website (www.fhis.ubc.ca) and the Calendar for updated information on the Minor program.

LIST A: CORE COURSES
ITAL 301, 302, 303, 304, 401, 402, 420.

LIST B: SECONDARY CORE COURSES
ITAL 403, 404, 405, 408, 409, 430.

Note: Some 400-level ITAL courses may be cross-listed with ITST courses and be conducted in English, as follows: ITAL 403/ITST 413; ITAL 404/ITST 414; ITAL 405/ITST 415; ITAL 408/ITST 418; ITAL 409/ITST 419; ITAL 430/ITST 432.

Students who plan to minor in Italian must take these courses as ITAL and will be expected to do part of their reading and assignments in the Italian language.

Credit in ITAL will preclude credit in ITST and vice versa.

Note 2: Some 400-level ITAL courses may be cross-listed with ITST courses and be conducted in English, as follows: ITAL 403/ITST 413; ITAL 404/ITST 414; ITAL 405/ITST 415; ITAL 408/ITST 418; ITAL 409/ITST 419; ITAL 430/ITST 432. Students who plan to minor in Italian must take these courses as ITAL and will be expected to do part of their reading and assignments in Italian language.

Minor in Italian Studies

FIRST AND SECOND YEARS
Students must take at least 12 credits of Italian language, or equivalent. ITST 230 is recommended.

THIRD AND FOURTH YEARS
Students must take 18 credits of 300-level courses from the lists below. At least 6 must be chosen from List 1 and six from List 2.

- 1) ITST 310, 421, 431, 432; ITAL¹ 303, 304, 404, 405, 406, 407, 408, 420
- 2) CLST 331, 352, 353, 354; ARTH 331, 335, 336; HIST 313; MUSC 454, 455; RMST 420, 468.

¹ These courses require knowledge of Italian.

JAPANESE

See *Asian Studies*, p. 127.

KOREAN

See *Asian Studies*, p. 127.

LATIN

See *Classics*, p. 130.

LATIN AMERICAN STUDIES

Latin American Studies is an interdisciplinary undergraduate program administered by the Latin American Studies Program Committee. In consultation with a program advisor, students may complete a Major or a Minor in the program. Both the Major and the Minor allow students to construct truly interdisciplinary approaches to their programs, incorporating a

broad range of disciplines within Arts. Students who are considering pursuing graduate studies in another discipline after completion of the Bachelor of Arts are encouraged to complete at least a Minor in that discipline. Interested students should consult the more detailed booklets of current course offerings available from the Departments of Anthropology and Sociology (tel: 604-822-2878); Art History, Visual Art and Theory (tel: 604-822-2757); French, Hispanic, and Italian Studies (tel: 604-822-2879); Geography (tel: 604-822-2663); History (tel: 604-822-2561); or Political Science (tel: 604-822-2717).

Alternatively, students may take a Latin American Studies Thematic Option within the B.A. Program in Interdisciplinary Studies.

Major in Latin American Studies

The Major program is designed to give students a general knowledge of and strong interdisciplinary approach to the language, culture, society, geography, political systems and history of Latin America.

LANGUAGE REQUIREMENT

Students must complete the Faculty of Arts Language Requirement in Spanish (see *Language Requirement*, p. 121) and take SPAN 300. No 100- or 200-level Spanish language courses taken count towards the minimum of 42 credits required for the Faculty of Arts Major. Students with a previous knowledge of Spanish or Portuguese should consult a program advisor.

FIRST AND SECOND YEARS

Students take LAST 100 (3) and 9 credits from the following courses:

- ANTH 202 (3/6) or 232 (3)
- ARTH 261 (3)
- HIST 250 (3/6)
- LAST 201 (3)
- SPAN 320 (6)

THIRD AND FOURTH YEARS

SPAN 300 (6) is required. Students with a previous knowledge of Spanish for whom this requirement is waived are required to take 6 additional credits from the list below.

Students choose at least 24 credits from the list below or from other courses approved by the committee in any given year. A minimum of 3 credits must be taken in each of Anthropology, Art History, Visual Art and Theory, Geography, History, Political Science, Spanish or Portuguese literature.

The following list is not exhaustive nor will all the courses be offered in any one year. Some courses such as ANTH 332, 411 or GEOG 352 have variable course content. To make sure the content is Latin American in any given year, students are advised to consult the appropriate department.

- ANTH 323 (3), 332 (3), 353 (3), 403 (3/6), 411 (3)
- ARTH 342 (3), 370 (3), 371 (3), 372 (3), 373 (3), 463 (3), 465 (3), 440B (3)
- GEOG 395 (3), 495 (3)

- HIST 351 (3), 352 (3), 353 (3), 354 (3), 450 (3/6), 451 (3), 452 (3)
- POLI 332
- PORT 307 (6), 392 (3/6)
- SPAN 312 (3), 363 (6), 404 (3), 405 (3), 406 (3), 450 (3), 470 (3), 490 (3)

Minor in Latin American Studies

This is an interdisciplinary program intended to provide students with a broad exposure to the cultures, histories and languages of Latin America. Ideally, the Minor complements a Major in one of the participating disciplines that comprise Latin American Studies, but it can be combined with any Major program in Arts.

FIRST AND SECOND YEARS

Students take LAST 100 and 9 credits from the following courses:

- ANTH 202 or 203
- ARTH 261
- HIST 250
- LAST 201

THIRD AND FOURTH YEARS

Students take at least 18 credits of upper-level courses with Latin American content as listed for the Major (see above) in at least three of the following subjects (disciplines): Anthropology; Art History, Visual Art and Theory; Geography; History; Spanish; Portuguese. Courses selected for the Minor cannot also be counted towards the program requirements for a Major.

Thematic Option within the B.A. Program in Interdisciplinary Studies: Latin American Studies

Three distinct programs are available for a thematic option in Latin American Studies within the B.A. Program in Interdisciplinary Studies: Latin American Art; Latin American Literature; and Latin American History. Students will normally enter their Thematic Option program after completing their first 60 credits. Before entering the program they are required to complete either HIST 250 or ANTH 202 (when applicable) and 12 credits of Spanish or Portuguese.

Additional courses with Latin American content may be offered in any of the following fields: Anthropology, Art History, and Visual Art and Theory, Geography, History, Spanish and Portuguese, Political Science, and Sociology (see “Major in Latin American Studies” above).

Students interested in the Latin American Studies Thematic Option should contact the Office for the B.A. Program in Interdisciplinary Studies at 604-822-4067 for further information on the program.

LINGUISTICS

The Department of Linguistics offers programs of study that lead to the Doctor of Philosophy, Master of Arts and Bachelor of Arts, and the Diploma in Linguistics. For information on the diploma program, see *Diploma in Linguistics*, p. 155. For information on graduate programs, see *Linguistics*, p. 263, in the Graduate Studies section. The Department also collaborates with Canadian Studies, Cognitive Systems, English

(Language Emphasis), First Nations Languages and Medieval Studies. For current listings, see the Linguistics Department website (www.linguistics.ubc.ca).

Major in Linguistics

LANGUAGE REQUIREMENT

The Department of Linguistics language requirement for the Major in Linguistics is different from the general Language Requirement of the Faculty of Arts. Students who satisfy the Faculty requirement by completing a Grade 12 course in a language other than English may satisfy the Linguistics requirement either by taking an additional 6 credits in the same language or by taking 12 credits in a different language at UBC.

In addition, students may satisfy the Linguistics language requirement by demonstrating competence in a language other than those listed under the Faculty of Arts Language Requirement. In such cases, the student should contact the undergraduate advisor in the Department of Linguistics. Up to 6 credits of language courses taken toward the Linguistics language requirement may count towards the 42-credit total required for the Linguistics Major.

FIRST AND SECOND YEARS

LING 100 and/or 101 are recommended. LING 200 and 201 are required.

THIRD YEAR

All courses in List A are required.

THIRD AND FOURTH YEARS

At least 3 credits of the capstone course LING 447 “Topics”.

6 credits from List B are required.

9 additional credits chosen from List B, C or D are required. Courses from List D must be approved by the Linguistics undergraduate advisor. (Check course descriptions for prerequisites.)

List A: Core Courses

LING 300, 311, 316, 327

List B: Secondary Core Courses

LING 305, 317, 319, 431, 432, 447, 451, 452

List C: Senior-Level Courses in Linguistics

LING 430, 433, 436, 445, 448, 449

List D: Senior-Level Courses in Related Areas

ANTH 332, 401, 417

AUDI 400, 402, 403, 514

CPSC 322

EPSE 315, 399, 419, 424

ENGL 320, 321, 322, 323, 324, 326, 340

FREN 461, 462, 464, 465, 472, 473, 475

JAPN 420

LLED 478

PHIL 320, 321, 322, 323, 324, 420, 425, 426

PSYC 302, 304, 309, 315, 336, 337, 367, 368

SPAN 403

Note: Depending on the student’s program, the Linguistics undergraduate advisor may accept other courses.

Honours in Linguistics

FIRST AND SECOND YEARS

As for Major.

THIRD YEAR

Admission to third year requires at least a 76% average in the first and second years and a minimum 80% average in LING 200 and 201.

All courses in List A (above) are required.

THIRD AND FOURTH YEARS

Students take at least 3 credits of LING 447 and 15 credits from List B (above) and 18 additional credits from List B, C or D. Courses from List D must be approved by the Linguistics undergraduate advisor. (Check course descriptions for prerequisites.)

Minor in Linguistics

LANGUAGE REQUIREMENT

The Linguistics Major language requirement is not required for the Minor in Linguistics.

Courses that satisfy the language requirement for the Major in Linguistics can contribute up to 6 credits toward the 30 credits required for the Minor.

FIRST AND SECOND YEARS

LING 100 and/or 101 are recommended. LING 200 and 201 are required. (ENGL 329 is accepted as equivalent).

THIRD AND FOURTH YEARS

Students take additional courses in Linguistics and related fields to make a total of 30 credits.

These 30 credits must include:

- at least 6 credits from List A
- at least 6 additional credits from Lists A, B or C; and
- at least 6 additional credits from Lists B, C or D. Courses from List D must be approved by the Linguistics undergraduate advisor.

Major in Cognitive Systems: Language (B.A.)

For a program description and admission requirements see *Cognitive Systems (Arts)*, p. 130.

First Year

CPSC 111, 121 (or 122, 128)	8
ENGL 100-level ¹	6
MATH 100 or 102 or 104	3
PSYC 100 (or 101 and 102)	6
Electives ¹	9
Total credits	32

Second Year

COGS 200	3
LING 200, 201 ²	6
PHIL 220	3
PSYC 217, 218	6
Electives ¹	12
Total Credits	30

Third and Fourth Years

COGS 300, 401, 402	9
LING 300 or 311 or 316 or 327	3
PHIL 425, 451	6
12 credits from: LING 300, 305, 311, 316, 317, 319, 327, 431, 432, 447, 451, 452	12

Third and Fourth Years (Continued)

9 credits from: PSYC 302, 304, 315, 336, 337, 365, 367; CPSC 216 ³ , 220 ³ , 312, 322, 444; EECE 251 ³ , 253 ³ , 321, 359; PHIL 426, 441; ANTH 417	9
Electives ^{3,4}	21
Total credits	60

¹ Students enrolled in the 24-credit Foundations course should take 9 credits of the required first-year courses in their first year and the remaining 6 credits in their second year. Students enrolled in the 18-credit Arts I should take 12 credits of required courses in the first year and the remaining credits in the second year.

² ENGL 329 (6) can be substituted for LING 200 (3) and LING 201 (3).

³ At least 48 credits of 300 or above courses are required for the B.A. degree. Cognitive Systems students who take CPSC 216, 220 and/or EECE 251, 253 must design their overall program to fit these requirements.

⁴ Electives may be selected from the lists containing required courses.

Major in First Nations Languages and Linguistics

FIRST AND SECOND YEARS

Students take FNLG 100 and 200 and LING 100, 101, 200 and 201. (FNLG 100 and 200 must both be in the same language; see *First Nations Languages*, p. 135 for information.

THIRD AND FOURTH YEARS

All courses in Lists J, K and L are required. 12 credits from List M are required.

List J: Core Linguistics Courses

LING 300, 311

List K: Field Methods Courses

LING 431, 432

List L: First Nations Linguistics Courses

LING 433, 436

List M: Senior-Level Courses in Linguistics

LING 305, 319, 327, 445, 447

RECOMMENDED COURSES

The following courses in other departments are particularly recommended: ANTH 100, 220, 221, 304, 329, 401, 431; ARTH 376; FNLG 300, 448; GEOG 426; HIST 135, 302; MUSC 328; POLI 406.

Of the total of 120 credits required for a B.A. up to 18 credits of coursework may be taken outside the Faculty. Recommended options include EDUC 140, 240, 342, 441, 442.

Major in First Nations Languages and Linguistics with a Minor in Linguistics / Major or Honours in Speech Sciences with a Minor in Linguistics

Because there is substantial Linguistics content in the First Nations Languages and Linguistics and in the Speech Sciences majors, students from these programs who wish to receive a Minor in Linguistics must meet the following requirements in addition to the standard requirements for the minor.

The 30 credits presented for the Minor in Linguistics must include:

- all courses in List A and
- at least 6 credits from Lists B, C or D that are not included in the credits counted

toward the Major in First Nations Languages and Linguistics or the Major or Honours in Speech Sciences.

Minor in First Nations Languages and Linguistics

Students take 30 credits selected from the courses listed for the Major in First Nations Languages and Linguistics including FNLG 100 and 200 (in the same language), or equivalent experience with a First Nations language and 18 credits from Linguistics courses numbered 300 and above including:

- LING 300 or 311
- 3 credits from List K; and
- all of List L
- Recommended options include EDUC 140, 240, 342, 441, 442.

Major in Speech Sciences

Students majoring in Speech Sciences should be aware that North American graduate programs in Speech Pathology and Audiology have varying prerequisites, and that a Bachelor of Arts with a Major in Speech Sciences from UBC will not necessarily qualify them for immediate admission to a graduate program. Students should investigate prospective graduate schools and consult the Linguistics undergraduate advisor early in their program. See *The School of Audiology and Speech Sciences*, p. 161, for the required prerequisites for the two-year Master's program. Note that AUDI 514 is recommended and regularly open to qualified undergraduates.

FIRST AND SECOND YEARS

LING 100 is recommended. LING 200 and 201 are required; PSYC 100 or both PSYC 101 and 102 are required; and both PSYC 217 and 218 are required. PHYS 341 is recommended.

THIRD AND FOURTH YEARS

Students take all courses from List E and F, 3 credits from List G, and 12 additional credits from Lists G or H.

List E: Core Courses

LING 300, 311, 316, 317

List F: Secondary Core Linguistics Courses

LING 447

List G: Secondary Core Speech Science Courses

LING 451, 452

List H: Senior-Level Speech Science Courses

AUDI 402; LING 447; PSYC 302, 304, 309, 315, 336, 337, 367, 368.

Other Recommended Mathematics and Science Courses

BIOL 110 or 115, MATH 099 are recommended.

Honours in Speech Sciences

FIRST AND SECOND YEARS

As for the Major.

THIRD YEAR

Admission to third year requires a minimum average of 76% in the first and second years and an 80% average in LING 200 and 201.

THIRD AND FOURTH YEARS

Students take the following:

- all courses in Lists E, F and G (above)
- 15 additional credits from List H and
- 12 additional credits from List H or from Linguistics courses numbered 300 or above.

Minor in Speech Sciences

FIRST AND SECOND YEARS

LING 200 and 201 are required. PSYC 100, or 101 and 102, and 217 and 218 are recommended.

Note: These courses provide the preferred prerequisites for most upper-level Speech Sciences courses. See individual course listings for details.

THIRD AND FOURTH YEARS

Students take additional courses chosen from the Speech Sciences Major lists to make a total of 30 credits. These 30 credits must include:

- LING 316 and 317
- at least 6 credits chosen from AUDI 402, LING 451, 452; and
- at least 6 additional credits chosen from List H.

MATHEMATICS

The Department of Mathematics (www.math.ubc.ca) offers programs of study that lead to the Doctor of Philosophy, Master of Arts, Master of Science, Bachelor of Arts and Bachelor of Science. For information on the Bachelor of Science, see *The Faculty of Science*, p. 383. For information on graduate programs, see *Mathematics*, p. 264, in the Graduate Studies section.

Major in Mathematics

The Department offers a large selection of courses in various areas of pure and applied mathematics which require various levels of mathematical sophistication. B.A. programs combining Mathematics with another subject such as Economics, English, Linguistics, Music, or Philosophy, are encouraged. The student is advised to consult a Mathematics Major advisor in order to design a coherent program of study suitable to the student's interests and abilities.

FIRST AND SECOND YEARS

In addition to Faculty requirements, students complete:

- MATH 100 or 102 or 104 or 180 or 184 or 120¹;
- MATH 101 or 103 or 105 or 121;
- MATH 200 (or 226);
- MATH 220²;
- MATH 221 or 223, and 215²; and
- CPSC 111/211 or CPSC 111/MATH 210.¹⁰

THIRD AND FOURTH YEARS

In addition to Faculty requirements, students complete 24 credits of Mathematics courses numbered 300 and above, and 6 credits of Mathematics, Statistics, or Computer Science courses numbered 300 or above.

Recommendations

The Department makes the following recommendations:

- 1) Mathematically able students are encouraged to take the Honours stream MATH 120, 121, 223, 226, and 227.
- 2) Numerical analysis courses in Computer Science (CPSC 302, 303, 402, 403) require completion of CPSC 111. Other upper-level Computer Science courses useful to mathematics students require completion of CPSC 211 and 221.
- 3) In second year, MATH 221 should be taken in Term 1. It is possible to take (with appropriate prerequisites) some of MATH 307, 308, 312, 317, 340 and MATH/STAT 302, as well as MATH 300, in Term 2.
- 4) Students interested in pursuing statistics to some depth should take STAT 200 and MATH/STAT 302 in second year. This will prepare them for more advanced Statistics courses such as STAT 305, 306, 404, and 405.
- 5) Majors students should consider taking some of MATH 300, 320, 322.
- 6) MATH 302 and 307 are useful in many areas of mathematics.
- 7) Students interested in operations research should take MATH 340, 441, 442, and 443. They are also advised to take MATH 303, STAT 305 and 306, and some advanced Computer Science courses.
- 8) Students interested in teaching are advised to take MATH 308, 309, 312, 313, 414, 446.
- 9) Students interested in becoming actuaries can make substantial progress toward this career goal while majoring in mathematics or statistics. These students should consult the actuarial advisors in the Mathematics and/or Statistics Departments for detailed guidance on course selection and advice on taking the Society of Actuaries' examinations.
- 10) Students interested in the physical sciences should take MATH 317.
- 11) Students interested in economics should consider taking ECON 420 and 421, and should consult an advisor in the Economics Department for other appropriate economics courses. A Combined Major in Mathematics and Economics is available (see below).
- 12) In selecting electives, students should consider pursuing an area of application of mathematics in some depth. They should also ensure that they fulfil all the graduation requirements of the Faculty of Arts.

Combined Major in Mathematics and Economics

Admission to the program is subject to the admission restrictions and application process that pertain currently to the Major in Economics.

FIRST AND SECOND YEARS

In addition to Faculty requirements, students complete:

- ECON 101 and 102³
- MATH 104 (or 100 or 102 or 180 or 184 or 120)
- MATH 105 (or 101 or 103 or 121);
- ECON 206 and 207
- MATH 200 (or 226), 215, 220, 221 (or 223).

THIRD AND FOURTH YEARS

In addition to Faculty requirements, students take the following courses:

- ECON 306, 325⁴, 326
- MATH 320
- 9 additional credits of Economics numbered 300 or higher, of which at least 3 credits must be at the 400 or 500 level
- 9 additional credits of Mathematics numbered 300 or higher. Suitable electives include MATH 302, 303, 321, 402, 403, 418, 419 and 443.

Honours in Mathematics

FIRST AND SECOND YEARS

In addition to Faculty of Arts requirements, students complete:

- MATH 120 and 121 (or one of 100, 102, 104, 120, 180, 184 and one of 101, 103, 105, 121);
- MATH 223⁵ (or 221⁵) and 215;
- MATH 226 and 227 (or 200, 220, and 317); and
- CPSC 111/211 or CPSC 111/MATH 210.¹⁰

THIRD AND FOURTH YEARS

In addition to Faculty of Arts requirements, students complete:

- MATH 300, 320, 321, 322, and one of 412, 422 or 423;⁶
- 15 additional credits⁶ from MATH 400 to 405, 412, 416 to 429, 433 to 440, 443, 449;⁷ and
- 9 additional credits of Mathematics courses numbered 300 or above.

Students intending to enter the Honours program should consult a Honours advisor in the Department of Mathematics at the beginning of the second year. To be admitted to the Honours program, a student must obtain at least 68% in MATH 121, or 80% in MATH 101 or 103 or 105, and 80% average in MATH 100/101 or 102/103 or 104/105.

Students who intend to do graduate work in Mathematics should continue their study of French, German, or Russian beyond the level that fulfils the language requirement of the Faculty of Arts.

Combined Honours in Mathematics and Another Subject

FIRST AND SECOND YEARS

Students take mathematics courses as for Honours mathematics and other subjects as specified by the other department.

THIRD AND FOURTH YEARS

In addition to Faculty of Arts requirements, students complete:

- MATH 320 and 321⁷
- 6 credits⁷ chosen from MATH 300, 301, 316, 322, 331
- 12 credits^{7,9} chosen from MATH 400 to 405, 412, 416 to 429, 433–440, 443, 449; and
- other subjects as specified by the other department.⁸

¹ See *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 16.

² One of MATH 220 or 215 may be delayed until third year. Students obtaining 68% or higher in MATH 226 are not required to take MATH 220.

³ Students can take ECON 307 and 3 additional credits of Economics numbered 300 or higher instead of ECON 101 and 102.

⁴ STAT 200 can substitute for ECON 325.

⁵ Students are advised to take these courses in first year.

⁶ A 68% overall average is required in these 30 credits to obtain an Honours degree.

⁷ A 68% overall average is required in these 24 credits to obtain this Honours degree.

⁸ See *Combined Honours Program*, p. 123, under "Program Requirements" in the Faculty of Arts.

⁹ MATH 449 is recommended.

¹⁰ MATH 210 may not be offered every year.

MEDIEVAL STUDIES

Students intending to specialize in Medieval Studies may do so either by taking an interdisciplinary Major program in Medieval Studies, or by completing a Major program in a particular department of the Faculty of Arts, with outside electives taken from the courses listed below. (For permission to arrange this program consult the Medieval Studies advisor.) The prerequisite for the interdisciplinary program is 6 credits selected from: HIST 101, MDVL 200, or CLST 100. Other first- and second-year courses applicable to this program are CLST/PHIL 211 and 212, LATN 100, ENGL 230, MUSC 120, and RELG 202. Students should also develop the appropriate language skills as soon as possible.

For further guidance on the Major program and individual course offerings, the Committee for Medieval Studies prepares an annual brochure which is available from the Departments of Classical, Near Eastern, and Religious Studies; French, Hispanic, and Italian Studies; English; and History, or visit the Medieval Studies website (medievalstudies.arts.ubc.ca). Students should consult with the departments offering these courses and plan their third and fourth years at the same time, as not every course is offered every year.

The following are courses in Medieval Studies offered in the Faculty of Arts. All courses are 6 credits unless otherwise indicated.

- ARBC 300, 400, 420A (3)
- ARTH 331 (3), 332 (3), 333 (3), 334 (3), 335 (3), 351 B, 359 (3), 366 (3), 431 (3), 432 (3),
- CLST 331, 353 (3), 354 (3), 431 (3)

- ENGL 320, 340 (3/6), 343 (3)¹, 344 (3–12), 346 (3–6), 352 (3), 417 (3/6)
 - FREN 407 (3/6), 460 (3)², 465 (3)
 - GERM 360 (3)
 - HIST 313, 370, 371 (3), 372 (3), 373 (3), 374 (3), 375 (3), 376 (3), 377 (3), 378 (3), 381 (3), 382 (3), 384 (3), 387 (3), 431 (3), 470 (3)
 - ITAL 401 (3/6), 405 (3/6)
 - ITST 413 (3), 414 (3), 415 (3), 431 (3/6)
 - LATN 300, 305 (3/6)³
 - MDVL 301 (3), 302 (3), 440 (3/6), 449 (6/12)
 - MUSC 324 (3/6), 350 (3/6)⁴, 352 (3)
 - NEST 310 (3)
 - PHIL 310 (3/4), 311 (3/4), 313 (3/4), 412 (3/4)
 - RELG 315 (3/6), 321 (3/6), 328 (3), 331 (3), 335 (3), 340, 341 (3/6), 408 (3), 448 (3)
 - RMST 220 (3), 420 (3)
 - SCAN 501 (3/6)
 - SPAN 357 (3), 410 (3)
- ¹ ENGL 340 is prerequisite.
² FREN 353 (3) is prerequisite.
³ LATN 200 or 300 is prerequisite.
⁴ MUSC 121 (3) is a prerequisite.

MODERN EUROPEAN STUDIES

Modern European Studies is an undergraduate interdisciplinary program administered by the Modern European Studies Steering Committee. For courses offered in a particular year, please consult the program brochure, website (www.german.ubc.ca), or chair Peter Petro (petro@interchange.ubc.ca).

FIRST AND SECOND YEARS

Students take one of HIST 120 (6) or 202 (6) or Arts One.

THIRD AND FOURTH YEARS

Students take at least 30 credits, including HIST 462 (3) and 463 (3) or another course in European history as designated for a particular year by the chair of the program.

At least 6 credits from each of Lists A (History), B (Social Sciences) and C (Literature and Culture) and the remainder from any of the lists are also required (see below).

LANGUAGE REQUIREMENT

Students are required to take 12 credits of a European language other than English, in addition to the Faculty of Arts language requirement. The language can be the one used to satisfy the Faculty of Arts language requirement carried to a higher level (with literature courses in that language counting as equivalent), or it can be another language. RMST 478 is also acceptable.

Students may not take more than 72 credits in courses at the 100 and 200 level. Students are advised to check course listings for prerequisites.

List A

HIST 316 (6), 324 (6), 335 (6), 400 (6), 405 (6), 406 (3), 407 (6), 408 (3), 416 (3), 417 (3), 419 (3), 438 (6), 441 (3), 461 (3)

List B

ECON 312 (3), 313 (3), 319 (3), 334 (3), 387 (3); GEOG 391 (3), 493 (3); PHIL 314 (3/4), 414 (3/6), 416 (3/6), 431 (3/4); POLI 326 (3), 327 (3), 341 (3/6), 343 (3), 346 (3); RELG 315; SOCI 302 (3/6), 350 (6), 461 (3/6).

List C

All courses in European literature since the Renaissance, including those in translation, and the following courses: ARTH 335 (3), 337 (3), 339 (3), 340 (3), 347 (3); FREN 334 (3/6); GERM 402 (3), 403 (3/6); ITST 230 (3/6), 432 (3/6); MUSC 354 (3), 430 (3/6), 450 (3/6), 455 (3); RUSS 306 (6), 410 (3/6); SCAN 411 (3); SLAV 307 (3/6); SPAN 320 (6); THTR 320 (6).

MUSEUM STUDIES

The Museum of Anthropology, in affiliation with the Department of Anthropology and Sociology, offers training in museum principles and methods for both undergraduate and graduate students. Theory is combined with practical experience provided in laboratory sessions and workshops. Core courses are ANTH 341, 431, 432, 451, 452, and 518. It is recommended that students take additional courses in museum-related subjects offered by this department or by other departments such as Asian Studies; Classical, Near Eastern, and Religious Studies; Art History, Visual Art, and Theory; History; and Archival Studies. Additional opportunities for tutorials, workshops, internships, and job training are offered to students by special arrangement.

Graduate work in Museum Studies may be pursued at the Master's or Doctor of Philosophy levels as a component of the degree programs in Anthropology or in combination with degrees in other disciplines such as Asian Studies; Classical, Near Eastern, and Religious Studies; Art History, Visual Art, and Theory; or History in accordance with the degree requirements of those departments. Students wishing to obtain a Master's Degree in *Critical Curatorial Studies*, p. 233, should apply through the Department of Art History, Visual Art, and Theory.

People already working in the museum community who wish to upgrade their knowledge and skills without entering a formal degree program or becoming full-time students should contact the Museum of Anthropology for information about course options. Admission to credit courses is subject to university regulations for admission as an unclassified student or auditor, and the permission of the instructor. For more information on the Museum Studies program, please consult the websites of the Department of Anthropology and Sociology (www.anso.ubc.ca) or the Museum of Anthropology (www.moa.ubc.ca).

MUSIC

The School of Music offers a Bachelor of Arts in Music designed for students interested in studying music as one of the liberal arts. The degree is also an alternative to the Bachelor of Music Major in Music Scholarship for students interested in graduate work in music theory, music history, or ethnomusicology. Students wishing to become professional performers, composers, or teachers should, if qualified, consider the appropriate Major in the Bachelor of Music program. The School also collaborates with Drama, Film Studies, Linguistics, Medieval Studies and Modern European Studies. For current offerings, consult the School's website (www.music.ubc.ca).

For the general course requirements of the Bachelor of Arts, see *Degree Requirements*, p. 120. For information on graduate programs, see *Music*, p. 268, in the Graduate Studies section.

There are no performance requirements for entry into the Bachelor of Arts in Music. Students who wish to register for ensembles must audition; they should contact the School of Music in mid-August to sign up for audition times.

Major in Music

FIRST YEAR

Students take MUSC 100, 101, 120, 121.

SECOND YEAR

Students take MUSC 200, 201, 220, 221.

THIRD AND FOURTH YEARS

When entering the Major program at the beginning of the third year, the student must draw up a plan of study for the last 60 credits of course work, in consultation with a School of Music advisor. Another review by an advisor must precede the final 30 credits.

Students must take a total of 60 credits, including:

- 30 credits of 300- or 400-level Music courses¹
- at least 12 credits of electives outside the subject of the Major.

Honours in Music

FIRST AND SECOND YEARS

As for Major.

THIRD AND FOURTH YEARS

Students take the following:

- 48 credits of 300- and 400-level Music courses¹ including MUSC 449 and at least 18 credits in music theory, music history, or ethnomusicology; and
- 12 credits of non-Music courses.

At least 54 credits must be at the upper level.

A minimum 68% average in each year is required.

The Honours program is open only to students who show special aptitude and the capacity to profit from working extensively in this field. The School may terminate a student's candidacy for Honours if, after a prescribed process of evaluation, it decides that an appropriate

level is not being maintained, at least a 68% average notwithstanding.

Minor in Music

FIRST AND SECOND YEARS

First and second years of the program require that students complete:

- MUSC 100, 101, and 200; and
- any two of MUSC 120, 121, 220, 221.

THIRD AND FOURTH YEARS

Students must take 18 credits at the 300 or 400 level.¹

¹ Any 300- or 400-level course in music history, music theory, ethnomusicology, or music composition, as well as MUSC 107 and 207, counts toward this requirement. Even though the ensemble courses in Music have 100 numbers, they will count as 300- or 400-level courses, and hence as part of the requirements for the Major, Honours, or Minor in Music, when taken in the third or fourth years. At most 8 credits of ensemble may be counted toward the Bachelor of Arts.

MYTH AND LITERATURE (CLASSICAL STUDIES)

See “Classical Studies” for information on *Myth and Literature in Greece, Rome, and the Near East*, p. 130.

NEAR EASTERN STUDIES

The Department of Classical, Near Eastern and Religious Studies offers programs leading to the Bachelor of Arts in Near Eastern Studies. For other Bachelor programs, see the listings for *Classical Studies*, p. 129, and *Classics*, p. 130 (including Greek and Latin) and *Religious Studies*, p. 148. For information on graduate programs, see *Classics*, p. 240, or *Religious Studies*, p. 277, in the Graduate Studies section. For information on current offerings, see the departmental website (www.cnrs.ubc.ca). The Department also collaborates in programs offered by Archaeology; Art History, Visual Art and Theory; Drama; International Relations; Italian and Italian Studies; Medieval Studies; Modern European Studies; Museum Studies; Philosophy; Religion, Literature and the Arts; Science Studies; and Women’s Studies.

Major in Near Eastern Studies

42 credits as follows:

FIRST AND SECOND YEARS

- RELG 202 (6)

THIRD AND FOURTH YEARS

(36 credits)

(A) 18 credits of the following:

- NEST 301 (3), 302 (6), 303 (3), 304 (3), 310 (3)
- RELG 304(3), 305 (3), 306 (3), 308 (3), 313 (3), 314 (6), 340 (6), 341 (3/6), 385 (3)
- CNRS 316 (6).

(B) 18 additional credits from the list above, and/or the following:

- CLST 356 (3)
- RELG 302 (3), 309 (3), 310 (3), 311 (3), 403 (3), 407 (3), 408 (3), 414 (3), 448 (3), 449 (3), 475A (3/6)*, 485 (3)
- GREK 325 (6)

- HEBR 305 (6), 405 (6), 479 (3/12)
- ARAB 300 (6), 400 (6), 420 (3/6).

*Requires approval of department.

Honours in Near Eastern Studies

60 credits as follows:

FIRST AND SECOND YEARS

RELG 202 (6)

THIRD AND FOURTH YEARS

(54 credits)

(A) 30 credits of the following:

- NEST 301 (3), 302 (6), 303 (3), 304 (3), 310 (3)
- RELG 304 (3), 305 (3), 306 (3), 308 (3), 313 (3), 314 (6), 340 (6), 341 (3/6), 385 (3)
- CNRS 316 (6).

Honours students are encouraged to take courses in Hebrew, Arabic or New Testament Greek.

(B) 24 additional credits from the list above, and/or the following:

- CLST 356 (3)
- RELG 302 (3), 309 (3), 310 (3), 311 (3), 403 (3), 407 (3), 408 (3), 414 (3), 448 (3), 449 (3), 475A (3/6)*, 485 (3)
- GREK 125 (6)
- HEBR 305 (6), 405 (6), 479 (3/12)
- ARAB 300 (6), 400 (6), 420 (3/6).

* requires approval of department.

Honours students must take RELG 370 (Concepts and Methods) if their focus is Near Eastern Religion, myth, and textual traditions. This course will count as 6 of the 24 additional credits listed in (B) above.

Minor in Near Eastern Studies

30 credits as follows:

FIRST AND SECOND YEARS

RELG 202 (6)

THIRD AND FOURTH YEARS

(24 credits)

(A) 12 credits of the following:

- NEST 301 (3), 302 (6), 303 (3), 304 (3), 310 (3)
- RELG 304 (6), 305 (3), 306 (3), 308 (3), 313 (3), 314 (6), 340 (6), 341 (3/6), 385 (3)
- CNRS 316 (6).

(B) 12 additional credits from the list above, and/or the following:

- CLST 309 (3)
- RELG 302 (3), 309 (3), 310 (3), 311 (3), 403 (3), 407 (3), 408 (3), 414 (3), 448 (3), 449 (3), 475A (3/6)*, 485 (3)
- GREK 325 (6)
- HEBR 305 (6), 405 (6), 479 (3/12),
- ARAB 300 (6), 400 (6), 420 (3/6).

*Requires approval of department.

Archaeology and History of Greece, Rome and the Near East

For information on the Major, Minor and Honours programs in Archaeology and History of Greece, Rome and the Near East see *Classical Studies*, p. 129.

Myth and Literature in Greece, Rome, and the Near East

For information on the Major, Minor and Honours programs in Myth and Literature in Greece, Rome, and the Near East see *Classical Studies*, p. 130.

NINETEENTH-CENTURY STUDIES

The Nineteenth-Century Studies Minor allows students to enrich their understanding of their Major by studying relationships among intellectual, cultural, literary, social, and political discourses of the nineteenth century. The program incorporates courses from several departments and offers an interdisciplinary approach to the study and interpretation of the nineteenth century.

Minor in Nineteenth-Century Studies

Students wishing to specialize in Nineteenth-Century Studies may take an interdisciplinary minor as part of their B.A. program. Students must take at least 18 credits of third and fourth year courses drawn from the approved lists of courses maintained by the Nineteenth-Century Studies Coordinating Committee. Relevant courses not on the approved list may be accepted with the permission of the program advisor.

The courses must reflect disciplinary breadth as well as a focus on the nineteenth century. A detailed description of the program, the lists of approved courses, and other information are available from the program’s brochure and website (www2.arts.ubc.ca/projects/nissc). Contact the Arts Academic Advising Office, telephone 604-822-4028 for the name of the current program advisor.

PHILOSOPHY

The Department of Philosophy offers programs of study that lead to the Doctor of Philosophy, Master of Arts and Bachelor of Arts. For information on graduate programs, see *Philosophy*, p. 273, in the Graduate Studies section. The Department also collaborates with Economics, Linguistics, Medieval Studies, Modern European Studies and Science Studies. Current offerings are posted on the Department’s website (www.philosophy.ubc.ca).

Major in Philosophy

Students must take at least 42 credits (and no more than 60 credits) in Philosophy, subject to the following requirements:

FIRST YEAR

6 credits from PHIL 100 (6), 120 (3), 125 (3), 211 (3), 212 (3), 260 (3) or Arts One are recommended.

SECOND, THIRD AND FOURTH YEARS

Second, third and fourth years of the program require that students complete:

- 15 credits from: PHIL 220, 230, 240, 330, 340
- 6 credits of 300-level history of Philosophy from PHIL 310, 311, 314, 315 and
- an additional 18 credits from third- and fourth-year Philosophy courses (excluding PHIL 400, 401) or ASIA 371, 372 to provide a total of at least 30 third- and fourth-year credits (including the third-year credits required above). No more than 6 credits of ASIA 371 (3), 372 (3), may be counted toward the required 30 third- and fourth-year credits, except with the permission of the Department.

Combined Major in Philosophy and Economics

For Economics course and program changes that may not appear in the Calendar, check the Department's website (www.philosophy.ubc.ca).

Admission to the program is subject to the admission restrictions and application process that pertain currently to the Major in Economics. In addition to Faculty requirements, the program has Economics and Philosophy requirements.

ECONOMICS REQUIREMENTS

Students take an 18-credit core plus ECON 490 and 9 credits of electives in Economics of which at least 3 credits must be at the 300/400-level. The 18-credit core consists of ECON 101, 102, 301 (or 304 or 201 or 206), 302 (or 305 or 202 or 207), 325 and 326. Students are strongly advised to take ECON 318 and ECON 319 (equivalent to PHIL 362 and PHIL 363).

PHILOSOPHY REQUIREMENTS

Students take an 18-credit core plus 12 credits of electives at the 300/400 level. The elective credits may not (except with departmental permission) include PHIL 400, 401, or more than 6 credits of ASIA 371, 372. The 18-credit core consists of PHIL 220, 230, 240, 330 and 340 plus 3 credits of history of philosophy from PHIL 310, 311, 314 or 315.

Combined Major in Philosophy and Political Science

Admission to the program is subject to the admission restrictions and application process that pertain currently to the Major in Political Science. In addition to Faculty requirements, the program has Philosophy and Political Science requirements.

PHILOSOPHY REQUIREMENTS

Students take an 18-credit core plus 12 credits of electives at the 300/400 level. The 18-credit core consists of PHIL 230, 240, 330, 340, and any two of the following: PHIL 335, 338, 431, and/or 461. Students may use any 300 or 400 level philosophy courses to fulfill their elective requirements excluding PHIL 400 and 401.

POLITICAL SCIENCE REQUIREMENTS:

Students take an 18-credit core plus 12 credits of electives at the 300/400 level. The 18-credit core consists of POLI 100, 101, 240, 340 (6), and 380. (Students who have completed the

Foundations Program will be exempted from the requirement of POLI 100.)

Honours in Philosophy

Students are encouraged to apply to the Department for admission to the Honours program by the end of their second year. Applicants are normally expected to have obtained a grade of at least 80% in at least two of PHIL 220, 230 or 240. A recommendation from a Philosophy instructor is also required.

For an Honours degree a student must complete at least 60 credits (and no more than 72 credits) in Philosophy, subject to the following requirements.

FIRST YEAR

3 credits from PHIL 100 (6), 120 (3), 125 (3), 211 (3), 212 (3), 260 (3) or Arts One are recommended.

SECOND, THIRD AND FOURTH YEARS

Second, third and fourth years of the program require that students complete:

- 15 credits from: PHIL 220, 230, 240, 330, 340
- 6 credits of 300-level history of Philosophy from PHIL 310, 311, 314, 315
- 12 credits from: PHIL 390, 490; and
- an additional 24 credits from third- and fourth-year Philosophy courses (excluding 400, 401) or ASIA 371, 372 to provide a total of at least 48 third- and fourth-year credits (including the third- and fourth-year credits required above). No more than 6 credits of ASIA 371 (3), 372 (3) may be counted toward the required 48 third- and fourth-year credits, except with the permission of the Department.

Minor in Philosophy

Students must take at least 30 credits (and no more than 42 credits) in Philosophy. At least 18 of these credits must be in courses numbered 300 or above.

Major in History and Philosophy of Science

See *History*, p. 137.

POLITICAL SCIENCE

The Department of Political Science offers programs of study that lead to the Doctor of Philosophy, Master of Arts and Bachelor of Arts. Students wishing to enter the Major or Honours programs must make a written application to the Department prior to registering for their third year. See *Admission and Promotion*, p. 146. For information on graduate programs, see *Political Science*, p. 276, in the Graduate Studies section. The Department also collaborates with Canadian Studies, Economics, International Relations, Latin American Studies, Modern European Studies, Urban Studies and Women's Studies. For details about current offerings, consult the departmental website (www.politics.ubc.ca).

Admission and Promotion

Admission is not automatic to either the Major program or the Honours program in Political

Science. Students must submit a written application. Because there are a limited number of spaces, some applicants who satisfy the minimum prerequisites may not be admitted.

Students contemplating a Major or Honours program in Political Science are encouraged to seek information and advice from the Department at the end of their first year. Application forms will be available after February 1 from the Department of Political Science website (www.politics.ubc.ca). Completed applications are due by May 15 prior to registering for the third year. Applicants should arrange for transcripts from all post-secondary institutions they have attended, other than UBC, to be mailed to the Department office as promptly as possible.

Major in Political Science

Selection for admission to the Major program will be based on the average grade for all post-secondary work attempted to date toward the Bachelor of Arts, with the exception of 12 credits which may be excluded from the calculation. The average will be calculated on at least 48 credits, including all courses taken in Political Science, as well as 6 credits of first-year English. Depending upon the number of applicants in a given year, an average of approximately 70% will be required for admission into the Major.

Promotion to the fourth year of the Major program will be automatic for students in the third year of the program whose work meets university standards for continuing. For students not in the third year of the program, admission to the fourth year will be allowed for transfers from colleges or other universities or students at UBC who have performed well in Political Science courses in their third year but are not in the Political Science Major program. Selection of applicants from these categories will be based on overall standing (average) of the best 72 credits earned to date toward the Bachelor of Arts. These 72 credits must include all Political Science courses and 6 credits of first-year English.

Major students must take at least 42 credits but not more than 60 credits of Political Science in their overall 120 credits for the B.A. At least 30 of these Political Science credits must be in courses numbered 300 or above.

FIRST 60 CREDITS

Prospective Major students should complete POLI 101 and 240 and at least two from POLI 100, 220, and 260. Students are encouraged to complete these courses within their first 60 credits; they must complete at least 6 credits of Political Science before applying for admission to the Major program.

60 TO 120 CREDITS

Major students are required to complete POLI 380. Students who have not completed POLI 240 may substitute POLI 340 for POLI 240 (though they are still required to complete a total of 12 credits at the 100 and 200 level). In addition to these courses, they may take any Political Science course for which they have the prerequisites, provided that:

- they take at least 42 but not more than 60

credits of Political Science; and

- at least 30 of their Political Science credits are from courses numbered 300 or above.

Combined Major in Political Science and Economics

Please see *Economics*, p. 131, for further information on this major.

Combined Major in Political Science and Philosophy

See *Philosophy*, p. 146, for further details and requirements.

Honours Programs in Political Science

Students with a grade of 80% or above in at least one Political Science course and an overall GPA of at least 75% are encouraged to discuss the Honours program with a Political Science advisor and to consider applying. Although only a limited number of students can be accepted into the Honours program, all applications will be given serious consideration.

Promotion to the fourth year of the Honours program requires an 80% grade in at least one Political Science course during the third year, a minimum grade of 75% in POLI 390, and a 75% average overall in the third year.

Occasionally outstanding students from the third-year Major program may be admitted directly to fourth-year Honours.

Graduation in the Honours program normally requires an 80% grade in at least one Political Science course during the fourth year, a minimum grade of 75% in both POLI 490 and 491, and a 75% overall average in the final two years.

Students not meeting these standards but nevertheless satisfying all other university requirements for graduation will be awarded a B.A. in the Major program.

Honours students must complete at least 60 but not more than 72 credits of Political Science in their 120 credits for the B.A. At least 48 of these credits must be in courses numbered 300 or above.

FIRST 60 CREDITS

As for Major students.

60 TO 120 CREDITS

Honours students are required to complete POLI 340, 380, two semesters of 390 (12 credits in total), 490/491, plus at least 6 additional credits of Political Science seminars at the 400 level. Otherwise, they are free to take any Political Science courses for which they have the prerequisites, so long as they take at least 60 but not more than 72 credits of Political Science, and at least 48 of their Political Science credits are from courses numbered 300 or above.

Honours in Political Science with International Relations

See *Admission and Promotion*, p. 146, and *Honours Programs in Political Science*, p. 147. A student in this program completes all the requirements for an Honours degree in Political Science plus most of the requirements of the

International Relations Major. This program leaves minimal room for electives. It is administered by the Department of Political Science (not by the International Relations Program), and students must apply directly to the Department of Political Science for admission. Because of the extensive requirements of this program, students may wish to consider the alternative of Honours in Political Science with a Minor in International Relations.

FIRST 60 CREDITS

Students take the following courses:

- POLI 101 and 260, plus one other 200-level Political Science course
- ECON 101 and 102
- HIST 125 or 150
- 12 credits of a language other than English, in addition to the Faculty of Arts language requirement. The language may be the one used to satisfy the Faculty of Arts requirement carried to a higher level, or it may be an additional language. This requirement may be completed in the third and/or fourth year.

60 TO 120 CREDITS

Students take the following courses:

- POLI 340, 380, 390, 490, 491
- 12 credits from: POLI 360–373, 460–466, of which at least 3 must be from 460–464, 466.
- ECON 355
- HIST 430 or 432

Minor in Political Science

A Minor consists of at least 30 credits, but not more than 42 credits of Political Science courses, of which at least 18 must be numbered 300 or above. POLI 101 must be included among the courses taken. Departmental permission is not required to undertake a Minor in Political Science.

Courses by Field

By late May, the Department provides detailed information concerning courses beginning the following September and January on its website www.politics.ubc.ca. Students should consult this website before choosing courses.

- Political Theory – POLI 240, 305, 340, 342, 344, 345, 346, 347, 440, 442, 444, 446, 521, 522, 523
- Public Policy – POLI 302, 350, 351, 352, 404, 531, 532, 533
- Canadian Government – POLI 101, 301, 303, 304, 305, 306, 307, 308, 401, 402, 403, 404, 405, 406, 501, 502, 503, 504
- International Relations – POLI 260, 360, 361, 362, 363, 364, 365, 366, 367, 368, 369, 370, 373, 374, 375, 460, 461, 462, 463, 464, 465, 466, 561, 562, 563, 564
- Political Behaviour – POLI 380, 381, 385, 551, 552, 553, 571, 572
- Comparative Government – POLI 220, 320, 321, 322, 323, 324, 325, 326, 327, 328, 329, 330, 331, 332, 333, 334, 335, 420, 421, 422, 423, 424, 425, 426, 429, 511, 512, 513, 514, 515, 516

- General Courses – POLI 390, 490, 491, 549, 580, 649

PORTUGUESE

See *Hispanic Studies*, p. 257, in the Graduate Studies section or the Department of French, Hispanic and Italian Studies (www.fhis.ubc.ca).

PSYCHOLOGY

The Department of Psychology offers programs of study that lead to the Doctor of Philosophy, Master of Arts, Bachelor of Arts, and Bachelor of Science. For information about the Bachelor of Science, see *The Faculty of Science*, p. 383. For information on graduate programs, see *Psychology*, p. 276, in the Graduate Studies section. The Department also collaborates with Cognitive Systems, Linguistics (Speech Sciences), and Women's Studies. For details about current offerings, consult the Course Schedule on the Student Service Centre (www.students.ubc.ca/ssc).

Major in Psychology

Students are reminded that the Faculty of Arts requires at least 60 credits outside the Major for the Bachelor of Arts, and that the Department of Psychology requires at least 30 senior-level Psychology credits for the Psychology Major, and at least 48 senior-level Psychology credits for the Honours program. PSYC 340, 348, 440 or 448 may not be included for the minimum 30 Psychology credits required for the Major Program.

Students who are contemplating graduate studies or other research activities in psychology should consider taking PSYC 359 in addition to the above minimum requirements for the Bachelor of Arts.

FIRST AND SECOND YEARS

Students must complete:

- either PSYC 100 or PSYC 101 and PSYC 102
- PSYC 217 and 218.

THIRD AND FOURTH YEARS

Students must take a minimum of 30 credits in 300- or 400-level courses including:

1. At least 6 credits from one of the following two lists:
 - Biopsychology – PSYC 304, 306, 360, 361, 363, 364, 460, 461, 466, 467
 - Cognition/perception – PSYC 309, 333, 334, 336, 337, 365, 367, 368, 463
2. At least 6 credits from each of two of the following four lists:
 - Clinical/forensic/health – PSYC 300, 314, 350, 401, 430
 - Developmental – PSYC 302, 315, 319, 320, 322, 325, 412, 413, 414
 - Foundations/methods – PSYC 303, 312, 323, 359, 465
 - Personality/social – PSYC 305, 308, 321, 403, 407, 408, 415.

All students are encouraged to include fourth-year courses in their programs. In addition to providing greater depth, they provide an opportunity to work in smaller groups.

Honours in Psychology (B.A.)

The Honours program is designed to provide intensive and extensive preparation in psychology for outstanding students who intend to pursue graduate studies in Psychology.

Admission to the Honours program requires at least a 76% average in the second year and at least 80% in PSYC 217 and 218. Students failing to meet either of these criteria may petition for admittance into the program. All students enrolling in the Honours program must consult with the chair of the departmental Honours committee.

Graduation in the Honours program requires:

- a minimum of 120 total credits including 48 credits of Psychology courses numbered 300 or above, including several specified courses that are listed below, but no more than 6 credits total for PSYC 340, 348, 440, or 448.
- an average of at least 76% in the final 60 credits of study; and
- an average of at least 80% in at least 12 credits of Psychology courses numbered 300 or above.

FIRST AND SECOND YEARS

Students must complete:

- either PSYC 100 or 101 and 102
- PSYC 217 and 218
- BIOL 121 or BIOL 344.

THIRD AND FOURTH YEARS

Students must complete:

- a minimum of 30 credits taken concurrently in third year, including PSYC 312, 349, and 359
- a minimum of 30 credits taken concurrently in fourth year, including PSYC 449
- no more than 6 credits total from PSYC 340, 348, 440, 448; and
- at least 6 credits from four of the five content areas listed below:
 - at least 12 credits from:
 - Biopsychology – PSYC 304, 306, 360, 361, 363, 364, 460, 461, 466, 467
 - Cognition/perception – PSYC 309, 333, 334, 336, 337, 365, 367, 368, 463, 465
 - and at least 12 credits from:
 - Clinical/forensic/health – PSYC 300, 303, 314, 323, 350, 401, 430
 - Developmental – PSYC 302, 315, 319, 320, 322, 325, 412, 413, 414
 - Personality/social – PSYC 305, 308, 321, 403, 407, 408, 415.

All students are encouraged to include fourth year courses in their programs. In addition to providing greater depth, they provide an opportunity to work in smaller groups.

Minor in Psychology (BA)

FIRST AND SECOND YEARS

Students must complete:

- either PSYC 100, or 101 and 102
- PSYC 217 and 218

THIRD AND FOURTH YEARS

Students must take at least 18 but no more than 30 credits of 300- or 400-level Psychology courses, and may not count PSYC 340, 348, 440 or 448 toward the minimum requirement of 18 credits.

Major in Cognitive Systems: Cognition and Brain (B.A.)

For a program description and admission requirements, see *Cognitive Systems*, p. 130, (Arts).

First Year	
CPSC 111,121	8
ENGL 100-level	6
MATH 100 or 102 or 104	3
PSYC 100 (or 101 and 102)	6
Electives ^{1,2}	18
Total Credits	32

Second Year	
COGS 200	3
PHIL 220	3
PSYC 217, 218	6
Electives	18
Total Credits	30

Third and Fourth Years	
COGS 300	3
COGS 401, 402	6
PHIL 441, 451	6
PSYC 365	3
12 credits from: PSYC 304 ³ , 309, 333, 334, 336, 337, 360 ³ , 361, 363, 364, 367, 368, 412, 461, 463, 465; BIOL 353 ³ , 455, 458	12
Six credits from PHIL 320, 340, 440, 452, 461; CPSC 303, 312, 322, 422; LING 300, 316, 319, 327	6
Electives ^{2,3,4}	24
Total Credits	60

¹ Students enrolled in the 24 credit Foundations course should take PSYC 100 in their 1st year and MATH 100 and CPSC 111, 121 in their 2nd year. Students enrolled in the 18-credit Arts One should take PSYC 100 and 6 other credits of the required courses (CPSC 111, 121, MATH 100) in their 1st year and the remaining 3 credits in their 2nd year.

² No more than 72 credits can be in courses at the 100 or 200 level.

³ Credit will not be granted for more than one of PSYC 360, PSYC 304 and BIOL 353.

⁴ Some of these may be selected from the lists of courses from which required courses are taken.

PUNJABI

See *Major in Asian Language and Culture*, p. 128, under Asian Studies.

RELIGION, LITERATURE AND THE ARTS

To integrate many aspects of diverse religious traditions and the literary and artistic cultures in which they have functioned, the Major in Religion, Literature and the Arts is based on core courses and seminars and employs wide resources within the Faculty of Arts. The student must take the three RGLA seminars and a selection from the core list and then a

number of courses from the broader list in the program brochure, which is revised annually. The disciplines contributing to this extensive list each year could include Art History, Visual Art and Theory; Asian Studies; Central, Eastern and Northern European Studies; Classical, Near Eastern and Religious Studies; English; First Nations; French, Hispanic and Italian Studies; and Theatre, Film and Creative Writing.

Major in Religion, Literature and the Arts

Students must select their courses with the help of an advisor.

FIRST AND SECOND YEARS

First and second years of the program require that students complete:

- 6 credits from RELG 100, 202, 204 or 205 and
- 6 credits from ANTH 220; ASIA 100, 101, 200, 208, 209; CENS 201, 202; CLST 100, 211, 212; DRAM 200, 201; ENGL 220, 221, 230; ITST 230; RUSS 206, 207; THTR 120, 245.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete 33 credits, which must include:

- RGLA 371, 372 and 471
- 6 credits of Religious Studies courses numbered 300 and above; and
- 15 to 18 credits selected in consultation with a program advisor from the courses listed in the program brochure.

Minor in Religion, Literature and the Arts

FIRST AND SECOND YEARS

Students take the following courses:

- 6 credits from RELG 100, 202, 204 or 205; and
- 6 credits from ANTH 220; ASIA 100, 101, 200, 208, 209; CENS 201, 202; CLST 100, 210; DRAM 200, 201; ENGL 220, 221, 230; RUSS 206, 207; THTR 120, 200.

THIRD AND FOURTH YEARS

Students take 21 credits, which must include:

- 6 to 9 credits of RGLA 371, 372 and 471;
- 6 credits of Religious Studies courses numbered 300 and above; and
- 6 to 9 credits selected in consultation with a program advisor from the courses listed in the program brochure.

RELIGIOUS STUDIES

The Department of Classical, Near Eastern and Religious Studies offers programs leading to the Bachelor of Arts in Religious Studies (including *Archaeology and History*, p. 129, and *Myth and Literature*, p. 130). For other Bachelor programs, see the listings for *Near Eastern Studies*, p. 145, *Classical Studies*, p. 129, and *Classics*, p. 130 (including Greek and Latin). For information on graduate programs, see *Religious Studies*, p. 277, in the Graduate Studies section. For information on current offerings, see the departmental website

(www.cnrs.ubc.ca). The Department also collaborates in programs offered by Archaeology; Art History, Visual Art, and Theory; Philosophy; and Religion, Literature, and the Arts.

For details concerning current courses and programs, consult the departmental website (www.cnrs.ubc.ca).

Major in Religious Studies

FIRST AND SECOND YEARS

Students must take a minimum of 6 credits from RELG 100, 202, 204 or 205.

THIRD AND FOURTH YEARS

Students must take 36 credits to be selected from Religious Studies credits numbered 300 or above including NEST 310, the courses outside Religious Studies listed in the streams below, and canonical language courses (Arabic and Hebrew) or up to 12 credits of Greek and Latin from 100 and 200 levels.

Subject to the approval of the Department, a maximum of 12 credits of the following courses may be accepted for credit toward a Major in Religious Studies: ANTH 329, 415; ARTH 352, 353, 354, 355, 364, 365; ASIA 308, 379, 382, 383; CLST 305; ENGL 354, 417; HIST 372; ITST 310; MUSC 329, 350; PHIL 349.

Honours in Religious Studies

Students require a minimum of 6 credits from RELG 100, 202, 204 or 205 to be admitted to the Honours program in Religious Studies.

THIRD AND FOURTH YEARS

A program will be devised for each student, consisting of 54 credits and including a graduation essay (RELG 499). Subject to the approval of the Department, a maximum of 18 credits may be chosen from the list of courses outside the Department (see list in “Major in Religious Studies” above). NEST 310 and courses in Arabic and Hebrew, as well as up to 12 credits of 100- and 200-level Greek and Latin, may also be included.

Areas of Concentration for Majors and Honours

Students who intend to do graduate work are advised (but not required) to choose an area of concentration in the third and fourth years, and to acquire some proficiency in the appropriate canonical language(s). For languages other than Arabic, Hebrew, Greek, or Latin, see the listings of the appropriate departments.

- Asian Religions – RELG 204, 354, 364, 365, 366, 367, 368; ASIA 308, 341, 348, 352, 358, 371, 372, 378, 379, 382, 387, 388, 398, 488.
- Christianity (post-Biblical) – CNRS 316; RELG 205, 315, 320, 321, 323, 324, 325, 326, 327, 328, 385, 420, 449, 480, 485; ENGL 354; PHIL 385.
- Hebrew Bible and the Ancient Near East – RELG 202, 300, 304, 305, 306, 403; CLST 339; HEBR 305, 405, 479; NEST 301, 302, 303, 304.

- Islamic Studies – RELG 202, 340, 341, 420, 448, 449, 480, 485; ARBC 300, 400, 420; NEST 310.
- Judaic Studies – RELG 202, 309, 310, 311, 312, 313, 331, 332, 335, 336, 385, 407, 408, 409, 420, 480, 485; HEBR 305, 405, 479.
- Near Eastern Languages and Literature – RELG 202, ARBC 300, 400, 420; HEBR 305, 405, 479 and appropriate language courses from above on Hebrew Bible, Islamic Studies, and Judaic Studies.
- New Testament – RELG 202, 304, 305, 314, 414, 415, 485; GREK 325; CNRS 316

Minor in Religious Studies

FIRST AND SECOND YEARS

Students must take a minimum of six credits from RELG 100, 202, 204 or 205.

THIRD AND FOURTH YEARS

Students must take 24 credits to be selected from Religious Studies courses numbered 300 or above, NEST 310, or courses in Arabic and Hebrew.

Subject to the approval of the Department, a maximum of 6 credits from outside the Department may be accepted for credit toward a Minor in Religious Studies. The courses acceptable for such credit are listed above (see “Major in Religious Studies” above).

Archaeology and History of Greece, Rome, and the Near East

For information on the Major, Minor and Honours programs in Archaeology and History of Greece, Rome and the Near East see *Classical Studies*, p. 129.

Myth and Literature in Greece, Rome, and the Near East

For information on the Major, Minor and Honours programs in Myth and Literature in Greece, Rome, and the Near East see *Classical Studies*, p. 130.

ROMANCE STUDIES

The Department of French, Hispanic and Italian Studies (www.fhis.ubc.ca) offers a program of study in Romance Studies that leads to the Bachelor of Arts. For information on graduate programs, see *Hispanic Studies*, p. 257, in the Graduate Studies section.

Honours in Romance Studies

FIRST AND SECOND YEARS

Students must obtain a first- or high second-class standing in the courses taken in Romance languages. LATN 100 (or equivalent) is recommended.

THIRD AND FOURTH YEARS

Students must take 48 credits numbered 300 and above in at least two Romance languages, including a graduating essay.

RUSSIAN AND SLAVIC LANGUAGES AND LITERATURE

The *Department of Central, Eastern and Northern European Studies*, p. 129, offers a Minor in Russian Language. In addition, a fairly wide range of courses may be available in Russian and East European literatures and in the Ukrainian language, as well as a first-year course in Russian and Slavic cultures. Several courses are offered in Slavic literatures in translation, requiring no knowledge of a Slavic language. For the Minor in Russian, see the Department of Central, Eastern and Northern European Studies.

Courses that may be offered include:

- Language Courses – RUSS 100, 101, 102, 200, 215, 300, 315, 400, 401; UKRN 325
- Introductory Courses – Culture and Literature: SLAV 105
- Other Courses in Russian Literature – RUSS 305, 407, 408, 409
- Russian Literature in Translation – RUSS 206, 207, 306, 410, 411
- Slavic Literatures in Translation – SLAV 307

Literature courses in translation are designed for students who are interested in broadening their knowledge of literature. They are especially recommended for students majoring or honouring in language and literature departments, History, Political Science, Anthropology, Modern European Studies, Sociology, and Art History, Visual Art and Theory, but are also open to students from all other programs. These courses are of special interest to students planning to pursue literary and gender studies of a comparative nature.

Minor in Russian

FIRST AND SECOND YEARS

Students take RUSS 100 and 200 or equivalent.

THIRD AND FOURTH YEARS

Students take at least 18 credits from Russian language and literature courses numbered 300 and above.

SANSKRIT

See *Asian Studies*, p. 127.

SCANDINAVIAN LANGUAGES AND LITERATURE

Courses in Scandinavian languages, including Swedish and Danish, are offered. See *Central, Eastern and Northern European Studies*, p. 129.

SCIENCE STUDIES

Interdisciplinary Minor in Science Studies

The Interdisciplinary Minor in Science Studies is designed for students in the Faculty of Arts who would like to examine the history, philosophy, sociology, and discourse practices of the scientific disciplines.

The purpose of this program is to promote the study of scientific work and thought from a

variety of perspectives usually associated with the humanities and social sciences. Students will explore, for example, issues about the production and representation of scientific knowledge, the creation and maintenance of intellectual authority in the practices of the sciences, as well as relations between nature and culture. A background in science is not required, although curiosity about scientific matters is an asset. In consultation with an advisor, students should select 18 credits from the following courses, keeping in mind that some of them will have prerequisites. Students are advised to see a program advisor for information regarding courses offered in other faculties that will count towards the program. Also given below are a few lower division courses which are recommended but not required. Other courses may be included from year to year.

Recommended lower division courses: CLST/PHIL 211; HIST/PHIL 260; HIST 215, 216; PHIL 125, 220.

ANTH 400, 427, 432, 470; BIOL 442, 446; CLST 306; CPSC 430; ECON 318, 319; ENGL 307; GEOG 345, 440; HIST 360, 400, 442, 455, 456; MATH 446, 447; PHIL 360, 362, 363, 427, 460, 461, 462, 469; PSYC 312; SOCI 350, 400, 473, 484.

In any given year, there may be other courses appropriate for Science Studies. For a list of these, see an advisor.

Program advisors are Dr. Alan Richardson, Department of Philosophy, 604-822-3967 and Dr. Judy Segal, Department of English, 604-822-5652.

SLAVIC AREA STUDIES

Students wishing to focus on the Slavic area should major in a discipline (e.g., Economics, Geography, History, Political Science) and supplement their training by taking the *Minor in Russian Language*, p. 149, or by taking appropriate courses in Slavic languages and/or other Slavic Area Studies courses as their electives. Students planning to go on to graduate study will find it advantageous to have a strong background in a discipline.

The following courses on the Slavic area do not require knowledge of Russian or another Slavic language: RUSS 306, 410, 411; SLAV 307; ECON 387, 487¹; GEOG 493, 494; HIST 319, 324, 405, 408, 435, 438; POLI 325, 362, 460², 464.³

UBC and the Department of Central, Eastern and Northern European Studies provide opportunity for graduate work in Slavic Area Studies in the fields of geography, history (Russian, Soviet and East European), and Political Science. Students wishing to do graduate work in the area will normally be required to have completed at least 12 credits of a Slavic language (Russian, Polish, or Ukrainian) by the end of the first year of graduate work. Contact the *Department of Central, Eastern and Northern European Studies*, p. 129, for further details.

¹ If dealing with Slavic area.

² Section dealing with Russian foreign policy.

³ Section dealing with Russian-American relations.

SOCIOLOGY

The Department of Anthropology and Sociology offers programs of study that lead to the Doctor of Philosophy, Master of Arts and Bachelor of Arts. For information on graduate programs, see *Sociology*, p. 281, in the Graduate Studies section.

Undergraduate Courses

SOCI 100 is the prerequisite for most 300- and 400-level Sociology courses.

Major in Sociology

The program requires that students complete:

- SOCI 100
- 6 credits from Sociology courses at the 200 level
- SOCI 310
- SOCI 328
- 6 credits from SOCI 350, 400, 414
- 3 credits from SOCI 380, 381, 382, 383; and
- a minimum of 12 additional 300- and 400-level Sociology and Anthropology credits.

Honours in Sociology

Outstanding students registered in the third year of the Sociology Major program may apply for admission to the Honours program for their fourth year. A standing of 75% or better in SOCI 100, a minimum overall average of 68% or better in all 200-level courses, an average of 80% or better in all 300- and 400-level Sociology courses and an overall average of 75% or better in all 300- and 400-level courses are required for admission to the Honours program. In preparation for the fourth year of study in the Honours program, students are encouraged to arrange for an Honours thesis supervisor by the end of the third year or during the summer preceding the fourth year. The formal application process normally occurs at the beginning of the fourth year. Interested students should consult the Sociology Honours Advisor or the departmental undergraduate studies secretary.

The program requires that students complete:

- SOCI 100
- 6 credits from Sociology courses at the 200 level
- SOCI 310
- SOCI 328
- 6 credits from SOCI 350, 400, 414
- 3 credits from SOCI 380, 381, 382, 383
- SOCI 449
- a minimum of 24 additional 300- and 400-level Sociology and Anthropology credits, of which at least 6 credits must be at the 400 level; and
- at least 6 additional 300- and 400-level credits from another discipline.

Minor in Sociology

The program requires that students complete:

- SOCI 100
- 3 credits from Sociology courses at the 200 level

- 3 credits from SOCI 350, 400, 414
- 3 credits from SOCI 380, 381, 382, 383; and
- a minimum of 15 additional 300- and 400-level Sociology and Anthropology credits.

SOUTH ASIAN STUDIES

See *Asian Studies*, p. 127.

SPANISH

See *Hispanic Studies*, p. 137.

SPEECH SCIENCES

See *Linguistics*, p. 141.

THEATRE

The Department of Theatre, Film and Creative Writing offers undergraduate programs of study that lead to the degrees of Bachelor of Arts in Theatre (Major and Honours), Bachelor of Fine Arts in Acting, Bachelor of Fine Arts in Design and Production, and the Certificate in Theatre Design and Technology. For information on the Bachelor of Fine Arts programs, see *Bachelor of Fine Arts*, p. 152. For information on the certificate programs, see *Certificate in Theatre Design and Technology*, p. 155. For information on graduate programs, see *Theatre*, p. 285, in the Graduate Studies section.

For details about current offerings, consult the Theatre Program website (www.theatre.ubc.ca).

Major in Theatre

Theatre Majors must complete at least 42 credits in Theatre and Drama.

FIRST AND SECOND YEARS

At least 12 credits in Theatre and Drama, including DRAM 200 and DRAM 201.

THIRD AND FOURTH YEARS

At least 30 credits in Theatre, numbered 300 and above. At least 18 credits must be selected from the following: THTR 320, THTR 323, THTR 325, THTR 340, THTR 420, THTR 425, THTR 440, THTR 443, THTR 445, DRAM 300, DRAM 301, DRAM 400.

Honours in Theatre

Students are admitted to the Honours program only by application. Honours applicants must have a minimum of 76% in DRAM 200 and 201.

Honours students must complete a total of at least 60 credits in Theatre and Drama including the mandatory THTR 445 and THTR 449. At least 48 credits must be numbered 300 and above. At least 15 credits must be selected from the following: THTR 320, THTR 323, THTR 325, THTR 340, THTR 420, THTR 425, THTR 440, THTR 443, THTR 445, DRAM 300, DRAM 301, DRAM 400.

Minor In Theatre

Students must take at least 30 credits in Theatre and Drama, including:

- a minimum of 3 credits from DRAM 200, 201

- a minimum of 6 credits from THTR 320, THTR 323, THTR 325, THTR 340, THTR 420, THTR 425, THTR 440, THTR 443, THTR 445, DRAM 300, DRAM 301, DRAM 400
- a minimum of 18 credits in courses numbered 300 or above.

UNITED STATES STUDIES

United States Studies is an interdisciplinary undergraduate program administered by the United States Studies Program Committee. In consultation with a Program advisor students may complete a Major or a Minor in the program. At the present time the participating Departments are Political Science, History, and Economics. Admission to the program requires the approval of a program advisor.

Major in United States Studies

First and Second Years

ECON 101/102	6
HIST 237	6
ENGL 223	3
POLI 220	3

Third and Fourth Years

12 credits in Economics:	
ECON 301/302	6
6 credits of Economics in courses 300 or higher	6
12 credits in History (select from the following courses):	
HIST 326	6
HIST 327	3
HIST 328	3
HIST 330	3
HIST 331	3
HIST 332	6
HIST 338	6
HIST 428	6
HIST 437	6
HIST 445	3
HIST 446	3
HIST 447	3

12 credits in Political Science

POLI 320 3/6

9/12 credits in Political Science courses 300 or higher

SENIOR SEMINAR

All students must take at least one 3-credit senior seminar designated as part of the US Studies program. These seminars will usually be offered in History or Political Science. Other departments may offer seminars, from time to time, that may be counted in the Program. Please consult the United States Studies program advisor about seminar offerings in other Departments.

OTHER COURSES OUTSIDE THE PROGRAM OF INTEREST TO MAJORS
ENGL 472 (3–12), FILM 220 (3), FILM 436, and MUSC 358 (3).

Minor in United States Studies

A Minor consists of at least 30 credits, but not more than 42 credits. At least 9 credits must be selected from ECON 101/102(6), HIST 237(6), ENGL 223 (3), POLI 220(3). At least 18 credits chosen from the courses listed for the Major in United States Studies that are numbered 300 or higher. Students should make careful note of prerequisite requirements for courses numbered 300 or higher.

URBAN STUDIES

Urban Studies offers a focus for students who have a keen interest in this field. It is not a degree program.

A student will normally take URST 200, when offered, in the second year, along with the prerequisite courses for a departmental Major. In the third and fourth years, in addition to the Major requirements, 24 credits of courses focusing on urban questions (including those offered in the student's Major department) are required. In the fourth year a student will normally take URST 400.

Urban-Oriented Courses

A tentative (and not necessarily exhaustive) list of undergraduate courses that can be defined as "urban oriented" includes COMM 307, 409; ECON 374; GEOG 311, 321, 350, 352, 357, 360, 450, 453, 457, 464; PLAN 425; POLI 306; SOCI 354, 425. Some of these courses may have prerequisites. Students should discuss them with the department concerned before registering.

Students interested in Urban Studies should contact the Director of Arts Academic Advising, or the Chair of the Urban Studies Committee, Dr. Elvin Wyly (ewyly@geog.ubc.ca) (Geography), telephone 604-822-4653, or visit the Urban Studies Website (www.arts.ubc.ca/urban).

URDU

See *Asian Studies*, p. 127.

VISUAL ART

Major in Visual Art

This program is intended for, but not limited to, students contemplating a post B.A. professional program in education and normally consists of four years of study.

The first two years are normally the first two years of the Bachelor of Arts program. Upon completion of first and second-year requirements, students may register in the B.A. in Visual Art program providing they have an average grade of at least 68% in four 200 level visual art courses.

Transfer Students

Transfer students must meet the admission requirements of the University. Applications to enter UBC are made directly to Enrolment Services. Please see Admissions, *Undergraduate Admission Procedure*, p. 13, for more details.

Students normally apply to the University at the end of their first year. Transfer students may be

accepted in third year, subject to the submission of transcripts showing the completion of courses equivalent to 12 credits 200 level VISA with an average grade of at least 68%.

Transfer students must submit the following by March 31, directly to the Department of Art History, Visual Art, and Theory: Portfolio Application form, and a copy of their post-secondary transcript (original transcripts should be submitted to Enrolment Services).

Admission to the program depends upon space availability and is at the discretion of the Department.

Once admitted to the University and to the Department, transfer students are required to consult with a departmental Visual Art Advisor in order to gain information on course selection and declaring their major as B.A. or B.F.A. in Visual Art (for further B.F.A. in Visual Art information see *Visual Art*, p. 153, under Bachelor of Fine Arts).

Typical Program of Study

Requirements of the Faculty of Arts *per* the Calendar must also be met throughout the program.

FIRST YEAR

- Either VISA 180 or 182, and VISA 183, and VISA 110 with an average of at least 68% (9 credits). In special circumstances VISA 110 may be taken as a corequisite.
- 6 credits of 100 or 200 level ARTH, taken in the first two years (with a minimum average grade of 68%). This ARTH coursework is a required pre- or corequisite to registration in 200-level VISA coursework for majors.

SECOND YEAR

- 12 credits from 200 level VISA with an average of at least 68%.

THIRD AND FOURTH YEARS

- Potential Visual Art majors are required to receive departmental advising prior to beginning third-year courses.
- Students are advised to consult with an advisor in the Faculty of Arts (Buchanan A201) in order to make sure that their program of studies conforms to the requirements of the B.A. degree.
- Students must take a minimum of 30 credits in courses numbered 300 and above, including at least 12 credits in ARTH and 18 credits in VISA courses.
- A maximum of 12 credits in ARTE (Art Education 303, 305) courses may be substituted for VISA courses requirements.
- Students are not permitted to take ARTE 400-level courses as part of the B.A. Visual Art requirements.
- Students must include in the 120 credits required for the B.A. major degree at least 42 credits but not more than 60 credits in one subject (discipline) or field of specialization.
- Potential education students are advised to choose 18 credits in a single non-visual art

discipline to fulfill the requirements for a second teaching area.

Minor in Visual Art

- In first year, either VISA 180 or 182, and VISA 183 and VISA 110 are required with a minimum average of 68%
- 6 credits of 100- or 200-level ARTH, taken in the first two years, (with an average grade of at least 68%)
- 6 credits 200-level VISA with an average of at least 68%
- 6 credits from ARTH 300 level and above
- 12 credits from VISA 300 level and above.

Students pursuing a minor in Visual Art are required to receive departmental advising prior to beginning third-year courses, and are advised to plan their programs carefully as senior VISA courses have restrictive prerequisites.

WOMEN'S AND GENDER STUDIES

Students intending to specialize in Women's and Gender Studies may do so by taking an interdisciplinary Major or Minor program in Women's and Gender Studies.

Detailed descriptions of the program, courses, and other information are available from the Women's Studies Office (www.ws.arts.ubc.ca), telephone 604-822-9171.

Major in Women's and Gender Studies

Students majoring in Women's and Gender Studies must have their courses approved each year by a Women's and Gender Studies advisor. A Double Major is encouraged.

FIRST AND SECOND YEARS

Students must take WMST 100 and 6 credits from 200-level Women's and Gender Studies courses or ANTH/SOCI 213.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- WMST 325, 326, 327 and 328
- WMST 422
- At least 15 additional credits from WMST courses numbered 301 or above, including WMST 425¹, 450¹ or from courses eligible for credit toward a Major: ANTH/SOCI 312; ASIA 329, 359, 460, 464; CLST 311, 312; CSIS 300, 450; ECON 351; FMST 442; GEOG 424; FREN 419 or 422; HIST 335; POLI 329, 345, 429; PSYC 320; RELG 380, 480; RUSS 410; SOCI 414; THTR 415.

WMST 300 may not be taken for credit toward the Major.

Minor in Women's and Gender Studies

FIRST AND SECOND YEARS

Students must take WMST 100 and 6 credits of second year Women's and Gender Studies courses or ANTH/SOCI 213.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- 6 credits of WMST 325, 326, 327 or 328; and
- an additional 12 credits from courses eligible for credit toward the Women's and Gender Studies Major: WMST numbered 300 and above, including WMST 425¹, 450¹; ANTH/SOCI 312; ASIA 329, 359, 460, 464; CLST 311, 312; CSIS 300, 450; ECON 351; FMST 442; GEOG 424; FREN 419 or 422; HIST 335; POLI 329, 345, 429; PSYC 320; RELG 380, 480; RUSS 410; SOCI 414; THTR 415.

Students should consult the Women's and Gender Studies office for additional relevant courses in a given year.

¹ May be repeated for credit.

BACHELOR OF FINE ARTS

Admission

See *Admission*, p. 118, as listed under the Bachelor of Arts.

Academic Regulations

See *Academic Regulations*, p. 118, as listed under the Bachelor of Arts.

Faculty and Program Requirements

The Bachelor of Fine Arts is offered in Creative Writing, Film Production and Theatre (in which there are two distinct programs of study: Acting and Design and Production), and Visual Art.

Students may enter a Bachelor of Fine Arts program from the Faculty of Arts or as transfer students from another post-secondary institution. In all cases, students must complete the Faculty of Arts English requirement, language requirement, science requirement and literature requirement. See *Degree Requirements*, p. 120.

Application procedures and deadlines for each of the Bachelor of Fine Arts programs are specified in the appropriate departmental entries.

Except as noted below, all academic regulations and Faculty and program requirements applicable to the Bachelor of Arts also apply to Bachelor of Fine Arts programs. Students in, or intending to enter, a Bachelor of Fine Arts program should familiarize themselves with, and follow, the requirements in this chapter.

Bachelor of Fine Arts programs require that certain prerequisites be completed in the first 30 and first 60 credits of the student's post-secondary program; these are specified in the appropriate departmental entries.

The programs in Visual Art and Theatre are highly specialized, and require the same level of concentration in their respective fields as do Honours Bachelor of Arts programs.

The Bachelor of Fine Arts in Creative Writing may be completed as a Major, Double Major, or Honours program according to the regulations specified for these programs under *Program Requirements*, p. 122.

In addition to their B.F.A. programs, students can select a Major or Minor from the fields offered in the B.A. program. They will receive a B.F.A. in their specialty with a major or minor in the field chosen from the B.A. provided they have completed all the Faculty of Arts requirements (First Year English, Language, Literature, Science), all the requirements for the B.F.A. and all the requirements for their specialty in the B.A. Students can complete a B.F.A. with a B.A. Minor within the 120 required credits, but early and careful planning is necessary.

Note: B.F.A. students in Theatre cannot take a Major or Minor in the B.A. Theatre program.

All programs leading to the Bachelor of Fine Arts require a minimum of 120 credits.

ACTING

The Department of Theatre, Film and Creative Writing offers the program leading to the Bachelor of Fine Arts in Acting. For details about current offerings, consult the departmental website (www.tfcw.ubc.ca).

The B.F.A. in Acting Program normally consists of four years of study. In the first year, students are enrolled in the Bachelor of Arts and take courses applicable to any B.A. program, including the Theatre courses noted below. The number of places available in the program is strictly limited, hence entry into the program is by selection based on an audition. Students usually audition during their first year of study. Auditions are held in February. UBC students who are successful must fill out a Change of Faculty form to change from a BA degree program to a B.F.A. degree program. Transfer students must meet the University of British Columbia entrance requirements. Applicants who are unsuccessful in the audition process can continue in the Bachelor of Arts program.

All students enrolled in the Bachelor of Fine Arts program will be reviewed annually to determine whether they should be allowed to continue in their course of study. Students who have been admitted to the Bachelor of Fine Arts program may revert to the Bachelor of Arts program if this is advisable, at the end of their second or third year.

FIRST YEAR

Requirements of first-year Bachelor of Arts program, including at least one Theatre course.

SECOND YEAR

Requirements of second-year Bachelor of Arts program, THTR 271, 272, 273, and 274, and at least 3 credits from DRAM 200 and 201.

THIRD AND FOURTH YEARS

- THTR 371, 372, 373, 374, and 391
- THTR 471, 472, 473, 474, and 491
- at least 6 credits chosen from THTR 320, 325, 420
- For elective credits, refer to Bachelor of Arts Degree Requirements and to the Summary of Program Requirements table (Honours column). A BFA in Acting degree usually consists of 72 theatre credits and 48 elective credits.

CREATIVE WRITING

The Department of Theatre, Film and Creative Writing offers undergraduate programs of study in Creative Writing that lead to the Bachelor of Fine Arts. The Department also offers a program leading to the *Diploma in Applied Creative Non-fiction*, p. 154. For details about current offerings, consult the departmental website (www.creativewriting.ubc.ca).

Admission to courses and the Major or Honours Program

Students seeking admission to the Major or Honours program in Creative Writing should apply at the end of their second year of university by submitting to the Creative Writing program a written request accompanied by their creative writing manuscripts. Students who wish to be considered for the Major or Honours program should submit 30 to 35 pages of original writing in two or more genres. Three identical manuscripts must be submitted to the Creative Writing secretary by March 31 at 3:30 pm. Applicants will be accepted into the Major or Honours programs on the recommendation of the instructors assigned to evaluate their manuscripts. Consult the “Manuscript Guidelines for Major Applicants” at the departmental website (www.creativewriting.ubc.ca) before submitting your manuscripts.

Students who wish to be considered for a particular 400-level course, but not for a specialization in Creative Writing, should submit 20 to 25 pages of original writing relevant to that course. Applicants for Creative Writing interested in CRWR 404 (radioplay/features), 406 (screenplay), or 407 (stageplay) may submit fiction or plays. Manuscripts must be submitted to the Creative Writing Secretary before June 1. If places are still open after this date, additional manuscripts will be accepted for evaluation.

First-year students are not eligible to take a 400-level course.

All students should view the *Department's Handbook* (www.creativewriting.ubc.ca) before submitting their manuscript as specific guidelines and course descriptions are outlined in the *Handbook*.

Major in Creative Writing

FIRST AND SECOND YEARS

CRWR 202¹ and the requirements for the first two years of the B.A. program. CRWR 202 is not a prerequisite for the Major or Honours program and does not assure admission.

¹ Please contact the Department to see if CRWR 202 will be offered this year.

THIRD AND FOURTH YEARS

Students must complete 60 credits, 36 of which must be Creative Writing courses numbered 300 or above. The 36 credits will be chosen from departmental courses in consultation with an advisor and must include:

- Third year: any three of the following workshops: CRWR 306 and 307 (306 is a prerequisite for 307), 403, 404, 405, 406, 407, 408 or 409¹, 410, 415, 416 and Lyric & Libretto (proposed course to be

renamed CRWR 411, for Winter 2006/07, following approval by Senate).

- Fourth year: one or more of the following courses in areas of the student's special interest: CRWR 439, 447², 491, 492, 493, 494, 495, 496, 497, 498 and Lyric & Libretto (proposed course to be renamed CRWR 411, for Winter 2006/07, following approval by Senate).

¹ In satisfying the three-genre requirement for the Major, CRWR 408 and 409 are treated as a single genre: fiction.

² Not offered every year.

Honours in Creative Writing

FIRST AND SECOND YEARS

As for Major.

THIRD AND FOURTH YEARS

The same as the Major, with the difference that students must complete 48 credits in Creative Writing, which will be chosen from the departmental courses in consultation with an advisor and include any three of the workshops listed above. As part of the program, Honours students will be required to complete a thesis of a length and form appropriate to the genre. (Requirements for the Honours program are currently under review.)

Double Major in Creative Writing and Another Subject

Students who have completed all the degree requirements for a Double Major in Creative Writing and another subject falling within the B.A. program may choose to graduate with either a Bachelor of Fine Arts or a Bachelor of Arts.

FILM PRODUCTION

The Department of Theatre, Film and Creative Writing offers the program leading to the Bachelor of Fine Arts in Film Production, normally consisting of four years of study. The number of available places is strictly limited: application and submission of supporting materials is required. Preference will be given to students with strong evidence of creative ability. Prospective applicants should consult the Film Program website (www.film.ubc.ca) concerning admission requirements, application deadline, and current course offerings, or contact the Film Program Office. All students enrolled in the Bachelor of Fine Arts program will be reviewed annually to determine whether they should continue in their course of study.

First and Second Years

All students enrolled in the program must take FILM 100 and 200 and achieve a minimum average of 70% in those courses. Recommended courses include FILM 210, 220, and 233, and THTR 299.

Third Year

Students must take FILM 333 and 12 credits chosen from:

ASIA 354, CRWR 306, 307, 406, 494; ITST 432; FILM 331, 332, 334, 335, 336, 338, 339,

430, 432, 434, 436, 438; MUSC 345; SLAV 307; SCAN 411; SPAN 404; THTR 301, 399.

Fourth Year

Students must take FILM 433 and 12 credits chosen from:

ASIA 354; CRWR 307, 406, 494; ITST 432; FILM 331, 332, 334, 336, 338, 430, 432, 434, 436, 437, 438, 439; MUSC 345; SLAV 307; SCAN 411; SPAN 404; THTR 408, 417, 440, 499; VISA 380.

A minimum of 42 credits in Film are required for the degree, of which at least 30 must be numbered above 300.

THEATRE

The Department of Theatre, Film and Creative Writing offers the program leading to the Bachelor of Fine Arts in Theatre. For details about current offerings, consult the department and the departmental website (www.theatre.ubc.ca).

THEATRE DESIGN AND PRODUCTION

The Department of Theatre, Film and Creative Writing offers the program leading to the Bachelor of Fine Arts in Theatre Design and Production. For details about current offerings, consult the departmental website (www.tfcw.ubc.ca).

Typical Program of Study

FIRST YEAR

Requirements of first-year Bachelor of Arts program, including at least one of THTR 120 or THTR 150.

SECOND YEAR

Requirements of second-year Bachelor of Arts program and at least 6 credits chosen from: THTR 205, 254, 299.

THIRD YEAR

- At least 6 credits of THTR 399
- At least 12 credits chosen from: THTR 301, 305, 306, 307, 308, 350, 352, 354, 356.

FOURTH YEAR

- At least 9 credits of THTR 499
- At least 9 credits chosen from: THTR 405, 406, 407, 408, 450, 452, 454, 456.

A minimum of 60 credits in Theatre are required for the degree, of which 48 must be numbered above 300. Refer to the *Summary of Program Requirements*, p. 124, table (Honours column) in the Bachelor of Arts Program Requirements section.

VISUAL ART

The program leading to the Bachelor of Fine Arts in Visual Art normally consists of four years of study.

The first two years are normally the first two years of the Bachelor of Arts program. Upon completion of these first and second-year requirements, students may register in the B.F.A. in Visual Art program, providing they

have an average grade of at least 68% in the four 200 level visual art courses.

Once registered in the B.F.A. program students must maintain an average grade of at least 68% in their 300 level visual art courses.

Transfer Students

Transfer students must meet the admission requirements of the University. Applications to enter UBC are made directly to Enrolment Services. Please see Admissions/Undergraduate Admission Procedure for more details.

Students normally apply to the University at the end of their first year. Students may be accepted into third year subject to the submission of transcripts showing the completion of courses equivalent to 12 credits of 200 level VISA courses with an average grade of at least 68%.

Transfer students must submit the following by March 31, directly to the Department of Art History, Visual Art, and Theory: a Portfolio Application form and a copy of their post-secondary transcript (original transcripts should be submitted to Enrolment Services).

Admission depends upon space availability and is at the discretion of the Department

Once admitted to the University and to the Department, transfer students are required to consult with a departmental Visual Art Advisor in order to gain information on course selection and declaring their major as B.A. or B.F.A. in Visual Art (for further B.A. in Visual Art information see the Faculty of Arts/Bachelor of Arts/Visual Art).

Typical Program of Study

FIRST YEAR

- Either VISA 180 or 182 and VISA 183, and VISA 110 with an average of at least 68%
- In special circumstances VISA 110 may be taken as a corequisite
- 6 credits of 100 or 200 level ARTH, taken in the first two years (with an average grade of at least 68%). ARTH course work is a required pre- or corequisite to registration in 200-level VISA coursework for majors

SECOND YEAR

- 12 credits of 200 level VISA with an average of at least 68%

THIRD YEAR

- VISA 380 and 381 (Studio Theory) must be taken sequentially
- Additional 12 credits 300 level VISA
- 6 credits of ARTH 300 or above

FOURTH YEAR

- VISA 480 and 481 (Studio Theory) must be taken sequentially
- 12 credits of 400 level VISA
- 12 credits of elective courses (6 of them can be 200-level or above, but recommended 300 or above, while 6 of them must be 300 or above)

B.F.A. Honours program

FIRST YEAR

The same as for B.F.A.

SECOND YEAR

- 12 credits from 200-level VISA courses with an average of at least 80%

THIRD AND FOURTH YEARS

The same as for the B.F.A. major with an additional 12 credits in the following pattern:

- 6 credits additional ARTH course work at the 400 level
- 6 credits additional VISA course work at the 400 level

CO-OPERATIVE EDUCATION PROGRAMS

Undergraduate Co-op Options

The Arts Co-operative Education program provides interested and qualified students in the Bachelor of Arts, Bachelor of Music, and Bachelor of Fine Arts programs with paid employment experience relevant to their future careers. The Co-operative Education program is an optional, year-round program, supplementary to academic programs in the Faculty. Four work placement terms must be completed, including placements in both Term 1 and Term 2 of a Winter Session. The final term must be an academic term.

Students wishing to enrol in the program must apply in Winter Session, Term 1, of their second year and must meet the four Faculty of Arts breadth requirements (i.e., English, Language, Science, and Literature) prior to their first work term. Students must have selected a major and attained third-year standing (i.e., completed at least 54 credits) prior to their first work term. Academic performance and suitability for the work environment (as judged by the Arts Co-operative Education Office) will be the selection criteria used for program admission. Total enrolment is subject to the availability of appropriate work placements. Acceptance into the program does not guarantee appropriate work placements in every work term.

Students admitted into the program must register in the appropriate Co-operative Education course for each work term, once a suitable work placement is confirmed. Payment of the Co-operative Education program fees is mandatory. This includes a Co-operative Education Program fee for each work term and a one-time Co-operative Education Program workshop fee. See *Program and Course Fees*, p. 28.

Each successfully completed Co-operative Education course is assigned 3 Co-op credits on a student's academic transcript (i.e., ASTU 310, 311, 410, and 411). In order to graduate in a Co-operative Education Program, a student must complete 12 Co-op credits in addition to the normal academic requirements of the Faculty (normally 120 academic credits). The Co-operative Education Program in Arts typically necessitates an additional year to complete a bachelor's degree. Faculty advisors or Co-operative co-ordinators visit students at their places

of work and provide advice on the work term learning portfolios that are a requirement of the program. Students transferring to UBC from accredited co-operative programs at other institutions may request admission to the Arts Co-op program and may receive credit for previously completed work placement to a maximum of 6 Arts Co-op course credits.

Graduate Co-op Options

MASTER OF ARTS CO-OPERATIVE EDUCATION OPTION

Students admitted to the Master of Arts Program in a department with a Co-operative Education option may apply for admission to the Arts Co-operative Education Program. The Program helps prepare interested and qualified students for professional careers in government, the non-profit sector, and industry with at least four months of work placement supervised by practicing professionals. Faculty advisors also visit students at their place of work where feasible and provide advice on work term projects required of all students in the program.

Students who have been admitted into the Master of Arts Program in a department with the Co-op Option must apply to the Arts Co-op Office early in their first term at UBC. Selection of students will be based on academic performance and general suitability to the work environment as determined by resumé and interview. The total enrolment will be subject to the availability of appropriate work placements and faculty advisors. The work placements are arranged by mutual agreement between students and employing organizations. Co-op courses are taken in addition to the courses needed to meet normal academic requirements. These courses do not count for credit toward the degree, but their completion will be noted on a student's academic record.

Contact Information

For further information on the programs, please contact the Arts Co-operative Education Office.

Arts Co-op Program
Buchanan Building C369
The University of British Columbia
1866 Main Mall
Vancouver, BC V6T 1Z1
Fax: 604-822-1529
Web: co-op.arts.ubc.ca

DIPLOMA IN APPLIED CREATIVE NON-FICTION

Please note: Admissions to the Diploma in Applied Creative Non-Fiction have been suspended for the 2006–07 academic year. Please check the web Calendar (www.students.ubc.ca/calendar/index.cfm?tree=12,197,284,0) or the Department of Theatre, Film and Creative Writing website (www.tfcw.ubc.ca) for updated information.

The Department of Theatre, Film and Creative Writing offers the Diploma in Applied Creative Non-Fiction.

Prerequisite and Admission

A bachelor's degree or equivalent in any discipline, plus some writing experience in creative non-fiction, fiction, or translation. For applicants with significant credentials in the field of creative non-fiction writing, the bachelor's degree requirement may be waived.

Candidates for admission must submit 30 pages of original creative non-fiction (note: newspaper reports or academic essays are not acceptable). Some fiction or translation may be included in the 30 pages.

Two identical copies of the candidate's manuscript must be submitted to the creative writing secretary by March 31, 3:30 pm. Manuscript guidelines are listed on the Creative Writing website (www.creativewriting.ubc.ca). Do not send cassettes, computer discs, or submissions via email or fax as they will not be accepted. It is recommended that the candidate keep a copy of what is sent.

Course of Study

The program consists of 24 credits of work:

- CRWR 301¹ or equivalent (comprised of other writing courses or equivalent writing experience)
- CRWR 405
- CRWR 416 (405 and 416 may be taken concurrently)
- CRWR 439, and/or CRWR 492

¹ Successful completion of CRWR 301 does not automatically result in acceptance into CRWR 405 or 416, due to limited enrolment.

All requirements for the Diploma must be completed within five years of the initial registration in the program. Because of these requirements, students should not anticipate completing the program in less than two years.

Instruction

Instruction is based on the premise that promising student-authors can benefit from professional criticism and the necessity of producing regularly and meeting deadlines. Workshops, conferences and tutorials are designed to focus attention upon the student's own work. Reading assignments may be made in the Creative Writing program's magazine of literary non-fiction, *Fugue*, and in *PRISM international*, p. 72, or other relevant journals and books. There are no examinations, and marks are based on the writing done and on participation in workshops throughout the year.

DIPLOMA IN ART HISTORY

The Department of Art History, Visual Art and Theory offers the Diploma in Art History. Applicants to the program will already have a first degree in another discipline. Applications for admission should be made to Enrolment Services no later than, and preferably before, August 1 for entry in September.

The diploma program requires 30 credits of courses in art history numbered 300 or above. The inclusion of ARTH 300 plus one 400-level seminar is required. No more than 6 credits of cross listed courses offered by other depart-

ments, excepting ARTH 329, may be counted toward the requirements. Only 6 credits of 'C' standing may be credited toward the diploma requirements.

DIPLOMA IN FILM PRODUCTION

The Department of Theatre, Film and Creative Writing offers the Diploma in Film Production. Enrolment in the program is limited, and preference will be given to students with strong evidence of creative ability, either in film or in one of the other fine arts. Prospective students should inquire at the Film program office for application information.

Admission

Applicants must have completed a bachelor's degree in arts, science, or commerce.

Diploma Requirements

The program will normally take two years of study. Additional courses, above those required, may be taken on an elective basis. No longer than five years should elapse between initial enrolment in the program and attaining the Diploma. 36 credits of course work are required as follows:

FIRST YEAR STUDENTS MUST TAKE:

- FILM 100, 200, 210 or 220, 333, 335

SECOND YEAR STUDENTS MUST TAKE:

- FILM 433, 437 or 439
- 9 credits from FILM 331, 332, 334, 336, 338, 430, 432, 434, 436, 438, ASIA 354, CRWR 306, 307, 406, 494, ITST 432, MUSC 345, SCAN 411, SLAV 307, SPAN 404

DIPLOMA IN LINGUISTICS

The Department of Linguistics offers the Diploma in Linguistics. The Diploma is designed primarily for students with a limited background in linguistics who want to do the core of an undergraduate linguistics or speech sciences B.A. as preparation for entering a Master's program in linguistics or second-language teaching or speech-language pathology or audiology. The Diploma does not provide practical training in language skills; the Diploma by itself does not provide any professional credential and does not normally lead directly to employment. Admission to graduate programs is competitive, in some cases very competitive, so completing the relevant prerequisite courses in our Diploma program does not guarantee admission to any graduate program.

Students who wish to be language teachers in the BC school system must complete a program of Initial Teacher Education for elementary or secondary teaching, including teaching methodology courses appropriate to the languages to be taught.

Students who wish to practice as speech-language pathologists or audiologists in Canada or the U.S. must complete an appropriate master's program.

Admission

Prerequisites: Applicants must have completed a bachelor's degree. They must have completed LING 200 and 201 or equivalent.

Students who lack any of these prerequisite or recommended courses are encouraged to take the needed courses at the UBC Summer Session (May-August) before starting a Diploma program in September.

Recommended additional preparation for speech-science students: if possible, students preparing for graduate work in speech pathology or audiology should have coursework in psychology, research design, and statistics equivalent to UBC PSYC 100 (6 credits), 217, and 218.

Diploma Requirements

The program can be completed in one year of full-time study, but may be taken part-time. It should be finished within a period of five years. The program of study must be approved by the Linguistics Diploma advisor. The following 24 credits of course work are required:

- 6 credits from List A
- 6 credits chosen from Lists A or B and
- 12 credits chosen from Lists A, B, C or D

LIST A: CORE COURSES

LING 300, 311, 316, 327

LIST B: SECONDARY CORE COURSES

LING 305, 317, 319, 431, 432, 447, 451, 452

LIST C: SENIOR-LEVEL COURSES IN

LINGUISTICS
LING 430, 433, 436, 445, 448

LIST D^{1,2}: SENIOR-LEVEL COURSES IN

RELATED AREAS
ANTH 332, 401, 417
AUDI 400, 402, 403, 514
CPSC 322
EPSE 315, 399, 419, 424
ENGL 320, 321, 322, 323, 324, 326, 340
FREN 461, 462, 464, 465, 472, 473, 475
JAPN 420
LLED 478
PHIL 320, 321, 322, 323, 324, 420, 425, 426
PSYC 302, 304, 309, 315, 336, 337, 367, 368
SPAN 403, 407

1 Depending on the student's program, the Linguistics Diploma advisor may accept other courses.

2 Most of these List D courses have prerequisites of their own; see the UBC Calendar. In particular, students should plan to take the equivalent of UBC Psych 100, 217, and 218 before taking any of Psych 302, 304, 309, 315, 367, or 368.

CERTIFICATE IN THEATRE DESIGN AND TECHNOLOGY

The Certificate in Theatre Design and Technology program offers specialized and intensive professionally oriented study. Instruction is given on a variety of levels, concentrating on the practical aspects of theatre. The Technology Certificate allows beginning students to take introductory level courses before moving on to more specific areas of practical study and entry level professional development. The Advanced

Technology Certificate allows more experienced students to develop additional skills while encouraging a broader understanding of theatre history and dramaturgy. The Design Certificate is intended for experienced students or professionals who wish to extend their study at the senior undergraduate and graduate levels.

Courses may be taken individually, or full-time students may complete the certificate as a two-year intensive program.

Students applying to the certificate program from secondary school will have to meet the University minimum admission requirement that demands an average grade of 67% over four courses including English 12. Competition for admission usually means that applicants to degree programs actually require a much higher grade average. Certificate program applicants will not be competing with degree program applicants for admission. Therefore, students who meet the minimum academic requirements but who do not meet the requisite competitive average for admission will still be considered for the certificate program. Students who do not meet the normal requirements, but have pursued theatre-related activities that have contributed to an intellectual maturity may also be accepted on the basis of a Mature student application. In all cases, Faculty members in the Theatre program will evaluate candidates by means of a diagnostic examination and an interview. An applicant's resumé or portfolio will be of principal importance.

Certificate in Theatre (Technology)

Students take the following 60 credits:

- 30 required credits THTR 120 (3), 205 (3), 254 (3), 299 (6), 305 (3), 399 (6), 499 (6)
- 24 specialist credits chosen from THTR 350 (3)/450 (3), 307 (3)/407 (3), 352 (3)/452 (3), 306 (3)/406 (3), 354 (3)/454 (3), 356 (3), 456 (3)
- Elective or additional specialist credits (6)

Certificate in Theatre (Advanced Technology)

Students take the following 60 credits:

- 18 required credits THTR 205 (3), 305 (3), 399 (3), 499 (9)
- 12 credits chosen from courses in Theatre, Film, Creative Writing, Art History or Visual Art
- 24 specialist credits chosen from THTR 350 (3)/450 (3), 306 (3)/406 (3), 307 (3)/407 (3), 352 (3)/452 (3), 354 (3)/454 (3), 356 (3), 456 (3)
- Elective or additional specialist credits (6)

Certificate in Theatre (Design)

Students take the following 60 credits:

- 6 to 12 credits chosen from THTR 305 (3), 405 (3), 306 (3)/406 (3), 307 (3)/407 (3)
- 6 to 12 Arts credits chosen from courses in Theatre, Film, Creative Writing, Art History or Visual Art
- 12 specialist credits chosen from THTR 350 (3)/450 (3), 306 (3)/406 (3), 307 (3)/407 (3), 352 (3)/452 (3), 354 (3)/454 (3)

GRADUATE PROGRAMS

For the Faculty of Arts offerings of Graduate programs see the Faculty of Graduate Studies *Degree Programs*, p. 229.

ACADEMIC STAFF

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David Pokotylo, Head

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Janice Boddy, B.A. (McG.), M.A. (Calg.), Ph.D. (Br.Col.), Anthropology; **Gillian Creese**, B.A. (S.Fraser), M.A. (Qu.), Ph.D. (Car.), Sociology; **Dawn Currie**, B.A., M.A. (Sask.), Ph.D. (Lond.), Sociology; **Brian Elliott**, M.A. (Edin.), Sociology; **Neil Guppy**, B.A., B.P.H.E. (Qu.), M.Sc., Ph.D. (Wat.), Sociology; **Graham E. Johnson**, B.Sc. (Econ.) (Ston.), M.A., Ph.D. (C'nell.), Sociology; **Ralph Matthews**, B.A. (Memorial), M.A., Ph.D. (Minn.), Sociology; **Bruce G. Miller**, A.B. (Brown), M.A. (W. Wash.), Ph.D. (Arizona State), Anthropology; **Anthony Shelton**, B.A. (Hull), M.Litt. (Oxf.), D.Phil. (Oxf.), Anthropology.

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John Barker, B.A. (W.Ont.), M.A. (Vic., Well.), Ph.D. (Br.Col.), Anthropology; **Michael Blake**, B.A. (Br.Col.), M.A., Ph.D. (Mich.), Anthropology; **Alexia Bloch**, B.A. (Wellesley), Ph.D. (Pitt.), Anthropology; **Millic R. Creighton**, B.A. (Minn.), M.A., Ph.D. (Wash.), Anthropology; **Thomas Kemple**, B.A. (Wesleyan), M.A., Ph.D. (York), Social and Political Thought; **Charles Menzies**, B.A. (S.Fraser), M.A. (York (Can)), Ph.D. (C.U.N.Y.), Anthropology; **David L. Pokotylo**, B.A., M.A. (Manit.), Ph.D. (Br.Col.), Anthropology; **Becki Ross**, B.A. (W.Ont.), M.A. (Qu.), Ph.D. (O.I.S.E.), Sociology; **David Tindall**, B.A., M.A. (Vic.B.C.), Ph.D. (Tor.), Sociology; **John Torpey**, B.A. (Amherst), M.A. (Calif. Berkeley), Ph.D. (Calif. Berkeley), Sociology.

Assistant Professors

Mark Collard, B.A. (Sheff.), Ph.D. (Liv.), Human Anatomy and Cell Biology; **Sylvia Fuller**, B.A. (S.Fraser), M.A. (Dal.), Ph.D. (Rutgers), Sociology; **Gaston Gordillo**, B.A. (Buenos Aires), M.A. (Tor.), Ph.D. (Tor.), Anthropology; **Amy Hanser**, M.A., Ph.D. (Calif. Berkeley), Sociology; **Zhi-chun Jing**, B.S. (Chengdu, China), M.S. (China Univ. of Geosciences), Ph.D. (Minn.), Archaeology; **Vinay Kamat**, B.A. (Bom.), M.A. (Arizona), Ph.D. (Tata Inst., Bom.), Ph.D. (Emory), Anthropology; **Jennifer Kramer**, A.B. (Brown), M.A., Ph.D. (Columbia), Anthropology; **Andrew Martindale**, B.A. (Tor.), M.A. (Trent), Ph.D. (Tor.), Archaeology; **Renisa Mawani**, B.A., M.A. (S.Fraser), Ph.D. (Tor.), Criminology; **William H. McKellin**, B.A. (Wheaton Coll.), M.A., Ph.D. (Tor.), Anthropology; **Patrick Moore**, M.A. (Mich.), M.A. (Mich.), Ph.D. (Indiana), Anthropology; **Anand Pandian**, B.A. (Amherst), Ph.D. (Calif. Berkeley), Anthropology; **Susan Rowley**, B.A. (Tor.), Ph.D. (Camb.), Archaeology; **Gerry Veenstra**, B.MATH, B.A. (Wat.), M.A., Ph.D. (McM.), Sociology; **Rima Wilkes**, B.A. (Qu.), M.A. and Ph.D. (Tor.), Sociology; **Felice Wyndham**, A.B. (Brown), Ph.D. (Georgia), Anthropology; **Daniyal Zuberi**, B.A. (Johns H.), M.Sc. (Oxf.), A.M., Ph.D. (Harv.), Sociology.

Senior Instructor

Brian Chisholm, B.A., Ph.D. (S.Fraser) Archaeology.

Lecturer

Patricia Kachuk, B.A. (York), M.A., Ph.D. (Br.Col.), Anthropology.

DEPARTMENT OF ART HISTORY, VISUAL ART AND THEORY

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Associate Professors

Xiong Gu, B.F.A., M.F.A. (Sichuan Fine Arts Inst.); **Maureen P. Ryan**, B.A., M.A. (Br.Col.), Ph.D. (Chic.); **Charlotte Townsend-Gault**, B.A. (Sus.), Ph.D. (Lond.); **Barbara Ziegler**, B.F.A., M.F.A. (Ill.).

Assistant Professors

Katherine F. Hacker, B.F.A. (Ohio), M.S. (Oregon), Ph.D. (Penn.); **Carol Knicely**, B.A. (Calif., San Diego), M.A., Ph.D. (Calif., L.A.); **Nancy Nisbet**, B.Sc., B.Ed. (Alta.), M.F.A. (Calif. Inst. Arts); **Manuel Pina**, P.Eng. (Vladimir); **Marina Roy**, B.A. (Laval), B.F.A. (N.S.C.A.D.), M.F.A. (Br.Col.); **Hsiungyuan Tsao**, B.A. (Hangzhou), M.A. (Beijing), Ph.D. (Stan.); **William Wood**, B.A., M.A. (Br.Col.), M.L.S. (Tor.), D.Phil. (Sus.).

Lecturers

Barrie Jones, B.F.A. (Br.Col.), M.F.A. (York); **Phillip McCrum**, B.F.A., M.F.A. (Ulster).

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Instructor

Rebecca Chau, M.A. (Tokyo), Ph.D. (Tsukuba).

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Markus Hallensleben, M.A. (Berlin), Dr.Phil. (Magna
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Calif.), Ph.D. (McG.).

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(Beruit), C. Phil., Ph.D. (Calif., L.A.).

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Carl Johnson, B.A. (Br.Col.), M.A., Ph.D. (Tor.).

Instructor I

Lynn Rae, B.A., M.A., Ph.D. (Br.Col.).

Adjunct Professor

John Stackhouse, B.A. (Qu.), M.A. (Wharton), Ph.D.
(Chic.).

Lecturers from other Departments

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Philosophy; Carol Knically, Fine Arts; Harjot Oberoi,
Asian Studies.

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M.A., Ph.D. (Yale); Kevin Milligan, B.Comm. (Qu.),
M.A., Ph. D. (Tor.); Nathan Nunn, B.A. Hons.
(S.Fraser), M.A., Ph.D. (Tor.); Shinishi Sakata, B.A.,
M.A. (Doshisha), M.A., Ph.D. (Calif., San Diego);
Henry Siu, B.A. Hons (Br.Col.), Ph.D. (Northwestern);
Unjy Song, B.S., M.A. (Seoul National University),
Ph.D. (Wis.); Okan Yilankaya, B.A. (Bogazici), Ph.D.
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(Cantab.); Mark Vessey, B.A. (Cantab.), D.Phil.
(Oxon.); Jerry Wasserman, B.A. (Adelphi), M.A.
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M.A., Ph.D. (Dub.); Gernot R. Wieland, B.A., M.A.,
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Associate Professors

Suzy Anger, B.A. (Calif., Berkeley), M.A., Ph.D.
(Wash.); Leslie Arnovick, A.B. (Calif., Davis), Ph.D.
(Calif., Berkeley); Patricia Badir, B.A. (McG.), M.A.
(Alta.), Ph.D. (Leeds); Miranda Burgess, B.A.
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B.A., M.A. (Qu.), Ph.D. (C'nell); Pamela Dalziel, B.A.
(Vic.B.C.), M.A. (Tor.), D.Phil. (Oxon.); Jane M. Flick,
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Ph.D. (Tor.); Linc Kesler, B.A. (Yale), M.A., Ph.D.
(Tor.); Eric P. Levy, B.A. (Union Coll.), M.A., Ph.D.
(Stan.); Kevin McNeilly, B.A., M.A. (W.Ont.), Ph.D.
(Qu.); Laura Moss, B.A. (Tor.), M.A. (Guelph), Ph.D.
(Qu.); Judy Z. Segal, B.A. (McG.), M.A., Ph.D.
(Br.Col.); Sandra M. Tomc, B.A. (Guelph), M.A.,
Ph.D. (Tor.); Michael Zeitlin, B.A., M.A., Ph.D. (Tor.).

Assistant Professors

Marlene Briggs, B.A. (Car.), M.A., Ph. D. (Ott.);
Barbara Dancygier, M.A., Ph.D. (Warsaw); Glenn
Deer, B.A. (Alta.), M.A., Ph.D. (York); Jessica deVilliers,
B.A., M.A., Ph.D. (York); Alexander Dick, B.A.,
(Tor.), M.A. (McM.), Ph.D. (W.Ont.); Adam Frank,
B.A. (Brown), Ph.D. (Duke); Elizabeth Hodgson, B.A.
Hons. (Br.Col.), M.A. (Tor.), Ph.D. (Brandeis);
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Menon, M.A. (J.Nehru U.), Ph.D. (Stan.); Miguel
Mota, M.A., Ph. D. (Qu.); Stephen B. Partridge, B.A.
(Yale), A.M., Ph.D. (Harv.); Robert Rouse, M.A.
(Auck.), Ph.D. (Brist.).

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Judith Brown, B.A., M.A. (Br.Col.); Katherine A.
Sirluck, M.A. (Tor.), Ph.D. (Lond.).

Professor Emeritus

Jonathan L. Wisenthal, B.A. (Bishop's), B.Litt.
(Oxon.), Ph.D. (Lond.).

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Réjean Beaudoin, B.A. (Laval), M.A., Ph.D. (McG.),
French; Daniela Boccassini, Dott.Lett., Dottorato di
Ricerca (Milan), French and Italian; Hervé Curat, L. ès
L., M. ès L. (Strasbourg), Ph.D. (Laval), French;
Richard G. Hodgson, B.A. (Vic.B.C.), M.A., Ph.D.
(Tor.), French; André Lamontagne, B.A., M.A., Ph.D.
(Laval), French; Jo-Ann McEachern, B.A., M.A., Ph.D.
(Tor.), French; Valerie Raoul, M.A. (Cantab.),
Dip.Soc.Admin. (L.S.E.), M.A. (McM.), Ph.D. (Tor.),
French; Ralph Sarkonak, B.A. (Vic.B.C.), M.A., Ph.D.
(Tor.), French; Carlo Testa, Laurea (Milan), Ph.D.
(Calif., Berkeley), French and Italian.

Associate Professors

Derek C. Carr, B.A. (N'cle.), Ph.D. (Br.Col.), Spanish;
Rita De Grandis, M.A. (S.Fraser), Ph.D. (Montr.),
Spanish; Maria Soledad Fernández Utrera, B.A.
(Madrid), M.A., Ph.D. (S. Calif.), Spanish; Nancy M.
Frelck, B.A. (Vic.B.C.), M.A. (Alta.), Ph.D. (Ill.),
French; Sima N. Godfrey, B.A., M.A. (Tor.), Ph.D.
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Nigeria), M.A., Ph.D. (Tor.), French; David F. Rogers,
B.Ed. (Alta.), L. ès L., L. de Ling., M. ès L., Doctorat
de 3e cycle (Montpellier), French; Christine Rouget, L.
ès L., M. ès L., Doctorat (N.R.) (Provence), French;
Isaac Rubio Delgado, Lic., Dr. (Salamanca), Spanish.

Assistant Professors

Jon Beasley-Murray, B.A. (King's College, Cambridge),
M.A. (Wisconsin Milwaukee), Ph.D. (Duke), Spanish;
Rodrigo Cacho, B.A., B.A., Ph.D. (Universidad de
Santiago de Compostela), Spanish; Chantal Phan,
B.Mus., M.A., Ph.D. (Montr.), French; Alain-Michel

Rochelleau, B.A., B.Th., M.A., M.Th., M.S.W., Ph.D. (Laval), French; **William G. Winder**, B.Sc. (N. Carolina), L. ès L. (Montpellier), M. ès L. (Perpignan), D.E.A. (École des Hautes Études, Paris), Ph.D. (Tor.), French.

Senior Instructors

Jocelyne S. Baverel, L.F.A., L. ès L., M. ès L. (Besançon), D.E.A. (Bordeaux III), French; **Jacques Bodolec**, L. ès L. (Caen), M. ès L., Dipl. I.E.P. (Paris), French; **Enrique Manchón**, B.A., M.A. (Br.Col.), Spanish.

Lecturers

Margaret MacRae, B.A. (Br.Col.), M.A., Ph.D. (Tor.), French; **Robert A. Miller**, B.A. (York), M.A., Ph.D. (Tor.), French; **Michael O'Hagan**, B.A. (Tor.), M.A. (N. Carolina), M.Div. (Tor.), Ph.D. (Br.Col.), French; **Anne Scott**, L. ès L., M. ès L., Doctorat de 3e cycle (Bordeaux), Agrégée de Lettres (Fr.), French; **Stephanie Spaccante**, B.A. (Wash.), M.A. (Wash.State).

DEPARTMENT OF GEOGRAPHY

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Assistant Professors

Karen J. Bakker, B.At.Sc. (McM.), D.Phil. (Oxon.); **Mike D. Buzzelli**, B.A. Hons. (York), M.A., Ph.D. (McM.); **Lori D. Daniels**, B. Sc. (Manit.), M.Sc. (Br.Col.), Ph.D. (Colorado); **Brett C. Eaton**, B.Sc. Hons. (Br.Col.), M.Sc. (McG.), Ph.D. (Br.Col.); **Matthew D. Evenden**, B.A. (Qu.), M.A., Ph.D. (York); **Jim F. Glassman**, B.A. (St. Olaf Coll.), Ph.D. (Minn., Minneapolis); **Marwan Hassan**, B.A. (Ben Gurion), M.Sc., Ph.D. (Hebrew); **Merje Kuus**, B.A. (Tartu), M.Sc. (W. Wash.), Ph.D. (Syracuse); **Phillipe Le Billon**, B.Sc. (Angers), M.B.A. (Paris I), D. Phil. (Oxon.); **Juanita R. Sundberg**, B.A. (Trinity), M.A. (New School for Social Research, N.Y.), M.A., Ph.D. (Texas); **Markus Weiler**, B.Sc., M.Sc. (Albert-Ludwigs), Ph.D. (Swiss Federal Inst. of Tech.).

Senior Instructor

Sally A. Hermansen, B.A., M.A. (Qu.).

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Assistant Professor Emeritus

Ken Denike, M.Sc. (Br.Col.), A.M., Ph.D. (Penn.).

Senior Instructor Emerita

Margaret E.A. North, B.Sc. (Lond.), M.A. (Kansas).

Senior Instructor Emeritus

Richard Copley, B.A. (Iowa), M.A. (Calif., Berkeley).

Adjunct Professors

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Senior Instructor

Leslie Burkholder, Ph.D. (M.I.T.).

Lecturers from Other Departments

Ashok N. Aklujkar, Asian Studies; **Robert Brain**, History; **Shirley D. Sullivan**, Classical, Near Eastern and Religious Studies; **Steven Taubeneck**, Classical, Near Eastern and Religious Studies.

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Associate Professors

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Assistant Professors

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Adjunct Professor

Robert H. Jackson, B.A., M.A. (Br.Col.), Ph.D. (Calif., Berkeley).

Senior Instructor

Allen Sens, B.A., M.A. (Br.Col.), Ph.D. (Qu.), International Relations Program Chair.

Honorary Associate Professor

Campbell Sharman, B.A. (Adel.), M.Sc. (Lond. School of Econ.), M.A., Ph.D. (Qu.).

Associate Members

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Eric Eich, Head

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Associate Professors

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Assistant Professors

Jeremy C. Biesanz, A.B. (C'nell.), M.A., Ph.D. (Arizona State U.); **Susan A. J. Birch**, B.Sc. (St.FX.), M.Sc., Ph.D. (Yale); **Scott R. Carlson**, B.A., Ph.D. (Minn.); **Brian Christie**, B.Sc., M.Sc. (Calg.), Ph.D. (Otago); **Kalina Christoff**, B.Sc., M.Sc. (New Bulgarian U.), Ph.D. (Stan.); **Elizabeth W. Dunn**, B.A. (Harv.), M.A., Ph.D. (Virginia); **Stanley Floresco**, B.Sc., M.A., Ph.D. (Br.Col.); **Todd Handy**, B.Sc. (Calif., Davis), M.A. (Vanderbilt), Ph.D. (Calif., Davis); **Ara Norenzayan**, B.A. (Calif., Fresno), Ph.D. (Mich.); **Kiran Soma**, B.A. (Stan.), Ph.D. (Wash.); **Jessica Tracy**, B.A. (Amherst Coll.), Ph.D. (Calif., Davis).

Professor Emeritus

Fred P. Valle, A.B. (Calif., Riverside), Ph.D. (Mich.).

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Associate Professors

Cathy Burnett, B.A. (Utah), M.F.A. (Boston), Theatre; **Robert Eberle**, Theatre; **Ronald Fedoruk**, B.F.A. (Calg.), M.F.A. (Vic.B.C.), Theatre; **Neil Freeman**, B.A., M.A. (Nott.), Theatre; **Chris Gallagher**, B.F.A. (Br.Col.), Film; **Alison Green**, B.F.A., M.F.A. (Br.Col.), Theatre; **Stephen Heatley**, B.A. (Brock), M.F.A. (Alta.), Theatre; **Kirsty Johnston**, B.A. (Qu.), M.A. (Tor.), Ph.D. (Tor.), Theatre; **Stephen Malloy**, B.A. (Ott.), M.F.A. (Vic.B.C.), Theatre; **Sharon McGowan**, M.F.A. (Br.Col.), Film; **Gayle Murphy**, B.F.A. (Calg.), M.F.A. (York), Theatre; **Peggy Thompson**, Creative Writing; **Bryan Wade**, B.A. (Vic.B.C.), M.F.A. (Calif., L.A.), Creative Writing.

Assistant Professors

Meryn Cadell, Creative Writing; **Lisa Coulthard**, B.A. (Br.Col.), M.A. (Br.Col.), Ph.D. (Toronto), Film; **Kirsty Johnston**, B.A. (Qu.), M.A. (Tor.), Theatre; **Maureen Medved**, B.A. (Manit.), M.F.A. (Br.Col.); **Tom Scholte**, B.F.A., M.F.A. (Br.Col.), Theatre; **Rhea Tregobov**, B.A. (Manit.), M.A. (Boston).

Senior Lecturers

Lynne Bowen, B.Sc. (Alta.), R.N. (Alta.), M.A. (Vic.B.C.); **Andreas Schroeder**, B.A. (Br.Col.), M.A. (Br.Col.).

Lecturers

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Adjunct Professors

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WOMEN'S STUDIES PROGRAM

Wendy Frisby, Chair

L. Angeles, cross-appointed to Community and Regional Planning; **S. Gunew**, cross-appointed to English; **S. Orbaugh**, cross-appointed to Asian Studies; **V. Raoul**, cross-appointed to French, Hispanic, and Italian Studies; **B. Ross**, cross-appointed to Anthropology and Sociology; **V. Strong-Boag**, cross-appointed to Educational Studies; **S. Thobani**, cross-appointed to Centre for Research in Women's Studies and Gender Relations.

2006-07

4 The School of Audiology and Speech Sciences

A SCHOOL WITHIN THE FACULTY OF MEDICINE

Director's Office

David R. Stapells, Director

5804 Fairview Avenue
Vancouver, BC, V6T 1Z3
Telephone: 604-822-5591
Fax: 604-822-6569

Web: Audiology and Speech Sciences Website
(www.audiospeech.ubc.ca)

The School of Audiology and Speech Sciences endeavours to advance knowledge of human communication and its disorders by actively engaging in research, and by educating individuals to become audiologists, speech-language pathologists, and researchers. In its teaching and research programs, the School emphasizes both the importance of basic science to the understanding of communication disorders and the relevance of clinical data to theories of human communication.

The study of human communication forms the basis of, and unifies, the scientific and professional fields of Audiology and Speech-Language Pathology. This study is concerned with hearing and speech function, and with the understanding and use of language at all levels of physiological, linguistic, psychological, and sociocultural organization. It is framed by theories and empirical evidence from acoustics, psychology, physiology, linguistics, and related disciplines, and embraces a continuum of endeavour from basic research to clinical practice.

The School's Master of Science and Doctor of Philosophy programs are designed to insure that graduates are grounded in the basic and applied sciences, can address complex communication problems within an interdisciplinary framework, and understand the relevance of theory in research as well as practical endeavours.

MASTER OF SCIENCE

The School of Audiology and Speech Sciences offers a graduate program leading to the Master of Science. This program is designed to provide the scientific and clinical education necessary for the professions of Audiology and Speech-Language Pathology. Students must designate a Major in one of these two fields at the time of admission. The Master of Science program will require 24 to 36 months to complete, depending on the student's undergraduate preparation.

As well as providing opportunities for graduate research on human communication and its disorders, the Master of Science program enables graduates to complete the academic and practical requirements for professional certification. The curriculum alternates periods of university-based study with periods of supervised clinical practice in the community. During these externships the student gradually assumes clinical responsibility for clients, under supervision. The clinical education program strives to provide each student with experience in all aspects of the Major professional area as well as a foundation of clinical experience in the Minor. Graduates will have completed at least the minimum number of hours of clinical practice required for certification by Canadian professional associations.

ACADEMIC ADVISING

Students are assigned to a faculty advisor prior to the beginning of their first term. This assignment may change as the student's research interests mature.

ADMISSION

Admission is on a competitive basis. At a minimum, applicants must have a cumulative average of at least 76% over the last two years of a four-year undergraduate degree, and at least 12 credits with a minimum grade of 80% in courses at the 300 level or above. Applicants must also have appropriate undergraduate preparation as defined below.

Most students seeking to specialize in Speech-Language Pathology find that degree programs in Linguistics or Psychology are the best route to achieving the necessary undergraduate preparation for the M.Sc. degree program.

For students seeking to specialize in Audiology, the routes for preparation are diverse and could include an undergraduate degree in, for example, engineering, psychology, biology, or physics.

Students with other academic backgrounds who have outstanding academic records and who are interested in applying to either Speech-Language Pathology or Audiology should write to the Chair of the School's Admissions Committee with the details of their academic preparation.

Prerequisite Courses

Background coursework in the specific content areas listed below is considered to be essential preparation for specialization in either Audiology or Speech-Language Pathology in the Master of Science curriculum. Coursework in at least five of these areas must be completed prior to applying for admission. An extended study program is available to a small number of students of exceptional merit. Students in this track complete the prerequisite courses during the first year of their Master of Science program. The number and combination of courses available to them during this year depends upon the requirements, and upon the course scheduling of the UBC department offering the course.

Completion of the M.Sc. degree in Audiology or Speech-Language Pathology will require courses in ALL of the prerequisite content areas listed for the chosen specialization. To ensure that the graduate degree can be completed within 24–36 months and to avoid problems related to schedules and prerequisites, students are strongly advised to complete as much of this preparation as is possible prior to entry.

Note that the list of prerequisite content areas differs depending on whether the student intends to specialize in Speech-Language Pathology or Audiology, and also that admission to the M.Sc. Program is competitive and takes into consideration the overall program of study. All things equal, students who complete a coherent degree program in a field fundamental to human communication will have the advantage.

Note the prerequisites below for Speech-Language Pathology and Audiology, respectively:

SPEECH-LANGUAGE PATHOLOGY:
MINIMUM PREREQUISITES FOR ADMISSION TO
THE SPEECH-LANGUAGE PATHOLOGY MAJOR

Course Content	Minimum Credits ¹
Phonology	3
Syntax	3
Speech Science	3
Language Acquisition	3
Phonetics ²	evidence of competency
Developmental Psychology	3
Cognitive Psychology or Psycholinguistics	3
Research Methods ³	3

Course Content (Continued)	Minimum Credits ¹
Neuroanatomy	1.5
Neurolinguistics	1.5

¹ Courses are to be at the upper level (300 or 400) when possible. Note that most upper-level courses have prerequisites at the 100 or 200 level. A 3 credit course is equivalent to a one term course which meets 3 hours per week.

² Students are required to provide evidence of transcription competencies when they apply.

³ Must include Research Design

Additional Coursework Recommended for Speech-Language Pathology Applicants: For students majoring in Speech Sciences or Linguistics, undergraduate preparation could include additional coursework in Psychology such as Cognitive Psychology, Development, Psycholinguistics, Adulthood and Aging, and Counselling as well as Linguistics.

For students majoring in Psychology, additional undergraduate preparation could include, for example, further courses in Linguistics such as Speech Science, Semantics, Syntax, Morphology, Discourse, Sociolinguistics, and/or courses in Psychology such as those listed in the previous paragraph.

AUDIOLOGY: MINIMUM PREREQUISITES FOR ADMISSION TO THE AUDIOLOGY MAJOR:

Course Content	Minimum Credits ¹
Introduction to Physics (energy and waves)	3
Developmental Psychology	3
Sensation/Perception	3
Research Methods ²	3
Introduction to Linguistics	3
Neuroanatomy	1.5

¹ A 3 credit course is equivalent to a one term course which meets 3 hours per week.

² Must include Research Design

ADDITIONAL COURSEWORK RECOMMENDED FOR AUDIOLOGY APPLICANTS

For students who plan to specialize in Audiology, additional undergraduate preparation could include, for example, Brain and Behaviour, Adulthood and Aging, additional Developmental Psychology, Cognitive Psychology, Counselling, Biology, Phonology, Syntax, Acoustic Phonetics, Discourse, and Statistics.

Application for Admission

Persons interested in applying to the School's Master of Science program should apply online (grad.ubc.ca/apply/online). The School reviews applications at two points, late January and early March. Applicants who wish to be considered for financial support should submit their applications before mid-January. All other applicants should submit their applications before February 28. Ordinarily, the second review of applications fills the class, but if spaces remain, further offers of admission will be made in April. Applicants of exceptional merit may receive offers of early admission upon receipt of their application materials. Further questions should be directed to the

Chair of the Admissions Committee in the School of Audiology and Speech Sciences.

The following materials must be submitted in order for the Admissions Committee to consider an applicant:

1) An online application grad.ubc.ca/apply/online/, including a list of completed prerequisite courses.

The following should be sent directly to the School of Audiology and Speech Sciences:

2) A written statement by the applicant of up to 500 words (typewritten, double-spaced) indicating the reason for wishing to study Audiology or Speech-Language Pathology, the aspects of the field which are of particular interest to the applicant and any other relevant facts. At the end of the statement, a list should be given with the names of the professionals (at least one audiologist and one speech-language pathologist) with whom the applicant has met to discuss their respective professions and/or whom she or he has observed in the course of their practice.

3) Two official transcript(s) of all post-secondary institutions attended. If still attending university at the time of application, the applicant should send the most recent transcript available from that institution, as well as a list of the courses in which the applicant is currently enrolled, including the standing at the time. An official and complete transcript should also be sent as soon as available, even if past the application deadline. If any transcript is not in English or French, an official translation must be provided.

4) Three letters of reference, two of which must be academic references. Where possible, at least two of the letters should be written by professors who taught the applicant in the last two years of university work. These letters must be mailed directly to the School by the referees.

5) Proof of proficiency in the English language is required if English is not the applicant's native language AND the applicant is not a graduate of a Canadian university. No offer of admission to the University will be made until we receive one of the following: TOEFL, including TSE, (minimum acceptable score for admission is 600 paper form, 250 computer form); IELTS (minimum acceptable score is 7).

6) Applicants who are non-native speakers of English must also provide a five to ten minute recording of their speech (cassette or CD). This speech sample can be on any topic, as long as it is neither read nor recited. A telephone interview may follow.

It is the applicant's responsibility to ensure that all of these documents are received by the School. No application will be processed until all of the materials listed above have been received.

Scholarships and Financial Support

Due to changes in the University's policies, the School has only limited funding for first-year graduate students. Whenever possible, students should apply for NSERC, SSHRC, or CIHR scholarships in the October prior to their application to the School. The School will assist outstanding students to apply for support for their second year of study. Other students may qualify for Canada Student Loans, or other awards and financial assistance programs. The School is pleased to document admissions status for students who may be applying for financial assistance.

DEGREE REQUIREMENTS

The M.Sc. program is designed to span 24–36 consecutive months. Note, however, that the prerequisite courses listed above are considered to be an integral part of the School's curriculum. Students who have not completed these foundation courses at the time of admission will be required to do so, or to demonstrate equivalent knowledge, prior to receiving the M.Sc. degree. Please refer to the School of Audiology and Speech Sciences website (www.audiospeech.ubc.ca) for details on the program of study for both Audiology and Speech-Language Pathology.

Completion of the Master of Science requires fulfillment of the prerequisite requirements, completion of a minimum of 30 credits of graduate coursework, and grades of 68% (B-) or higher in at least three of the clinical externship courses. In addition to course-related requirements, all students must complete either a thesis or a graduation paper. These requirements are most commonly met in the course of study described on the School's website.

Electives Students in the M.Sc. program are required to take elective credits, and the School encourages students to take electives outside their discipline, either within the School or in other Departments at the University as their schedule permits. Suitable electives may be offered, for example, by The College of Health Disciplines, Educational Psychology/ Special Education/Counseling Psychology, Nursing, Neuroscience and Psychology. A list of approved electives will be provided during the program.

Clinical Externships

In their practicum experiences, students provide supervised clinical service to persons with communication disorders. Professional ethics mandate that the School avoid assigning students to clinical work if their level of knowledge, clinical skill or language competencies might lead to errors in judgment that could adversely affect their clients/patients. For this reason, student performance is evaluated by the faculty members as a whole prior to the initial externship. To qualify for clinical externship placement, a student must:

1) complete the laboratory portions of clinical courses with a grade of at least 68%;

- 2) meet the Faculty of Graduate Studies requirements for continuation in the degree program; and
- 3) demonstrate competency in oral English, both comprehension and production, which is adequate for clinical practice in English. This judgment is made by faculty members teaching courses with clinical content.

The School is very aware of the need to prepare audiologists and speech-language pathologists who can provide service to a linguistic and culturally diverse population. To this end, we will help non-native speakers of English to find assistance in meeting the third criterion. This may, however, lead to delays in obtaining the Master of Science degree. Prospective students who wish further advice on this matter should arrange for an interview.

As noted above, to complete the Master of Science degree, all students are required to achieve 68% (B-) or higher in at least three clinical externship courses. Students who initially fail to meet this requirement may apply to retake one or more of these courses. The decision on this application will be made by the School's faculty based upon such criteria as the likelihood of improved performance and the availability of an appropriate practicum site. Finally, students should also note that one of their externship placements is likely to require temporary relocation outside the Vancouver area, e.g., to Kelowna. This may entail some additional expense.

DOCTOR OF PHILOSOPHY

An applicant to the doctoral program should have completed a Master's degree, typically in Audiology and Speech Science, Psychology, Linguistics, or a related discipline. Eligibility for admission will be decided by the Doctoral Studies Committee. The committee will consist of the Graduate Advisor and a minimum of three other full members of the graduate faculty who are full-time faculty at the School. The decision of the committee will be based on the following criteria:

- **Academic Standing:** A first-class (A) average based on relevant graduate and senior undergraduate courses, with first-class standing in at least 18 credits of graduate work.
- **Research Potential:** Evidence of research ability as shown by a Master's thesis or equivalent, and positive evaluations of research potential by three referees, who are themselves researchers.
- **Research Plan:** A detailed statement of research interests and reasons for pursuing advanced study, which is used to match applicant and faculty research interests.
- **Supervisor:** In order for a student to be accepted, a full member of graduate faculty holding an appointment in the School must agree to chair the student's Program Advisory Committee and to supervise the student's dissertation.

DEGREE REQUIREMENTS

The student normally will be recommended for advancement to candidacy when he/she has:

- 1) completed the residency period required by the Faculty of Graduate Studies;
- 2) completed all coursework and research training as required by the Faculty of Graduate Studies and according to the plan set out by the program advisory committee;
- 3) passed the comprehensive examination; and
- 4) had a dissertation proposal approved by the Dissertation Committee.

Completion of the degree also requires that the student write a dissertation passed by an examination committee according to the requirements of the Faculty of Graduate Studies.

A brochure giving details of this program is available from the School's office, as well as the School's website (www.audiospeech.ubc.ca).

ACADEMIC STAFF

Professors

Judith R. Johnston, B.A., M.A. (Stan.), Ph.D. (Calif., Berkeley); David R. Stapells, B.A. (S.Fraser), Ph.D. (Ott.).

Associate Professor

Barbara M. Bernhardt, B.A., M.Sc., Ph.D. (Br.Col.); Jeff A. Small, B.A. (Cent. Wash.), M.A. (New Mex.), Ph.D. (Calif., L.A.).

Assistant Professors

Lorienne Jenstad, B.A. (Qu.), M.A. (W.Ont.), Ph.D. (Wash.); Stefka Marinova-Todd, B.A. (Tor.), Ed.M., Ph.D. (Harv.); Sandra McCoy, B.A. (Mass.), M.A. (Maryland U.), Ph.D. (Brandeis); Navid Shahnav, B.Sc. (Tehran), M.Sc., Ph.D. (McG.).

Senior Instructor

Elizabeth D. Macleod, B.A., M.Sc. (Br.Col.).

Instructor

Cynthia B. Bruce, B.A. (Manit.), M.A. (N. Dakota).

Research Associate

Linda Rammage, B.A. (Alta.), M.Sc. (Br.Col.), Ph.D. (Wis., Madison).

Clinical Professor

Barbara A. Purves, B.A. (S.Fraser), M.Sc. (Br.Col.).

Clinical Associate Professors

Brent McNeill, B.A., M.A. (W.Wash.); Carol Woodworth, B.A., M.Sc. (Br.Col.).

Clinical Assistant Professors

Sharon Adelman, B.Sc. (McG.), M.Sc. (Br.Col.); Lisa Avery, B.A. (Ott.), M.H.Sc. (Tor.); Suzanne E. Barry, B.A. (Mt. St. Vin.), M.Sc. (Br.Col.); Terry Batt, B.A. (Calif., Berkeley), M.Sc. (Br.Col.); Susan Blockberger, B.A. (Vic.B.C.), M.A. (Northwestern); Sandi Bojm, B.A. (Tor.), M.Sc. (McG.); Marie Bremner, B.Sc. (Tor.), M.Sc. (McG.); Elizabeth Brooks, B.A. (W.Ont.), M.Sc. (Br.Col.); Daniel J. Carlson, B.A. (S.Fraser), M.Sc. (Br.Col.); Marilou Carrillo, B.Sc. (Northwestern), M.S.P.A. (Wash.); Marcia Choi, B.A., M.Sc. (Br.Col.); Susan M. Clarke, B.A., M.A. (W.Wash.); Dina Y. Collins, B.A. (Br.Col.), M.A. (W.Wash.); Barbara Cotter, B.A., M.A. (Mich.); Lori Davies, B.Sc. (Alta.), M.A. (W.Wash.); Wendy Duke, B.A., M.Sc. (Br.Col.);

Dorothy Fairholm, B.A., M.Sc. (Br.Col.); Patrick Greenwood, B.A., M.A. (W.Wash.); Cindy L. Gustin, B.A., M.Sc. (Br.Col.); Wilma C. Haig, L.C.S.T. (Glas.); Sheila Kearney, B.A., M.Sc. (Br.Col.); Anne MacCallum, B.A., M.Sc. (Br.Col.); Catherine Manning, B.A., M.Sc. (Br.Col.); Colette Massie, L.C.S.T. (Glas.), M.Sc. (Lond.); Marianne McCormick, B.A. (Alta.), M.Phil. (Cantab.), M.Sc. (Br.Col.); Christina Moes, B.A. (McG.), M.Sc. (Br.Col.); Christina Mortimore, B.A., M.Sc. (Br.Col.); George M. Muller, B.A. (H.K.), M.A. (Wash.); Ann Marie Newroth, B.Sc., M.Sc. (Br.Col.); Jo Nussbaum, B.A. (Austin), M.A. (Indiana); Sijke Pijl, B.Ed. (Br.Col.), M.A. (W.Wash.); David Platt, B.A. (York, Can.), M.Sc. (Br.Col.); Elizabeth Porteous, B.A., M.S.L.P. (Alta.); Cynthia Reynolds, B.A. (Guelph), M.H.Sc. (Tor.); Susan Robbins, B.A., M.Sc. (Br.Col.); Sue Scott, B.A. (Qu.), M.Sc. (Br.Col.); Mae Seto Quan, B.A. (Sask.), B.A. (N.Dakota), M.A. (W.Wash.); Grace Shyng, B.A., M.Sc. (Br.Col.); Sandra Taylor, B.A., M.Sc. (Br.Col.); Suzanne Thom, B.A. (Regina), M.Sc. (Br.Col.); Margaret Thompson, B.Sc.Ed. (N.Dakota), M.Sc. (Dal.); M. Lynn Tissington, B.A., B.Sc., M.C.Sc., (W.Ont.); Laurie Usher, B.S. (N.Arizona), M.S. (Idaho); Ellen van Heerden, Dip. Logoped. (Netherlands); Anna Van Maanen, B.A., M.S. (Minot.); Sue Wastie, L.C.S.T. (Leic.).

Clinical Instructors

Sandra Akres, B.A. (S.Africa), M.S.L.P. (Alta.); Sandra Aristizabal, B.A. (Rosario), Master (ECR/INTESEG); Nicole Armstrong, B.A. (S.Fraser), M.Sc. (Br.Col.); Kathleen D. Barker, B.A., M.Sc. (Br.Col.); Annabel Barlow, B.A. (McG.), M.Sc. (Br.Col.); Bonnie Baxter, B.A., M.Sc. (Minot.); Lori Bell, B.A., M.Sc. (Br.Col.); Leslie Bennett, B.A. (Ott.), M.Sc. (Syr.); Monika Bernauer, B.Sc. (Vic.B.C.), M.Sc. (Br.Col.); Randa Bloom, B.A. (Wash.), M.A. (W.Wash.); Karen Bopp, B.A., M.Sc. (Br.Col.); Tom Braasch, B.S. (Calif.), M.S. (Gallaudet); Alison Bullock, L.C.S.T. (Lond.), M.S.L.P. (Alta.); Barbara Burnet, B.Ed. (Vic.B.C.), M.A. (W.Wash.); Marie-Louise Carignan, B.A. (McG.), M.Sc. (Br.Col.); Tara Chen, B.A., M.Sc. (Br.Col.); Christine Cheung, B.A. (Wat.), M.Ed. (Manc.); Margaret Choinski, B.A. (Br.Col.), M.A. (Tor.), M.Sc. (McG.); Caroline Chow, B.A., M.Sc. (Br.Col.); Jennifer Clark, B.Sc. (Vic.B.C.), M.Sc. (Br.Col.); Laurie Cole, B.Sc., M.Sc. (Arizona); Heather Cowan, B.A. (Winn.), M.Sc. (Manit.); Helen Cowan, B.A., M.Sc. (Br.Col.); Lori Cunningham, B.Sc. (Br.Col.), M.A. (W.Wash.); Shelagh Davies, B.A. (Qu.), M.Sc. (Br.Col.); Susan Davies, B.A. (McG.), M.Sc. (Br.Col.); Petulla Deddish, B.A., M.Sc. (Br.Col.); Karen Derry, B.A., M.Sc. (Br.Col.); Gwen Dixon, B.Sc. (Alta.), M.A. (Maine); Petrea Drew, B.A., M.Sc. (Minot State); Miriam Durbach, B.A. (Cape T.), M.A. (Oregon); Susan Edmison, B.Sc. (Alta.), M.Cl.Sc. (W.Ont.); Kimberley Eggert, B.A. (Car.), M.H.Sc. (Tor.); Jennifer Ellwood, B.Sc. (McG.), M.Sc. (Br.Col.); Christy Faraher-Amidon, B.A., M.A. (N. Ill.); Phyllis Ferguson, B.A. (Bran.), M.Sc. (McG.); Tracy Findlay, B.A. (Vic.B.C.), M.A. (W.Wash.); Amy Olive Fleming, B.A., M.Sc. (Br.Col.); Hester Flewin, B.Sc. (Alta.), M.Sc. (Wash.); Janice Forsey, B.A. (Memorial), M.Sc. (Dal.); Dave Gordey, B.A. (Sask.), M.A. (N. Dakota); Deborah Gwynn, B.Sc. (Alta.), M.S. (Ithaca); Kelli Hansen, B.A. (Alta.), M.A. (Wash.); Mark Hansen, B.A., M.Sc. (Minot.); Phil Harmuth, B.A. (San Fran.), M.A. (Denver); Elizabeth J. Haynes, B.A. (W.Wash.), M.A. (Wash.); Darlene Hicks, B.A., M.Sc. (Manit.); Shelley Hughes, B.A. (Winn.), M.S.L.P. (Alta.); Jacqueline Hummelbrunner, B.A. (Minot), M.Sc. (Louisville); Mary Lou Icton, B.Sc. (W.Mich.), M.Sc. (Mich.); Nancy Johnson, B.Sc. (Guelph), M.A. (Mich.); Catherine Kennedy, B.A., M.Sc. (Br.Col.); Nora Kennet, B.A., M.Sc. (Br.Col.); Vera Kinach, B.Sc. (W.Ont.), M.A. (W.Wash.); Dianne Klingensmith, B.Sc., M.Sc. (Br.Col.); Meredith Land, B.A. (W.Wash.), M.Cl.Sc. (W.Ont.); Susan Lane, B.A. (W.Wash.), M.A. (Montana); Barbara Lang, B.A. (Tor.), M.Sc. (Br.Col.);

Tracy Larson, B.A. (Vic.B.C.), M.Sc. (S. Conn.); **Rhea Lazar**, B.Sc., M.Cl.Sc. (W.Ont.); **Lesley Lee**, B.A. (Vic.B.C.), LL.B. (Tor.), M.Sc.(A) (McG.); **Jacqueline Leong**, B.Sc. (Vic.B.C.), M.Sc. (Br.Col.); **Sarah Lowe**, B.Sc. (Wales), M.Sc. (Lond.); **Mardi Lowe-Heistad**, B.Sc. (W.Ont.), M.A. (W.Wash.); **Marian MacDougall**, B.A. (S.Fraser), M.A. (W.Wash.); **Dorothy Mathews-Dana**, LCST (Lond.), M.Ed. (Vic.B.C.); **Daniel McDougald**, B.Sc.(CD), M.Cl.Sc., (W.Ont.); **Jean McFarlane**, B.A. (Qu.), M.A. (N.Mich.); **Tasha McGimpsey**, B.A., (Manit.), M.Sc., (Alta.); **Alison Miller**, B.Sc. (Br.Col.), M.Sc. (Wash.); **Todd Mitchell**, B.Sc. (Car.), M.Sc. (Br.Col.); **Frances Monro**, L.C.S.T., M.Sc. (Lond.); **Katherine Munro**, B.A. (Calg.), M.Sc. (Br.Col.); **Keely Murray**, B.Sc., M.A. (N.Ill.); **Mahchid Namazi**, B.Sc., M.Sc. (Br.Col.); **Hava Neeman**, B.A. (Tel-Aviv), M.Sc. (Lond.); **Betsy Neily**, B.Sc., M.Ed. (W.Ont.); **Susan Nelson-Oxford**, B.Sc. (Vic.B.C.), M.Sc. (Dal.); **Joseph Newsted**, B.A. (W.Wash.), M.A. (N. Col.); **Anne Nicklewicz**, B.Sc., M.Sc. (McG.); **Marilyn Noort**, B.A., M.Sc. (Br.Col.); **Margaret Orme**, B.Sc. (Vic.B.C.), M.Sc. (McG.); **Daniel Paccioretti**, B.S. (San Jose), M.S. (San Fran.); **Carmen Parsons**, B.Sc. (W.Ont.), M.Sc. (Br.Col.); **Elizabeth Payne**, B.Sc. (Vic.B.C.), M.Sc. (Br.Col.); **Patsy Pearce**, B.S. (E. Carolina), M.S. (Penn.); **Lauren Pegg**, B.A. (W.Ont.), M.Sc. (Br.Col.); **Melissa Pehudoff**, B.A., M.Sc. (Br.Col.); **Caren Carlaw Phillips**, B.A., M.A. (W.Wash.); **Indershini Pillay**, B.A. (Alta.), M.S. (Oregon); **Todd Pribilsky**, B.Sc., M.Sc. (W.Wash.); **Lisa Prokopowich**, B.A. (Man.), M.S. (N. Dakota); **Karin Rennert**, B.A., M.Sc. (Br.Col.); **Janet Reynolds**, B.A. (S.Fraser), M.Sc. (Br.Col.); **Kristin Roodenburg**, M.A. (Antwerp), M.Sc. (Br.Col.); **Andrea Rowan**, B.A. (Qu.), M.Sc. (McG.); **Kathryn Ryan**, B.A. (W.Laur.), M.C.Sc. (W.Ont.); **Andriana Scuka**, B.S. (Walla Walla), M.A. (Wash.); **Donna J. Seedorf-Harmuth**, B.S. (S.Methodist), M.A. (Denver); **Cathy Silversides**, B.A., M.Sc. (Br.Col.); **Jason Sirianni**, B.A. (McG.), M.Sc. (Br.Col.); **Kari Smilsky**, B.Sc. (McM.), M.Cl. Sc. (W.Ont.); **Patricia Smith**, B.Sc. (N.Dakota), M.Sc. (Minot.); **Michelle Smits**, B.A., M.Sc. (Br.Col.); **Catherine Spack**, B.A. (Manit.), M.A. (N.Dakota); **Uta Stewart**, B.Sc., M.Sc. (Dal.); **Danielle Tessier**, B.Sc. (Alta.), M.Sc. (Arizona); **Sheila Threndyle**, B.A. (Br.Col.), M.A. (Wash.); **Erane van Blommestein**, B.A. (Calg.), M.Sc. (Br.Col.); **Anna van Maanen**, B.A., M.S. (Minot.); **Sylvia Vidas**, B.Sc., Cl.Sc. (W.Ont.); **Marcia Waller**, B.A., M.Sc. (Br.Col.); **Neil Walton**, B.Sc. (W.Ont.), M.Sc. (Br.Col.); **Theresa Ward**, M.Sc. (Idaho), M.Sc. (Minot.); **Stacey Weber**, B.A. (Man.), M.Sc. (Br.Col.); **Susan Widera**, B.A. (Man.), B.Sc., M.S. (Moorehead); **Dian Wirth**, B.A., M.Sc. (Br.Col.); **Kathryn M. Wishart**, L.C.S.T. (Lond.); **Madeleine Wong**, B.Sc. (Vic.B.C.), M.A. (W.Wash.); **Maureen Young**, B.A. (S.Fraser), M.Sc. (Br.Col.).

Associate Members

Graham Bryce, Surgery; **Guy Carden**, Linguistics; **Bryan Gick**, Linguistics; **Darlene Redenbach**, School of Rehabilitation Medicine; **Joseph Stemberger**, Linguistics; **Janet Werker**, Psychology; **Brian Westerberg**, Surgery.

5 The Faculty of Commerce and Business Administration

ALSO KNOWN AS THE SAUDER SCHOOL OF BUSINESS

Dean's Office

Daniel F. Muzyka, Dean
D. Griffin, Associate Dean, Academic Programs
R. Helsley, Associate Dean, Faculty and Research
A. DeWolfe, Assistant Dean and Director, MBA Program
K. Bright, Assistant Dean and Director, Executive Education
K. Kirkpatrick, Assistant Dean and Director, Business Career Centre
K. MacDonald, Assistant Dean and Director, Undergraduate Program
G. Wong, Assistant Dean and Director, International Programs

2053 Main Mall
Vancouver, BC V6T 1Z2
Telephone: 604-822-8500
Fax: 604-822-8468

Commerce and Business Administration
Website (www.sauder.ubc.ca)

The Faculty of Commerce and Business Administration, also known as the Sauder School of Business, offers an undergraduate program leading to the degree of Bachelor of Commerce. Through the Real Estate Division, the Faculty offers a post-diploma degree completion program that leads to the Bachelor of Business in Real Estate. The Faculty also offers a Diploma in Accounting program. At the graduate level, programs leading to the degrees of Master of Business Administration, International M.B.A., Master of Management, Master of Science in Business Administration, and Doctor of Philosophy are offered. For information on research oriented graduate programs (M.Sc.B. and Ph.D.) see *Business Administration*, p. 237, in the Faculty of Graduate Studies section, and for professional master's programs see *Professional Master's Degrees*, p. 170.

BACHELOR OF COMMERCE

The Bachelor of Commerce is a four-year specialized program and is intended for students interested in one of ten specialized fields of administrative practice. The first two and a half years are devoted to building a foundation in the related sciences and the humanities and to learning the fundamentals of business issues, principles, and practices.

The professional and specialized aspects of the curriculum are largely concentrated in the last one and a half years. Because of the breadth and variety of topics covered, all students must take a specified "core" of courses and then arrange a series of carefully selected and integrated courses to complete an option. For necessary core courses, see *Degree Requirements*, p. 167. Students may contact the Commerce Undergraduate Program Office for more details concerning each option in the program.

ACADEMIC ADVISING

The Undergraduate Program Office offers drop-in advising from 12:30 pm to 3:30 pm, Mondays through Wednesdays, or by appointment 10:00 am to 12:00 pm, Mondays through Fridays. Faculty advisors can assist in program planning, answer admission inquiries, and administer regulations governing the Bachelor of Commerce program. Advisors can also evaluate and approve requests for course changes, withdrawals, and academic concessions, and produce letters of permission for study elsewhere. Students experiencing academic difficulty are encouraged to contact an advisor as soon as possible. To schedule an appointment, call 604-822-8333.

ADMISSION

The Faculty of Commerce and Business Administration (also known as The Sauder School of Business) has a Broad-Based Admission policy that incorporates the use of academic performance and overall records of leadership and accomplishment in the selection of all students entering the Bachelor of Commerce program. As part of this process, all applicants are required to submit the BCOM Supplemental Application Form.

Detailed information on admission requirements for all applicants is available on the Sauder School of Business website (www.sauder.ubc.ca/bcom/admissions/index.cfm).

Secondary School Applicants

Admission of secondary school students into Year 1 of the Bachelor of Commerce program is based on academic performance and overall records of leadership and accomplishment. Successful applicants are motivated and focused, actively participate in extracurricular

activities, and demonstrate leadership potential and teamwork skills.

College/University Transfer Students (including UBC students transferring faculties)

Students who have completed 27 transferable credits (with a minimum grade point average of 2.00 on a 4-point scale) at an accredited post-secondary institution are eligible to be considered for admission to second year of the Bachelor of Commerce program. Students must have completed the following UBC courses (or their equivalents): ENGL 112 plus one of ENGL 110, 111, 120, 121 (Arts One or a minimum of 16 credits of the Foundations program is acceptable) with a minimum grade of 60% on each English course; ECON 101 and 102; MATH 104 and MATH 105; and 9–12 credits of electives. Electives must not include any business courses. Statistics courses will be included in the admission average; however, they will not count toward the Bachelor of Commerce program. Applicants to the Bachelor of Commerce program are required to complete all core courses in English, Economics, and Mathematics, as these are prerequisites to most second year courses. Students must complete all core courses by the document deadline of June 30.

Admission to Year 2 of the Bachelor of Commerce program is based on academic performance and overall records of leadership and accomplishment. Successful applicants are motivated and focused, actively participate in extracurricular activities, and demonstrate leadership potential and teamwork skills.

BC College Commerce Transfer Programs

Students who have completed second-year Commerce at a college offering a transfer program to UBC's Bachelor of Commerce program are eligible to be considered for admission to third-year. Students must have completed 54 transferable credits with a minimum grade point average of 2.00 on a 4-point scale. Attainment of the minimum prescribed requirement means only that the applicant is eligible for selection but does not provide assurance of admission.

Admission to Year 3 of the Bachelor of Commerce program will be based on academic per-

formance and overall records of leadership and accomplishment. Successful applicants are motivated and focused, actively participate in extracurricular activities, and demonstrate leadership potential and teamwork skills.

Business Programs at Other Universities

Business students attending other universities and wishing to transfer to the Faculty of Commerce and Business Administration (Sauder School of Business) at UBC will be considered on an individual basis. Students may be admitted with advanced standing as approved by the Undergraduate Program Office. Transfer credit will be assessed only after a formal application for admission to the program has been made. A grade point average of 2.00 on a 4-point scale is required to be considered for admission.

Admission will be based on the criteria as outlined above depending on the year level the student is eligible for.

A student with unsatisfactory standing from another post-secondary institution will not be admitted.

Chinook Business Diploma

Students who have completed the Chinook Business Diploma offered at one of BC's community colleges in partnership with UBC are eligible to be considered for admission to third year in the Chinook option. Students may also be eligible for admission to other options if they meet the specific requirements for those options. Students must have completed 60 credits with a minimum grade point average of 2.00 overall. Attainment of the minimum prescribed requirements means only that the applicant is eligible for selection but does not provide assurance of admission.

ACADEMIC REGULATIONS

The following regulations regarding Commerce courses apply:

- 1) Students are admitted to the Bachelor of Commerce program, not to particular fields of concentration (options); enrolment in required option courses may be limited. Students may select their option in the summer registration period prior to third year but must make their choice no later than the end of Term 1 of Winter Session of the third year in the program. While it may be possible to change options at the end of Term 1, there may not be sufficient space in all of the required courses. Because registration access is based on GPA, students with lower marks will register later and may be unable to gain admission to the option of their first choice. For this reason students are encouraged to plan for a second and third choice. Changes to options made at the end of Term 1 require the approval of the Undergraduate Program Office.
- 2) Each option program assumes that there is a normal sequence of courses, as listed on the Sauder School of Business website

(www.sauder.ubc.ca). Students are expected to recognize these normal sequences in planning their program. Any exceptions must be approved by the director or associate director of the undergraduate program.

- 3) Students may be required to undertake field work in the business community.
- 4) A charge may be made for material supplied by the Faculty for use in classes.
- 5) Courses in Commerce generally are reserved for students registered in a degree program in Commerce. However, there are exceptions to this regulation. Special arrangements have been made for students registered in other faculties in programs, as approved by Senate, which specifically require Commerce courses. Non-Commerce students should consult their faculty to see if such arrangements have been made for their program of study.
- 6) Students who have obtained a First Class average (80% or higher) in their third year may elect to register for up to 6 credits of 500-level courses chosen in consultation with the chair of the division, the instructor, and the director or associate director of the undergraduate program.

Dean's Honour Roll

The words "Dean's Honour Roll" will be placed on a student's transcript if they have achieved an average of 80% or better in an academic year of at least 27 credits for first year students, at least 30 credits for second year, and 27 credits for third and fourth years. Students in a co-operative education program who are registered at UBC for only one term in Winter Session because of a co-op placement must be in a program of 15 credits for that term. Grades obtained by students registered in a study abroad or exchange program during the Winter Session will be considered. To qualify, a student must pass all courses.

Degree Completion

Students must complete their degree requirements within six years of their original admission into the Faculty of Commerce and Business Administration.

Degree with Honours

The words "with Honours" will be placed on the transcript of record and the degree certificate of a student graduating with the Bachelor of Commerce where the average is 80% or better in all upper-level Commerce courses. Grades obtained by students registered in a study abroad or exchange program during their final two years will be considered. As well, the student must be enrolled in a 27-credit course load in at least one of the two final years.

Program Approval

Students are responsible for the completeness and accuracy of registration as it relates to the regulations of the program they are enrolled in. Any variation from a full load must be approved by an academic advisor in the Undergraduate Program Office.

Unsatisfactory Performance

Students whose performance in the Faculty of Commerce and Business Administration is unsatisfactory will be required to discontinue study in the Faculty for at least one year. Students who have failed to meet the promotion requirements of the University will be considered to have failed the year and will be required to discontinue study in the University for at least one year. Continuation requirements are listed in the table Summary of Continuation Requirements below and are subject to the following:

- 1) Student performance is considered unsatisfactory when the average taken in all courses in second, third, or fourth year, including failed courses, is below 60%.
- 2) Students admitted to the first-year in Commerce through Direct Entry will be required to discontinue study in the Faculty for at least one year if:
 - The average in all courses taken in any year, including any failed courses, is below 60%, or
 - The grade in the required first-year English course is below 60%, or
 - The average in the required first-year English, Economics, and Math courses is below 65%, or
 - There is a deficiency in any of the first year Economics, English, or Math courses.
- 3) Students who fail the year or are required to discontinue study in the Faculty may apply for readmission only after 12 months.
- 4) Students who are readmitted after being required to discontinue study in the Faculty or after a failed year will receive credit towards the Bachelor of Commerce only for those courses in that year in which a grade of at least 65% was obtained.
- 5) Students at any level of university study who are required for a second time to discontinue studies in the Faculty, whether in repeating a year or in a later year, will be required to withdraw from the University. Readmission to Commerce in such cases is normally not granted.
- 6) Any students whose academic records, as determined by the tests and examinations of Term 1, are found to be unsatisfactory may be required to discontinue attendance in Commerce for the remainder of the session.

SUMMARY OF CONTINUATION REQUIREMENTS

Year Level	Winter Session Average	Core Average ¹	Sessional Standing	Continuation Status
1	60% or more	65% or more	Pass	Eligible to continue
1	60% or more	less than 65%	Pass	Not eligible to continue
1	55%–59%		Pass	Not eligible to continue
1	50%–54.9%		Academic Probation	Not eligible to continue
1	Less than 50%		Fail	Required to discontinue
2–4	60% or more		Pass	Eligible to continue
2–4	Less than 60%		Fail	Required to discontinue

¹ Core average is calculated on all required Economics, English, and Math courses.

Advancement Requirements

The UBC Bachelor of Commerce (B.Com.) is a full-time four-year program. Students are expected to register in a full load of courses unless they have been granted advanced standing.

- To earn a promotion from first to second year, a student must have completed a minimum of 27 credits including all required English, Math, and Economics courses.
- To earn a promotion from second to third year, a student must have completed 54 credits including five of the seven following second-year required core courses: COMM 290, 291, 292, 293, 294, 295, 298; no more than one of Commerce 391, 392, and 396 may substitute for one of the second-year Commerce courses.
- To earn a promotion from third to fourth year, a student must have completed 84 credits including two option core courses and four of the following six third year core courses: COMM 391, 392, 394, 396, 393, or 399.

CO-OP AND MINOR OPTIONS

Co-operative Education Program

The Commerce Co-operative Education Program (www.sauder.ubc.ca/cc/undergraduate/coop_education.cfm) is intended to provide interested and qualified students in the Faculty of Commerce and Business Administration with work experience relevant to their future careers. The program is optional and is currently available only to students who register in certain academic options. As new programs are being added, students should check with the Undergraduate Program Office concerning the options in which co-operative education is available. The Co-operative Education Program entails three or four work term placements of four months' duration each, starting as early as Term 2 of the third year. Work terms may occur in the fall, winter, or summer terms. The particulars of each specific academic option's co-op program will depend

on the targeted employer group's staffing needs. The work term experience requirement in co-operative education requires up to an extra year to complete the Bachelor of Commerce requirements. Faculty advisors or coordinators visit students at their places of work and provide advice on the work term reports that are a requirement of the program. Students intending to enter this program may apply as early as Term 1 of their second year; transfer students should apply in the summer between their second and third years. Mandatory pre-employment training workshops start in September of the third year.

Students who wish to be considered for the program must meet all of the requirements of the Faculty and will be selected on the basis of academic performance and suitability for the work environment. The total enrolment is subject to the availability of appropriate work placements. An accepted student will register in the appropriate Co-operative Education course for each work term once a suitable position is confirmed, and will be required to pay a Co-operative Education Program fee (see *Special Fees*, p. 29). Completion of each of these courses, including a work term report, will be recorded on the student's transcript.

In order to graduate in the Co-operative Education program, a student must have satisfactorily completed the required number of work placements, in addition to the normal academic requirements.

Minor in Arts

Students may apply to have the completion of the requirements for a Minor in the Faculty of Arts noted on their transcript. Students are encouraged to consult a departmental advisor in Arts, preferably before taking the necessary courses.

Minor in Science

Students may, with approval of a departmental advisor in Science, a senior faculty advisor in the Faculty of Science Dean's Office, and a senior advisor in their home faculty, undertake a Minor in Science program in conjunction with their degree program. Students are strongly encouraged to consult with advisors in both faculties before taking the necessary courses. Space in Science courses is limited. Admission to a Science Minor does not guarantee access to courses agreed upon for the minor. Once students complete the required courses, they will have the minor recognized on their transcript.

DEGREE REQUIREMENTS

Effective September 1, 2006, the following requirements represent the core courses of the Bachelor of Commerce program. In addition, students in third year must select an option and complete the specific option program requirements set out below. Students who were initially registered in the Bachelor of Commerce program prior to September 1, 2006 should consult the Undergraduate Program Office regarding the requirements to complete the program.

BACHELOR OF COMMERCE

First Year Pre-Commerce	
(For students completing first year in another faculty prior to applying for admission to second-year B.Com.)	
ENGL 112	3
ECON 101/102	6
MATH 104 or 184 ¹	3/4
Non-Commerce Electives ²	18
Total Credits	30/31

First Year	
(For students admitted directly into first-year B.Com. from secondary school.)	
ENGL 112	3
ECON 101/102	6
MATH 104 or 184 ¹	3/4
COMM 292	3
COMM 293	3
COMM 299	1
Non-Commerce Electives ²	12
Total Credits	31/32

Second Year	
(For students admitted to B.Com. after completing a pre-Commerce year)	
COMM 290, 291, 292, 293, 294, 298, 299	19
COMM 295 ³	3
One of COMM 391 ⁴ , 392, or 396, and 6 credits of Non-Commerce Electives ² OR 9 credits from COMM 391 ⁴ , 392, 396, and Non-Commerce Electives ²	9
Total Credits	31

Second Year	
(For students admitted directly into first year B.Com. from secondary school)	
COMM 290, 291, 294, 298	12
COMM 295 ³	3
COMM 391, 392, and 396	9
Non-Commerce Electives ²	6
Total Credits	30

Third Year	
(For students admitted to B.Com. after completing a pre-Commerce year)	
One of COMM 393 or 399	3
COMM 394	3
Two of COMM 391, 392, 396 ⁵ OR 6 credits from COMM 391, 392, 396 and Non-Commerce Electives ^{5,2}	6
Electives ²	9
Option Requirements (as specified below)	6
Business Writing	3
Total Credits	30

Third Year	
(For students admitted directly into first year B.Com from secondary school)	
One of COMM 393 or 399	3
COMM 394	3
Electives ²	15
Option Requirements (as specified below)	6
Business Writing	3
Total Credits	30

Fourth Year

One of COMM 393 or 399 ⁶	3
One of COMM 491, 492, 497, or 498 ⁷	3
Electives ²	15
Option Requirements (as specified below)	9
Total Credits	30

¹ Acceptable alternatives are MATH 100 or 180 or 102 or 120.

² At least 30 of the 48 credits of electives in the Bachelor of Commerce program must be non-Commerce with at least 12 credits at the senior level. Additional electives in third and fourth years may be either Commerce or Non-Commerce courses. See Electives for more information.

³ Students completing a Commerce and Economics Option may not take economics courses as their non-Commerce electives. Students in this option should take ECON 301 and 303 instead of COMM 295. Students planning to take fourth year economics courses should be aware that these courses require ECON 301 (or ECON 304), and for certain courses, ECON 302 (or ECON 305). Students who have COMM 295 and MATH 105 may be admitted to courses requiring ECON 301/304 with permission of the Economics Department. ECON 302 is highly recommended as an elective.

⁴ Students intending to take the MIS Option should complete COMM 391 in second year.

⁵ Whichever courses were not taken in second year.

⁶ Whichever course not taken in third year.

⁷ Students must take one course from COMM 491, 492, 497 and 498 as part of the core requirements in the fourth year. The 49X series of courses can only be taken in the fourth year.

CHINOOK OPTION

Third Year

Three of COMM 290, 295, 298, 392, 393, 394, and 399 ¹	9
Electives, including at least 6 credits of non-Commerce Electives ²	12
Option Requirements (as specified below)	9
Total Credits	30

Fourth Year

COMM 497	3
COMM 491 or COMM 498	3
Electives, including at least 6 credits of non-Commerce electives ²	15
Option Requirements (as specified below)	9
Total Credits	30

¹ Whichever courses were not taken in first and second year of the Chinook Business Diploma.

² The Bachelor of Commerce requires a minimum of 12 credits of non-Commerce electives in third and fourth years combined. Additional electives in third and fourth years may be either Commerce or non-Commerce courses. See *Electives*, p. 168, for more information.

Third and Fourth Year Option Requirements

Students who complete the course of studies in any one of the following options will receive the Bachelor of Commerce: Accounting, Commerce and Economics, Finance, General Business Management, Human Resources Management, International Business (must be combined with another option), Management Information Systems, Marketing, Transporta-

tion and Logistics, or Real Estate. Option requirements are listed below.

Electives

The Bachelor of Commerce program elective requirements are as outlined below:

Option	Total Required Electives	Requirements
Accounting	48 credits	At least 18 credits, whether Commerce or non-Commerce, must be at the 300-level or higher.
Finance		At least 30 credits must be non-Commerce. 12 or more credits of these electives must be at the 300- or 400-level
Human Resources Management		
Management Information Systems		
Marketing		
Real Estate		
General Business Management	51 credits	At least 21 credits, whether Commerce or non-Commerce, must be at the 300-level or higher.
Transportation & Logistics		At least 30 credits must be non-Commerce. 12 or more credits of these electives must be at the 300- or 400-level
Commerce & Economics	39 credits	At least 15 credits, whether Commerce or non-Commerce, must be at the 300-level or higher. At least 27 credits must be non-Commerce. 9 or more credits of these electives must be at the 300- or 400-level ¹
International Business	See above	International Business students should complete elective requirements of their first declared option as outlined above. Elective credits are also used to satisfy the option requirements for International Business ²

¹ Students in Commerce and Economics may not take economics courses as their non-Commerce electives.

² See *International Business*, p. 169, for more information.

Many senior-level courses require lower-level prerequisites so students should select lower-level electives carefully. Students should refer to the Sauder School of Business website (www.sauder.ubc.ca) to verify electives that can be used to fulfill program requirements.

English Requirements

To qualify for the Bachelor of Commerce, students must satisfy the English requirement of the Faculty of Commerce and Business Administration. To do this, students must obtain credit for ENGL 112 (Arts One or a minimum of 16 credits of the Foundations Program is acceptable) and Business Writing with a minimum grade of 60% for each of the

two required English courses. Satisfactory completion of the Language Proficiency Index (LPI) examination is prerequisite to all first-year English courses at UBC. (See *Language Proficiency Index Requirement for First-Year English*, p. 120.)

Prerequisites

The required 200-level Commerce courses generally are prerequisite to 300- and 400-level courses, and in each option it is assumed that the required 300-level courses will be taken prior to the 400-level courses. Specific prerequisites are listed in "Course Descriptions" in the Calendar.

Any student not registering for a normal sequence of courses must consult an academic advisor in the Undergraduate Program Office. Non-Commerce students taking Commerce courses as a part of a program should contact the Undergraduate Program Office for information.

ACCOUNTING

Third Year

Third year of this option requires that students complete:

- COMM 353, 354

Fourth Year

Fourth year of this option requires that students complete:

- COMM 450 and
- 6 credits from 452, 453, 454, 455, 459

CHINOOK OPTION

Third Year

Third year of this option requires that students complete:

- COMM 384
- 6 credits of 300- or 400- level Commerce

Fourth Year

Fourth year of this option requires that students complete:

- COMM 385
- 6 credits of 300- or 400-level Commerce

COMMERCE AND ECONOMICS

Second Year

Students should take ECON 301 or 304.

Third and Fourth Years Combined

Third and fourth years of this option require that students complete:

- ECON 303
- 6 credits of 300- or 400-level economics
- 9 credits of 400-level economics
- 6 credits of 300- or 400-level Commerce

Students completing a Commerce and Economics Option may not take economics courses as their non-Commerce electives. Students in this option should take ECON 301 and 303 instead of COMM 295. Students planning to take fourth-year economics courses should be aware

that these courses require ECON 301 (or ECON 304), and for certain courses, ECON 302 (or ECON 305). Students who have COMM 295 and MATH 105 may be admitted to courses requiring ECON 301/304 with permission of the Economics Department. ECON 302 is highly recommended as an elective.

FINANCE

Third Year

Third year of this option requires that students complete:

- COMM 371, 374; and
- 3 credits from COMM 307, 376, 377, 378, 379

Fourth Year

Fourth year of this option requires that students complete:

- 6 credits from COMM 379, 405, 471, 472, 474, 475, 478

GENERAL BUSINESS MANAGEMENT

Third Year

Third year of this option requires that students complete:

- COMM 393, 399¹
- 3 credits from: COMM 307, 320, 335, 349, 353, 354, 362, 363, 365, 371, 374²

Fourth Year

Fourth year of this option requires that students complete:

- 9 credits from COMM 491, 492, 493, 494, 497, and 498, including at least three credits from COMM 497 or 498; and
- at least 3 credits of 400-level course work built on COMM 307, 320, 335, 349, 353, 354, 362, 363, 365, 371, 374²

¹ One of COMM 393 or 399 may be taken in fourth year.

² General Business Management students are restricted to taking no more than 9 credits of course work beyond the core in any specific option area.

HUMAN RESOURCES MANAGEMENT

Third Year

Third year of this option requires that students complete:

- COMM 327, 328

Fourth Year

Fourth year of this option requires that students complete:

- COMM 421, 425, 428

INTERNATIONAL BUSINESS

Third and Fourth Years Combined

The IB option is completed as a double option. IB students are required to declare a first option in any other area and complete the required 15 credit option core. Students are required to submit an application form and have an IB study plan approved by an advisor. Applications and

study plans must be received by the Commerce Undergraduate Program Office no later than February 28. Upon approval of your study plan, the Undergraduate Program Office will add the IB designation to your academic record. By the end of the program students must have completed in addition to their declared option:

- 12 credits of language study (in one language) with a minimum of 6 credits at the 300- or 400-level or 18 credits of 100- or 200-level language study (in one language)
- 6 credits of approved internationally related courses
- participation in an approved international exchange/study abroad program
- COMM 498

MANAGEMENT INFORMATION SYSTEMS

Third Year

- COMM 335, 436, 437

Fourth Year

- COMM 438, 439

Recommended non-Commerce electives include: CPSC 111, 121, 211, 213, and 310. Students should take note of the prerequisites required for the above Computer Science courses.

MARKETING

Third Year

Third year of this option requires that students complete:

- COMM 362, 363

Fourth Year

Fourth year of this option requires that students complete:

- COMM 365¹, 468; and
- 3 credits from COMM 460, 461, 462, 463, 464, 466, 467, 469

¹ COMM 365 may be taken in third year, in which case COMM 362 must be taken in fourth year.

REAL ESTATE

Third Year

Third year of this option requires that students complete:

- COMM 306, 307

Fourth Year

Fourth year of this option requires that students complete:

- COMM 405, 408; and
- COMM 407 or 409

Recommended electives: COMM 434, 471, ECON 447 or PLAN 425; one of COMM 376 or ECON 345.

TRANSPORTATION AND LOGISTICS

Third Year

Third year of this option requires that students complete:

- COMM 349, 399¹

Fourth Year

- COMM 441, 449
- 3 credits from COMM 442, 444, 445, 447; and

Students are encouraged to take COMM 446.

¹ COMM 399 must be taken in third year, as it is a prerequisite for COMM 441, required in fourth year.

BACHELOR OF BUSINESS IN REAL ESTATE

The Faculty of Commerce and Business Administration, through its Real Estate Division (RED), offers a post-diploma degree completion program that leads to the Bachelor of Business in Real Estate (B.B.R.E.). The program requires the completion of the *Diploma in Urban Land Economics*, p. 172, or equivalent plus additional real estate, general education, and business courses. The real estate courses are delivered by the RED, which is located in the Michael A. Goldberg Centre for Real Estate and Distance Education, while an agreement with Thompson Rivers University will enable students to obtain the required general education and business courses.

The Bachelor of Business in Real Estate is a part-time program, delivered by distance education methods. This will allow industry professionals to continue their careers while simultaneously advancing their formal education beyond the diploma level in order that they may prepare to meet the challenges and opportunities of an increasingly complex and dynamic industry. The curriculum has been developed in consultation with the real estate industry to ensure it meets the accreditation requirements of the various professional associations.

For further information regarding the B.B.R.E., please contact the Real Estate Division at 604-822-8444 or visit the Real Estate Division website (www.realestate.ubc.ca).

ADMISSION

Admission to the program will require graduation from the Diploma in Urban Land Economics or equivalent with a grade point average of 2.0 (60%) or greater. Students will also be required to demonstrate proficiency in English skills through the completion of 6 credits of university English courses or other standards as outlined in *English Language Admission Standard*, p. 15. The Faculty, through the RED, reserves the right to select students for the program from those who meet the general admission requirements of the University.

ACADEMIC REGULATIONS

Students are subject to Faculty policies on advancement and examinations as outlined in *Academic Regulations*, p. 166, under the Bachelor of Commerce degree. At least 50% (60 credits) of the course work must be completed at UBC in order to receive a UBC credential.

DEGREE REQUIREMENTS

Requirements for the B.B.R.E. (120 credits) include the following:

BACHELOR OF BUSINESS IN REAL ESTATE

General Education Requirements

First-year English	6
Introductory Probability and Statistics	3
Finite Mathematics	3
Calculus for Business and Management Sciences	3
Introductory Microeconomics or BUSI 100 ¹	3
Introductory Macroeconomics or BUSI 101 ¹	3
Total Credits	21

General Business Courses

Business and Technical Writing	3
Business/Commercial Law	3
Computer Applications in Business	3
Organizational Behaviour	3
Industrial Relations	3
Introductory Finance	3
Introductory Marketing	3
Introductory Financial Accounting	3
Introductory Managerial Accounting	3
Business Statistics	3
Managerial Economics	3
Business Ethics	3
Business Policy	3
Total Credits	39

Real Estate Courses

BUSI 111 ¹	3
BUSI 121 ¹	3
BUSI 221 ²	3
BUSI 300 ¹	3
BUSI 330 ¹	3
BUSI 331 ¹	3
BUSI 400 ²	3
BUSI 401	3
BUSI 425 ³	3
Total Credits	27

Plus at least 15 credits from the following specialty courses:

BUSI 441 ²	3
BUSI 442 ²	3
BUSI 443 ²	6
BUSI 444 ²	6
BUSI 445 ²	3
BUSI 446 ²	3
BUSI 451 ²	3
BUSI 452 ²	3
BUSI 460 ²	3
BUSI 499	6

GEOG 350 or URST 400	3
Total Credits	15

Unspecified Electives

Plus at least 18 credits of elective courses, which can be General Education, General Business, or Real Estate Specialty/Elective Courses.

Total Credits	18
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- ¹ Required course for the Urban Land Economics Diploma.
- ² Elective course for the Urban Land Economics Diploma.
- ³ Under development; an approved substitute, normally an additional Real Estate Specialty/Elective course, may be taken in lieu of BUSI 425 until it is available.

PROFESSIONAL MASTER'S DEGREES

INTRODUCTION

For information on the Master of Science in Business (M.Sc.B.) and Doctor of Philosophy, see *Business Administration*, p. 237, in the Faculty of Graduate Studies section, Degree Programs.

MASTER OF BUSINESS ADMINISTRATION

The Master of Business Administration (M.B.A.) provides an integrated course of study designed to prepare graduates to analyze problems, make decisions, and to manage, motivate, and lead people and organizations. Principal program components include an integrated core, a post-core consisting of a specialization, an internship/project and electives, and career development. A pre-core provides fundamentals for students who lack adequate academic preparation for the program.

The program is available in either a 15-month or 28-month format. In determining the admissibility of a candidate to the Master of Business Administration program, no distinction is made between 15-month and 28-month program students.

For further updates and detailed admission information, please check the Faculty Website (www.sauder.ubc.ca/mba). At the time of acceptance of an offer of admission to the M.B.A. program, students will be required to pay a non-refundable deposit, which is applied to the first installment of tuition fees.

Pre-Core

Students with limited management background or who lack adequate preparation in prerequisite courses will be required to participate in the pre-core program. The pre-core provides three weeks of non-credit basic business education immediately preceding the program orientation. Topics in the pre-core include accounting, computing, economics, quantitative methods, business statistics, case preparation, and major project development skills. Since backgrounds vary, the extent of a student's required participation should be determined in consultation with a M.B.A. program advisor.

Core (15-month)

The 15-month M.B.A. core consists of the 18-credit required course, BA 500. This course is offered from September to December in the first year of studies.

Core (28-month)

The M.B.A. core for the 28-month program will be offered at times suitable for this program of study. The schedule for the upcoming academic year is available from the M.B.A. Programs Office. All M.B.A. students in the 28-month program must complete the core in their first year of study.

Post-Core

The post-core consists of 30 graduate credits plus an internship/project. The Faculty of Commerce offers post-core courses in six-week 1.5 credit modules between January and December following completion of the core. 28-month program students will normally complete the post-core within an 18-month period.

Specializations

Specializations are available as part of the post-core. Each student in the M.B.A. program may choose one of the specializations offered or opt to do a general program of study. Specializations require in-depth study in a specific area of management. Requirements vary between specializations; however, each consists of a set of required modules. Available specializations vary from year to year; a list of current specializations and requirements may be obtained from the M.B.A. Programs Office.

Internship/Project

The Internship/Project, BA 510, is an integral part of the M.B.A. program and will normally be taken during June, July, and August. This component of the M.B.A. program enables a student to apply acquired skills to management problems under direct faculty supervision.

Career Development

This component, designated as BA 520, begins with orientation and runs throughout the program. Its aim is to foster team work and to develop career, leadership, and interpersonal skills. It also provides a forum for discussion of current events and contemporary business problems.

Study Abroad and Exchange

Study abroad and exchange programs are available at several international partner universities. Students who are selected to participate in this program will be enrolled in BA 530 by the M.B.A. Programs Office. See the International Exchange website (www.sauder.ubc.ca/mba/international) for further details.

When students accept their offer of admission to the M.B.A. program, they will be required to pay a non-refundable deposit that will be applied to tuition.

INTERNATIONAL MASTER OF BUSINESS ADMINISTRATION

The International Master of Business Administration (I.M.B.A.) is an international delivery of a modified M.B.A. degree. The program may be delivered primarily or entirely outside of Canada and is intended for international students residing in the host country. The curriculum includes a core that covers the fundamental areas of business, a post-core or more advanced study in business, and may include an internship/project. The delivery may be on a part-time schedule suitable to accommodate students working during the program and the custom and culture of the host country. Details of the program are available at www.sauder.ubc.ca.

MASTER OF MANAGEMENT

The Master of Management (M.M.) provides a professional course of study designed to prepare graduates with advanced applied knowledge focused in a specific functional area of business. The program includes a minimum of 30 credits of specialized coursework that may include an applied project but lacks the Integrated Core and breadth provided in the M.B.A. program. The course work consists of at least 24 credits at the 500-level or above, and no more than 6 credits at the 300- or 400-levels.

The program is available for either full-time or part-time study. The program will generally be completed in 12 to 16 months of full-time study, or approximately 24 months of part-time study. Admission requirements include all the minimum admission requirements for the Faculty of Graduate Studies, plus GMAT or GRE, and a minimum TOEFL score of 600 (or equivalent) for international students. More specific, higher admissions requirements may be established for some areas of specialization in the M.M. program. For further information on the areas of specialization, full-time and part-time programs currently offered, and admissions requirements, please check the Commerce website (www.sauder.ubc.ca). At the time of accepting an offer of admission to the M.M. program, students will be required to pay a non-refundable deposit, which is applied to the first instalment of tuition fees.

JOINT LL.B./M.B.A.

Except as stated below, the ordinary requirements of the LL.B. and M.B.A. apply to students in the combined program. Students in the Combined Program are required to take 89 credits in Law and 45 credits in the M.B.A. program in four years as specified below.

LL.B./M.B.A. COMBINED PROGRAM

Year 1

First-Year Law	35
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Year 2

First-Year M.B.A. Core (September to December); 12 M.B.A. Post-Core graduate modules (January to June); Internship (June to August); Career Development Program as per the 15-month M.B.A. program	39
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Years 3 and 4

Law Courses	54
M.B.A. Credits	6
Total Credits	134

Second, Third, and Fourth Years

Program requirements are as follows:

- 1) Commerce M.B.A. requirements. Students will be required to take the full-time core course, BA 500, and to take 24 post-core Commerce graduate credits in accordance with the normal rules applicable to the M.B.A. program, but subject in all cases to the final approval of the Joint Degrees Committee. 6 credits of upper-year Law courses will count as credit toward the M.B.A. In addition, students are required to complete the Internship/Project BA 510 and the Career Development program BA 520.
- 2) Law requirements. All the requirements of the regular LL.B. program, including compulsory courses, apply to each student in the combined program with only the following changes:
 - (a) A total of 54 credits of 200-, 300-, 400- or 500-level Law courses must be taken over the two upper years. The student is not eligible for the Faculty of Law non-Law option.
 - (b) Law 220 (Taxation I) must be taken. If the student has already received credit for Commerce 355 (Income Taxation) or its equivalent, another 3 credits of Law courses must be taken in substitution for Law 220. Commerce 355 will be deemed equivalent to Law 220 for prerequisite purposes.
 - (c) In addition, a minimum of 20 credits of elective Law courses must be chosen from a set of courses in the corporate, commercial, or taxation areas that will be designed from year to year by the Joint Degrees Committee.
 - (d) The student's program of courses must be approved by the Joint Degrees Committee.

Transitional Provisions: Students who have completed the first-year compulsory Law curriculum prior to Winter Session 2006 will follow the former requirements for upper-year progression. These are described in detail under LL.B. requirements, transitional provisions.

Special Arrangements

Subject to the approval of the Joint Degrees Committee, the first years of the LL.B. and M.B.A. program may be exchanged upon petition.

Promotion Requirements

Continuance in the LL.B./M.B.A. program is conditional upon achieving a high standard of performance as determined in an annual review by the Joint Degrees Committee. A student may be permitted to complete either an M.B.A. or LL.B. alone.

Conferring of Degrees

The LL.B. and M.B.A. will be conferred at the completion of the combined program after all requirements for both degrees have been met. Students who choose to receive either the M.B.A. or the LL.B. prior to completion of the combined program may apply for one of the degrees provided all requirements for that degree have been satisfied. Students selecting this option must simultaneously withdraw from the combined program.

JOINT M.B.A./M.A.P.P.S.

This program permits students to obtain a combined M.B.A./M.A.P.P.S. (Asia Pacific Policy Studies) degree. Students may apply to the Faculty of Commerce and Business Administration and the Institute of Asian Research to pursue an enriched curriculum of business and Asia Pacific policy studies.

Admission

Students wishing to pursue the combined M.B.A./M.A.P.P.S. degree program must be admitted separately to the Faculty of Commerce for the M.B.A. degree and the Institute of Asian Research for the M.A.P.P.S. degree. In their application submissions to the Faculty of Commerce and the Institute of Asian Research, students must indicate in writing their desire to enrol in the combined program and the desired area of specialization within the M.A.P.P.S. program. Enrolment in the combined degree program requires the consent of the Dean of the Faculty of Commerce and the Director of the Institute of Asian Research.

Requirements

Students enrolled in the M.B.A./M.A.P.P.S. Combined Degree Program are required to complete all course requirements for graduation in each of the M.B.A. and M.A.P.P.S. Programs, subject to the following adjustments:

- 1) Students enrolled in the combined degree program who complete the M.A.P.P.S. core course (IAR 500) required for the M.A.P.P.S. degree will also receive 6 credits toward completion of their M.B.A.
- 2) Students enrolled in the combined degree program who complete 6 credits of Commerce course work acceptable to their respective M.B.A. and M.A.P.P.S. program supervisors will receive credit for these courses toward both the M.B.A. and the M.A.P.P.S. degrees.

Combined Degree Program Committee

The combined degree program is administered by a Combined Degree Program Committee comprised of a representative from the Faculty of Commerce designated by the Dean of Commerce and a representative from the Institute of Asian Research designated by the Institute Director. The Combined Degree Program Committee is responsible for admissions, coordinating graduate student supervision, and program approval. The Graduate Program Advisor from the Faculty of

Commerce serves as Graduate Program Advisor for the combined degree program.

Model Curriculum Schedule

Normally the curriculum schedule is as follows:

Year One

(September–December)

M.B.A. Core Program (BA 500) 18

(January–August)

Elective Requirements for M.B.A. 21

Year Two

(September–December)

M.A.P.P.S. Core Course (IAR 500) 6

Course requirements for M.B.A. 6

(January–August)

M.A.P.P.S. Core Course (IAR 500) 6

M.A.P.P.S. Elective Requirements 6

Thesis or Practicum Requirements for M.A.P.P.S. 12

Total Credits 75 (M.B.A. 45/
M.A.P.P.S. 30)

Conferring of Degrees

The M.A.P.P.S. and M.B.A. will be conferred at the completion of the combined program after all requirements for both degrees have been met. Students who choose to receive either the M.A.P.P.S. or the M.B.A. prior to completing the combined program may apply for one of the degrees provided all requirements for that degree have been satisfied. Students selecting this option must simultaneously withdraw from the combined program.

CONTACT INFORMATION

For more information, contact M.B.A.

Programs in the Faculty of Commerce and Business Administration (Sauder School of Business) at:

160–2053 Main Mall
Vancouver, BC, V6T 1Z2

Tel: 604-822-8422

Fax: 604-822-9030

Email: mba@sauder.ubc.ca

Web: www.sauder.ubc.ca

DIPLOMA IN ACCOUNTING

The Diploma in Accounting program (D.A.P.) is offered through the Professional Programs Division of the Faculty of Commerce and Business Administration (Sauder School of Business). D.A.P. is a program designed primarily to prepare university graduates who have limited education in accounting for entry into a professional accounting designation program. For individuals wishing to broaden their business skills, the program also represents an excellent opportunity for professional development.

The D.A.P. curriculum satisfies many of the course requirements for both the Certified Management Accountant (CMA) and Certified General Accountant (CGA) programs. The program also provides the necessary prerequisites for entrance into the Institute of Chartered

Accountants of BC (ICABC) Chartered Accountants School of Business (CASB) professional program, which leads to the Chartered Accountant (CA) designation.

For more information regarding the Diploma in Accounting Program, please contact the Diploma in Accounting Program Office by telephone at 604-822-8412, by email dap@sauder.ubc.ca or visit the DAP website (www.sauder.ubc.ca/dap/index.cfm).

ADMISSION

In order to be granted admission to the program, all applicants must be able to demonstrate proficiency in English language skills at the university level by either successful completion of two university-level English courses (6 credits), or satisfactory results from a recognized test of English that meets the English Language Admission Standard. See the D.A.P. website (www.sauder.ubc.ca/dap/index.cfm) for more information.

With the exception of mature students, applicants must have completed an undergraduate degree with a minimum overall average of 65% in the last two years (60 credits) of a recognized university program.

- Mature student applicants will be required to achieve a minimum score of 600 on the Graduate Management Admission Test (GMAT).
- The D.A.P. program accepts new students twice a year in May and September.
- Deadline for admission applications for courses beginning in May: March 31.
- Deadline for admission applications for courses beginning in September: July 7.

DIPLOMA REQUIREMENTS

D.A.P. consists of eleven 3-credit courses (33 credits in total). The courses are designed to be equivalent in terms of workload, academic rigor, and student assessment methods (e.g., assignments and examinations) to the courses offered in the Accounting option of the Bachelor of Commerce program. Each 3-credit course provides for 39 hours of classroom instruction.

The D.A.P. program offers courses throughout the year. In the Summer Session, courses are offered on an accelerated basis and students have the opportunity to complete up to six courses between May and August. The summer program is organized to correspond with the business cycle of most accounting firms and thus for the convenience of articling students and their sponsors. In the Winter Session, students may take the program on either a full-time or part-time basis. Many of the courses are offered in the evenings to accommodate those students who are working. In most cases, the D.A.P. program can be completed within one year.

Diploma in Accounting

BUSI 293	3
BUSI 294	3
BUSI 335	3

Diploma in Accounting (Continued)

BUSI 353 ¹	3
BUSI 354 ¹	3
BUSI 355 ¹	3
BUSI 370	3
BUSI 393	3
BUSI 450 ¹	3
BUSI 453 ¹	3
BUSI 455 ¹	3
Total Credits	33

¹ Must be completed through D.A.P. with a minimum overall average of 60% in order to receive the Diploma in Accounting.

PROFESSIONAL AND DIPLOMA COURSES

The Faculty operates a number of programs in the professional and managerial fields. Most programs require detailed study over a period of several years on a part-time or distance-education basis. Completion of assignments and examinations is required in most subjects.

Admission requirements vary from program to program. In some cases, registration is limited to residents of British Columbia. For additional information regarding these programs, please call 604-822-8412.

- The Certified General Accountants of British Columbia. A six-level evening lecture and distance education program designed to meet the academic requirements of the Certified General Accountants Association of British Columbia. For further information, visit the CGA-BC website (www.cga-online.org/bc).
- Sales and Marketing Management Program. A three-year, evening lecture program sponsored by the Sales and Marketing Executives of Vancouver, leading to a diploma in Marketing and Sales Management. For additional information, visit the SME of Vancouver website (www.smevancouver.com).

REAL ESTATE COURSES AND PROGRAMS

Additional information regarding Real Estate courses can be obtained from the Real Estate Division website (www.realestate.ubc.ca) or by telephone at 604-822-8444.

- Real Estate Trading Services Licensing Course. A distance education course meeting the academic requirements for licensing as a real estate representative (salesperson) in British Columbia.
- Property Management Licensing Course. A distance education course meeting the academic requirements for licensing as a property manager in British Columbia.
- Brokers Licensing Course. A distance education course meeting the educational requirements for licensing as a real estate brokerage, managing broker, or associate broker in the Province of British Columbia.
- Mortgages: A Real Estate Financing Course. A distance education course

meeting the requirements for licensing under the British Columbia Mortgage Brokers Act.

- The Diploma Program in Urban Land Economics. An eleven course distance education program in advanced real estate studies.
- Certificate Program in Real Property Assessment. A four course distance education program dealing with assessment-specific topics with a focus on computer assisted mass appraisal techniques.
- Appraisal Institute of Canada Education Program. Distance education courses leading to both the CRA and AACI designations.
- UBC/AIC Post-Graduate Certificate in Real Property Valuation. A six course distance education program developed for business degree graduates working towards attaining AIC's AACI designation.
- Bachelor of Business in Real Estate. A post-diploma degree completion program which is offered by distance education.

EXECUTIVE EDUCATION

Connect. Inform. Transform.

Executive Education offers a wide array of non-credit business education programs that combine leading-edge research with practical management training. Individuals can choose from dozens of top-calibre business seminars, while organizations can customize a program to meet their specific management development needs. Programs include:

- Business Seminars: two- to six-day public enrolment programs for those who wish to expand their managerial skills and add relevant, applied knowledge to their business experience. Non-residential seminars are held at UBC Robson Square; residential programs take place at the UBC Point Grey campus.
- Corporate Partnership Programs: management training programs tailored to an organization's specific needs, delivered at a time and location of the organization's choosing.
- Certificates: non-credit certificates awarded to participants upon successful completion of six designated "core courses" per certificate, taken within a 6 year period.
- Breakfast Briefings: presented by distinguished faculty and business practitioners, breakfast briefings explore topics of relevant, up-to-the-minute interest.
- Forums and Specialized Seminars: programs providing training and development for specific audiences, i.e., corporate directors; entrepreneurs.

For more information, call 604-822-8400 or visit the Executive Education website (www.sauder.ubc.ca/exec_ed).

CERTIFIED GENERAL ACCOUNTANTS ASSOCIATION OF BC

Graduates from the Bachelor of Commerce program with options other than accounting may be granted certain exemptions on the CGA program.

Graduates from the Diploma in Accounting Program may be given advanced standing toward the CGA designation.

Graduates from the Bachelor of Commerce Accounting Option may be granted additional advanced standing toward the CGA designation.

For additional information, visit the CGA-BC website (www.cga-online.org/bc).

INSTITUTE OF CHARTERED ACCOUNTANTS OF BC

After obtaining employment with an approved firm of Chartered Accountants:

- 1) Graduates of the Accounting option are required to complete no less than 30 months of registered employment in the program of the School of Chartered Accountancy conducted by the Institute in order to obtain the CA designation.
- 2) Graduates, other than those mentioned above, are required to complete the prerequisite courses before being admitted to the Chartered Accountants School of Business (CASB). These prerequisite courses are available through the Diploma in Accounting program for candidates.

For additional information, visit the ICABC website (www.ica.bc.ca) or the CASB website (www.casb.ca).

REAL ESTATE INSTITUTE OF BC

Graduates of the Bachelor of Commerce Real Estate option and the diploma program in Urban Land Economics will have satisfied the educational requirements for membership in the Real Estate Institute of British Columbia. Full membership in the Real Estate Institute of BC will require a minimum of three years continuous employment experience in a real estate-related activity. Acceptance into the Real Estate Institute of BC entitles members to use the distinguishing letters R.I.(B.C.) after their names.

All students enrolled in the Bachelor of Commerce Real Estate option and the diploma program in Urban Land Economics are entitled to apply for student membership in the Real Estate Institute of BC. Enquiries may be directed to the Executive Officer.

For additional information, visit the REIBC website (www.reibc.org).

SOCIETY OF MANAGEMENT ACCOUNTANTS OF BC

Graduates of the Bachelor of Commerce Accounting option will be granted maximum exemptions toward the CMA designation.

Graduates of the Diploma Accounting Program will be granted exemptions toward the CMA designation.

Graduates of the Bachelor of Commerce program, in any option other than Accounting, will be granted exemptions to the extent that comparable courses have been completed at the University.

A period of practical experience is required to qualify as a registered member of the Society and at a minimum this will be two years.

For additional information, visit the CMABC website (www.cmabc.com).

ACADEMIC STAFF

Professors

Derek R. Atkins, B.A. (Oxf.), M.Sc. (Lanc.), Ph.D. (Warw.), E.D. MacPhee Chair of Management; **Brian Bemmels**, B.A., Ph.D. (Minn.), William Hamilton Chair of Industrial Relations; **Izak Benbasat**, B.A. (Robert Col., Istanbul), M.Sc., Ph.D. (Minn.), Canada Research Chair in Information Technology Management; **Joseph Berechman**, B.A. (Hebrew U. of Jerusalem), M.B.A., Ph.D. (Wharton, Pennsylvania); **Anthony E. Boardman**, B.A. (Kent), Ph.D. (Carnegie-Mellon), Van Dusen Professor of Business Administration; **James A. Brander**, B.A. (Br.Col.), M.A., Ph.D. (Stan.), Asia Pacific Professor of International Business and Public Policy; **Hong Chen**, B.S. (Xi'an, Jiaotong), M.A., Ph.D. (Stan.); **Gerald A. Feltham**, B.Com. (Sask.), Ph.D. (Calif., Berkeley), Deloitte & Touche Emeritus Professor of Accounting; **Ronald M. Giammarino**, B.A. (St.F.X.), M.A., Ph.D. (Qu.), PHN Professor of Corporate Finance; **David Gillen**, Ph.D. (Tor.), Vancouver International Airport Authority Professor of Transportation Policy; **Daniel Granot**, B.Sc., M.Sc. (Technion, Israel), Ph.D. (Texas), Affiliates Professor of Management; **Frieda Granot**, B.Sc., M.Sc. (Technion, Israel), Ph.D. (Texas), Advisory Council Chair of Management Science; **Dale Griffin**, B.A. (Br.Col.), M.A., Ph.D. (Stan.) Advisory Council Chair of Consumer Behaviour; **Stanley W. Hamilton**, B.Com. (Sask.), M.B.A. (Br.Col.), Ph.D. (Calif., Berkeley), Philip H. White Emeritus Professor of Urban Land Economics; **Keith Head**, B.A. (Swarthmore Coll.), Ph.D. (M.I.T.), HSBC Professor of Asian Commerce; **Robert L. Heinkel**, B.S. (Calif., Hayward), M.B.A., Ph.D. (Calif., Berkeley), Portfolio Management Foundation Professor of Finance; **Robert Helsley**, B.S. (Oregon), M.A., Ph.D. (Prin.), Watkinson Professor of Environmental and Land Management; **Alan Kraus**, B.A. (C'nell), M.B.A. (Stan.), Ph.D. (C'nell.), Perigee Emeritus Professor of Finance; **Maurice D. Levi**, B.A. (Manc.), M.A., Ph.D. (Chic.), Bank of Montreal Chair of International Finance; **S. Thomas McCormick**, A.B. (Penn.), Ph.D. (Stan.), W.J. Van Dusen Professor of Management; **Daniel F. Muzyka**, B.A. (Williamstown), M.B.A. (Penn.), D.B.A. (Harv.), RBC Financial Group Professor of Entrepreneurship; **Masao Nakamura**, B.S., M.S. (Keio, Tokyo), Ph.D. (Johns H.), Konwakai Professor of Japanese Research; **Peter N. Nemetz**, B.A. (Br.Col.), A.M., Ph.D. (Harv.); **Tae Hoon Oum**, B.Com. (Sung Kyun Kwan, Seoul), M.B.A., Ph.D. (Br.Col.), UPS Foundation Chair of Transportation; **Martin L. Puterman**, A.B. (C'nell.), M.S., Ph.D. (Stan.), Advisory Board Professor of Operations;

Maurice Queyranne, M.Sc., Ph.D. (Grenoble); **John C. Ries**, B.A. (Calif., Berkeley), M.A., Ph.D. (Mich.), HSBC Professor of Asian Business; **Sandra Robinson**, B.A., M.Sc. (Br.Col.), Ph.D. (Northwestern), Distinguished University Scholar; **Thomas W. Ross**, B.A. (W.Ont.), M.A., Ph.D. (Penn.), UPS Foundation Professor of Regulation and Competition Policy; **Dan A. Simunic**, B.S., M.B.A. (DePaul), M.B.A., Ph.D. (Chic.), C.P.A. (Ill.), C.G.A. (Br.Col.), C.G.A. Chair of Accounting; **Daniel Skarlicki**, B.Com., M.B.A. (Alta.), Ph.D. (Tor.), Edger F. Kaiser Chair of Organizational Behaviour; **Barbara Spencer**, B.Ec. (A.N.U.), M.Ec. (Monash), Ph.D. (Carnegie-Mellon), Asia Pacific Chair of International Trade Policy; **James A. Vercammen**, B.Sc., M.Sc. (Sask.), Ph.D. (Calif., Berkeley); **Ilan Vertinsky**, B.A. (Hebrew), Ph.D. (Calif., Berkeley), Vinod Sood Professor of International Business Studies; **Yair Wand**, B.Sc. (Hebrew), M.Sc. (Weizmann Inst. for Sc.), D.Sc. (Technion, Israel), CANFOR Professor of MIS; **Tan Wang**, B.Sc. (Beijing Inst. of Econ.), M.Sc. (Chinese Acad.), M.A., Ph.D. (Tor.), Peter Lusztig Professor of Finance; **Donald Wehrung**, A.B. (Dart.), M.Sc., Ph.D. (Stan.); **Charles B. Weinberg**, Sc.B. (Brown), M.B.A. (Harv.), Ph.D. (Col.), SMEV Presidents Professor of Marketing; **Ralph Winter**, B.Sc. (Br.Col.), M.A., Ph.D. (Calif., Berkeley), Canada Research Chair in Business Economics and Policy; **Anming Zhang**, B.Sc. (Shanghai Jiao-Tong), M.Sc., Ph.D. (Br.Col.), Vancouver International Airport Authority Professor of Air Transportation.

Associate Professors

Werner Antweiler, Dipl.-Volksw. (Köln), Ph.D. (Tor.), Professor of International Trade Policy; **Karl Aquino**, B.Sc., (Urbana-Champaign Ill.), M.Sc., Ph.D. (Northwestern); **Joy Begley**, B.Com. (Otago), M.S., Ph.D. (Roch.), Ronald Cliff Professor of Accounting; **Jonathan Berkowitz**, B.Sc., M.Sc. (Alta.), Ph.D. (Tor.); **Sandra Chamberlain**, B.S. (Calif. Berkeley), M.B.A., Ph.D. (Chic.), Deloitte and Touche Professor of Accounting; **Garland Chow**, B.Sc., M.B.A. (Maryland), D.B.A. (Indiana); **Darren Dahl**, B.Com. (Alta.), Ph.D. (Br.Col.), Fred H. Siller Professor of Applied Marketing; **Peter R. Darke**, B.Sc. (McM.), M.A., Ph.D. (Tor.), Finning Ltd. Professor of Marketing; **R. Glen Donaldson**, B.A. (Br.Col.), A.M., Ph.D. (Brown), Finning Ltd. Professor of Finance; **Robert C. Goldstein**, B.S. (M.I.T.), D.B.A. (Harv.); **Thomas Hellmann**, B.A. (LSE) Ph.D. (Stan.); **Thomas Knight**, B.A. (Hampshire Coll.), M.S., Ph.D. (C'nell); **Nancy Langton**, B.A., M.A. (Lehigh), M.A., Ph.D. (Stan.); **Kai Li**, B.Sc. (Jiatong), M.A. (Concordia), Ph.D. (Tor.), W.M. Young Professor of Finance; **Daniel Putler**, A.A. (Modesto), B.Sc., Ph.D., (Berkeley); **Martin Schulz**, M.A., Ph.D. (Stan.); **C. Tsuriel Somerville**, B.A. (Hebrew), Ph.D. (Harv.), Real Estate Foundation of BC Professor of Real Estate Finance; **Carson Woo**, B.Sc., M.Sc., Ph.D. (Tor.), Stanley Kwok Professor of Business.

Assistant Professors

Harjoat Bhamra, M.A. (Camb.), Ph.D. (London Bus. Sch.); **Andrew Burton-Jones**, B.Com., M.A. (Q'ld., Australia), Ph.D. (Georgia State); **Murray D. Carlson**, B.Sc. (Qu.), M.B.A., Ph.D. (Br.Col.); **Hasan Cavusoglu**, B.S. (Bogazici, Istanbul), M.S., Ph.D. (Texas, Dallas); **Ronald Cenfetelli**, B.S.A.A.E. (Purdue), M.B.A. (Indiana), Ph.D. (Br.Col.); **Huafeng (Jason) Chen**, B.A. (Hons.) (Beijing), M.A. (Wash.), M.B.A., Ph.D. (Chic.); **Xia Chen**, B.E., M.S. (Tsinghua, China), M.B.A., Ph.D. (Chic.); **Xinlei (Jack) Chen**, B.E. (Beijing), Ph.D. (Minn.); **Qiang Cheng**, B.E., B.S. (Tsinghua, China), Ph.D. (Wisc.-Madison); **Paul Chwelos**, B.Sc. (Vic.B.C.), Ph.D. (Br.Col.); **Eric Cope**, B.A., M.A., M.S., Ph.D. (Stan.); **Srabana Dasgupta**, B.A. (Jadavpur U., India), M.A. (Delhi Sc. Of Ec., India), M.S. (Florida), Ph.D. (S. Calif.); **Jean-Etienne de Bettignies**, B.Sc. (Lond.), M.A. (Louvain-la-Neuve, Bel.), M.B.A., Ph.D. (Chic.); **Tirtha Dhar**, B.A., M.A. (Delhi), M.Sc., Ph.D. (Conn.); **Adlai Fisher**, B.A.

(Macalester Coll.), M.A., M.Phil, Ph.D. (Yale); **Joey JoAndrea Hoegg**, B.A., B.Ed. (Br.Col.), M.B.A. (San Diego), Ph.D. (Flor.); **Marcin Kacperczyk**, B.A., M.A. (Warsaw Sc. of Econ.), Ph.D. (Michigan); **Harish Krishnan**, B.Sc. (Delhi), M.Sc. (Alabama), Ph.D. (Mich.); **Cornelia Kullmann**, B.S. (Cologne), M.Phil. (Columbia), Ph.D. (Columbia); **Ali Lazrak**, M.Sc. (Paris), Ph.D. (Toulouse); **Sanghoon (Conan) Lee**, B.A. (Seoul), Ph.D. (Minn.); **Kin Lo**, B.Com. (Calg.), M.S. (Northwestern), CA Professor of Accounting; **Sally Maitlis**, B.Sc. (Lond.), Ph.D. (Sheff.); **Mahesh Nagaranjan**, M.Sc. (I.T.T. Bombay), M.A. (S.Calif.), Ph.D. (S.Calif.); **Hernan Ortiz-Molina**, B.S. (Buenos Aires), M.A. (Argentina), Ph.D. (Maryland Coll. Park); **Marc David Seidel**, B.A., M.B.A. (C'nell), M.S., Ph.D. (Calif., Berkeley); **Tim Silk**, B.B.A. (Wat.), Ph.D. (Flor.); **Jai-Yeol Son**, B.Sc. (Ohio), M.Sc., Ph.D. (Georgia Tech.); **James Tansey**, B.Sc., Ph.D. (E. Anglia); **Danielle van Jaarsveld**, A.B. (Prin.), M.S., Ph.D. (C'nell); **Yoshio Yanadori**, B.A. (Waseda, Japan), M.S., Ph.D. (C'nell); **Rui (Juliet) Zhu**, B.A. (Beijing), Ph.D. (Minn.).

Senior Instructors

Steve S. Alisharan, B.A., C.A., C.M.A. (Br.Col.); **Daniel F. Gardiner**, B.A. (W.Ont.), M.A. (Qu.), M.B.A. (Br.Col.), Ph.D. (W.Ont.).

Lecturers

Yau-Man Cheung, M.B.A. (Warw.); **Paul Cubbon**, B.A. (Hons.) (Oxford), Exec. M.B.A. (Simon Fraser); **Johan P. de Rooy**, B.Ed. (Br.Col.), M.B.A. (Qu.), C.A., C.M.A. (Br.Col.); **Ruth J. Freedman**, B.Com., M.Sc. (Br.Col.), Ph.D. (Stan.); **Brian C. Graham**, B.Ed., M.B.A. (Br.Col.); **Jeff Kroeker**, B.A. (Trin. W.), M.B.A. (Qu.), C.M.A. (Br.Col.); **Mike Le-Roy**, B.Com. (Br.Col.); **Mari-Ann Linde**, B.A. (Tor.), M.B.A. (Br.Col.); **Donald B. Lockwood**, B.Com., M.B.A. (Br.Col.), M.B.A. (Chic.), C.A.; **Ellen J. McIntosh**, LL.B. (Br.Col.), LL.M. (Alta.); **Deborah J. Meredith**, B.A. (McG.), LL.B., LL.M. (Br.Col.); **William Tan**, B.Com., M.Sc.B. (Br.Col.); **Larry Wosk**, Dipl. ULE, B.Com. (Br.Col.), M.B.A. (Harv.).

Adjunct Professors

Howard Balloch, B.A., M.A. (McG.); **Brian Fisher**, B.A. (Hiram), Ph.D. (Calif., Santa Cruz); **Helen Michelson**, B.A., M.A., Ph.D. (Ill.); **Michael Phelps**, B.A., B.Laws (Manit.), M. Laws (Lond. School of Econ.), D. Laws, hon. (Winn.; S.Fraser); **Yaaco (Jacob) Steif**, B.Sc., M.A. (Jerusalem), Ph.D. (Lond.); **Michael W. Tretheway**, B.A., M.A., Ph.D. (Wis.); **Van Lierop**, M.A., Ph.D. (Amsterdam).

Divisions

Division of Accounting: D.A. Simunic (Chair), S. Alisharan, J. Begley, Sandra Chamberlain, X. Chen, Q. Cheng, J. de Rooy, G.A. Feltham, J. Kroeker, K. Lo, D.B. Lockwood; **Division of Finance**: G. Donaldson (Chair), H. Bhamra, M. Carlson, H.J. Chen, A. Fisher, R. Freedman, R.M. Giammarino, S. Hamilton, R.L. Heinkel, M. Kacperczyk, A. Kraus, C. Kullmann, A. Lazrak, M.D. Levi, K. Li, H. Ortiz-Molina, T. Wang; **Law Group**: D. Griffin (Chair), E. McIntosh, D. Meredith; **Division of Management Information Systems**: Y. Wand (Chair), I. Benbasat, A. Burton-Jones, H. Cavusoglu, R. Cenfetelli, Y.M. Cheung, P. Chwelos, R.C. Goldstein, J.Y. Son, W. Tan, C. Woo; **Division of Marketing**: C. Weinberg (Chair), X.J. Chen, P. Cubbon, D. Dahl, P.R. Darke, S. Dasgupta, T. Dhar, D.F. Gardiner, D. Griffin, J. Hoegg, M. Le Roy, D.S. Putler, T. Silk, R.J. Zhu; **Division of Operations and Logistics**: H. Chen (Chair), D.R. Atkins, J. Berechman, J. Berkowitz, G. Chow, E. Cope, D. Gillen, B. Graham, D. Granot, F. Granot, H. Krishnan, S.T. McCormick, M. Nagarajan, T. Oum, M.L. Puterman, M. Queyranne, I. Vertinsky, A. Zhang; **Division of Organizational Behaviour and Human Resources**:

S. Robinson (Chair), K. Aquino, B. Bemmels, T. Knight, N. Langton, S. Maitlis, M. Schulz, M. Seidel, D. Skarlicki, D. van Jaarsveld, Y. Yanadori; **Division of Strategy and Business Economics**: J. Ries (Chair), W. Antweiler, A.E. Boardman, J.A. Brander, J.E. de Bettignies, K. Head, T. Hellmann, R. Helsley, S.C. Lee, M. Linde, M. Nakamura, P.N. Nemetz, T. Ross, T. Somerville, B. Spencer, J. Vercammen, I. Vertinsky, R. Winter, L. Wosk; **Faculty Wide Appointments**: D. Muzyka, D. Wehrung.

6 The School of Community and Regional Planning

A SCHOOL WITHIN THE FACULTY OF GRADUATE STUDIES

Director's Office

Anthony H. J. Dorcey, Director

433–6333 Memorial Road
Vancouver, BC, V6T 1Z2
Telephone: 604-822-3276
Fax: 604-822-3787

Community and Regional Planning Website
(www.scarp.ubc.ca)

The School of Community and Regional Planning seeks to advance the transition to sustainability through excellence in integrated policy and planning research, professional education and community service. The School offers two-year professionally oriented master's degree programs and a research-oriented doctoral program.

The School graduated its first students in 1953 and has continuously offered a two-year Master's Degree in Planning, longer than any other Canadian school. Over 900 graduates are employed throughout Canada and abroad in a wide variety of teaching, research, planning, policy analysis, and administrative positions in universities, municipal, provincial and federal governments, public and private corporations, consulting practices, and non-governmental organizations. Many graduates are employed as generalists, particularly in municipal and regional planning agencies, but an increasing number are found in more specialized fields such as housing, parks, transportation, social planning, urban design, urban planning; environmental protection, water and land management, northern and First Nations planning, regional development, and natural resources planning; and in international development planning at all levels.

MASTER'S DEGREES

The master's degree will be either a *Master of Arts (Planning)*, or a *Master of Science (Planning)*, whichever best describes the prerequisites offered by the candidate and the courses chosen. The programs are described in further detail within the Faculty of Graduate Studies *Degree Programs*, "Degrees Offered: Ph.D., M.A.P., M.Sc.P." on page 275.

ADMISSION

How to Apply

There are two methods of applying to the Master's program for September 2007:

- Online applications can be filled out at: grad.ubc.ca/application.
- Paper applications are available at the SCARP office.

A complete application for admission includes:

- 1) A completed Faculty of Graduate Studies (FoGS) application form (online or paper, available at the Faculty of Graduate Studies website (grad.ubc.ca/apply/online)).
- 2) Application fee: for Canadian citizens and Permanent residents (CAD\$90.00, or US\$56.00); for International applicants (CAD\$150.00 or US\$115.00).
- 3) Three official confidential letters of reference, sent directly to the School of Community and Regional Planning by the writer, on a FoGS referee form or letterhead. Alternatively, the applicant can submit the letters directly to the School of Community and Regional Planning, as long as they have been signed and sealed by the referees.
- 4) Two official copies of all post-secondary academic transcripts, sent directly to the School of Community and Regional Planning from the institution. Alternatively, the applicant can submit the transcripts directly to the School of Community and Regional Planning as long as they have been signed and sealed by the institution(s).
- 5) A 500-word statement of interest (equivalent to one page single-spaced) indicating why the applicant wishes to study planning, the proposed study focus and how the School will help to meet the candidates objectives (the statement is part of the online application).
- 6) A biographical form – a list of your work, volunteer and travel experience (this is part of the online application).
- 7) An official TOEFL (minimum 600 paper based test or 250 for the computer based test), if required.
- 8) Graduate Record Exam (GRE) – recommended but not mandatory.
- 9) Record of Landing form (Canadian permanent residents).

We encourage applicants to submit their supporting documents before they apply to the program. A file is started as soon as we receive the first document. When you apply your supporting documents will be put with your application.

For detailed information on applying to our program see the School of Community and Regional Planning website (www.scarp.ubc.ca).

Application Review Process and Timeframe

The School of Community and Regional Planning accepts applications once a year for programs commencing in September. We have a firm application deadline of December 1 (application and all supporting documentation) to ensure that all applicants' files are reviewed together using a three-step process. The application deadline may be earlier for 2007 admissions (see www.scarp.ubc.ca for details).

- The first step involves compiling the applications and evaluating the transcripts to make sure they meet the minimum academic requirements set by the University of British Columbia's Faculty of Graduate Studies. The information is entered into the School's database.
- The second step involves reviewing the applications based on the applicant's first and second preferences. A committee, including appropriate faculty members, is formed for each concentration.
- The third step involves the faculty committee chairs reviewing the lists together and deciding who will be admitted. The acceptance letters are sent by mid-March to late-May. Each year we receive up to 200 Master's applications with only 30 spaces to fill. In order to give as many applicants the best possible chance at admission, we put approximately 20 people on a wait list. We usually make our final decisions by the end of May.

Those students whose native language is not English, and whose previous degree was not earned in an English-speaking university, who are accepted by the Faculty of Graduate Studies must complete the Test of English as a Foreign Language (TOEFL). For further information visit TOEFL (www.toefl.org). Make special note of instructions on the graduate application form under the "Special Examinations" section.

For more information, visit the School's website (www.scarp.ubc.ca). Please note the school is revising its curriculum. Check our school's website for the latest information. All documents and the appropriate application fee should be returned to the address below. The deadline for submitting complete applications is December 1 (deadline may change for 2007 admissions).

Contact Information:

Master's Graduate Secretary
Tel: 604-822-4422
Email: ptop@interchange.ubc.ca
Web: www.scarp.ubc.ca

Send correspondence and application documents to:

Graduate Advisor–Master's Program
School of Community & Regional Planning
The University of British Columbia
433–6333 Memorial Road
Vancouver, BC, V6T 1Z2

Prerequisites for Admission

Admission to a master's degree program requires a four-year bachelor's degree with high academic standing. Students are accepted from both the social sciences and the natural sciences, the humanities, and from such fields as commerce, architecture, engineering, agriculture and forestry. Students from other fields are accepted but may be required to fulfil additional prerequisites.

Prospective students are encouraged to follow an honours or major program in their own discipline and develop some breadth of knowledge during their undergraduate program by selecting from courses in ecology, economics, geography, political science, history, sociology, and organizational development and behaviour.

A candidate who has taken graduate courses equivalent to those described for the master's degree may be given credit not to exceed 12 credits for courses completed in the year prior to commencing their program in the School.

About 30 students are admitted annually. The School seeks highly motivated applicants who can communicate effectively, who are challenged by a field marked by complexity, who are creative, and have the potential to provide leadership.

Orientation

All entering students are required to attend orientation sessions at the commencement of Term 1 of Winter Session to become acquainted with faculty members and fellow students and to examine typical urban, regional and resource planning problems in BC and abroad.

ACADEMIC REGULATIONS

Students who do not make satisfactory progress in the program may be asked to withdraw at any time, and the status of all students who have not completed the program within the prescribed two-year period will be reviewed annually thereafter.

DEGREE REQUIREMENTS

The master's degree is awarded upon satisfactory completion of a program consisting of 60 credits, including a thesis or project, over two academic years. Those students who wish to develop a strong specialization may satisfy a significant proportion (up to 12 credits) of this requirement through courses in other departments.

The thesis is valued at 12 credits but several regular courses may be used to develop the thesis proposal, research method, and data analysis. The professional project is valued at 6 credits.

The School takes an integrated approach to planning for development. Students may concentrate their studies in Urban Spatial Planning, Urban Policy and Community Development Planning, Environmental and Natural Resources Planning, International Development Planning, or a combination of these, but may take courses in other concentrations, other departments, or at other universities.

Urban Spatial Planning programs focus on physical and transportation planning and design, real property development and planning, and small town planning. Urban Policy and Community Development Planning programs focus on community development, urban policy planning, urban social issues, and housing policy planning. Environmental and Natural Resources Planning programs focus on natural resources planning and management, ecological theory for sustainable development, ecological economics, environmental policy and decision-making, and resource conflict resolution. International Development Planning programs focus on human settlements and development planning in the developing world. Students in all streams participate in hands-on workshops that focus on current planning and development issues.

A program of studies will normally be comprised as shown below:

- Foundation courses. These courses provide a breadth of knowledge covering: the social, economic, and ecological context for urbanization, regional development, and resource planning; the institutional arrangements for planning; and theories of the planning process.
- Methods courses. Planners have a major responsibility for generating, analyzing and presenting information for the decision-making process. All students require basic skills in planning analysis. Appropriate courses outside the School may be substituted.
- Substantive courses. These courses provide depth of knowledge within the concentrations offered by the School. Courses taken in other departments should be complementary and choices should be related to thesis research interests.

- Workshops. These courses provide an opportunity for students to apply their knowledge and skills to planning problems under circumstances that simulate professional practice.
- Thesis or project research. Students are required to prepare a thesis or project in their second year on a subject of their choice. The fullest benefit of this research is derived by those students who relate their overall program of studies to their research subject area.

Teaching, Learning and Research

The School's program of teaching and research strikes a balance between developing the competence required to enter professional practice today, and the intellectual preparation needed to continue to function adequately in increasingly responsible positions in a rapidly changing world. The program covers the substance and methods of urban, community, environmental and natural resources planning, as well as the process and institutional arrangements for planning, its ideological basis, and the role and ethical responsibility of the planner. The School is interested in the solutions to today's problems as well as in anticipating and shaping the future through policy-relevant scholarly research. From the student's point of view, the program has the following salient characteristics:

- opportunities for students with narrow disciplinary training to broaden their knowledge, the better to assume responsibilities in planning and management;
- opportunities for students with a generalist background to acquire greater disciplinary rigour in a planning-related field of their choice;
- flexibility within a structured format to design a program of studies to satisfy individual needs;
- an emphasis on formal course work, balanced with directed studies, an internship, and original thesis or project research; and
- opportunities for joint student-faculty research and publication.

Students are encouraged to become involved in the activities of the University's several research institutes and to enrol in relevant graduate courses in other departments. For example, in resource management there is the *Institute for Resources, Environment and Sustainability*, p. 82; and in developing countries' issues, the *Institute of Asian Research*, p. 80.

The School's *Centre for Human Settlements (CHS)*, p. 75, designated a "Centre for Excellence" in 1991/92 by the Canadian International Development Agency, further strengthens the School's research capability in urban and regional development, housing, urban governance, and community development planning in both the developed and developing world. The Centre also houses the Disaster Preparedness Resources Centre and the Eco-Risk Research Unit.

DOCTOR OF PHILOSOPHY

The School offers a Doctor of Philosophy program for advanced study and research in the areas of its competence. The Doctor of Philosophy is primarily a research degree, so that students should enter with a good background in their field of study. After two years of course work and examinations, candidates devote their efforts toward thesis research.

Applicants for admission must have a Master's Degree in Planning, or its equivalent, with high academic standing. To ascertain the School's ability to fulfil potential candidates' objectives, a statement of about 1000 words is required describing their research interests and objectives which should be submitted at least one month before the application deadline.

For more information, visit the SCARP website (www.scarp.ubc.ca). All documents and the appropriate application fee should be returned to the Director's Office. The deadline for submitting complete applications is December 1.

ADVISORY COMMITTEES

Committees consist of a prospective research supervisor and three other faculty members to advise students and approve their programs of study. At least one member of each committee is from a discipline other than planning. Membership in the committee may change as the student's program evolves, but it is formalized on final approval of the thesis proposal.

PROGRAM

Each doctoral candidate's program is designed by the candidate's advisory committee in consultation with the student to reflect individual requirements. The program of studies will normally include:

- 1) course work;
- 2) qualifying examination in the form of two research essays;
- 3) language requirement, at the discretion of the faculty, appropriate to the student's objectives;
- 4) approval of thesis prospectus;
- 5) research and preparation of thesis; and
- 6) oral presentation of thesis and final examination of the candidate.

The first year of the doctoral program usually involves course work in preparation for the qualifying examination and development of the research prospectus. Additional courses may be necessary in the second year, in support of the proposed thesis research. Specific requirements are left to the discretion of the candidate's committee in consultation with the candidate.

Doctoral candidates normally write their qualifying essays in the second year. These essays focus on planning theory, and issues and methods in the student's area of specialization. Course requirements should be completed by this time.

Students who successfully complete their qualifying essays will then finalize their thesis research prospectus in consultation with their advisory committee. After the prospectus has been approved the candidate's efforts are devoted to research and preparation of the thesis.

DISSERTATION REQUIREMENTS

The Faculty of Graduate Studies requires the thesis to be submitted to an external examiner or examiners approved by the Dean and at the completion of the research the candidate must take an oral examination in defence of the dissertation.

ACADEMIC STAFF

Professors

Joseph Berechman, B.A. (Jerusalem), M.B.A. (Penn., Wharton), Ph.D. (Penn.); **Peter Boothroyd**, B.A. (Tor.), M.A. (Alta.); **Anthony H. J. Dorsey**, M.A. (Aberd.), M.S. (Wis.); **Penelope C. Gurstein**, B.A. (York), B.Arch. (Br.Col.), M. Arch., Ph.D. (Calif., Berkeley); **Timothy McDaniels**, B.A. (Minn.), M.A. (S.Fraser), Ph.D. (Carnegie-Mellon); **William E. Rees**, B.Sc., Ph.D. (Tor.); **Leonie Sandercock**, B.A. (Adel.), Ph.D. (Aust.), M.F.A. (Calif., L.A.); **Hans Schreier**, B.A. (Colorado), M.Sc. (Sheff.), Ph.D. (Br.Col.), Professor in Land and Food Systems.

Associate Professors

Leonora C. Angeles, B.A. (Philippines), Dip. Women and Development Planning (Nott.), M.A. (Philippines), Ph.D. (Qu.); **Stephanie E. Chang**, B.S.E. (Prin.), M.S., Ph.D. (C'nell.); **Lawrence D. Frank**, B.L.A. (Arizona), M.Sc. (Wash.), Ph.D. (Wash.); **Thomas Hutton**, B.A. (Br.Col.), B. Litt., Ph.D. (Oxon.); **Michael Leaf**, B.Sc. (M.I.T.), M.Arch., M.C.P. (Calif., Berkeley), Ph.D. (Calif., Berkeley).

Assistant Professor

Michael A. Larice, B.A., M.A. (Calif. L.A.), Ph.D. (Calif., Berkeley).

Adjunct Professors

Mike Carr, B.A., M.A. (Toronto), M.E.S. (York), Ph.D. (Br.Col.); **Doug Aberley**, B.A. (Sonoma), M.A. (Br.Col.), Ph.D. (Edin.); **Larry Beasley**, B.A. (S.Fraser), M.A. (Br.Col.); **Pat Carney**, B.A., M.A. (Br.Col.); **John Friedmann**, M.A., Ph.D. (Chic.), Honorary Professor; **Julia Gardner**, B.A. (Trent), M.A. (Wat.), Ph.D. (Cant.); **Michael Gordon**, B.E.S. (Wat.), M.Sc. (Br.Col.); **Wayne Greene**, B.Sc. (New Hamp.), M.Sc., Ph.D. (Iowa); **Robin Gregory**, B.A. (Yale), M.A., Ph.D. (Br.Col.); **Kari Huhtala**, B.A. (S.Fraser), M.A. (Br.Col.); **Norma-Jean McLaren**, B.A. (Vic.B.C.), M.A. (Br.Col.); **Jon O'Riordan**, M.A. (Edin.), Ph.D. (Br.Col.); **Freda Pagani**, B.A. Architecture (Glas., Strathclyde), M.A. Environmental Studies (York), Ph.D. Resources Management and Environmental Studies (Br.Col.); **Gordon Price**; **Paul Rosenau**, B.A. (Alta.), M.Sc. (Br.Col.); **Eric Vance**, B.A., M.A. (Br.Col.); **Jay Wollenberg**, B.A., M.A. (M.I.T.); **Raymond E. Young**, B.A., M.A., L.L.B. (Br.Col.).

2006-07

7 The Faculty of Dentistry

Dean's Office

E. H. K. Yen, Dean
J. N. Walton, Associate Dean,
Academic
and Student Affairs
D. M. Brunette, Associate Dean, Research
A. G. Hannam, Associate Dean,
Graduate Studies
M. A. J. MacNeil, Associate Dean,
Clinical Affairs
C. M. Zed, Assistant Dean, Strategic and
External Affairs
350–2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Telephone: 604-822-5323
Fax: 604-822-4532

Dentistry Website (www.dentistry.ubc.ca)

The Faculty of Dentistry offers programs of study leading to the Doctor of Dental Medicine, Master of Science in Dental Science, Doctor of Philosophy in Oral Biology and Bachelor of Dental Science in Dental Hygiene. The Faculty also offers the International Dental Degree Completion Program. Graduate and postgraduate clinical specialty training programs are offered in Periodontics, Oral Medicine, Oral Pathology, Oral Radiology, and General Practice Residency. For information on graduate programs, see *Dental Science*, p. 235, in the Graduate Studies section. In addition to graduate and postgraduate programs, there is strong emphasis on continuing dental education for the dental and allied professions, under the jurisdiction of the College of Health Disciplines.

The teaching, research, and clinical facilities of the Faculty of Dentistry are housed in the Dental Health Sciences (John Barfoot Macdonald) Building as part of the Health Sciences Centre to promote integrated teaching of the health services team. Instruction in the basic biomedical sciences is provided by basic science departments of the Faculty of Dentistry and the Faculty of Medicine. Library facilities are provided in the Woodward Biomedical Library.

DOCTOR OF DENTAL MEDICINE

The Doctor of Dental Medicine program is designed to prepare students to practice dentistry with a sound knowledge of the related biological, clinical, and behavioural sciences, and to emphasize the role of the dentist as a health professional in the community.

ACADEMIC ADVISING

The Faculty provides academic advising to students. A structured advisor program is in place along with additional support through the Dean's Office.

ADMISSION

Admission to the Faculty of Dentistry is based on academic performance and personal qualities as evidenced by aptitude tests, confidential letters of recommendation, letter of intent, and personal interviews. Since facilities for pre-clinical and clinical instruction are limited, enrolment is restricted. Applicants must be Canadian citizens or permanent residents of Canada. Completion of three academic years in the Faculty of Arts or Science including pre-dental requirements at UBC or the equivalent, with a minimum scholastic average of 70%, (based on the system of grading used at UBC), is required.

Fulfillment of the minimum requirements for admission does not guarantee acceptance. The number of qualified applicants significantly exceeds the number of available positions. Not every qualified applicant will be offered admission. Candidates who meet admission requirements but who are not successful in gaining a place with their initial application may reapply for admission in a subsequent year, although the number of interviews is normally limited to two.

Application forms and information regarding the admissions process and pre-dental requirements, are available on the Dentistry website (www.dentistry.ubc.ca). Applications and supporting documents must be submitted by the November 10, 2005 deadline for admission to the following Winter academic session. Applicants must submit the required non-refundable application fee to cover the costs of evaluating application documents. Applicants to the Faculty of Dentistry who have been required to withdraw from a dental program will not normally be granted admission.

Prerequisites

Successful completion of the following courses in the Faculty of Arts or Science at UBC (or evidence of successfully completing equivalent courses elsewhere) is required:

- 1) ENGL 112 and one elective chosen from: ENGL 110, ENGL 111, ENGL 120, or ENGL 121. Satisfactory completion of the Language Proficiency Index (LPI) is a pre-requisite to all first-year English courses at UBC. (See *Language Proficiency Index Requirement for First-Year English*, p. 120.)
- 2) MATH 100 and 101; or MATH 102 and 103; MATH 104 and 105; or MATH 120 and 121; MATH 180 and one of MATH 101, 103 or 105; or MATH 184 and one of MATH 101, 103 or 105; or MATH 111; or the former MATH 130.
- 3) CHEM 121 and 123; or CHEM 111 and 113; or the former CHEM 111 and 112; or CHEM 121 and 122.
- 4) PHYS 12 and PHYS 101; or PHYS 100 and 101; or PHYS 101 and 102; or PHYS 107 and 108; or PHYS 153; or the former PHYS 121 and 122 or one of the former PHYS 110, 115, or 120.
- 5) BIOL 12 or BIOL 111 and BIOL 121 or equivalent.
- 6) CHEM 203 and 204; or CHEM 233, 235 and 205; or the former CHEM 231 and 232.
- 7) BIOC 300 or 303; or BIOL 201 and BIOC 302.

Students completing the Science One program will likely have completed the science requirements of points 2, 3, 4 and 5 above.

Aptitude Testing

Applicants must have completed the Canadian Dental Association Dental Aptitude Test (DAT) within the previous five years before the Faculty's application deadline of November 10, 2005. Information and application forms are available from the Student Development Library, the Dentistry Student Services Office, or may be downloaded from the Canadian Dental Association website (www.cda-adc.ca). At the time of the test the student must request that the scores be sent to the Dentistry Student Services Office.

Acceptance

Successful applicants must submit a deposit within two weeks of notification of acceptance by the University. This deposit is non-refundable and will be applied towards the clinic fees of the first term.

A health record which evidences immunizations (Tetanus/Diphtheria-Toxoid, Polio, MMR, Chickenpox, Hepatitis B) and a negative TB skin test (if the test is positive, a chest x-ray is required) must be submitted to the Student Health Service. Immunizations are available from your family doctor, public health department, and from the Student Health Service. Being a carrier of any serious communicable disease may restrict students' educational opportunity to attain competency for graduation and subsequent practice as a dentist. Counselling is available to individuals who have, or are carriers of, communicable diseases.

A disability may result from practising dentistry. Exposure to infectious diseases such as HIV, Hepatitis B, Hepatitis C, other infectious diseases, and the possibility of physical assault are all possible. Injury during training may preclude a student from continuing and from practising dentistry. While the Faculty of Dentistry makes efforts to minimize such risks, it does not provide any insurance to protect students from loss of future income. The Faculty recommends that students purchase disability insurance and continue coverage during postgraduate training and practice.

Admission of Students with Advanced Standing

There are no arrangements for considering advanced standing for applicants from other dental schools.

International Dental Degree Completion Program

The Faculty will consider applications to the D.M.D. degree completion program from graduates of international dental programs which are not accredited by the Commission on Dental Accreditation of Canada. This program will commence in Term 3 of second year (lasts four weeks and occurs in June each year) and will lead to the degree of Doctor of Dental Medicine. In addition to tuition fees, the costs of the program include clinic fees, course material costs, and student fees. Further information and online application forms are available on the Dentistry website (www.dentistry.ubc.ca).

The Faculty of Dentistry receives applications from many more students than it can accept; therefore, compliance with the admission requirements does not guarantee admission. Vacancies as a result of student withdrawal in any class will not be filled, except in extraordinary circumstances, beyond the first four weeks of first term in any academic year.

The admission process will be in two phases.

PHASE 1: ACADEMIC CREDENTIALS

EVALUATION

Applicants must:

- 1) submit original records (transcripts) of

their entire post-secondary and university studies (if transcripts are in a language other than English, applicants must also submit a certified translation in English);

- 2) submit their original dental degree (it will be returned);
- 3) demonstrate an acceptable working knowledge of English by achieving an overall score of at least 6.5 on the International English Language Testing System (IELTS) (www.ielts.org) exam and at least 6 on each component;
- 4) submit proof of Permanent Resident status;
- 5) submit the required non-refundable application fee;
- 6) make application by June 3, 2005 for admission in June of the next year;
- 7) submit three confidential letters of reference, which must be sent directly from their referees;
- 8) submit a letter of good standing from the licensing authority, or its equivalent, of the region in which the applicant last practised; and
- 9) undertake the Association of Canadian Faculties of Dentistry Eligibility Examination (www.acfd.ca). Information and application forms are available from the Association of Canadian Faculties of Dentistry, 401-359 Kent Street, Ottawa, ON, K2P 0R7. The applicant must request that the scores of the examination be sent to the Student Services Office in the Faculty of Dentistry.

Applicants will be evaluated on their educational credentials, work experience, letters of reference, letter of intent, results of the Eligibility Examination and their proficiency in English in Phase 1. Applicants will be shortlisted for participation in Phase 2 of the admissions process. Due to space limitations, not all applicants will be invited to Phase 2.

PHASE 2: ASSESSMENT AND INTERVIEW

Applicants invited to Phase 2 must:

- 1) undertake an interview to demonstrate competence in verbal communication skills in English by reaching level 5 or better on the Placement Interview Test Rating Scale of the English Language Institute at UBC, or its equivalent. English is the medium of instruction in Dentistry and communication skills are necessary to function effectively in the clinical setting. This requirement in English communication skills is in addition to the English Language Admissions Standard requirement of Phase 1;
- 2) undergo a psychomotor skills assessment on dental mannequins at UBC;
- 3) undertake a personal interview at UBC;
- 4) participate in a problem based learning exercise; and
- 5) submit a non-refundable assessment fee.

Phase 2 normally occurs in October and lasts three days. During this time the interview, the psychomotor skills assessment, the English fluency test, an assessment of participation in a

problem-based learning exercise, a Faculty tour, and an orientation to the clinic will occur.

More detailed information on Phase 2 of the admissions process will be provided to applicants selected for Phase 2.

As spaces are limited, successful completion of Phase 2 does not guarantee admission. Candidates will be competing with other applicants from which the final selection will be made.

Deposit

Successful applicants must submit a deposit within two weeks of notification of acceptance by the University. This deposit is non-refundable and will be applied towards the clinic fees of the first term of third year. See *Acceptance*, p. 180; the information on immunizations and disability also apply to this program.

Registration and Orientation

Students register through the Student Service Centre (www.students.ubc.ca/ssc) (SSC).

Candidates who have been accepted for admission to the Faculty of Dentistry will be notified by email concerning registration and orientation. Classes begin in August. No student will be admitted to any class after its first meeting, except by permission of the Dean.

ACADEMIC REGULATIONS

Advancement

The Faculty will determine the student's fitness for promotion at the end of each session (see the *Faculty of Dentistry Academic Policies and Procedures Manual*). No student with deficient standing will be promoted.

A student whose academic standing is unsatisfactory may be required either to withdraw from the Faculty or to repeat the entire work of the year.

If the progress of a student has been unsatisfactory in any given session, the Faculty may permit a supplemental examination in the subject(s) failed provided an average of at least 60% in the work of the year, including the failed courses, has been attained. The Module Coordinator(s)/Course Director(s) concerned may direct such work as will be necessary to prepare for the supplemental examination. It is the responsibility of the student to consult with the Module Coordinator(s)/Course Director(s) concerned about such arrangements. A student who satisfies the requirements of the modules/courses concerned and passes each supplemental examination with a mark of at least 65% will be promoted. All supplemental examinations must be taken at the University.

A student in the first year who fails to be promoted will not normally be permitted to repeat the year except under special circumstances.

Although satisfactory academic performance is prerequisite to advancement, it is not the sole criterion in consideration of the suitability of a student for promotion or graduation. The Faculty reserves the right to require a student to withdraw from the Faculty if considered to be unsuited to proceed with the study, or enter the practice, of dentistry.

Attendance

Regular attendance is expected of students in all their classes (including lectures, laboratories, tutorials, seminars and clinics). Students who neglect their academic work and assignments may be excluded from the final examinations. Students who are unavoidably absent because of illness or disability must report this to the Dean's Office and to their instructors as soon as is practicable.

Students who, because of illness, are absent from an end-of-term examination, must inform the Manager of Admissions and Academic Progress and then submit a physician's certificate to the Associate Dean Academic and Student Affairs as promptly as possible.

All unavoidable absences for reasons other than sickness must be reported and explained to the Dean's Office through the Student Services Office and to the instructor(s) concerned when the student returns to classes.

A student planning to be absent from classes for any reason must obtain prior permission from the Associate Dean Academic and Student Affairs.

For a detailed description of the Faculty's Excused Absence Policy, see the Dentistry *Academic Policies and Procedures Manual*.

Examinations

Examinations in the Faculty of Dentistry may be held at various times throughout the year. These examinations are obligatory for all students.

Should students find that they will be unavoidably absent from a sessional examination, they, or someone familiar with the situation, must notify the Dean's Office of the facts in the case before the end of the period during which the examination is scheduled. Non-observance of this rule may result in a failing grade for the course.

When a sessional examination has been missed through illness or some other justifiable cause, application for deferred examination or special consideration must be made in writing to the Associate Dean Academic and Student Affairs as soon as possible. If the absence was for reasons of health, a physician's certificate indicating the nature and duration of the illness must be submitted to the Dean's Office.

Students may be denied the privilege of writing a sessional examination in any subject because of unsatisfactory work or attendance, and in this case they will be considered to have failed in the course.

In any module/course which involves assessment of professionalism and/or clinical skills and/or knowledge, a student is required to achieve satisfactory standing in each part. If the module/course is repeated, no exemption will ordinarily be granted from the work in any part.

Term essays and examination papers may be refused a passing mark if they are illegible or noticeably deficient in English.

The passing mark in the Faculty of Dentistry is 60%. (See *Grading Practices*, p. 47.)

All final module/course grades will be reviewed by the Dentistry Promotions Committee. Examination results may be posted at the discretion of the Module/Course Coordinator. Grades are not final until received by the Promotions Committee. Release of module/course grades will be done by the Dean's Office; final Course grades will be released by Enrolment Services. Final module/course grades will not be communicated through any other channel.

Graduation

A candidate for the Doctor of Dental Medicine must have fulfilled all the requirements for entrance to the Faculty of Dentistry and have attended the courses of instruction which comprise the dental curriculum. No one will be admitted to candidacy for the Doctor of Dental Medicine who has not been in attendance for at least two years in the Faculty of Dentistry at the University of British Columbia.

Each candidate for graduation must have passed all examinations in subjects comprising the dental modules/courses or must have received satisfactory standing in modules/courses where specific marks are not assigned.

The Faculty will recommend to Senate the granting of the Doctor of Dental Medicine to a student who has completed satisfactorily the academic requirements and who, in addition, is recommended by the Faculty to be a suitable person to practice dentistry.

Every candidate for the Doctor of Dental Medicine must make formal application for graduation. Application for graduation must be made not later than February 28. Special forms for this purpose are provided by Enrolment Services.

DEGREE REQUIREMENTS

First Year

In first year, students take the following courses:

- 1) three longitudinal courses: Clinical Skills (Term 1, Communication Skills), Doctor/Dentist Patient and Society (DPAS), DENT 410 (Dentistry I)
 - (a) Phase I: Orientation
 - (b) Phase II, Part I: Principles of Human Biology
 - (c) Phase II, Part II: Host Defences and Infection; Cardiovascular; Pulmonary; Fluids, Electrolytes, Renal and GU.

Second Year

In second year, students take the following courses:

- 1) three longitudinal courses: Clinical Skills, Doctor/Dentist Patient and Society (DPAS), DENT 420 (Dentistry II)
- 2) Phase II, Part II: Musculoskeletal and Locomotor; Blood and Lymphatics; Gastrointestinal; Endocrine and Metabolism; Integument; Brain and Behaviour; Reproduction; Growth and Development.

Third Year

In third year, students take the DENT 430 (Dentistry III).

Fourth Year

In fourth year, students take DENT 440 (Dentistry IV).

Curriculum

The DMD curriculum at UBC is an innovative hybrid of problem-based learning (PBL) and more traditional lectures and clinical experiences, with an emphasis on self-directed student learning and problem solving in small group settings. Lectures occupy a smaller amount of curriculum time than traditional curricula. The knowledge, attitudes, and skills required of a UBC graduate entering general dental practice are outlined in the UBC *Faculty of Dentistry Competency Document* (www.dentistry.ubc.ca/academic_programs/dmd/competency_document.asp).

Interprofessional Electives

Under the auspices of the Council, the *College of Health Disciplines*, p. 291, is responsible for the administration of interprofessional courses (IHHS), which are available as electives to students in Dentistry.

For more information see Courses (www.students.ubc.ca/calendar/courses.cfm) for IHHS, or visit their website (www.health-disciplines.ubc.ca).

Instruments and Supplies

Check with the Dentistry Student Services Office for information regarding costs for instruments and supplies.

DENTAL HYGIENE DEGREE PROGRAM

The Faculty of Dentistry offers three admission options to the Dental Hygiene Degree Program:

- 1) Direct Entry;
- 2) Degree Completion; and
- 3) International Degree Completion.

In the Direct Entry option, secondary school graduates can undertake a full-time, four-year program leading to the degree of Bachelor of Dental Science in Dental Hygiene (B.D.Sc.). Graduates of a dental hygiene diploma program from accredited North American programs can complete the Degree Completion option, either full-time or part-time, leading to the B.D.Sc. degree. Graduates from dental hygiene programs outside of North America may access the Program through the International Degree Completion option leading to the B.D.Sc. degree.

Dental hygienists who have been awarded a baccalaureate degree and wish to undertake post-baccalaureate education in the field of Dentistry may apply to the Master of Science (Dental Science) Program as a full-time or part-time student. Qualified dental hygienists interested in pursuing a doctoral degree may apply to the Doctor of Philosophy (Oral Biology) Program. Study in the Ph.D. Program requires full-time attendance. See *Graduate Studies*, p. 242.

The possession of a Bachelor of Dental Science degree in Dental Hygiene does not automatically confer the right to practice dental hygiene in any province in Canada. Each province has a

regulatory authority that grants the privilege to practice dental hygiene. For more information, contact the College of Dental Hygienists of BC (www.cdhbc.com).

1. DIRECT ENTRY OPTION

Students entering the Program will complete the degree requirements through a partnership between the UBC Faculty of Dentistry and the dental hygiene programs of Camosun College, College of New Caledonia, and Vancouver Community College. The Faculty expects students to register in a full course load in order to complete their degree requirements in 4 years. The first year of the Direct Entry option is taken at UBC and consists of 33 credits of course work. Students who have successfully completed the first year of the program will advance to one of the three Colleges for the second and third years (September to June each year). Assignment to one of the three partner Colleges will be made by the University. Student preferences for College location will be considered but cannot be guaranteed. The fourth year of the program is taken at UBC through on-campus, distributed learning and community outreach instructional delivery.

First Year

The first year of the Direct Entry Option consists of the following arts and science courses taken at UBC:

English 100-level ¹	6
Biology 153	7
Chemistry 100-level	8
Psychology 100 or 200	6
Statistics 203	3
Electives	3
Total Credits	33

¹ ENGL 112 (3 credits, plus 3 additional first year English credits)

Second and Third Year

A combination of academic and clinical studies in the following subjects taken at one of the partner community colleges.

- Behavioural Sciences
- Immunology and Microbiology
- Embryology and Histology
- Oral Anatomy and Physiology
- Dental Anatomy
- General Pathology
- Oral Pathology
- Pharmacology
- Radiology
- Periodontics
- Dental Hygiene Theory and Practice
- Local Anesthesia
- Dental Materials
- Ethics and Jurisprudence
- Community Health
- Health Promotion and Preventive Dentistry
- Literature Review and Interpretation of Research

- Interpersonal Skills and Advanced Communication
- Dental Specialties
- Practice Management

Fourth Year

The fourth year of the direct entry option includes advanced studies at UBC through on-campus, distributed learning and community outreach instructional delivery modes. The fourth year builds upon concepts introduced previously. Coursework includes core and elective courses:

DHYG 401	Oral Epidemiology	2/5
DHYG 404	Dental Hygiene Practice II	6
DHYG 405	Oral Microbiology and Immunology	3
DHYG 435	Oral Medicine & Pathology	3
DHYG 462	Literature Review II	4
EPSE 482/ HCEP 400 ¹	Statistics	3
Electives ^{2,3,4}		9
Total Credits		30

¹ If DHYG 401 (5) not taken.

² Electives must be UBC courses (transfer credit is not permitted) and may be taken in areas of interest such as health promotion, residential care, geriatrics, community health, adult education, health care ethics, inter-professional education, behavioural sciences, economics, etc. Electives may be taken on campus or through distance education at UBC.

³ Faculty of Dentistry courses subject to sufficient enrolment include: DHYG 400 (6) Current Issues in Oral Health Sciences; DHYG 433 (3) Assessment & Treatment Planning for Advanced Periodontal Diseases; DENT 407 (6) Oral Health Care in Residential Care Settings.

⁴ Interprofessional courses are highly recommended. For a complete list of IHHS courses offered by the College of Health Disciplines, please see their website (www.health-disciplines.ubc.ca).

Admission from Secondary School

For secondary school applicants entering in September 2007, admission into the Direct Entry option of the Dental Hygiene Degree Program will be based upon academic performance and broad-based criteria. Among the factors considered in the application review are academic performance in the courses required for admission, demonstrated leadership skills, active participation in extracurricular activities, significant awards and achievements, personal statement, and references.

Information on application procedures and admission policies requirements for UBC (www.welcome.ubc.ca) and the Dental Hygiene degree are specified in the chapter *Admissions*, p. 13. All applicants must complete the Dental Hygiene Degree Program on-line supplemental application at the Dentistry website (secure.dentistry.ubc.ca/application/instructions.asp). Incomplete and late applications will not be accepted.

All inquiries relating to admission and the supplemental application should be addressed to the Student Services offices of the Faculty of Dentistry at fodadms@interchange.ubc.ca.

ABORIGINAL APPLICANTS

The Faculty of Dentistry welcomes applications from qualified Aboriginal applicants. Please visit the UBC website (www.students.ubc.ca/welcome/aboriginal.cfm) for more information.

2. DEGREE COMPLETION

There are two categories of students in the Degree Completion option: Category 1 and Category 2. See Admission to Dental Hygiene Degree Completion (Category 1 and 2) or visit the Dentistry website (www.dentistry.ubc.ca) to determine eligibility for the appropriate admission category. Students in either category may undertake studies on a full or part-time basis. Part-time students will have up to five years to complete the program.

Category 1—Students Who Have Completed 30 Credits of University Transfer Prerequisites.

Graduates of dental hygiene diploma programs accredited by the Commission of Dental Accreditation of Canada (CDAC) or the Commission of Dental Accreditation (CODA) of the American Dental Association (ADA) with a minimum overall average of 70% are eligible for admission to the fourth year of the Program. Current registration, in good standing, with a regulatory authority where the applicant has practiced most recently and a Canadian National Dental Hygiene Certification Board Examination Certificate or the American National Board Certificate are required. If an applicant is a recent graduate of a dental hygiene diploma program seeking to enter the Dental Hygiene Program directly and has not yet practiced, then a recommendation letter from the director of the dental hygiene diploma program is required.

Students must complete the following courses to be eligible to apply for graduation. Coursework includes core and elective courses:

DHYG 401	Oral Epidemiology	2/5
DHYG 404	Dental Hygiene Practice II	6
DHYG 405	Oral Microbiology and Immunology	3
DHYG 435	Oral Medicine & Pathology	3
DHYG 462	Literature Review II	4
EPSE 482/ HCEP 400 ¹	Statistics	3
Electives ^{2,3,4}		9
Total Credits		30

¹ If DHYG 401 (5) not taken

² Electives must be UBC courses (transfer credit is not permitted) and may be taken in areas of interest such as health promotion, residential care, geriatrics, community health, adult education, health care ethics, inter-professional education, behavioural sciences, economics, etc. Electives may be taken on campus or through distance education at UBC.

³ Faculty of Dentistry courses subject to sufficient enrolment include: DHYG 400 (6) Current Issues in Oral Health Sciences; DHYG 433 (3) Assessment & Treatment Planning for Advanced Periodontal Diseases; DENT 407 (6) Oral Health Care in Residential Care Settings.

⁴ Interprofessional courses are highly recommended. For a complete list of IHHS courses offered by the College of Health Disciplines, please see their website (www.health-disciplines.ubc.ca).

Note: Students currently enrolled in the final year of an accredited dental hygiene diploma program (with 30 credits of university transfer prerequisites) who wish to transfer directly into the fourth year of the Dental Hygiene Program immediately following diploma graduation, can make application. Applicants may be given a conditional acceptance under the provisions of Category 1. Official acceptance will be granted only upon successful completion of the requirements for dental hygiene diploma graduation and the admission requirements of the Faculty of Dentistry (refer to www.dentistry.ubc.ca). Acceptance also depends on available space.

Category 2—Students Who Have Not Completed 30 Credits of University Transfer Prerequisites.

Graduates of dental hygiene diploma programs accredited by the Commission of Dental Accreditation of Canada (CDAC) or the Commission of Dental Accreditation (CODA) of the American Dental Association (ADA) with a minimum overall average of 70% are eligible for admission to third year of the Program. Current registration, in good standing, with a regulatory authority where the applicant has practiced most recently, and a Canadian National Dental Hygiene Certification Board Examination Certificate or the American National Board Certificate are required. If an applicant is a recent graduate of a dental hygiene diploma seeking to enter the Dental Hygiene Program directly and has not yet practiced, then a recommendation letter from the director of the dental hygiene diploma program is required.

Students must complete the following courses to be eligible to apply for graduation. Course work includes core and elective courses.

DHYG 400	Current Issues in Oral Health Sciences	6
DHYG 401	Oral Epidemiology	2/5
DHYG 402	Dental Hygiene Practice I	6
DHYG 404	Dental Hygiene Practice II	6
DHYG 405	Oral Microbiology and Immunology	3
DHYG 433	Assessment and Treatment Planning for Advanced Periodontal Diseases	3
DHYG 435	Oral Medicine & Pathology	3
DHYG 461	Literature Review I	4
DHYG 462	Literature Review II	4
ENGL 301	Technical and Business Writing or equivalent	3
EPSE 482/ HCEP 400 ¹	Statistics or equivalent	3
IHHS 401	Biomedical Ethics or equivalent	3
Electives ^{2,3,4}		15
Total Credits		61

¹ If DHYG 401 (5) not taken.

² Electives may be taken in areas of interest such as health promotion, residential care, geriatrics, community health, adult education, health care ethics, inter-professional education, behavioural sciences, economics, etc. Some core courses and electives may be taken on campus or through distance education at UBC, BC Open University, or other recognized universities. Permission of the

Program Director is required for all non-UBC courses.

³ Faculty of Dentistry courses subject to sufficient enrolment include: DENT 407 (6)—Oral Health Care in Residential Care Settings.

⁴ Interprofessional courses are highly recommended. For a complete list of IHHS courses offered by the College of Health Disciplines, please see their website (www.health-disciplines.ubc.ca).

Note: Students currently enrolled in the final year of an accredited dental hygiene diploma program (without 30 credits of university transfer prerequisites) who wish to transfer directly into the third year of the Dental Hygiene Program immediately following diploma graduation can make application. Applicants may be given a conditional acceptance subject to successful completion of the requirements for dental hygiene diploma graduation and the admission requirements of the Faculty of Dentistry (refer to www.dentistry.ubc.ca). Acceptance also depends on available space.

Admission to Degree Completion (Category 1 and 2)

Applicants must meet the general admission requirements of the University as specified in the chapter *Admissions*, p. 13, or at www.students.ubc.ca/welcome/apply.cfm. No specific courses at the secondary school level are mandatory.

Applicants seeking to enter Category 1 must have completed 30 credits of university transfer courses including:

- 6 credits of first-year Biology (Anatomy and Physiology)
- 6 credits of first-year Chemistry
- 6 credits of first-year English
- 6 credits of first or second-year Psychology
- 6 credits of electives.

All other applicants are eligible to apply under Category 2. Application must be made online to the Faculty of Dentistry. Deadlines for application are April 15 for admission the following September. Eligible applicants may be invited to participate in a structured interview. Detailed information regarding the admissions process and application forms are available on the Dentistry website (www.dentistry.ubc.ca). The electronic application, required non-refundable application fee and all supporting documents must be submitted to the Manager, Admissions and Academic Progress, Faculty of Dentistry by the April 15 deadline.

3. INTERNATIONAL DEGREE COMPLETION

Graduates of programs that are not accredited by the Commission on Dental Accreditation of Canada (CDAC) but who hold the Canadian National Dental Hygiene Certification Board Examination Certificate may be admitted to the third year of the Program. No specific courses at the secondary school level are mandatory. Applicants are required to have, or be eligible to have, current registration, in good standing, with a regulatory authority where the applicant has practiced most recently. If the applicant has not practiced, then a letter of support from an

instructor from their dental hygiene program is required. All applicants must demonstrate an acceptable working knowledge of English by achieving an overall score of at least 6.5 on the IELTS (www.ielts.org) and at least 6 on each component of the exam.

Registration to practice in BC is not required for admission to the Program. However, international applicants who wish to practice dental hygiene in British Columbia must satisfy the requirements of the College of Dental Hygienists of BC, the provincial dental hygiene regulatory authority. For information, refer to the CDHBC website (www.cdhbc.com).

Students must complete the following courses to be eligible to apply for graduation. Coursework includes core and elective courses.

DHYG 400	Current Issues in Oral Health	6
DHYG 401	Oral Epidemiology	2/5
DHYG 402	Dental Hygiene Practice I	6
DHYG 404	Dental Hygiene Practice II	6
DHYG 405	Oral Microbiology and Immunology	3
DHYG 433	Assessment and Treatment Planning for Advanced Periodontal Diseases	3
DHYG 435	Oral Medicine & Pathology	3
DHYG 461	Literature Review I	4
DHYG 462	Literature Review II	4
ENGL 301	Technical and Business Writing	3
EPSE 482/ HCEP 400 ¹	Statistics	3
IHHS 401	Biomedical Ethics	3
Electives ^{2,3,4}		15
Total Credits		61

¹ If DHYG 401 (5) not taken.

² Electives may be taken in areas of interest such as health promotion, residential care, geriatrics, community health, adult education, health care ethics, inter-professional education, behavioural sciences, economics, etc. Some core courses and electives may be taken on campus or through distance education at UBC, BC Open University, or other recognized universities. Permission of the Program Director is required for all non-UBC courses.

³ Available Faculty of Dentistry courses include: DENT 407 (6) Oral Health Care in Residential Care Settings.

⁴ Interprofessional courses are highly recommended. For a complete list of IHHS courses offered by the College of Health Disciplines, please see their website (www.health-disciplines.ubc.ca).

Admission to International Degree Completion

Application must be made online to the Faculty of Dentistry. The deadline for application is April 15 for the following September. Eligible applicants may be invited to participate in a structured interview and may be required to undertake an interview to demonstrate competence in verbal communication skills in English by reaching level 5 or better on the Placement Interview and Test Rating Scale of the English Language Institute (ELI) at UBC, or its equivalent. This requirement in English communication skills is in addition to the English Language Admission Standard as

demonstrated by the applicant's IELTS exam score. Detailed information regarding the admissions process and application forms are available on the Dentistry website (www.dentistry.ubc.ca). The electronic application, required non-refundable application fee and all supporting documents must be submitted to the Manager, Admissions and Academic Progress, Faculty of Dentistry by the April 15 deadline.

ACCEPTANCE

1. Direct Entry Applicants

The Dental Hygiene Degree Program has limited enrolment. Since the number of qualified applicants typically exceeds the number of places available, fulfillment of the minimum requirements is not a guarantee of admission. The Faculty reserves the right of selection of all students for admission to the Program.

A health record that evidences immunizations (Tetanus/Diphtheria-Toxoid, Polio, MMR, Chickenpox, and Hepatitis B) and a negative TB skin test (if the test is positive, a chest x-ray is required) must be submitted to the UBC Student Health Service. Immunizations are available from your family doctor, community health department, and from the UBC Student Health Service. Being a carrier of any one of the conditions may restrict students' educational opportunity to fulfil requirements for graduation and subsequent practice as a dental hygienist. Counselling is available to individuals who have, or are carriers, of communicable diseases. Applicants should be aware that dental hygiene practice might be very difficult for people with back problems or latex allergies.

Disability may result from practicing dental hygiene. Included are exposure to infectious diseases such as HIV, Hepatitis, musculo-skeletal injuries and the possibility of physical assault. Injury during training may preclude a student from continuing and from practicing dental hygiene. While the Faculty of Dentistry makes efforts to minimize such risks it does not provide any insurance to protect students from loss of future income. The Faculty recommends that students purchase disability insurance and continue coverage during training and practice.

2. Degree Completion Applicants

Selection for admission is based on academic performance as evidenced by scholastic records (transcripts), interview results, and letter of intent. Applicants who meet minimum admission requirements are not guaranteed acceptance. Enrolment is limited. Successful applicants must submit a deposit by the date specified in the letter of offer from the Faculty of Dentistry. This deposit is non-refundable and will be applied towards tuition fees. If an applicant does not register for the term specified in the acceptance letter, the acceptance and the deposit will be forfeited.

3. International Degree Completion Applicants

Selection for admission is based on interview results, letter of intent, and ELI verbal communication test results. Applicants who meet minimum admission requirements are not guaranteed acceptance. Enrolment is limited. Successful applicants must submit a deposit by the date specified in the letter of offer from the Faculty of Dentistry. This deposit is non-refundable and will be applied towards tuition fees. If an applicant does not register at UBC for the term specified in the acceptance letter, the acceptance and the deposit will be forfeited.

READMISSION

The Faculty of Dentistry reserves the right to readmit students and to stipulate conditions attached to readmission. Readmission to the Program may necessitate repetition of courses previously completed if, in the judgment of the Faculty, curriculum changes and/or length of interruption are sufficient to render the applicant inadequately prepared to continue studies.

ACADEMIC REGULATIONS

Students are subject to Faculty policies on advancement, attendance, and examinations as outlined in the Faculty of Dentistry calendar entry (see *Academic Regulations*, p. 180).

Part-time students will be expected to complete the program within five years of initial course registration.

GRADUATION REQUIREMENTS

Candidates for the Bachelor of Dental Science (Degree in Dental Hygiene) must have fulfilled all the requirements for entrance to the Faculty of Dentistry and have completed the courses of instruction which comprise the Dental Hygiene Program.

Candidates must have met the academic requirements of the program as defined by the Faculty.

The Faculty will recommend to Senate the granting of the Bachelor of Dental Science (Degree in Dental Hygiene) to students who have satisfactorily completed the academic requirements.

Candidates for the Bachelor of Dental Science (Degree in Dental Hygiene) must make formal application for graduation. Candidates planning to graduate in May must apply by the February deadline and candidates planning to graduate in November must apply by the August deadline. See the Academic Year (www.students.ubc.ca/calendar/academic-year.cfm). Special forms for this purpose are provided by Enrolment Services.

PROGRAM INQUIRIES

All inquiries relating to the Dental Hygiene Degree Program should be addressed to: Student Services Office
Faculty of Dentistry
The University of British Columbia
278-2199 Wesbrook Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-3416
Fax: 604-822-8279
Email: fodadms@interchange.ubc.ca (Faculty of Dentistry Admissions)

GRADUATE AND POST-GRADUATE PROGRAMS

DOCTOR OF PHILOSOPHY

The Faculty of Dentistry offers the opportunity for advanced study in a number of areas related to oral biology including basic and applied biology of the cells and extracellular matrix of the periodontium, oral microbiology, cellular immunology, biomaterials, craniofacial growth and development, teratology, oral sensorimotor function, craniofacial biomechanics, and microbiological and biochemical assessment of caries and periodontal disease activity. The Faculty has good research funding and is well equipped to carry out advanced research. Students will normally be required to take DENT 540 (Research Methods and Seminars in Oral Biology), and either DENT 541 (Craniofacial Biology) or DENT 542 (Biology of Oral Tissues), and an additional six credits during their first year. In addition, students will be required to pass a comprehensive examination. The program will be open to those who have completed a D.D.S., D.M.D., M.D., D.V.M. or their equivalents, or an M.Sc. in Dental Science or a related discipline.

MASTER OF SCIENCE

The Faculty of Dentistry offers facilities and opportunities for advanced study leading to the Master of Science. Candidates will be accepted under the general regulations of the Faculty of Graduate Studies to study in one of the major recognized fields of dentistry. The program will ordinarily require two full academic years. A program of part-time graduate studies is also available.

COMBINED MASTER OF SCIENCE/ DIPLOMA IN PERIODONTICS

The program provides an opportunity for qualified students to enter a combined program leading to an M.Sc. in Dental Science and a Diploma in Periodontics. The program provides education and training for potential clinicians, research workers, and teachers. The Diploma is not offered without successful completion of the master's degree. Graduates will be eligible to take the examinations for specialty certification in periodontics of the Royal College of Dentists of Canada and the American Board of Periodontology.

The application deadline for the combined program is October 1. Admission to the program is subject to the evidence of the capacity for grad-

uate study and applicants must satisfy the requirements for admission to the Faculty of Graduate Studies. Applicants must hold a Doctor of Medicine or its equivalent from a recognized university. Registration is dependent upon the availability of adequate faculty members and facilities. Consent of the Faculty of Dentistry is required prior to registration.

CERTIFICATE IN ORAL MEDICINE AND ORAL PATHOLOGY

The Faculty of Dentistry offers a Certificate in Oral Medicine and Oral Pathology. This accredited program is a three-year, hospital-based clinical residency for students seeking specialty recognition by the Royal College of Dentists of Canada and/or provincial licensure in the specialty of oral medicine and oral pathology. It offers alternative paths for residents specializing in either or both disciplines.

Applicants must have a dental degree from a recognized dental school. Admission requirements include at least five years of prior, full-time education in English in Canada (or the equivalent in another country). Alternatively, a score of at least 600 (paper-based) or 250 (computer-based) in the Test of English as a Foreign Language (TOEFL) is required.

CONTACT INFORMATION

For more information and application forms, please contact Mrs. V. Beretanos Koulouris (vickybk@interchange.ubc.ca), Office of Graduate Studies, Faculty of Dentistry, The University of British Columbia, 2199 Wesbrook Mall, Vancouver, BC, V6T 1Z3; telephone 604-822-4486, fax 604-822-3562.

GENERAL PRACTICE RESIDENCY TRAINING PROGRAM

The Faculty of Dentistry and the departments of Dentistry of the Vancouver Hospital and Health Sciences Centre (12th and Oak site and UBC site), the BC Cancer Agency and British Columbia's Children's Hospital, offer a one-year General Practice Residency training program commencing each June and July. The residents selected must be registered as students of the Faculty of Dentistry and with the College of Dental Surgeons of British Columbia for which separate fees are paid.

ADMISSION

Graduates of any accredited North American dental school are eligible for admission. All candidates must satisfy the requirements for registration of the College of Dental Surgeons of BC. Graduates of foreign dental schools must possess a current and valid certificate from the National Dental Examining Board of Canada.

APPLICATION

Application forms and descriptive literature on the program may be obtained from the Dentistry website (www.dentistry.ubc.ca). Inquiries may also be made of the heads of dental departments of the individual teaching

hospitals. There is an application fee of CAD\$100.00 which must accompany the completed application. The completed application must be submitted before November 1 for entry to the program the following year.

PROFESSIONAL ASSOCIATION

The possession of a Doctor of Dental Medicine does not automatically confer the right to practise dentistry in any province in Canada. Each province has a licensing body which grants a licence to practice dentistry within its own borders. Inquiries concerning registration and licensing should be directed to the Registrar, College of Dental Surgeons of BC, 1765 West 8th Avenue, Vancouver, BC, V6J 5C6 or to their counterparts in other provinces.

For clarification of their ability to obtain a license to practice dentistry in British Columbia, persons convicted of a criminal offense, including a conviction for an offense which resulted in a conditional or absolute discharge, who are considering a career in dentistry, should write to the Registrar of the College before beginning their studies. Most provinces will accept for registration the certificate issued by the National Dental Examining Board of Canada, for which there is a fee.

Information concerning National Dental Examining Board certificates may be obtained from The National Dental Examining Board of Canada, 203-100 Bronson Street, Ottawa, Ontario, K1R 6G8; website (www.ndeb.ca).

ACADEMIC STAFF

DEPARTMENT OF ORAL BIOLOGICAL AND MEDICAL SCIENCES

Donald M. Brunette, Acting Head

Professors

Dieter Bromme, M.Sc., Ph.D. (Halle), D.Sc.; Donald M. Brunette, B.Sc., M.Sc., Ph.D. (Tor.); David Donaldson, B.D.S., (St.And.), F.D.S., R.C.S. (Edin.) M.D.S. (Dund.); Markus Haapasalo, D.D.S., Ph.D. (Helsinki); Hannu S. Larjava, D.D.S., Ph.D., Dipl.Perio. (Finland); Barry C. McBride, B.Sc., M.Sc. (Br.Col.), Ph.D. (Ill.); Christopher M. Overall, B.D.S., B.Sc., M.D.S. (Adel.), Ph.D. (Tor.); Lewei Zhang, B.D.S. (W.China), Dip. Oral Path., Ph.D. (Tor.), F.R.C.D. (C).

Professors Emeriti

George Beagrie, D.D.S. (Edin.), F.D.S.R.C.S. (Edin.), F.R.C.D. (C), F.I.C.D.; Bruce Blasberg, D.M.D. (Penn.), Cert. Oral Medicine; Pierre Dow, B.A.Sc., D.D.S. (Wash.), M.Sc. (Br.Col.); Gary Gibson, D.D.S. (Alta.); Alfred Ogilvie, D.D.S. (Tor.), M.S. (Calif.); Colin Price, B.D.S., M.D.S. (Birm.), F.D.S., R.C.S. (Eng.), F.R.C.D.(C); John D. Spouge, M.D.S. (Sheff.), F.D.S., R.C.S. (Eng.), M.R.C.S. (Eng.), L.R.C.P. (Lond.), F.R.C.S.(C); Alva E. Swanson, D.D.S. (Tor.), M.S. (Mich.), F.R.C.D.(C); V. V. Jukka Uitto, D.D.S., Ph.D., Dip. Perio. (Helsinki).

Associate Professors

Bonnie J. Craig, Dip.D.H. (Manit.), M.Ed. (S.Fraser), R.D.H.; David MacDonald, B.D.S., B.Sc. (Glas.), M.Sc. (Lond.), LL.B., F.D.S.R.C.P.S. (Glas.), D.D.R.R.C.R.; Edward E. Putnins, D.M.D.,

Dipl.Perio., M.Sc. (Manit.), Ph.D. (Br.Col.); Clive Roberts, B.A., M.A. (Cantab.), Ph.D. (Brunel); N. Dorin Ruse, B.Sc., M.Sc. (Cluj), Ph.D. (Tor.); Ravindra M. Shah, B.D.S. (Bom.), M.S. (Buffalo), Ph.D. (Qu.); David Sweet, D.M.D. (Br.Col.), Ph.D.(Granada), D.A.B.F.O.; J. Douglas Waterfield, B.Sc., M.Sc. (Br.Col.), Fil.dr. (Karolinska).

Assistant Professors

Jeffrey Coil, B.Sc., D.M.D. (Br.Col.), Cert. Endo. (Wash.); Lari Hakkinen, D.D.S., Ph.D. (Turku); Ian Matthew, B.D.S. (Liv.), M.Dent.Sc., Ph.D. (Birm.), F.D.S.R.C.S. (Lond.; Edin.); William R. McDonald, D.M.D., M.D. (Br.Col.); Robert W. Priddy, D.D.S., M.Sc. (Tor.), F.R.C.D.(C); Eli Whitney, B.Sc., D.D.S. (Alta.).

Clinical Professors

Eugene C. Cameron, M.D. (Br.Col.), F.R.C.P.C.; Andrew Chalmers, B.Sc. (Cape T.), M.D. (Br.Col.), F.R.C.P.C.; Joel B. Epstein, D.M.D. (Sask.), M.S.D. (Wash.); David V. Godin, B.Sc., Ph.D. (Ott.); Gershon H. Grove, M.D. (Tor.), F.R.C.P.C.; Victor F. Hucknell, B.Sc., M.D. (Br.Col.); Ronald A. Kleinknecht, B.A., M.A., Ph.D. (Wash.); Gerardo Maupomé, D.M.D. (Mexico), M.Sc. (Lond.), Ph.D. (Lond.); John H. McNeill, B.Sc., M.Sc., Ph.D.; David Ostrow, B.Sc., M.D. (Manit.), F.R.C.P.C., M.A. (Mich.); Neil E. Reiner, A.B. (Oberlin), M.D. (Case Western), F.R.C.P.C., F.A.C.P.; Grant H. Stiver, B.Sc. (Med.), M.D. (Manit.), F.R.C.P.C.; Ken Yaegaki, D.D.S., Ph.D. (Japan).

Clinical Associate Professors

Robert J. Conklin, B.Sc., M.D. (Manit), F.R.C.P.(C)(Derm.); Burton Goldstein, B.A., D.M.D. (Penn.); Timothy Gould, B.D.S., L.D.S., R.C.S. Dip. Perio., Ph.D., M.R.C.D.C.; Christopher Peck, B.D.S., M.Sc. Dent. (Syd.); John G. Silver, B.D.S. (Lond.), L.D.S., R.C.S. (Eng.), Dipl. Periodont. (Penn.), F.R.C.D.(C); Peter Stevenson-Moore, B.D.S., L.D.S., R.C.S. (Eng.), M.S.D. (Wash.); Malcolm F. Williamson, B.D.S. (Eng.), L.D.S., R.C.S. (Eng.), D.D.M.P.H. (Tor.).

Clinical Assistant Professors

Martin Aidelbaum, D.D.S., Dip. Oral Surgery; Clive Bethel, B.Sc., D.M.D.; Martin P. Braverman, B.Sc., D.M.D. (Br.Col.); Blaine Cairns, B.Sc. (Guelph), D.M.D. (Br.Col.); Brian Changpong, D.D.S. (U.S.C.); Babak Chehroudi, D.M.D. (Iran), Ph.D. (Br.Col.); Ken Chow, B.Sc. (Br.Col.), D.D.S. (S.Calif.), Cert. Oral Surgery (Ill., Chic.); Lee Colfer, Dipl. Dental Hygiene, DDS, Dip. Peric, M.Sc; Sheilesh Davé, D.M.D., M.S.D.; Shafiq Dharamsi, B.A., B.Ed. (York), B.Sc. (Med. College of Georgia), M.Sc., Ph.D. (Br.Col.); John S. Diggins, B.Sc., D.M.D. (Br.Col.), M.S.D. (Wash.); Brad Forster, D.D.S. (Tor.), Dip. OMFSS (Tor.); Dennis Frazer, DMD, MSc; Curtis Gill, D.M.D. (Sask.), M.D. (Sask.); Larry Goldstein, D.M.D., Dip. Oral Surgery; Donald Habijanac, B.Sc., D.D.S. (Alta.), Cert. Perio (S.Calif.); Askkan Hafezi, D.M.D., Cert. (Endo.); Earl Hall, B.Sc. (Guelph); Tassos Irinakis, D.D.S. (Athens), Dip. Perio. (Br.Col.); Brian Lahiffe, B.D.S. (Dub.), M.S. (Mich.); Robert C. Leung, D.M.D. (Br.Col.), M.P.H. (Loma Linda), Dip. Perio. (Br.Col.); Sonia Leziy, D.D.S. (McG.), Dip. Perio. (Br.Col.); William MacDonald, Bryce McDougall, D.H.D., Dip. Perio; Peter M. Munns, B.D.S. (Lond.), M.Sc.D. (Boston); Nazanin Naranji, D.D.S (Iran), Dip. Perio/ M.Sc; David Nerman, D.M.D. (Manit.), Cert. Endo. (Virginia); Carol Oakley, D.M.D. (Alta.), Dip. Perio., Ph.D. (Br.Col.); Elaine Orpe, B.Sc., D.M.D. (Manit.), Dip. Oral Radiol. (Tor.); Natanya Padachey, D.D.S. (Tor.); Catherine Poh, D.D.S. (Taiwan), Ph.D. (Br.Col.); Mark Reichman, B.Sc. (Tor.), D.D.S. (Tor.), Clinical Assistant Professor; Thomas Routledge, ; Helen Scott, D.M.D., Dip. Perio; Virendra K. Seth,

B.Sc., B.D.S., D.D.S. (Tor.), M.S. (Chic.); James Severs, David Sheilesh, BSc (Alberta), DDS (Alberta), MSD; Kenji K. Shimizu, D.M.D. (Br.Col.); Sharma K. Sinanon, B.A., D.M.D. (Br.Col.), Cert. Endo. (Oregon), F.R.C.D.(C); Ron Slemko, B.Sc., D.D.S. (Alta.); David Sowden, D.M.D., Cert. (O.M.F.S.); Michelle Tang, B.Sc., D.D.S., M.Sc. (Tor.); Perry Trester, D.M.D. (Manit.); Priscilla Walsh, D.D.S. (Alta.), Dip. Perio (Br.Col.); Colin Wiebe, B.Sc., D.D.S. (Alta.), Dip. Perio, M.Sc. (Br.Col.); Michael Wilby, D.D.S. (McG.), Dip. Perio (Oregon); Michele Williams, B.Sc., D.M.D. (Br.Col.), Cert. Oral Medicine (Penn.); Earl Winestock, D.M.D. (Manit.), Cert. Endo. (Oregon); Gerald Wittenberg, M.Sc. (Minn.), D.M.D. (Br.Col.); Jane M. Wong, Dip. D.H., B.A.

Clinical Instructors

Houman Abtin, B.D.S. (India); Mohsen Assadollahi, D.D.S.; Shirley Bassett, Dip.D.H. (Manit.), B.Sc.D. (Tor.), R.D.H.; Denise Beerwald, Dip. D.H.; Howard Bittner, D.M.D., C.D.S.B.C. (Endo.), C.A.G.S. (Endo.); Shelley Ann Chaisson, Dental Hygiene Degree; Doug Conn, B.S.F., B.Sc., D.M.D., Cert. (Endo.); Ron Corber, B.Sc., D.M.D., Cert. (Endo.); Donald Cronin; Margaret Dennett, B.Ed. (Alta.), C.D.A.; Harinder Dhanju, B.D.S. (Guru Nanak); Ashifa Dharamsi, Assoc. Degree Dental Hygiene (Georgia, U.S.A.), Dip. Dental Assisting (Career Canada College); Leanne Donnelly, Dip. D.H.; Mahmoud Ektefaie, B.Sc., D.M.D. (Br.Col.); Lisa Enns, Dip. D.H.; Catherine Fairfield, Dip.D.H. (Alta.); Heather Fay, M.B.Ch.B. (Aberd.); Kostantinos Georgas, B.Sc., D.M.D. (Br.Col.), Cert. Perio, M.S.D. (Wash.); Ladan Ghanipoor, D.D.S.; Lynn Guest, Dip. D.H., B.H.E., M.Sc. (Br.Col.); Pamela Hancock, D.M.D. (Br.Col.); Chris Hardy, Dip. DH (Dalhousie); Penny Hatzimanolakis, B.D.Sc. (Br.Col.); Hans Heilmann, D.M.D. (McG.); Bonnie Hoath, Dip. D.H. (Alta.); Cathy Jackson, B.A.; Suzette Jestin, B.Ed. (Alta.); Rebecca Kan, Dip. DH (UBC); Carolyn King, B.D.S. (Br.Col.); Salmé Lavigne, Dip.D.H., M.Sc. (Missouri); Rosemary Lear, B.D.S., M.D.S. (Belfast); James Lin, D.D.S. (Tor.); James MacDonald, B.Sc. (Wis.), D.M.D., M.Sc., Cert. Perio. (Br.Col.); Robert MacDonald, B.Sc. (Acad.), M.Sc. (Detroit), D.D.S. (Dal.); Ektefaie Mahmoud, D.M.D. (Br.Col.); Joel Marcoe, B.Sc., D.M.D. (Br.Col.); Alexis Martin, B.Sc., M.Sc; Debbie McCloy, Dip.D.H., B.D.Sc. (Br.Col.), R.D.H.; Mary-Ann McKinnon, B.A., Dip.D.H.; Sujay Mehta, D.M.D. (Tufts); Daljit Nagra, D.M.D. (Br.Col.); Gregory Nelson, BSc (Br.Col.), DMD (Br.Col.); Carter Ng, B.Sc. (S.Fraser), D.D.S. (U. of Pacific School of Dentistry, San Francisco); Nathalie Paulto, D.D.S. (Montr.), Dip.Perio (Br.Col.); Cheri Porth, D.M.D. (Br.Col.); Lovdeep Randhawa, B.D.S. (India), D.M.D. (Br.Col.); Alexander Rosenczweig, D.M.D. (Br.Col.); Carolle Sauro, B.Sc. (Nursing), RN, MSN; Pour Rostmanian Sharifabad, D.D.S. (Iran); Majid Sherkat, D.M.D. (Br.Col.), G.P.R. (McG.); Stephanie Song, BSc (UBC), DMD (UBC); Lisa Supene, B.D.Sc. (Br.Col.); Linda Talbot, B.D.Sc. (Br.Col.); Mark Wang, B.Sc. (Tor.), D.M.D. (Br.Col.).

Honorary Clinical Instructors

Michael Sretavan, B.Sc., D.D.S. (McG.); Division of Endodontics: J. Coil (Chair), D. Donaldson; Division of Hospital Dentistry: D. Donaldson (Chair), P. Stevenson-Moore, P. Trester; Division of Oral Biology: (Chair), D. Brunette, B. McBride, C. Overall, R. Shah, D. Waterfield; Division of Oral Diagnosis and Oral Medicine: D. Sweet, C. Peck; Division of Oral and Maxillofacial Surgery: I. Matthew (Chair), W. McDonald; Division of Oral Pathology: R. W. Priddy (Chair), L. Zhang; Division of Oral Radiology: D. MacDonald (Chair), E. Orpe; Division of Pain and Anxiety: D. Donaldson (Chair); Division of Periodontics and Dental Hygiene: H. Larjaja (Chair), B. J. Craig, L. Hakkinen, E. E. Putnins, I. Sy; Division of Continuing Dental Education: J. M. Wong (Director);

B.D.Sc. Program: B. J. Craig (Director); General Practice Residency: C. Zed. (Director).

DEPARTMENT OF ORAL HEALTH SCIENCES

Virginia M. Diewert, Head

Professors

D. Christopher Clark, B.S., D.D.S., M.P.H. (Mich.); Virginia M. Diewert, D.D.S. (Alta.), M.Sc. (Northwestern); Alan A. Lowe, D.M.D. (Br.Col.), Dip. Ortho., Ph.D. (Tor.), F.R.C.D.(C); Michael I. MacEntee, L.D.S. (R.C.S.I.), Dipl. Prosth. (S. Carolina), Ph.D. (Dub.), F.R.C.D.(C); Joanne N. Walton, D.D.S. (Alta.), Cert. Pros. (Walter Reed), F.R.C.D.(C); Edwin H. K. Yen, D.D.S. (McG.), Dip. Ortho., Ph.D. (Tor.).

Professors Emeriti

Marcia A. Boyd, D.D.S. (Alta.), M.A. (Br.Col.); Gary D. Derkson, D.M.D. (Manit.); Norman Ferguson, D.M.D. (N. Pacific Col., Oregon), F.R.C.D. (C) (Hon.), F.A.C.D., F.I.C.D., F.A.D.I.; Alan G. Hannam, B.D.S. (Adel.), F.D.S., R.C.S. (Engl.), Ph.D. (Brist.); Trevor J. Harrop, L.D.S. (Glas.), D.D.S. (Dal.), M.S., Ph.D. (Iowa); S. L. Khanna, B.A., B.D.S. (Punj.), D.M.D. (Manit.), M.S. (Roch.); Clement S. C. Lear, B.D.S. (N.Z.), Dip. Ortho., D.M.D. (Harv.); Lyndon Martin, B.Sc. (Lough.), Ph.D. (Oxf.); Alan S. Richardson, D.D.S., M.Sc. (Alta.); William A. Richter, D.M.D., M.S. (Oregon); Douglas J. Yeo, D.D.S. (Tor.), M.P.H. (Mich.).

Associate Professors

Rosamund L. Harrison, D.M.D. (Sask.), M.Sc. (Roch.), M.R.C.D.(C); M. A. J. Lex MacNeil, D.D.S. (Dal.); Joy Richman, D.M.D. (Manit.), M.S.D., Ph.D. (Lond.); Lance M. Rucker, A.B. (Calif., Berkeley), B.Sc.D., D.D.S. (Calif., San Francisco); N. Dorin Ruse, B.Sc., M.Sc. (Cluj), Ph.D. (Tor.); Christopher C. L. Wyatt, B.Sc., D.M.D. (Br.Col.).

Assistant Professor

Jolanta Aleksejuniene, D.D.S. (Lithuania), M.Sc., Ph.D. (Norway); S. Ross Bryant, B.Sc., D.D.S. (Alta.), M.Sc. (Br.Col.), Dipl. Pros., Ph.D. (Tor.), F.R.C.D. (C.).

Clinical Professor

Ian Bennett, D.D.S. (Tor.), M.Sc. (Wash.).

Clinical Associate Professor

Michael Belenky, D.D.S., M.P.H., F.A.C.D.; Gary Derkson, D.M.D. (Manit.); Sandra Fastlicht, D.D.S., Cert. Ortho., Masters Ortho. (Mexico).

Clinical Assistant Professors

Colleen Adams, B.Sc. (Br.Col.), D.M.D. (Br.Col.); Barbara J. Bradey, D.D.S. (Alta.); William Brymer, D.D.S. (Dal.); Peter Chan, H.B.Sc. (Tor), D.D.S. (W.Ont.), Dip. Ped. Dent. (Wash.); Hui Chen, D.M.D. (CUMS), Dip. Ortho (CUMS); W. Sam Cheung, B.A. (Calif. State, Fresno), D.D.S. (Northwestern); Jack Chu, Clinical Assistant Professor; Lisa Covey, D.M.D. (Br.Col.); Suzanne Cziraki, B.Sc. (Wat.), B.Ed. (Tor.), D.D.S. (Tor.), M.Sc. (Wat.), M.Sc. Ortho. (Tor.); Nicki DeFrancesco, D.M.D. (Manit.), M.Sc. (Manit.); Hasnain Dewji, D.D.S.; Brent Douglas, BSc (U of A), DMD (UBC); Andrea Esteves, C.D. (U.E. Londrina), M.Sc. (Br.Col.); Maryam Farbood, D.D.S. (Tehran), Dip. Ortho (Ytehran); Leo Fung, D.M.D. (Manit.), M.S.D. (Indiana); Michael Fung, D.M.D. (Br.Col.); Karen Gardner, D.M.D. (Br.Col.); Murray A. Good, D.M.D. (Manit.); Masoud Haghi, D.M.D. (Germany), Cert. Ortho (S.Fran); Felicity Hardwick, B.D.S. (Pret.), M.S.D. (Witw.); Alexa Herberston, D.M.D. (Br.Col.), Dipl. Ortho., Ph.D. (Tor.); Bryan Hicks, Cert. Ortho. (Wash.), D.M.D. (Northwestern); Tricia Hughes,

C.D.A. B.Ed. (Alta.), M.Ed. (Vic.B.C.); T.W. John Hung, B.Sc. (Wis.), D.M.D. (Wash.; St. Louis); Robin Jackson, D.D.S. (McG.), M.S. (Buffalo); Simon Jacobson, Clinical Assistant Professor; David Kennedy, B.D.S., M.S.D. (Wash.); Terrance S. Kline, B.Sc., D.D.S. (Alta.); Kenneth Lee, D.D.S., Cert. Perio. (Wash.); Joyce Ling, B.Sc., D.M.D. (Br.Col.); Angie Loo, D.M.D. (Br.Col.), M.Sc., (Manit.); Daniel Ma, D.M.D. (Boston); Sandra Maduke, D.M.D. (Boston), Cert. Ortho. (Oregon); Ritchie Mah, D.D.S., M.Sc. (Alta.); Nathan Maltz, B.Sc., D.D.S. (McG.); Robert Mann, D.D.S. (Alta.), M.S. (Montr.); Cathy McGregor, D.M.D. (Br.Col.); Louis Metzner, B.Sc. (Pharm.), D.M.D. (Br.Col.), M.S.D. (Wash.); Brahm Miller, B.Sc., (Montr.), M.Sc. (Concordia, Alta.), D.D.S. (McG.); Thomas J. Moonen, D.M.D. (Br.Col.); Mathew Ng, B.Sc. (Manit.), D.M.D. (Manit.), Cert. Ortho. (St.Louis); Reza Nouri, D.M.D. (Br.Col.), M.Sc. (Tor.); Gerry Pochynok, D.D.S. (Alta.), Dip. Pediatric Dent. (Eastman Dental Center); Ron Regan, B.Sc. (Alta.), D.D.S. (Alta); Trudy Rey, B.Sc. (Vic.B.C.), D.M.D. (Br.Col.); William J. Rosebush, B.Sc., Dip.Ed., D.M.D. (Br.Col.); Mel Sawyer, D.M.D. (Manit.); Mel Schneider, B.Sc., D.D.S. (McG.); Kenji Shimizu, D.M.D. (Br.Col.); Charity Siu, D.M.D. (Br.Col.), Cert. Ortho. (Roch.); Sharlene Tabata, D.M.D. (Br.Col.); Sandra Tai, B.D.S. (Malaysia), M.S. (Minn.); Linda Taylor, B.Sc., D.M.D. (Br.Col.), Dip. Ortho., Ph.D. (Tor.); David Tobias, D.M.D. (Br.Col.); Hiroki Ueda, D.D.S. (Japan); Carol A. Wishart, B.Sc., D.D.S. (McG.), M.S.D. (Wash.); Paul A. Witt, D.D.S., Dip. Ortho. (Tor.); Brian Wong, D.M.D. (Br.Col.); Theresa Wong, D.M.D. (Br.Col.); Tracy Wong, D.M.D. (Br.Col.); Stephen Yuen.,

Clinical Instructors

Maryam Amin, D.M.D. (Iran); Zohreh Ansari, D.D.S. (Iran); Koushan Azad, D.M.D. (Montr.); Reza Azinfar; David Buckles, D.M.D. (Manit.); Denise Carswell, D.M.D. (Br.Col.); William Catalano, D.D.S. (Alta.); Suman Chand, D.M.D.; Alec Cheng, D.D.S. (Tor.), Cert. Pros. (Iowa); Samuel Chiang, D.M.D. (Br.Col.), M.Sc. (Manit.); Edward Chin, D.D.S., Cert. Pedo, M.Sc; Gordon Chisholm, B.Sc., D.D.S.; Gail Chow, B.Sc. (Br.Col.), D.D.S. (W.Ont.); Christopher Chung, D.M.D. (Br.Col.); Josephine Chung, B.D.S. (H.K.), N.D.E.B.; Carl Cramer, B.Sc. (New Mexico), Ph.D. (Calif., Berkeley); Heather Dowling, D.M.D. (Br.Col.); Lamia El-Adwar, B. Dental Surgery, Masters Operative Dentistry (Alexandria U., Egypt); Ingrid Emanuels, D.M.D. (Br. Col.); Rahil Faruqi, B.D.S. (N'cle); Mark Florence, B.Sc., D.D.S. (Tor.); Kay Fung-Wang, D.D.M., B.Sc. (Manit.); Kevin Gee, D.M.D., B.Sc. (Br.Col.); Pam Glassby, B.D.S. (Liv.); Azar Grakoui, D.D.S. (Iran); Dan Green, D.M.D. (Manit.); Harry Ho, D.D.S. (Case Western); Alan Jeroff, D.M.D. (Manit.); Stephan Johal, D.M.D.; Manbinder Kaeley, B.D.S. (Lond.), D.G.D.P. (Engl.), M.B.A. (Engl.); Sangeeta Kashyap, D.D.S. (Dal.); Nancy Keselyak, B.Sc. (Maryland), M.A. (S.Fraser); Kimiko Kika, D.M.D. (Br. Col.); Kambiz Korshid, D.M.D. (Tehran); Edward Kwok, B.Sc. (W.Ont.), D.D.S. (Tor.); Alfred Lau, B.Sc., M.Sc., D.M.D. (Manit.); David Lawson, D.M.D. (Br.Col.); Basil Lee, D.M.D. (Alta.); Graham Lee, B.Sc. (Wat.), D.M.D. (Br.Col.); Louisa Leung, D.M.D. (Br. Col.); Ivor Levin, B.D.S. (Witw.); Frederick Li, D.M.D.; Robert Lin, B.Sc., D.M.D. (Br.Col.); Douglas Liu, D.M.D. (Br.Col.); Frank Marasa, D.M.D. (Br. Col.); E. Diane Marshall, M.A., RN, RCC; Evelyn McNee, D.M.D. (Br.Col.); Iris Michaan, D.D.S. (Brazil), Cert. Pedo; Don Milton, B.Sc., D.M.D. (Br.Col.), M.S.D. (Wash.); Kenneth Mok, B.Sc. (Br.Col.), D.D.S. (Tor.); Monica Monty; Peter Murphy, D.D.S. (Dal.); Shahram Naghibi, D.D.S. (Iran); Carter Ng, B.Sc. (S.Fraser), D.D.S. (S.Fraser); Cecilia Ng, B.Sc. (Br.Col.), D.M.D. (Br.Col.); Matthew Ng, D.M.D. (Br.Col.); Michelle Nielsen, D.M.D. (McG.); Teri-Lee Norfolk, Dip. D.H. (Br.Col.), D.M.D. (Br.Col.); Clifford Pau, B.Sc. (Br.Col.), D.M.D.

(Br.Col.); Kevin Phillips, D.M.D. (Br.Col.); Cheri Porth, B.Sc. (Trin.W.), D.M.D. (Br.Col.); Sandy Quek, D.M.D. (Br.Col.); Asa Quon, D.M.D. (Br.Col.); Reza Rahgozar, D.D.S. (Tehran), N.D.E.B.; Saida Rasul, B.D.S. (Lond.), D.D.S. (Tor.); John Roach, D.D.S. (Dal.); Lawrence Rossoff, B.A., B.Sc., D.D.S. (Minn.); Jerry Sandbrand, D.M.D. (Manit.); Lori Santos, D.M.D. (Br.Col.); Nancy Scott, D.M.D.; Elaine She, D.M.D. (Br.Col.); Randy Shew, D.M.D.; Ravinder Siddoo, D.M.D. (Br.Col.); Victor Soo-Chan, D.M.D. (Br.Col.); Dianne Stojak, Dip. Dent. Hyg., B.Ed. (Manit.), R.D.H.; Christian Stulz, D.D.S. (Julius Maximilians U.); Steve Sue, D.M.D. (Br.Col.); Susanne Sunell, B.A. (Qu.), R.D.H. (Tor.), M.A. (Br.Col.); Calvin Tham, D.M.D. (Br.Col.); Christina Tong, D.M.D. (Alta.); Kim Trask, D.M.D. (Br.Col.); Andrew Tsang, D.M.D. (Br.Col.); Ashish Vashisht, D.M.D.; Leslie Wang, D.M.D. (Penn.); Anthony Wong, D.M.D. (Br.Col.); Ellen Wong, B.Sc. (Br.Col.), D.M.D. (Br.Col.); Kathy Wong, M.Sc., D.M.D. (Br.Col.); Andrew Yang, B.Sc., D.M.D.; John Yuen, B. Dental Surgery (H.K.), Dipl. Gen. Dental Practice (Eng.); Ron Zokol, D.M.D. (Br.Col.); Division of Biomaterials: N. D. Ruse (Chair); Division of Dental Morphology and Jaw Biomechanics: A. G. Hannam (Chair); Division of Operative Dentistry: L. M. Rucker (Chair), L. MacNeil; Division of Orthodontics: A. A. Lowe (Chair), V. M. Diewert, E. H. K. Yen; Division of Pediatric Dentistry: R. L. Harrison (Chair), J. Richman; Division of Preventive and Community Dentistry: D. C. Clark (Chair), J. Aleksejuniene, S. Dharamsi; Division of Prosthodontics: C. L. Wyatt (Chair), S.R. Bryant, J. N. Walton, M. MacEntee.

D.D.S. (Alta.); Lucy Marzban, Assoc. Degree Lab Medicine (Iran), Doctorate Pathology & Lab Medicine (Iran), Ph.D. Pharmaceutical Sc. (Br.Col.); Nahid Pourtaghi, Shiv Prasad, B.Sc. Biology & Chemistry (Guy.), Ph.D. Molecular Biology (SFraser); Anna Preis, D.M.D. (Manit.); Firoozeh Reyhani, D.M.D. (Tehran); James Richardson, D.M.D. (Br.Col.); Bonnie Sawatzky, B.P.E. (Br.Col.), M.P. (Br.Col.), Ph.D. (SFraser); Mathias Schede, D.D.S. (Germany); Jaspaul Seehra, D.D.S. (Wash.), M.Sc. (Manch.); Lynette Sigola Barreto, M.B.Ch.B., B.Sc. (Z'bwwe), Ph.D. (Lond.), B.Sc. Physiology (Z'bwwe), M.B.Ch.B (Z'bwwe), Ph.D. Cellular Immunology (Lond.), Dipl. Hygiene & Tropical Medicine (Lond.); Sean Sikorski, D.M.D. (Sask.); Hon So, B.D.S., M.D.S. (H.K.); Rafat Sobouti, D.D.S. (Iran), Post-Grad. Oral Medicine (Iran); Asif Tejani, D.M.D. (Penn.), B.A. (Lanc.); Maria-Theresa Zerjav, B.Sc. (Dal.).

DEAN'S OFFICE

Dean's Office

Edwin H.K. Yen, Professor and Dean; Christopher Zed, Assistant Dean, External Affairs and Strategic Affairs.

Clinical Assistant Professors

Leandra Best, D.M.D. (Sask.); David L. Tobias, B.Sc., D.M.D. (Br.Col.); Christopher Zed, B.Sc., D.D.S., M.B.A. (Dal.), G.P.R. (Br.Col.).

Clinical Instructors

Sanju Abraham, B.D.S. (India); Amir Ajar, B.Sc., Anat. Sci. (McG.), D.D.S. (McG.), Dipl. Collegial Studies (Montr.); Catherine Anderson, B.Sc., Ph.D. (Br.Col.), B.Sc. Microbiology (Br.Col.), Ph.D. Genetics (Br.Col.); Ben Balevi, B.Eng., D.D.S. (McG.), B.Eng. (McG.), D.D.S. (McG.); M. Grace Beloy, B.Sc., D.M.D. (Phillippines); Dale Best, B.Sc. (Regina), M.D. (Sask.), CCFP (Sask.); Nancy Black, B.Sc. Biology (McM.), M.Sc., Sci. Anat. (Br.Col.), D.M.D. (Br.Col.); Bruce Chenail, D.M.D. (Br.Col.), M.S. (Marquette U.); Marcia Choi, B.A., M.Sc. (Br.Col.); Nirpjit Dosanjh, B.Sc. Microbiology (India), M.Sc. Microbiology (India), Ph.D. Microbiology Biochem. (India); Ameneh Eslami, M.D. (Tehran); Mark Fogelman, D.M.D. (Jerusalem); Joyce Gordon, B.Sc. (Ill.), M.S., Ph.D. (Wis.), B.Sc. Chem. (Wis.), M.Sc. Microbiology (Wis.), Ph.D. Microbiology (Wis.); Neville Jeannotte, B.Sc., D.M.D. (Br.Col.); Philomena Kaan, B.Sc. (SFraser), M.Sc., Ph.D. (Br.Col.), B.Sc. Biophysics (SFraser), M.Sc. Exp. Medicine (Br.Col.), Ph.D. Exp. Medicine (Br.Col.); Karuna Karunakaran, B.Sc. (Jaffna, Sri Lanka), M.Sc. (Trondheim, Norway), Ph.D. (Norwegian U. of Science & Tech., Norway), B.Sc. Biosc. (Sri Lanka), M.Sc. Biochem. (Norway), Ph.D. Molecular Genetics (Norway); Andis Klegeris, Physician-Biophysicist Dipl. (Moscow), M.Sc. (Moscow), D.Phil. (Oxf.), Physician-Biophysicist Diploma (Moscow), M.Sc. Biophysics (Moscow), D.Phil. Pharmacology (Oxf.); Hwee Lim, D.D.S. (Taiwan), M.Sc., D.D.S. (W.Ont.), M.Sc. Oral Pathology (W. Ont.); Nicole Martin-Iverson, B.Sc.,

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Dean's Office

Robert J. Tierney, Dean
Jon Shapiro, Senior Associate Dean
Deborah Butler, Associate Dean,
Graduate Programs and Research
Rita L. Irwin, Associate Dean,
Teacher Education
Jim Gaskell, Associate Dean, External
Programs and Learning Technologies
Jo-ann Archibald, Associate Dean, Indigenous
Education

Neville Scarfe Building
2125 Main Mall
Vancouver, BC V6T 1Z4
Telephone: 604-822-5242
Fax: 604-822-8227

Education Website (educ.ubc.ca)

The Faculty of Education offers initial Teacher Education leading to the degree of Bachelor of Education. Following completion of all requirements, students normally qualify for the British Columbia Professional Teaching Certificate. The program options integrate pedagogical studies and school experience. Within the program options, students extend their liberal education by exploring educational theory and practice, applying their understanding in carefully graduated teaching practice and building a foundation for leadership in the classroom and the community.

Opportunities for continuing professional education leading to the Diploma in Education are also offered. The Diploma in Education indicating the field of specialization will be awarded on successful completion of an approved program of study. Most programs, if desired, can be planned to incorporate prerequisites for admission to a master's program. Detailed admission, application, and registration information are posted at educ.ubc.ca/teacher_ed.

Graduate programs in education are offered by various units in the Faculty. Complete program descriptions can be found in the appropriate departmental listing in *The Faculty of Graduate Studies*, p. 217, chapter of the Calendar. This chapter also offers overviews of the academic units that house the Faculty's various graduate programs.

BACHELOR OF EDUCATION

The Faculty of Education offers the Bachelor of Education to persons interested in a career in teaching. Qualified applicants who wish to prepare as elementary teachers may select either a 12-month or a two-year option. Those interested in preparing to teach students in the middle years or in secondary schools undertake studies over a 12-month period.

ACADEMIC ADVISING

There are group advising sessions on pre-admission requirements and some follow-up sessions if necessary. Sessions are offered at specific times and for specific teaching options (Elementary or Middle Years and Secondary). Before sending inquiries or making appointments, please review your transcript in relation to the admission requirements for the option of your choice (and, in Secondary and Middle Years, for the subject[s] to which you plan to apply) and complete the self-assessment form (and Secondary worksheets, as applicable). For detailed admission requirements and group advising schedule, visit our website (educ.ubc.ca/teacher_ed). Please contact the Teacher Education Office by email (teacher.ed@ubc.ca) to register for advising sessions.

ADMISSION

The Faculty admits students on the basis of merit and is committed to admitting qualified candidates who reflect the ethnic, cultural, and social diversity of British Columbia. Applications are encouraged from persons of Aboriginal ancestry (see *Canadian Aboriginal Students*, p. 14), visible minorities, differently-abled persons, women in subject areas in which they are under-represented, and men interested in primary school teaching. All qualified applicants are encouraged to apply.

Elementary Teacher Education

The Elementary Teacher Education option prepares students to teach Kindergarten to Grade 7. While it is recommended that applicants have a bachelor's degree, candidates are eligible for admission to the two-year option with a minimum of 90 UBC-equivalent credits acceptable to the Faculty of Education. Applicants to the 12-month option must have

completed a four-year degree (120 UBC-equivalent credits), including a minimum of 90 UBC equivalent credits acceptable to the Faculty of Education. Both options require full-time study.

ADMISSIONS REQUIREMENTS

Part I

- 1) 6 credits of English Literature and composition or UBC Arts One, Foundations, or equivalent
- 2) 3 credits (minimum) of a laboratory science (laboratory science courses are normally selected from the Life Sciences, Chemistry, Physical Geography, Earth and Ocean Studies, Geology, Astronomy, or Physics)
- 3) 3 credits (minimum) of Mathematics (not statistics or business mathematics)
- 4) 3 credits of Canadian History or Canadian Geography
- 5) 3 credits of Canadian Studies (additional courses in Canadian History/Geography or a course in Canadian Literature, Canadian Society, or any Social Studies course with specific Canadian content)

Part II

- 1) 18 senior credits (third- or fourth-year level) from one of, or any combination of: Art, Biology, Chemistry, Earth/Geological Sciences, English, French, Geography, History, Mathematics, Music, Physics
- 2) 18 senior credits (third- or fourth-year level) from any combination of the following disciplines with no more than 12 credits from any one discipline: Anthropology, Asian Studies, Astronomy, Biochemistry, Botany, Canadian Studies, Chinese, Classical Studies, Creative Writing, Dance, Drama, Economics, Family Studies, First Nations Studies, German, Italian, Japanese, Kinesiology, Linguistics, Microbiology, Oceanography, Philosophy, Physical Education, Physiology, Political Science, Psychology, Punjabi, Russian, Sociology, Spanish, Statistics, Women's Studies, Zoology
- 3) Any combination of courses from List 1 or 2 (Part II), totalling 18 credits with no more than 12 credits from List 2

A minimum average of 65% is required on the pre-admission studies specified in Part I and Part II.

Applicants to the 12-month French Immersion or French as a Second Language program

options must have completed, in addition to, or as part of, the above requirements, a minimum of nine credits in French at least at the second-year level. These credits should include three credits in each of French literature, French grammar, and French composition. Applicants must also pass the oral and written French test at an appropriate level prior to admission.

Part III

- 1) Applicants to both the 12-month and the two-year elementary options are required to have completed at least 90 credits (including the above) from the Humanities, Social Sciences, Sciences, Visual and Performing Arts, Art History, Theatre, Dance, Human Kinetics, Physical Education, or Music.
- 2) Applicants to the 12-month option are required to have completed a fourth-year (120 credits) degree, or equivalent.

In addition, applicants to all program options must have volunteer or other experience in working with young people, preferably at the age range they are proposing to teach.

Middle Years Teacher Education

Applicants must have completed a four-year bachelor's degree (or equivalent), normally in subject fields within Arts, Science, and Human Kinetics (Physical Education).

Pre-admission studies must include the following:

- 1) 6 credits of English Literature and Composition or equivalent;
- 2) at least 3 (preferably 6) credits in each of a laboratory science (laboratory science courses are normally selected from the Life Sciences, Chemistry, Physical Geography, Geology, Astronomy, or Physics), Mathematics (not Statistics), and Social Studies (History or Geography);
- 3) Specialization: Applicants must choose one from English, Physical Education, Science (one of or any combination of Biological Sciences, Chemistry, Earth Science and Physics) and Social Studies (History or Geography or the combination of the two). Applicants should see Secondary Teaching Field Requirements for these subject areas and must complete first-/second-year courses as prescribed therein and a minimum of 18 credits (24 credits in English) of third-/fourth-year courses specified for their chosen specialization;
- 4) Students wishing to teach subject areas other than the above listed should apply for the secondary option;
- 5) 6 credits of courses in the Humanities and/or Social Sciences with significant Canadian content applicable to teaching the middle years curriculum; and
- 6) A minimum average of 65% on the pre-admission studies specified in points 1 to 3 above.

In addition, applicants must have volunteer or other experience in working with young people, preferably at the age range they are proposing to teach.

Middle years teachers normally teach more than one subject area. Therefore, preference will be given to persons whose prior preparation includes two teaching concentrations.

Secondary Teacher Education

Applicants must have completed a four-year bachelor's degree (or equivalent), normally in subject fields within Arts, Fine Arts, Science, Commerce or Business Administration, Music, and Human Kinetics (Physical Education), or in other secondary teaching fields. To increase the breadth of their experience and improve their opportunities for employment, applicants to Secondary Teacher Education are strongly advised to have completed subject-matter preparation for two teaching fields. Prospective teachers of technology education should see "Technology Education Program Options" for admission information and program requirements. Pre-admission studies must include the following:

- 1) 6 credits of English Literature and Composition or equivalent;
- 2) One of the following:
 - (a) one teaching major and one teaching concentration,
 - (b) two teaching concentrations, or
 - (c) one teaching major
- 3) An average of 65% on the senior courses, normally numbered 300 and above, is required for each teaching field.

Applicants to the French Immersion Option must have completed, in addition to the above requirements, a minimum of 9 credits (or equivalent) of French at the second-year level, including 3 credits in each of French literature, French grammar, and French composition. Applicants to the French Immersion Option and applicants presenting French as their teaching subject must also pass the oral and written French test at an appropriate level prior to admission.

In addition, applicants must have volunteer or other experience in working with young people, preferably at the age range they are proposing to teach.

Secondary Teaching Field Requirements

In the following list of secondary teaching fields, "C" indicates that the subject may be presented as a teaching concentration and "M" indicates that it may be presented as a teaching major. At least one teaching field must be a subject widely taught in BC secondary schools. Because certain subjects are not widely taught in BC secondary schools, students preparing to teach a subject marked with an asterisk (*) must prepare to teach at least one not so marked.

SECONDARY TEACHING FIELD REQUIREMENTS

Field	Concentration	Major
Art	C	M
Biological Sciences	C	M
Business Education	C	M
Career Preparation (CHEF Education)	C	
Chemistry	C	M

Field (Continued)	Concentration	Major
Chinese*	C	
Computer Science	C	M ¹
Earth Science	C	M
English	C	M
English as a Second Language*	C	
French	C	M
Geography	C	M
German*	C	
History	C	M
Home Economics	C	M
Italian*	C	
Japanese*	C	
Mathematics	C	M
Music		M
Physical Education	C	M ¹
Physics	C	M
Punjabi*	C	
Russian*	C	
Social Science* ²	C	
Spanish*	C	
Technology Education		M
Theatre*	C	

¹ Students presenting a major in this field must prepare in a second teaching subject.

² A social science other than history or geography.

The teaching field requirements for admission to the B.Ed. (Secondary) are listed below. A teaching concentration normally consists of 18 credits of senior courses (numbered 300 or higher and taken in years three and four) in addition to specified junior courses (numbered below 300); a teaching major normally consists of 30 credits of senior courses in addition to specified junior courses. Students preparing for secondary teaching should have completed all junior and senior requirements for their intended teaching field(s) before seeking admission to the teacher education program.

As indicated below, a number of schools and departments of the University have designed undergraduate degree programs for prospective secondary teachers; the detailed requirements of such programs are listed in the faculty and school entries. Graduates of equivalent programs at other recognized universities are, of course, eligible for consideration.

ART CONCENTRATION AND MAJOR

For an Art Concentration, students must have completed a course in Art History and 12 credits of first- and second-year Studio Art in at least three Studio Art areas; 18 credits of third- and fourth-year art, including a minimum of 12 credits of Studio Art in at least two different areas. Six of these 12 credits must be in traditional studio art areas such as drawing, painting, sculpture, printmaking, graphic/communication design, ceramics, and textiles. The remaining 6 credits may include courses in areas such as digital arts, photography, animation, film/video/TV production, etc.

For an Art Major, students must have completed the concentration requirements and an additional 12 credits of third- and fourth-year art, 6 of which must be in Studio Art. Of these 6 credits, 3 must be in a traditional Studio Art area (as mentioned above).

BUSINESS CONCENTRATION AND MAJOR
For the Business Concentration, students must take introductory courses in Computer Science, Economics, and Mathematics as a foundation for 18 credits of specialized courses in Accounting, Marketing, Commercial Law, and Management Information Systems.

For the Business Major, students must take an additional 12 credits of senior courses in Finance, Marketing, and Management Information Systems.

Along with the application for the Secondary Business Education Program, applicants are required to submit evidence of the ability to keyboard at a rate of 30 net words per minute.

COMPUTER SCIENCE CONCENTRATION AND MAJOR

For a Computer Science Concentration, students must have completed first- and second-year courses in computing and mathematics; 18 credits of third- and/or fourth-year level courses in Computer Science and/or Computing or computer-related topics such as programming, computer applications, computer information systems/technology, and/or the impact of technology on society.

For a major in Computer Science, students must have completed the concentration requirements and an additional 12 credits of third- and/or fourth-year level courses in computer science and/or computing or computer related courses. Applicants with a major in computer science must also prepare in a second teaching subject.

ENGLISH CONCENTRATION AND MAJOR
For the English Concentration, students must take first- and second-year English; 24 credits of third- and fourth-year English including 6 credits from each of: English Language, English Composition or Creative Writing, Pre-twentieth Century Literature, and Twentieth Century Literature. Prospective applicants are advised to complete courses in both Shakespeare and Canadian literature.

For the English Major, students must take an additional 12 credits of senior English.

ENGLISH AS A SECOND LANGUAGE CONCENTRATION

For the English as a Second Language Concentration, students must take a minimum of 6 credits in Linguistics at the third- and fourth-year level or English Linguistics, and 12 credits in the study of language and/or the study of culture at the third- and fourth-year level.

HOME ECONOMICS CONCENTRATION AND MAJOR

Applicants normally hold one of the following degrees: a Bachelor of Applied Design, a Bachelor of Arts in Family Studies, a Bachelor of Home Economics, a Bachelor of Science in Food, Nutrition and Health with a major in

Human Ecology, or a degree equivalent to one of the first three. Students holding other degrees will also be considered if they have met the following admission requirements.

Concentration: Applicants must have completed 12 and preferably 18 credits of first- and second-year level courses in Family Studies and Food Studies and/or Textiles Studies. In addition, applicants must have completed a minimum of 18 credits at third- and/or fourth-year level. These 18 credits must include: 1) 9 credits in Family Studies and 2) 9 credits in Food Studies or 9 credits in Textiles Studies or 9 credits in a combination of Food Studies and Textiles Studies.

Major: Applicants must have completed requirements for a concentration and an additional 12 credits at third- and/or fourth-year level in one, or any combination of, Family Studies, Food Studies, and Textile Studies.

Family Studies must include courses in family resource management, family relationships, and human development. Food Studies must include courses in food and nutrition. Textiles Studies must include courses in textiles, apparel construction, and social/cultural aspects of clothing.

Applicants may, at the discretion of the Faculty, be required to provide a statement indicating what they have done in formal and informal settings which has contributed to enhancing their skill levels in apparel construction or food preparation or both.

MATHEMATICS CONCENTRATION AND MAJOR

For the Mathematics Concentration, students must take 30 credits of mathematics (at least 18 credits of which must be at the third- and fourth-year level) including at least one course in three of four areas: Algebra, Probability and Statistics, Geometry, and Number Theory.

For the Mathematics Major, students must take an additional 12 credits of Mathematics at the third- and fourth-year level.

MODERN LANGUAGES CONCENTRATION AND MAJOR

Languages include Chinese, French, German, Italian, Japanese, Punjabi, Russian, and Spanish. Students will be required to demonstrate oral and written proficiency in their selected language(s) either prior to admission or early in the program.

For the Concentrations, students must take first- and second-year courses in both the language and the literature of the selected language; 18 credits in the selected language at the third- and fourth-year level, at least 6 of which must be language study (French Grammar and French Composition for those presenting French) and must be completed with second class or higher standing. Applicants who present a language other than French as one teaching field must present a second teaching field which is not one of these languages; French and one such language is an acceptable combination as is English and one such language.

For the Major in French, students must take an additional 12 credits of French at the third- and fourth-year level.

MUSIC MAJOR

Applicants normally hold a Bachelor of Music with a Major in General Studies (Secondary Education). Applicants must have completed 4 credits of classroom instrumental techniques in two of the following areas: brass, woodwinds, and bowed string instruments taught in a group situation. A minimum of 3 credits in instrumental or choral ensembles or comparable experience is also required.

PHYSICAL EDUCATION CONCENTRATION AND MAJOR

Applicants will normally have completed the Physical and Health Education Option within the Bachelor of Human Kinetics program.

Concentration must include:

- 1) 12 credits of Human Kinetics core courses or equivalent, including anatomy; physiology; physical growth and development; and human motor behaviour and six credits from human kinetics courses in the following areas: active health (fitness); biomechanics; sport and exercise psychology; and exercise physiology.
- 2) 12 credits of third- and/or fourth-year level Human Kinetics courses, including 4 from the following five areas; adapted physical education; instructional analysis and design in sport and physical activity programs; games education; planning physical education, sport and exercise programs; and athletic injuries.
- 3) 6 credits of third- and fourth-year level courses from the following areas: physical education fieldwork; foundations of coaching; high performance conditioning in physical activity and sport; coaching effectiveness in selected sports and activities; exercise prescription; and health promotion.
- 4) Seven performance areas. Must include aquatics, gymnastics, dance, active health (fitness), and at least one team game.

Major:

Must have completed the requirements for the concentration and 12 additional credits of third- and/or fourth-year level courses in Human Kinetics. Students holding a Bachelor of Human Kinetics, a Bachelor of Physical Education or an equivalent degree from other institutions, who have completed courses equivalent, or similar to, the above may also apply for a major or concentration.

Applicants with a major in physical education must also prepare in a second teaching subject.

SCIENCE CONCENTRATIONS AND MAJORS
Areas include Biological Sciences, Chemistry, Earth Science, and Physics.

All science applicants must have completed 6 credits of introductory courses in each of Chemistry (at least one course with a lab component), Mathematics (one or preferably two courses in Calculus), Physics (at least one course with a lab component), Biology, and Geology. Applicants presenting a science other

than a Biological Science or an Earth Science may complete an appropriate course to satisfy the biology requirement and the geology requirement respectively within the program.

Applicants must have completed an additional 6 to 12 credits of first- and second-year level courses and 18 credits of third- and fourth-year level courses in the selected science. The set of courses for each selected science must include both lecture and laboratory studies.

Concentration Requirements

- **Biological Sciences:** Preference will be given to applicants who have completed courses covering all of the following areas: ecology, genetics, human physiology, evolutionary biology, invertebrate and vertebrate zoology, non-vascular and vascular plant biology, and microbiology. Courses in these areas must be completed at the second, third, or fourth year level. No introductory biology course will be accepted as satisfying any of these areas.
- **Chemistry:** Preference will be given to applicants who have completed courses covering all of the following areas: organic, inorganic, physical, and analytical chemistry.
- **Earth Science:** Courses must include geology, covering mineralogy and petrology. Geophysics, physical geography, atmospheric science, and oceanography are also recommended. Astronomy is strongly recommended; students will be required to complete an appropriate course within the program if they have not completed astronomy prior to admission.
- **Physics:** Preference will be given to applicants who have completed courses in all of the following areas: mechanics, thermodynamics, electricity and magnetism, optics, acoustics, quantum mechanics, and atomic and nuclear physics.

Major Requirements

Applicants must have completed concentration requirements and an additional 12 credits of courses in the selected science (Biological Sciences, Chemistry, Earth Science, or Physics) at the third- and fourth-year level. Applicants are not admitted as a major in Agricultural Science.

SOCIAL STUDIES CONCENTRATIONS AND MAJORS

Emphasis on Geography, History, or a Social Science. Applicants may present more than one social studies teaching field. Social Science applicants must present a second teaching field (either Geography, History, or another subject widely taught in BC secondary schools).

For the Social Studies Concentrations, students must take 6 credits of introductory or survey courses in each of Geography, History, and a Social Science; a further 6 credits of first- and second-year courses and 18 credits of third- and fourth-year level courses in the discipline of emphasis. The total program must include 6 credits with a significant Canadian content. An applicant's program should satisfy the following conditions for the chosen discipline of emphasis:

- **Geography:** Both physical and cultural geography with courses in regional and environmental studies.
- **History:** Canadian, European, and history of any region other than Canada or Europe.
- **Social Science:** An appropriate grouping of courses within a single, acceptable social science discipline (Anthropology, Economics, Political Science, Regional Studies, Sociology, or Women's Studies).

For the Social Studies Majors, students must take an additional 12 credits of third- and fourth-year level courses in the discipline of emphasis (Geography or History only).

TECHNOLOGY EDUCATION MAJOR

For the Technology Education Major, students must take 60 credits of recognized technical courses¹, including:

- 30 credits Arts and/or Science, including 6 credits of English Literature and Composition.
- Normally an applicant has completed the two year BCIT Technology Teacher Education diploma or equivalent.

Please see *Technology Education Program Option*, p. 197.

¹ The University does not itself offer these technical courses but recognizes certain courses offered by the British Columbia Institute of Technology and by other technical institutes where these meet the transfer standards of the University.

THEATRE CONCENTRATION

For the Theatre Concentration, students must take a minimum of 12 credits of junior theatre courses and 18 credits at the third and fourth-year level. The total program must cover acting, directing, theatrical production, and history of theatre.

CAREER PREPARATION (CHEF EDUCATION)

See *Path 1—The Concurrent Path for Career Education CHEF Teachers*, p. 197.

APPLICATION

For details of application deadlines, see Application Deadlines (www.students.ubc.ca/calendar/index.cfm?page=deadlines) in chapter 1. For information regarding tuition and student fees, please see the *Fees, Financial Assistance and Scholarships*, p. 25, chapter.

Application forms and additional admission information may be downloaded from the Faculty of Education website (educ.ubc.ca).

Admission Selection Process

Applicants to the teacher education program are evaluated on both academic and non-academic criteria. Each application is reviewed in comparison to other applications to the same program option and teaching subject (secondary and middle years). The evaluations of an applicant's academic requirements and non-academic requirements are normally undertaken concurrently, not consecutively. Because the number of qualified applicants significantly exceeds the number of available places, not every qualified applicant will be

admitted. Applicants are evaluated on the following criteria:

I. ACADEMIC REQUIREMENTS

All applicants must have completed academic admission requirements prescribed by the Faculty of Education, including a four-year degree (or 90 credits for the elementary two-year option), 6 credits of English and various subjects specified for the elementary option, the middle years option or the secondary option. For details, applicants must review academic requirements for individual options (please see the appropriate section under "Admission"). Language test scores may also be part of academic requirements for some applicants or for specific options or subjects.

Admission average

- The admission average for elementary option is calculated on 36 credits including: 6 credits of English, 3 credits of Mathematics, 3 credits of Laboratory Science, 3 credits of Canadian History or Canadian Geography, 3 credits of Canadian Studies and 18 credits of senior coursework in a teachable subject area. The admission average for the middle years option is calculated on 33 credits including: 6 credits of English, 3 credits of Mathematics, 3 credits of Laboratory Science, 3 credits of History/Geography, and 18 credits of senior coursework in a teachable subject area. The admission average for the secondary option is calculated on the senior courses for each teaching field. A minimum admission average of 65% is required; however, competition for the available seats is high and the admission average of successful applicants is normally higher than the 65% minimum required for application.

Overall Academic History

- The range of an applicant's courses covering subject areas relevant to teaching the selected grade levels and subject area(s) (particularly secondary applicants), is also taken into consideration in making admission decisions.
- An applicant's overall academic performance, including failures, is also considered in admissions decisions.

2. NON-ACADEMIC REQUIREMENTS

All applicants must submit:

- 1) a summary of experience working with school age children and/or youth;
- 2) a one-page essay indicating what they have learned from their experience with school age children and/or youth that will help them in their teaching career; and
- 3) two confidential reference reports.

The evaluation of the information provided on the above materials is an integral part of the Faculty's selection process. Applicants' experience with children/youth and their personal character and qualities as reflected in the reference reports are essential selection criteria. Qualities appropriate to the profession of teaching that referees are asked to judge include: motivation for teaching; enthusiasm;

leadership potential; dependability; initiative; flexibility and adaptability, including the ability to deal with change and/or stressful situations; oral and written communication skills; ability to interact appropriately with children and/or youth and with adults; ability to identify problems and pose possible solutions; and ability to accept feedback and respond to suggestions.

Normally an applicant without experience with school age children and/or youth is not admitted to the program.

The Faculty may require an applicant to have an interview with the Admissions Committee.

3. EVALUATION OF AN APPLICATION IN COMPARISON WITH OTHER APPLICANTS

When an applicant is deemed to have satisfied academic requirements and his/her non-academic requirements are accepted as satisfactory, his/her application will be compared with applications of other applicants who have applied to the same option or the same subject area(s). Normally applicants with higher admission averages will be offered admission earlier than those with lower admission averages.

If there are more qualified applicants than there are spaces in an option(s) or a subject area(s) for the secondary option, not all applicants who have met our admission requirements will be offered admission to the program.

THE OFFER OF ADMISSION

An applicant will have a maximum of four weeks to respond to an offer of admission.

REGISTRATION

Students will be notified of registration procedures upon acceptance to the program.

After August 15, registration may be done through the Teacher Education Office and only if space permits. No student will be permitted to register after the first day of instruction in the term, nor will they be admitted to any class after its first session, except by permission of the Dean.

The academic year of the Faculty of Education normally begins on the Tuesday following Labour Day.

ACADEMIC REGULATIONS

Material in this section is supplementary to that given in the chapter Academic Regulations in this Calendar and applies specifically to students enrolled in the Faculty of Education.

Written English Requirement

All students admitted to a program leading to teacher certification must provide evidence of a satisfactory standard of written English prior to registering for the program. Those who have had all their post-secondary study at an English-language institution(s) are presumed to have achieved a satisfactory standard of writing. All other students will be required to provide evidence of satisfactory achievement by means of an acceptable English language test.

Students who do not provide evidence of an acceptable standard of English during the

program may be required to sit a test of written English. On the basis of the results of this test, students may be required by the Faculty:

- 1) to improve their standard of written English before proceeding to the Extended Practicum and/or before being recommended for the Bachelor of Education and a teaching certificate, or
- 2) to withdraw from the Faculty.

Oral English Requirement

Competence in spoken English is a requirement for teaching within the British Columbia School system. Students admitted to the teacher education program must demonstrate competency in oral English. All students in the teacher education program enrol in a communication class where their oral English will be evaluated on an ongoing basis. If questions arise regarding oral English competency students may be asked to undergo an evaluation of their spoken English. The results of both oral proficiency in the communication class and the subsequent oral evaluation will be used to determine whether the student will be required:

- 1) to improve their standard of oral English before proceeding to the Extended Practicum and/or before being recommended for the Bachelor of Education and a teaching certificate, or
- 2) to withdraw from the Faculty.

Students will not be permitted to begin the Extended Practicum (EDUC 329, 418, 419, 495, or 496) until they have passed this test.

Advancement

Students who do not meet the expected standard in course work may be required to revise, or do supplemental work, or to repeat a course in order to meet expected standards (see also *Supplemental Examinations*, p. 193). A student whose academic standing is unsatisfactory in one or more courses may be required to repeat courses, or to discontinue, or to withdraw from the Faculty.

Students who are unable to meet expected standards in practica (EDUC 315, 319, 321, 323, 329, 418, 419, 495, 496) may be required to do supplemental practica, or to discontinue, or to withdraw from the Faculty. (See also *Termination, Withdrawal, and Readmission*, p. 194, regarding supplemental practica and withdrawal from practica).

Students who fail or withdraw from a practicum are granted only one more opportunity to repeat that practicum.

A student must have passed all courses prescribed to precede the Extended Practicum before advancing to this part of the program. Similarly, a student must have completed the Extended Practicum successfully before taking any courses prescribed to follow it. Only in exceptional cases will these requirements be waived.

Entry into the profession of teaching is not a right but a privilege. Suitability to teach includes satisfactory academic performance, teaching performance, and professional

conduct (see *Professional Conduct*, p. 193).

Although satisfactory academic performance is prerequisite to advancement, it is not the sole criterion in the consideration of the suitability of a student for promotion or graduation. The Faculty reserves the right to require a student to withdraw from the Faculty if the student is considered to be unsuited to proceed with the study or practice of teaching.

Professional Conduct

Students in the Faculty of Education are expected to adhere to standards of professional practice and ethics in their interactions with faculty and peers and with teachers, staff, and students in the schools. During practica, students are subject to The School Act and they are expected to comply with standards of professional conduct followed by school personnel and act in accordance with guidelines published in the *Members' Guide to the BCTE*.

Teaching Practica

Practicum placements are in Lower Mainland School districts and in selected locations throughout the province. The availability of placements in some areas may be limited and students must be prepared to accept placement for the two- and thirteen-week practica anywhere within 125 km of the UBC campus. Students make their own arrangements for and bear the cost of personal transportation and accommodation during practica.

Grading in the B.Ed. Program

All teaching practica and most courses in the B.Ed. will be graded on a Pass/Fail basis. Determination of standing is criterion-based. In order to pass a course students are expected to produce work that is of high quality and that meets criteria provided by instructors (see *Advancement*, p. 193).

Supplemental Examinations

In any session a student may be granted the privilege of writing supplemental examinations in not more than 6 credits of course work provided that the student:

- 1) wrote the scheduled final examination and achieved an overall grade of at least 40% in the course in question, and
- 2) achieved credit in at least 60% of a course load of over 12 credits or in at least 50% of a course load of 12 or fewer credits.

The Promotions Committee, at its discretion, may grant supplemental privileges in a further 6 credits to a student whose course load during a regular Winter Session is in excess of 30 credits.

The committee may also prescribe a supplemental Practicum, not to exceed six weeks, for students who at the conclusion of the Extended Practicum have made significant progress but who have not attained the required standard of teaching performance.

For the 12-month teaching programs, supplemental examinations for Term 1 courses will be scheduled during the first week of Term 2.

Termination, Withdrawal, and Readmission

Students who are granted a 'W' on the Extended Practicum (EDUC 329, 418, 419, 495, or 496) must wait until the next time the Extended Practicum is scheduled in their program to re-enrol. Students will not normally be granted two withdrawals from an Extended Practicum. When, in the judgment of the Faculty of Education and the schools hosting their practica, students do not make satisfactory progress, their practica may be terminated. Those whose practica are terminated or who do not complete their practica satisfactorily, and who qualify for neither a supplemental practicum (see Supplemental Examinations above) nor a deferred practicum (see *Academic Assessment*, p. 46, in the chapter "Academic Regulations" of this Calendar) will be assigned a failing grade and will be required to discontinue or to withdraw from the program.

After one year, students required to discontinue may appeal to the Faculty for permission to re-enrol. Their appeal must include evidence of their having satisfied any conditions set at the time they were required to discontinue.

Those required to withdraw are not normally readmitted to a teacher education program. In exceptional circumstances a student may, after at least one year, submit a formal appeal for permission to re-enrol. Such an appeal will be granted only after review by the Dean and approval by the Senate Admissions Committee.

Students who withdraw from the program voluntarily will not be entitled automatically to return; each request for reinstatement will be considered along with other applications at the time.

Students who for any reason fail to complete all requirements of the program within a four year period will not be allowed readmission; they may, however, submit a new application for admission and, if admitted, will receive no advance credit for courses completed previously.

Part-time Students

A limited number of students may be admitted to undertake the program on a part-time basis. The Extended Practicum must be completed on a full-time basis. A student may seek permission to complete the balance of the program on a part-time basis. Such a request will be granted only if an acceptable plan for program completion is presented; completion must be within four years of initial registration.

Because of the tightly integrated character of the program students are normally expected to pursue studies on a full-time basis until all requirements are satisfied.

Credit From Other Institutions

Except as provided in *Prior Programs*, p. 194, and *Programs for the Improvement and Recertification of Teaching Qualification*, p. 194, credit may not normally be transferred from other institutions for courses prescribed for the first three terms of the elementary two-year option, the first two terms of the elementary 12-month option, the middle years 12-month option or the secondary 12-month

option. In special circumstances students may be granted permission to complete some or all of the courses prescribed for the final term at another institution if:

- 1) permission is sought in advance,
- 2) the courses to be transferred are taken after all requirements of preceding terms have been satisfied, and,
- 3) these courses are appropriate to the UBC program.

Duplicate Credit

Because courses in the Faculty of Education change significantly over time, certain advanced curriculum and instruction courses and other second-level courses may be re-taken for credit, but only five or more years after they were taken previously and only with the prior permission of the Faculty. Two versions of the same course may not both be used for credit towards the same degree or diploma, though one may be used towards one program (e.g., a Bachelor of Education or one diploma specialization) and a more recent version towards another program (e.g., a different diploma specialization). Basic curriculum and instruction courses and introductory courses without prerequisites may not be repeated.

Students should consult a program advisor in the Teacher Education Office to determine whether a specific course may be retaken.

Academic Appeal

An appeal generally falls into one of two categories:

- 1) request for review of the standing assigned in a course, or
- 2) protest of a decision relating to academic studies or practica.

For information concerning the procedures for initiating either of these, a student should see *Review of Assigned Standing*, p. 50, and *Senate Appeals on Academic Standing*, p. 51, in the chapter "Academic Regulations" in this Calendar.

In the Faculty of Education, appeals to the Dean related to initial and continuing professional education should be addressed first to the course instructor or, in the case of practica, the practicum coordinator. Students should refer to the *Bachelor of Education Student Handbook* for specific procedures.

Unclassified Students

Unclassified students are normally persons who hold degrees and are enrolled in course work not intended to lead to a particular degree or diploma.

Prior Programs

Students who previously qualified for a teaching certificate but who did not complete all degree requirements by 1993 and who wish to qualify for the Bachelor of Education (Elementary) may follow the two-year Bachelor of Education requirements (see *Elementary – Two-Year Option*, p. 196, under Degree Requirements for Elementary Teacher Education) as follows:

- 1) they must qualify for admission according to the current minimum admission requirements, with appropriate completed courses counted towards such requirements;
- 2) credit will be granted towards the requirements of the two-year program for appropriate completed courses and practica; and
- 3) those who have not taught within the previous 10 years may require updating courses and practica in addition to the minimum requirements of the program.

NITEP students who have not completed the previous four-year program may transfer to the current five-year NITEP program (see *Native Indian Teacher Education Program (NITEP) Option*, p. 195, Degree Requirements for Elementary Teacher Education) under similar arrangements.

Students preparing as technology education (industrial education) teachers who did not complete their five-year B.Ed. (Secondary) by 1993 may transfer to the current program (see *Technology Education Program Options*, p. 197, under Degree Requirements for Secondary Teacher Education) under similar arrangements.

Programs for the Improvement and Recertification of Teaching Qualification

Individuals who qualified for teaching certificates in BC or elsewhere but who do not currently hold valid BC certificates should first consult the BC College of Teachers for a ruling concerning their eligibility for a BC Certificate.

Persons who have a program of 18 or fewer credits of pedagogical courses plus practicum requirements of nine or fewer weeks duration prescribed as a condition of qualifying for a BC Teaching Certificate may be admitted as unclassified students (see *Unclassified Students*, p. 194). Normal program and course (including practicum) prerequisites will apply.

Those without a degree who hold a valid BC Teaching Certificate issued on the basis of preparation completed elsewhere (or on the basis of such studies plus the work indicated in point 2 of Prior Programs above), may pursue studies according to the two-year B.Ed. (Elementary) requirements (see point 1 of Prior Programs). A maximum of 36 advance credits will be allowed towards the 73 credits required for the two-year B.Ed. (Elementary).

Those who qualified as teachers outside BC but who do not qualify for a BC Teaching Certificate, as provided in point 2 of Prior Programs above, must normally proceed as new applicants to the program of Initial Teacher Education.

DEGREE REQUIREMENTS FOR NATIVE INDIAN TEACHER EDUCATION

Native Indian Teacher Education Program (NITEP) Elementary and Secondary Options

These program options are for persons of Aboriginal ancestry. They are designed to

incorporate Aboriginal personal and cultural resources and knowledge in preparation for teaching positions in BC elementary and secondary schools.

Both the NITEP Elementary and the NITEP Secondary Options are five-year concurrent programs. They include similar requirements for both liberal education and pedagogical preparation to those prescribed for students in the Elementary two-year option or the Secondary 12-month option but offer them in a different sequence. Persons of Aboriginal ancestry who qualify for university admission complete two years of studies at one of the NITEP field centres where the program consists of arts and science courses, pedagogical courses, and structured education placements. Students attend the UBC campus to complete remaining degree requirements.

NITEP ELEMENTARY OPTION

NITEP elementary education students qualify for the Bachelor of Education (Elementary) degree and the British Columbia Professional Teaching Certificate after completing all prescribed courses and practica. Students may qualify for a British Columbia Standard Teaching Certificate after completing a minimum of 128 credits.¹

Academic Component

English 100 level ²	6
English Composition ²	3
Mathematics ²	3
Canadian History/Geography	3
Laboratory Science ³	3
Canadian Studies	3
Senior credits in a teachable subject area or areas, as detailed in the <i>NITEP Handbook</i> .	18

First Nations Studies

EDUC 140	3
EDUC 141	3
EDUC 240	3
Academic Electives	42

Professional Component Common Core

ARTE 320	2
EDST 314	3
EDST 4**1	
EDUC 310	4
EDUC 315	0
EDUC 316	3
EDUC 321	0
EDUC 418	18
EDUC 420	2
EPSE 313	3
EPSE 317	3
EPSE 423	3
LLED 310	3
LLED 320	4
MAED 320	2
MUED 320	2
PETE 320	2
SCED 320	2
SSED 320	2

NITEP Concentration

CUST 396 (d)	3
EDUC 143	1
EDUC 244	2
EDUC 344	0
EDUC 345	0 ⁴
EDUC 441	3
EDUC 442	3
LLED 336	3
Total Credits	163

¹ Students should consult with NITEP regarding course planning. All courses must be university level. Courses should be 400-level.

² English and Mathematics must be completed in order to advance to third year.

³ SCED 190 fulfills this requirement.

⁴ EDUC 345 is a field experience, normally scheduled in May, following Winter Term 2.

In order to be promoted to fourth year, students must have completed at least 81 credits (including six credits of first year English and other required courses) and have achieved an average of 65% on their best 60 credits.

NITEP SECONDARY OPTION

NITEP secondary education students complete all required education courses offered in the field centres. The academic portion of the NITEP Secondary Option, however, differs significantly from that of the NITEP Elementary Option. During the program, NITEP secondary students must complete the course requirements necessary to present a Major, two Concentrations, or a Major and a Concentration as outlined for the admission requirements for the Secondary 12-month option. See *Secondary Teaching Field Requirements*, p. 190. In fifth year, NITEP Secondary Option students complete remaining degree requirements with students in the Secondary 12-month option.

Upon successful completion of the NITEP Secondary Option, students will graduate with a Bachelor of Education (Secondary) degree from the University of British Columbia and may apply for a Professional teaching certificate from the BC College of Teachers. (Students may also graduate with a second degree if they decide to work with other faculties to fulfil degree requirements within the academic portion of the program.)

To qualify for the Bachelor of Education degree, a student must normally complete all requirements within ten years of initial registration in the program. Although the total program may be completed in five academic years, many students find it convenient to take some courses during the summer sessions: up to 12 credits may normally be completed during a summer session. NITEP Secondary Option students are required to take summer session (term 3) in their fifth year.

Academic Component¹

English 100 level	6
English Composition	3
Academic Arts/Science prerequisites and/or Electives ³	24–30

Academic Component (Continued)¹

Academic Electives ³	24
Senior Academic Courses ⁴	24

First Nations Studies

EDUC 140	3
EDUC 141	3
EDUC 240	3

Professional Component Common Core

EDST 314	3
EDUC 311	4
EDUC 315	0
EDUC 316	3
EDUC 319	0
EDUC 329	18
EDUC 420	2
EPSE 306	2
EPSE 317	3
EPSE 423	3
LLED 301	4
One of: EDST 425, 426, 427, 428, 429, 452, 455	3

Curriculum and Instruction credits related to subject area(s) 6–8

Additional elective or prescribed courses as per registration guide for the summer term to be published at www.educ.ubc.ca/teacher_ed 6

NITEP Concentration

CUST 396 (d)	3
EDUC 143	1
EDUC 244	2
EDUC 344	0
EDUC 345 ⁵	0
EDUC 441	3
EDUC 442	3
LLED 336	3
Total Credits	162–167

¹ Students should consult with NITEP regarding course planning. All courses must be university level.

² English must be completed in order to advance to third year.

³ Includes requirements for teachable subjects.

⁴ Completes requirements for teachable subjects.

⁵ EDUC 345 is a field experience, normally scheduled in May, following Winter Term 2.

In order to be promoted to fifth year, students must have completed requirements for teachable subjects and have achieved a minimum average of 65% in these subjects.

DEGREE REQUIREMENTS FOR ELEMENTARY TEACHER EDUCATION

The elementary teaching program options allow candidates to focus their preparation on either Primary or Intermediate school teaching during their practica.

Specific program options include:

- 1) The 12-month option which extends over three consecutive university terms

(September to August) and is open to graduates holding acceptable four-year degrees (120 credits);

- 2) The two-year option which extends over two regular Winter Sessions (September to April) and is open to applicants who have completed a minimum of three years (90 credits) of appropriate post-secondary studies or who are degree holders;
- 3) Le programme en langue française which operates on the 12-month pattern and which is open to graduates holding acceptable four-year degrees (120 credits) and having satisfactory competence in oral and written French; and
- 4) The Native Indian Teacher Education Program Option which is a five-year concurrent program of liberal and pedagogical studies and which is open to persons of First Nations ancestry who qualify for University admission at the first year level.

Elementary: 12-Month Option

WINTER SESSION

Prospective teachers are introduced to the theoretical bases of modern educational practice and to strategies and methods of teaching, both in general and in relation to the subjects they are preparing to teach. Studies include analysis of the nature and objectives of education and of the developmental characteristics of learners. Attention is given to students' own interpersonal and communication skills and to strategies and methods of teaching. Structured classroom observations and teaching experiences (such as tutoring, peer teaching, and microteaching) are provided. Elementary students will prepare to teach all subjects at specific grade levels through curriculum and instruction courses in subjects offered as part of the elementary curriculum. Included are an intensive two-week practicum and a thirteen week practicum in a selected BC elementary school where students work with experienced teachers who have specially prepared for this supervisory and instructional responsibility. Faculty support, advice, and assessment are provided on a regular basis.

Elementary: 12-month option (Winter Session)

ARTE 320	2
EDST 314	3
EDUC 310	4
EDUC 315	0
EDUC 316	3
EDUC 321	0
EDUC 418A	7
EPSE 313	3
LLED 310	3
LLED 320	4
MAED 320	2
MUED 320	2
PETE 320	2
SCED 320	2
SSED 320	2

SUMMER SESSION

Following completion of the extended practicum, students return to the campus for studies designed to put their teaching competence in a more comprehensive framework of knowledge and understanding. Students attend classes during July and August to complete final degree and certification requirements.

Summer Session

EDUC 418B	11
EDUC 420	2
EPSE 317	3
EPSE 423	3
One of: EDST 425, 426, 427, 428, 429, 452, 455	3
Program Total (Winter and Summer Session)	61

Elementary: Two-Year Option

YEAR ONE

Prospective teachers are introduced to the theoretical bases of modern educational practice and to strategies and methods of teaching, both in general and in relation to the subjects they are preparing to teach. Studies include analysis of the nature and objectives of education and of the developmental characteristics of learners. Attention is given to students' own interpersonal and communication skills and to strategies and methods of teaching. Structured classroom observations and teaching experiences (such as tutoring, peer teaching, and microteaching) are provided. Elementary students will prepare to teach all subjects offered as part of the elementary curriculum. Included is an intensive two week practicum in a selected BC elementary school, to which students return for the extended practicum, where students work with experienced teachers who have specially prepared for this supervisory and instructional responsibility. Faculty support, advice, and assessment are provided on a regular basis.

First Year

ARTE 320	2
EDST 314	3
EDUC 310	4
EDUC 315	0
EDUC 316	3
EDUC 321	0
EPSE 313	3
EPSE 317	3
LLED 310	3
LLED 320	4
MAED 320	2
MUED 320	2
PETE 320	2
SCED 320	2
SSED 320	2

YEAR TWO

This year begins with an extended practicum in selected BC elementary schools. Students work closely with a team of experienced teachers who have specially prepared for this supervisory and instructional responsibility. Faculty

support, advice, and assessment are provided on a regular basis.

Following completion of the extended practicum, students return to the campus for studies designed to put their teaching competence into a more comprehensive framework of knowledge and understanding. The term includes elective or prescribed studies appropriate to the chosen teaching concentration for each student.

Second Year

EDUC 418	18
EDUC 420	2
EPSE 423	3
One of: EDST 425, 426, 427, 428, 429, 452, 455	3
Plus course work to complete a teaching concentration in an elementary school field	12
Program Total	73

DEGREE REQUIREMENTS FOR MIDDLE YEARS TEACHER EDUCATION

The Middle Years Teacher Education Program Option allows candidates to focus their preparation on teaching students from the ages of 10 to 14 years.

The total program includes the equivalent of two full academic years of courses and student teaching. The program is scheduled within a 12-month period (September to August), thus enabling students to qualify for a teaching certificate within one calendar year.

Middle Years Option

WINTER SESSION

After completing all program requirements, students are awarded the Bachelor of Education (Middle Years) degree and are normally eligible for a British Columbia Professional Teaching Certificate.

Prospective teachers are introduced to the theoretical bases of modern educational practice and to strategies and methods of teaching, both in general and in relation to the subjects they are preparing to teach. Studies include analysis of the nature and objectives of education and of the developmental characteristics of learners. Attention is given to students' own interpersonal and communication skills and to strategies and methods of teaching. Structured classroom observations and teaching experiences (such as tutoring, peer teaching, and microteaching) are provided. Students enrol in curriculum and instruction courses in other subject areas offered as part of the elementary curriculum. Included are an intensive two-week practicum and a thirteen week practicum in a selected BC school where students work with experienced teachers who have specially prepared for this supervisory and instructional responsibility. Faculty support, advice, and assessment are provided on a regular basis.

SUMMER SESSION

Following completion of the extended practicum, students return to the campus for studies designed to put their teaching competence in a

more comprehensive framework of knowledge and understanding. Students attend during July and August to complete final degree and certification requirements.

MIDDLE YEARS DEGREE REQUIREMENTS

Winter Session

EDST 314	3
EDUC 310	4
EDUC 315	0
EDUC 316	3
EDUC 323	0
EDUC 419A	7
EPSE 306	2
EPSE 317	3
LLED 310	3
LLED 320	4
MAED 320	2
Curriculum and Instruction credits related to teaching concentration	3-5
Curriculum and Instruction credits to complement teaching concentration from: ARTE 320, HMED 306, LLED 324, MUED 320, PETE 320, SCED 320, SSED 320, TSED 321	6-8

Summer Session

EDUC 419B	11
EDUC 420	3
EPSE 423	3
One of: EDST 425, 426, 427, 428, 429, 452, 455	3
Program Total	60-61

DEGREE REQUIREMENTS FOR SECONDARY TEACHER EDUCATION

The secondary teaching program prepares students to teach one or two subjects, depending on their prior background, in BC secondary schools.

The total program includes the equivalent of two full academic years of courses and student teaching. The program is scheduled within a 12-month period (September to August), thus enabling students to qualify for a teaching certificate within one calendar year.

After completing all program requirements, students are awarded the Bachelor of Education (Secondary) and are normally eligible for a British Columbia Professional Teaching Certificate. (See also *Technology Education Program Options*, p. 197, below.)

Winter Session

Prospective teachers are introduced to the theoretical bases of modern educational practice and to strategies and methods of teaching, both in general and in relation to the subject(s) they are preparing to teach. Studies include analysis of the nature and objectives of education and of the developmental characteristics of learners. Attention is given to students' own interpersonal and communication skills and to strategies and methods of teaching. Structured classroom observations and teaching experiences (such as tutoring, peer teaching, and microteaching) are provided. Students

prepare to teach in their teaching field with Curriculum and Instruction courses including four credits related to first teaching subject, and two to four credits related to second teaching subject. Included are an intensive two-week practicum and a thirteen-week practicum in a selected BC secondary school where students work with experienced teachers who have specially prepared for this supervisory and instructional responsibility. Faculty support, advice, and assessment are provided on a regular basis.

Secondary Option (Winter)

EDST 314	3
EDUC 311	4
EDUC 315	0
EDUC 316	3
EDUC 319	0
EDUC 329	18
EDUC 420	2
EPSE 306	2
EPSE 317	3
Curriculum and instruction credits related to subject area	6-8

Summer Session

Following completion of the extended practicum, students return to the campus for studies designed to put their teaching competence in a more comprehensive framework of knowledge and understanding. An opportunity is provided for them to enhance their subject-matter and/or pedagogical competence.

May to August

EPSE 423	3
LLED 301	4
One of: EDST 425, 426, 427, 428, 429, 452, 455	3
Additional electives or prescribed courses related to teaching subject(s)	9
Secondary Option Program Total	60-62

Technology Education Program Option

The Faculty of Education, in co-operation with the British Columbia Institute of Technology, offers a program option to prepare secondary school technology education teachers. The full post-secondary preparation for teachers of technology education consists of the equivalent of five academic years (150-152 credits) of liberal, technical, and pedagogical courses and school experiences.

- 1) 30 credits of Arts and/or Science
 - 6 credits of English Literature and Composition: all applicants must have completed 6 credits of English Literature and Composition prior to admission to the UBC Technology Education Program Option.
 - 24 additional credits of Arts and/or Science: the Faculty strongly recommends that all applicants have completed the remaining 24 credits in Arts/Science prior to admission to the UBC Technology Education program. However, those

who have completed the two year BCIT technology teacher education diploma, but who have not completed the remaining 24 credits of Arts/Science may also be considered for admission to UBC. Students who are admitted to the UBC Technology Education Program Option without completion of 24 credits in Arts/Science will **not** be recommended for conferral of the Bachelor of Education degree on completion of the program at the Faculty. (The students are recommended to the British Columbia College of Teachers for a standard certificate.) They must have completed all 24 remaining credits in Arts/Science before they become eligible for the B.Ed.

- Students who have completed academic requirements for a concentration or a major in another subject prescribed by the UBC Faculty of Education may also be admitted to both a major in technology education and a concentration or a major in the second subject and prepare to teach both subjects.

- 2) The two-year BCIT technology teacher education diploma or equivalent. Courses must include all of the following: information technology; materials and process technology; and systems integration technology.
- 3) The pedagogical studies component for a Technology Education major includes the same 60-62 credits that are required of all students in the secondary program option. This program is outlined in the Degree Requirements for Secondary Teacher Education (see above).

CAREER EDUCATION PROGRAM OPTION: CHEF EDUCATION SPECIALIZATION

The Faculty of Education offers two paths to a Bachelor of Education for the preparation of Career Education Teachers (CHEF Education) and subsequent certification. One path is via a concurrent program for holders of Letters of Permission issued by the British Columbia College of Teachers. The other is the post-degree path.

Path 1-The Concurrent Path for Career Education (CHEF Education)

FOUNDATIONS OF THE PROGRAM
The following program sequence is designed to lead to the B.Ed. (Secondary) degree and, in consequence, to Professional Teacher Certification. The program is designed to:

- Build upon trades qualifications and experience;
- Add a broad liberal education in Arts and Science subjects;
- Provide the professional pedagogical courses and practica required for secondary school teaching certification; and
- Provide the academic background for a second teaching subject at the secondary level.

Although the prior relevant trades preparation courses and practical work fall outside the range of normal university credit studies, the BC College of Teachers will recognize this work as equivalent to a Certification. Similarly, although the University does not grant formal credit for this work, it is taken into account. The B.Ed. degree is granted on the basis of a minimum of 121 credits (just over four standard years of university credit), consisting of 60 credits in Arts and/or Science subjects, 46 credits of professional pedagogical courses, and 15 credits of teaching practica. In summary, the preparation includes:

Interprovincial Trades Qualifications 'Red Seal'	30 credits
Arts and Science course work	60 credits
Pedagogical course work	46 credits
Teaching Practica	15 credits
Total	151 credits

Students are required to develop a second teaching subject by fulfilling the requirements as set out under "Secondary Teaching Field Requirements" in the Calendar or at the Teacher Education website (educ.ubc.ca/teacher_ed). The Arts and Science electives must be selected to fulfil the course work required for the second teachable subject.

ADMISSION REQUIREMENTS AND PREREQUISITES

Applicants seeking admission to UBC as a candidate in the Secondary Program of Initial Teacher Education: Career Education must have completed:

- 1) Interprovincial Trades Qualification "Red Seal" (Cook) or equivalent
- 2) A minimum of 30 credits of Arts and Science university transfer courses, including 6 credits of English Composition and Literature, and
- 3) 6 credits of Mathematics and/or Laboratory Science.

ARTS AND SCIENCE COURSES

It is expected that students in this program will complete their Arts and Science courses through a variety of means. University courses (including university transfer courses) completed at other post-secondary institutions (regional colleges or universities) either through face-to-face instruction or through distance education means will be recognized. Consistent with practice for other teacher education programs, such courses will not, however, be formally transferred to UBC and students will not receive a B.A. or B.Sc. degree from UBC. The program leads to the B.Ed. (Secondary) degree, and only the 61 credits of pedagogical courses and practica are actually incorporated into the degree program itself. Other specified requirements are, as for other candidates in the B.Ed. program, requirements for admission to the program or for re-admission to the continuing stages of the program.

PROGRAM SEQUENCE (SEQUENCE AND COURSE MAY VARY)

a. Summer I	
EPSE 306	2
EPSE 317	3
Arts and/or Science electives	6
Total credits for Summer I	11

b. Summer II	
EDUC 311	4
Curriculum & Instruction in Career Education, Chef Specialization	3
Arts and/or Science electives	3
Total credits for Summer II	10

c. Winter following Summer II	
EDUC 496, Part I	9
This practicum will normally be completed on an internship basis by those in regular employ as teachers in the Career Preparation program in BC Secondary schools. The Internship will be in this teaching field only.	

d. Summer III	
EDUC 316	3
LLED 301	4
Arts and/or Science electives	6
Total credits for Summer III	13

Candidates who have completed all of the above (a–d) are eligible to apply for the BC Development Standard Teaching Certificate issued by the BC College of Teachers.

e. Summer IV	
EDST 314	3
BUED 410	6
EDUC 412	3
Total credits for Summer IV	12

f. Completed on Personal Schedule	
Arts and/or Science Electives	15–30
(A minimum of 18 such credits, or 24 credits if selecting English as the second teaching area, must be at the third or fourth year level) Candidates who complete the above requirements (e and f) are eligible to apply for a regular Standard Teaching Certificate issued by the BC College of Teachers.	

g. Completed on Personal Schedule	
CNPS 427	3
EPSE 423	3
One of EDST 425, 426, 427, 428, 429, 452, 455	3
EDUC 420	2
Curriculum and Instruction in Second Subject: Secondary	4
EDUC 496, Part 2 ¹	6
Total credits	21
Credits needed to fulfil requirements for B.Ed. (Secondary)	21
Candidates who complete this full program (a–g) are eligible to apply for the B.Ed. (Secondary) and for the BC Professional Teaching Certificate.	

¹ The EDUC 496, Part 2, practicum will normally be completed on an internship basis by those in reg-

ular employ as teachers in the Career Preparation program in BC Secondary schools. The internship will be in both this teaching field and in the individual's selected second teaching subject. To qualify for such an internship, the individual must be teaching at least one-third of a full time-table in this second subject and must have classes in this subject at two or more grade levels.

Path 2—The Post Degree Path for Career Education Teachers (CHEF Education)

The foundation and goals are the same as the concurrent path.

Pre-admission requirements:

Interprovincial Trades Qualification 'Red Seal'	30
Arts/Science credits, to include:	
6 credits English Literature and composition	6
6 credits Mathematics and/or laboratory science	6
Additional Arts and Science courses including 18 senior credits (300–400 level) (24 if English) for a second teachable subject (see 'Secondary Teaching Field Requirements' indicated in Path 1, above)	48
Of these additional credits, a minimum of 18 credits at the third- and fourth-year level (24 credits if English) are required for a second teachable subject (see 'Secondary Teaching Field Requirements' indicated in Path 1 above)	

Pedagogical requirements:

See Degree Requirements for Secondary Teacher Education	60–62
Total Credits	150–152

PROGRAM SEQUENCE

Students first complete the 90 credit pre-admission requirements and then undertake the pedagogical requirements, which are the same as the regular degree requirements set out for Secondary Teacher Education, following the standard 12-month schedule.

CERTIFICATE OF QUALIFICATION

Students preparing to enter the teaching profession should inform themselves concerning teacher certification levels and teacher qualification levels.

TEACHER CERTIFICATION

Possession of a certificate of qualification to teach is mandatory for teaching within public elementary or secondary schools of British Columbia. The Teaching Profession Act has assigned the authority to the British Columbia College of Teachers to issue teaching certificates and to determine the classes of certificates of qualification issued. Persons convicted of, or given an absolute or conditional discharge on, a criminal offence and considering a teaching career, should write the Registrar, BC College of Teachers for clarification of their status before undertaking a teacher education program.

The Faculty reports to the BC College of Teachers at the end of each session the names of students who have satisfied requirements for BC

teacher certification. This report includes a copy of each student's UBC transcript but does not include copies of transcripts from any other institutions. Those not wishing to have their status reported and their transcripts forwarded to the college should inform the Associate Dean, Teacher Education, in writing at least one month before they complete teacher certification requirements.

Current information concerning the membership and certification requirements of the College can be obtained by writing directly to the British Columbia College of Teachers, #400–2025 West Broadway, Vancouver, BC, V6J 1Z6, tel: (604) 731-8170, fax: (604) 731-9142. Information is also available from the Teacher Education Office, Faculty of Education, Scarfe 103.

SUPERINTENDENTS' LISTING

The Faculty reports to each public School District Superintendent the names and addresses of students expected to qualify for initial teacher certification. This report includes program information but does not include birth date; copies of students' permanent records are not forwarded with this report. Those wishing to be excluded from this report should inform the Associate Dean, Teacher Education, in writing before January 15.

QUALIFICATION CATEGORIES

The Teacher Qualification Service (T.Q.S.), sponsored jointly by the BC Teachers' Federation and the BC School Trustees' Association, is an advisory service to teachers and school boards. The Service acts only on application by a teacher and only after the individual has been granted a British Columbia teaching certificate.

Qualifications are evaluated in categories assigned on the basis of years of professional preparation and programs completed. At present the Service recognizes six categories, each corresponding to the number of years of preparation acceptable to the Teacher Qualification Board. One of the years must be a professional year.

The Faculty reports to the BC Teacher Qualification Service at the end of each session the names of students who have satisfied requirements for BC teacher certification. This report does not include copies of any transcripts. Those not wishing to have their status reported to T.Q.S. should inform the Associate Dean, Teacher Education, in writing at least one month before they complete teacher certification requirements.

Request for evaluation forms are available from the Teacher Education Office, Faculty of Education and from the Teacher Qualification Service office at: 106–1525 West 8th Avenue, Vancouver, BC, V6J 1T5, telephone 604-736-5484, fax: (604) 736-6591, or on the Teacher Qualification Service website (www.tqs.bc.ca).

DIPLOMA IN EDUCATION

The Faculty of Education offers a diploma program with several fields of specialization within educational theory and practice. The

program provides structured sequences of academic and professional studies for teachers and others working in educational or instructional settings. Elementary teachers holding four-year degrees may take the program as a fifth year either to enhance their existing area of professional specialty or to develop a further one. For teachers who have already completed five years of recognized academic and professional studies, the program provides an opportunity to develop an additional area of professional competence. Most programs, if desired, can be planned to incorporate prerequisites for admission to a master's program. The Diploma in Education indicating the field of specialization will be awarded on successful completion of an approved program of study.

ADMISSION

Except for designated specializations, admission to the Diploma in Education normally requires a bachelor's degree or equivalent. Certain fields of specialization are open only to qualified and experienced teachers, and some have specific course prerequisites. Detailed information is available from the Teacher Education Office, Faculty of Education, the relevant departmental offices, and at the Teacher Education website (educ.ubc.ca/teacher_ed/diplomas_intro.html).

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 193, as listed under the Bachelor of Education.

DIPLOMA REQUIREMENTS

The diploma requires the completion of 30 credits of courses numbered 300 or above with an average of 65% or higher. In most specializations 12 to 18 credits of course work are designated as core requirements, while 12 to 18 credits may be selected from approved supporting or related courses. A maximum of 18 credits of appropriate courses completed at UBC previously and not credited towards the requirements of any other degree, diploma, or teacher certification program may be applied to a diploma program.

In order to qualify for the Diploma in Education, a student must complete all requirements for the selected specialization within five years. Completion of a diploma program does not satisfy any of the requirements for a BC teaching certificate.

RESIDENCE REQUIREMENTS AND TRANSFER OF CREDIT

In general there are no residence requirements for the Diploma in Education. In most specialization fields a diploma program may be completed on either a full-time basis over one academic year or on a part-time basis, either on or off campus. However, in certain designated fields the program may be completed only by full-time study during a regular Winter Session. A maximum of 12 credits of approved credit may be transferred from other institutions towards the requirements of the Diploma in Education.

FIELDS OF SPECIALIZATION

Fields of specialization include adult education, art education, business education, computing studies education, curriculum and instructional studies, early years education, teaching English as a second language, guidance studies, health education, home economics education, infant development and supported child care, language and literacy education, mathematics education, mathematics and science education, outdoor environmental education, physical education, science education, social studies, special education, teacher librarianship, technology studies education, and visual and performing arts in education.

CONTINUING PROFESSIONAL EDUCATION

The Faculty of Education makes credit and non-credit professional development programs available to practising teachers. These programs are often offered in conjunction with School Districts and Teachers' Associations. For further information, contact the Faculty's Office of External Programs and Learning Technologies (EPLT). Telephone 604-822-2013 or visit the Office of External Programs & Learning Technologies website (eplt.educ.ubc.ca).

GRADUATE PROGRAMS

Graduate programs in education are offered by various units in the Faculty of Education, as well as by the Faculty as a whole. For specific education graduate program descriptions and admission requirements, please see the specific program listing in the Faculty of Graduate Studies section of the calendar, or visit the website of the Education unit offering the program:

- Dept. of Curriculum Studies (cust.educ.ubc.ca)
- Dept. of Educational & Counselling Psychology, and Special Education (ecps.educ.ubc.ca)
- Dept. of Educational Studies (edst.educ.ubc.ca)
- Dept. of Language and Literacy Education (lled.educ.ubc.ca)
- School of Human Kinetics (hkin.educ.ubc.ca/School)
- Centre for Cross-Faculty Inquiry in Education (cfi.educ.ubc.ca)
- Master of Educational Technology (met.ubc.ca)

General information on graduate programs in education may also be obtained from the Office of Graduate Programs and Research (ogpr@interchange.ubc.ca) in the Faculty of Education; telephone 604-822-5512, fax 604-822-8971. Information is also posted to the Education graduate programs website: ogpr.educ.ubc.ca

MASTER'S DEGREES

Master's students are admitted to UBC by the Faculty of Graduate Studies on recommendation of the home department. The following policies and procedures govern all students registered in master's programs. Students are advised to check with their appropriate units regarding specific departmental policies and additional requirements relating to their graduate program.

The Master of Educational Technology (M.E.T.) is a Faculty of Education joint degree program offered online in partnership with *Tec de Monterrey*, p. 444, a Mexican University that specializes in online education. See *Educational Technology*, p. 247, under the Faculty of Graduate Studies section in this Calendar.

GRADUATE CERTIFICATES

Graduate Certificate in Technology-Based Distributed Learning (TBDL)

Networked multimedia technologies are impacting on both conventional classroom-based teaching and distance education. Technology-based teaching is being used more and more for distributed learning which makes flexible access possible for both on-campus and off-campus students. The Graduate Certificate in Technology-Based Distributed Learning (TBDL) is designed for professionals and educators responsible for managing, designing, or instructing technology-based courses for post-secondary or adult learners.

Admission, including language proficiency requirements, will be the same as for the Master of Educational Technology (met.ubc.ca) (M.E.T.).

Students in the TBDL certificate program may apply for admission to the M.E.T. and transfer up to five certificate courses towards completion of the degree program.

CERTIFICATE REQUIREMENTS

A student must complete five courses (15 credits) from the M.E.T. program. At least two must be core courses (EDUC 500, ETEC 510, 511, 512). Three courses will be selected from the remaining core courses and electives that address issues relevant to technology for post-secondary and adult learners (ETEC 520, 521, 522, 530, 531). All courses will be delivered online. Satisfactory progress as defined by the Faculty of Graduate Studies for master's programs must be maintained.

Graduate Certificate in Technology-Based Learning for Schools (TBLS)

Educational technologies are impacting on both conventional classroom-based teaching and distance education. The Graduate Certificate in Technology-Based Learning for Schools (TBLS) is directed at anyone concerned with managing, designing, or instructing technology-based courses for school-age students.

Admission, including language proficiency requirements, will be the same as for the Master of Educational Technology (met.ubc.ca) (M.E.T.).

Students in the TBLS certificate program may apply for admission to the M.E.T. and transfer up to five certificate courses towards completion of the degree.

CERTIFICATE REQUIREMENTS

A student must complete five courses (15 credits) from the M.E.T. program. At least two must be core courses (EDUC 500, ETEC 510, 511, 512). Three courses will be selected from the remaining core courses and electives that address issues relevant to technology for school-age students (ETEC 512, 522, 530, 531, 532, 533, 540). All courses will be delivered online. Satisfactory progress as defined by the Faculty of Graduate Studies for masters' programs must be maintained.

Tuition Fees

There will be a course-based tuition fee. Fees will be the same as for the M.E.T. For more information, please see the MET website (met.ubc.ca).

OFF-CAMPUS GRADUATE PROGRAMS

It may be possible for the Faculty of Education to organize graduate programs which have off-campus components offered at locations throughout BC. For further information, contact the Office of External Programs & Learning Technologies (oepl.educ@ubc.ca); telephone: 604-822-2013.

ACADEMIC UNITS

For specific education graduate program descriptions and admission requirements, please see the specific program listing in the Faculty of Graduate Studies section of the calendar, under *Degree Programs*, p. 229.

CENTRE FOR CROSS-FACULTY INQUIRY IN EDUCATION

Degrees Offered: *M.A., M.Ed., Ph.D.*

Program Overview

The Centre for Cross-Faculty Inquiry in Education (CCFI) offers M.Ed., M.A., and Ph.D. programs (EDCI) focused on themes that cut across areas of interest in the Faculty of Education. More information about these EDCI programs can be found on the CCFI website (ccfi.educ.ubc.ca). Master's-level programs (M.Ed. and M.A.) are also offered in Early Childhood Education (ECED), in coordination with the Institute for Early Childhood Education and Research (earlychildhood.educ.ubc.ca). Off-campus M.Ed. cohort programs (eplt.educ.ubc.ca/grad/) are also offered for both the ECED and EDCI programs.

Doctor of Philosophy

Candidates require a master's degree with high standing in a relevant discipline, a sample of scholarly work, a letter of intent describing the proposed focus of their cross-faculty program and the support of three academic referees. For students possessing a thesis-based master's degree from other than a relevant discipline, it

may be possible to proceed into the Ph.D. by taking, and achieving a high standing in, the core course requirements of an appropriate Master's Degree in Education at UBC.

Master of Arts and Master of Education

The M.A. (thesis) and M.Ed. (non-thesis, but with a graduating project capstone experience) programs can be completed on a part-time basis. In addition to the regular materials requested in the University's application, students should include a statement of their educational interests.

Contact Information

Centre for Cross-Faculty Inquiry in Education
Faculty of Education
2125 Main Mall
Vancouver, BC V6T 1Z4
CCFI Graduate Secretary
Tel: 604-822-6502
Fax: 604-822-8234
Email: ccfi.grad.secretary@ubc.ca
Website: ccfi.educ.ubc.ca

DEPARTMENT OF CURRICULUM STUDIES

Degrees Offered: *M.A., M.Ed., Ph.D.*

Program Overview

The Department of Curriculum Studies (cust.educ.ubc.ca) is one of four departments in the Faculty of Education. It offers M.Ed. and M.A. courses in specialized areas of art education, business education, curriculum studies, home economics education, mathematics education, music education, physical education, science education, social studies education, and technology studies education. It offers a Ph.D. in Curriculum Studies with a focus on the Department's areas of specialization.

Master's programs can be completed through part-time or full-time study. Both the M.Ed. and M.A. programs consist of at least 30 credits of course work at the 300 level or above with at least 24 credits of course work selected from courses numbered 500 or above. In addition, the M.Ed. program may include a graduating project (3 credits). The M.A. programs include completion of a thesis (9 credits).

Faculty members in the Department have research interests in assessment, constructivist approaches to teaching and learning, critical thinking and problem solving; curriculum development, change, implementation, and evaluation; environmental and outdoor education, family life education, gender theory and schooling, global and multicultural education, historical and social analysis of curriculum, cultural influences and issues in education, learning in informal environments; mathematical, scientific, technological and visual literacy; school-based collaborative research, health education, teacher education, and computer applications across the curriculum.

Applicants to master's programs are normally required to have two years of teaching experi-

ence. All applicants must submit with their applications a statement of intent clearly outlining their areas of interest and focus for study. Doctoral applicants are required to submit a sample of their writing.

Joint M.Ed. in Curriculum Studies and Educational Administration & Leadership

Please see the Department of Educational Studies (edst.educ.ubc.ca) for further details.

Contact Information

Department of Curriculum Studies
Faculty of Education
2125 Main Mall
Vancouver, BC V6T 1Z4
Ms. Basia Zurek, Graduate Secretary
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Website: cust.educ.ubc.ca

DEPARTMENT OF EDUCATIONAL AND COUNSELLING PSYCHOLOGY, AND SPECIAL EDUCATION

Degrees Offered: *M.A., M.Ed., Ph.D.*

Doctor of Philosophy

The Department of Educational and Counselling Psychology, and Special Education (ecps.educ.ubc.ca) offers programs of study leading to Ph.D. degrees in the following areas:

- Counselling Psychology
- Development, Learning, and Culture
- Measurement, Evaluation, and Research Methodology
- School Psychology
- Special Education

The Ph.D. in the Counselling Psychology program is accredited by the Canadian Psychological Association (CPA) and American Psychological Association (APA).

Academic performance is not the sole criterion for promotion to graduation or continuation in programs in the Department of Educational and Counselling Psychology, and Special Education. All program areas also require that candidates demonstrate interpersonal and ethical qualities commensurate with working in educational or counselling settings.

Master of Arts and Master of Education

The Department offers programs of study leading to master's degrees in the following areas:

- Counselling Psychology (CNPS): M.A. and M.Ed.
- Development, Learning, and Culture (DLAC): M.A. and M.Ed.
- Measurement, Evaluation, and Research Methodology (MERM): M.A. and M.Ed.
- School Psychology (SCPS): M.A. and M.Ed.
- Special Education (SPED): M.A. and M.Ed.

With the exception of School Psychology, all master's programs in the Department are available on a full-time or part-time basis.

Additional information about the master's programs is provided in the brochures related to the area of specialization.

Academic performance is not the sole criterion for promotion to graduation or continuation in programs in the Department. All program areas also require that candidates demonstrate interpersonal and ethical qualities commensurate with working in educational or counselling settings.

Prospective applicants are encouraged to visit the Educational and Counselling Psychology, and Special Education website (ecps.educ.ubc.ca).

Course descriptions for Counselling Psychology courses are listed with the CNPS subject code in the course description section of this Calendar. Courses for the Vocational Rehabilitation Counselling Program are listed with the VRHC subject code. Courses for all other program areas are listed with the EPSE subject code.

Contact Information

Department of Educational and Counselling Psychology, and Special Education
Faculty of Education
2125 Main Mall
Vancouver, BC V6T 1Z4
Karen Yan, Graduate Program Assistant
Tel: 604-822-6371
TDD: 604-822-8229
Fax: 604-822-3302
Email: karen.yan@ubc.ca
Website: ecps.educ.ubc.ca

DEPARTMENT OF EDUCATIONAL STUDIES

Degrees Offered: *M.A., M.Ed., Ed.D., Ph.D.*

Program Overview

The Department of Educational Studies (edst.educ.ubc.ca) is concerned with the study of education in a broad sense. It presents a combination of programs in adult and higher education and in educational administration and an interdisciplinary program in society, culture, and politics in education. The department is committed both to meeting traditional program needs and to developing innovative and integrated approaches to emerging issues in education. The M.A./M.Ed. programs in Adult and Higher Education develop scholars and reflective practitioners able to shape society and its institutions in ways that promote lifelong education and learning for all. The M.A./M.Ed. programs in Educational Administration prepare students for leadership positions in K-12 education administrative and teaching roles. The Society, Culture, and Politics in Education (SCPE) M.A./M.Ed. programs offer opportunities for interdisciplinary study of social justice issues through core themes of gender and feminist perspectives, multiculturalism and anti-racism, First Nations Studies and class.

The Department also offers a specialization in First Nations education for students of aborigi-

nal descent who register in the Ts"Kel program. The Department also offers a joint M.Ed. in Curriculum Studies and Educational Administration & Leadership, a joint M.Ed. in Educational Administration and Special Education, and an online M.Ed. in Adult Learning and Global Change. The master's programs can be taken on a part- or full-time basis. The Ed.D. in Educational Leadership and Policy is designed for experienced educators with leadership or policy responsibilities in a wide variety of educational settings. The Ph.D. in Educational Studies offers the opportunity to study a wide range of educational issues from perspectives represented in the Department's specializations. Graduates of the department are well qualified for leadership positions in their chosen fields. A high proportion of the graduates from the doctoral programs occupy teaching and research positions in post-secondary institutions or other agencies in Canada and elsewhere, or senior positions in school systems.

Students admitted to the Department's programs have a wide range of undergraduate qualifications and often will have some years of professional experience in education or a related field. Applicants are asked to provide (in addition to the forms, references, transcripts, and other material required by the Faculty of Graduate Studies) a statement of their scholarly and professional interests and aspirations. These are considered carefully in admissions decisions.

Course work in the M.Ed. and M.A. programs is a minimum of 30 credits, consisting of core and elective courses, depending on the specialization chosen. Some of the Department's M.Ed. programs require a graduating paper in which the student explores concepts, previous research, or the application of his or her knowledge to the field of practice. All M.A. programs require a thesis reporting the results of the student's original research. The Ed.D. is designed for working professionals and includes 24 credits of required and elective courses, a comprehensive examination and a thesis. The Department's Ph.D. program requires a doctoral seminar, a comprehensive examination and such courses as are decided in consultation with one's advisor. These are tailored to each student's particular interests and to the development of his or her doctoral research.

Master of Education in Adult Learning and Global Change

An intercontinental, web-based, coursework-only professional master's degree focusing on adult learning within the context of global change. This is a collaborative program involving, in addition to UBC, Linköping University (Sweden), University of the Western Cape (South Africa), and University of Technology, Sydney (Australia). The curriculum covers forms of adult learning found in different cultural contexts and the role of learning in understanding and responding to globalizing forces and their impacts on workplaces, communities, economies, and the environment. Students proceed through the two-year, 30-

credit program as a cohort drawn from the four participating institutions.

Admission and other requirements: UBC applicants must meet the admission requirements of the Faculty of Graduate Studies. They must supply a writing sample, letters of reference and a letter of intent, and demonstrate English proficiency. When required, the minimum TOEFL score is 600 (paper based) or 250 (computer based), or the equivalent for other tests of English proficiency. Applicants are reminded that reliable and regular email and Internet access are essential in the program.

Joint Master of Education in Curriculum Studies and Educational Administration and Leadership

This program combines requirements of the M.Ed. in Educational Administration and Leadership and the M.Ed. in Curriculum Studies in equal proportions. Core courses are CUST 562 and 566 and EADM 581 and 582. Other requirements include 3 credits from curriculum leadership (CUST 563, 564 or approved elective), 3 credits from curriculum issues (CUST 565, 568, or approved elective) 3 credits from policy (EADM 554, EDST 500, 531, 570, 576, 577, 578 or approved elective), 3 credits from clinical applications (EADM 502, 561 or 598), 3 credits from research (EDUC 500, 503, 504, CUST 510, 512, EADM 501, 508 or EDST 513, 514), and 3 credits for a portfolio, graduating paper, or the equivalent for a total of 30 credits.

Applicants are reviewed by the Departments of Curriculum Studies and Educational Studies; both sets of admission criteria apply. If accepted, students are admitted to the department of first contact and application. A co-advisor is appointed from each department to oversee each student; all courses are approved by both co-advisors. The dual designation CUST/EADM appears on students' transcripts.

Ts"kel Graduate Studies in Education

Ts"kel is a Halq'emeylem word for Golden Eagle. Ts"kel facilitates Aboriginal participation and Indigenous perspectives in UBC masters and doctoral programs through 1) a concentration of courses in First Nations/Indigenous education, and 2) research supervision from First Nations/Indigenous faculty. Students must be admitted to a masters or doctoral program at UBC in order to take the Ts"kel concentration. Ts"kel is primarily for Aboriginal students enrolled in the Faculty of Education; however, Aboriginal students from other faculties may complete the Ts"kel concentration.

Ts"kel offers academic, social, cultural, and emotional support in collaboration with the First Nations House of Learning. Students who complete the Ts"kel concentration receive a silver pin at the Longhouse Graduation Ceremony.

CONCENTRATION OF COURSES

Students complete two core courses and two electives for the Ts"kel concentration. The courses include:

- Core course, EADM 508a, Introduction to

First Nations Research and Methodology

- Core course, EADM 508b, Indigenous Research and Epistemology
- Two elective courses of First Nations/Indigenous content. These courses are chosen in consultation with the student's supervisory committee.

Research Supervision:

Dr. Michael Marker and Dr. Jo-ann Archibald serve as primary supervisors for many First Nations students. Professor Graham Smith (Distinguished Maori Scholar) is presently connected with Ts"kel. Additionally, an expanding number of Indigenous faculty are affiliated with Ts"kel and serve on graduate research committees.

Satisfactory progress as defined by the Faculty of Graduate Studies for Master's programs must be maintained.

Contact Information

Department of Educational Studies
Faculty of Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Ms. Lynda McDicken, Graduate Secretary
Tel: 604-822-5374 (general)
Tel: 604-822-6647 (graduate secretary)
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Web: edst.educ.ubc.ca

DEPARTMENT OF LANGUAGE AND LITERACY EDUCATION

Degrees Offered: *M.A., M.Ed., Ph.D.*

Program Overview

The Department of Language and Literacy Education (www.lled.educ.ubc.ca) offers programs and courses leading to the Master of Education, Master of Arts, and Ph.D. in Language and Literacy Education (LLED). Program areas within LLED are Literacy Education (LITR), which includes English, Drama and Reading Education, Teaching English as a Second Language (TESL), Modern Language Education (MLED), and Teacher Librarianship (LIBE). The department also offers a Certificate Program in TESL. They also participate in the cross-departmental Masters of Arts Degree in Children's Literature (MACL).

The Department of Language and Literacy Education includes scholars in a comprehensive range of language and literacy-education related fields. These fields relate to the teaching of the following subjects:

- Literacy Education (LITR) – composition, early literacy, content area literacy, drama, adult literacy, family literacy, children's and young adult literature, oral language, poetry, Aboriginal literacy, and multimodal approaches to literacy learning
- English as a Second Language (TESL) – TESL methods, applied linguistics, UBC/Ritsumeikan Joint Academic Exchange Program

- Teacher Librarianship (LIBE) – cooperative program planning, school library organization and management, school library automation
- Modern Languages (MLED) – French Immersion, French as a First and Second Language, Asia Pacific language and curriculum study, and other modern languages

The Department of Language and Literacy Education is committed to excellence in scholarship, teaching, and professional leadership and is responsive to Canada's multicultural, multilingual context. Its goal is to advance the study of language learning, and the teaching and learning of language, literacy, and literature in their broadest frames of reference including perspectives from poststructuralism, socio-cultural theory, and curriculum theory.

Graduate courses in research in the various subject matter fields as well as departmental doctoral seminars are offered on a rotating basis. Department members are actively involved with graduate students in local, provincial, national, and international research. A complete listing of individual faculty research interests may be found on the LLED website (lled.educ.ubc.ca). A limited number of teaching assistantships and research assistantships are available to exceptionally qualified students.

The Department of Language and Literacy Education operates a state-of-the-art computer integrated language laboratory in *UBC Ritsumeikan House*, p. 445, and a Language Education Research Centre, in Ponderosa Annex F, with multimedia facilities, special book collections, and language and literacy education curriculum materials. Video production facilities are also available for faculty and graduate students.

Contact Information

Department of Language and Literacy Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Ms. Anne Eastham, Graduate Programs Assistant
Tel: 604-822-5788
Fax: 604-822-3154
Email: anne.eastham@ubc.ca
Website: lled.educ.ubc.ca

ACADEMIC STAFF

DEPARTMENT OF EDUCATIONAL AND COUNSELLING PSYCHOLOGY, AND SPECIAL EDUCATION

Cay Holbrook, Interim Head

Professors

Norman E. Amundson, B.A., M.A. (Sask.), Ph.D. (Alta.); Marshall N. Arlin, B.A. (Maryknoll), M.A. (Fordham), Ph.D. (Chic.); William A. Borgen, B.Sc., M.Ed., Ph.D. (Alta.); Judith C. Daniluk, B.A. (Windsor), M.Sc., Ph.D. (Calg.); Hillel Goelman, B.A. (Rutgers), M.A. (Tufts), Ph.D. (Tor.); Shelley Hymel, B.S., M.A., Ph.D. (Ill.); Sharon E. Kahn, B.A. (Wash.), M.Ed. (Boston), Ph.D. (Arizona State); Bonita C. Long, B.Ed., M.A., Ph.D. (Br.Col.); Sandra Mathison, B.A. (Alta.), M.A., Ph.D. (Ill., Urbana-Champaign); Pat Miranda, R.N. (Mass.), M.A., Ph.D. (Wisc.); Marion Porath, B.Ed., M.A. (Br.Col.), Ph.D. (O.I.S.E., Tor.); Linda Siegel, B.A. (Qu.), M.S., Ph.D. (Yale); Marvin J. Westwood, B.Ed., M.Ed., Ph.D. (Alta.); Richard A. Young, B.A. (Loyola), B.Ed. (Montr.), M.Ed., Ed.D. (McG.); Bruno Zumbo, B.Sc. (Alta.), M.A. (Car.), Ph.D. (Car.).

Associate Professors

Mary Bryson, B.A. (Tor.), M.Ed. (Tulane), Ph.D. (O.I.S.E., Tor.); Marla Buchanan, B.A. (Mc.M.), M.A. (Lesley Coll.), M.A., Ph.D. (Vic.B.C.); Deborah L. Butler, B.A. (Calif., San Diego), M.A. (Br.Col.), Ph.D. (S. Fraser); Kadriye Ercikan, B.A. (Hon.) (Essex), M.S., Ph.D. (Stan.); Ruth A. Ervin, Ph.D., M.Ed., B.A. (Lehigh, Pa.); Laurie Ford, B.Sc., M.Sc. (Oklahoma, Stillwater), Ph.D. (Kansas, Lawrence); Beth E. Haverkamp, B.A. (Wooster), Ph.D. (Minn.); Cay Holbrook, B.A., M.A., Ph.D. (Flor. State); Anita Hubley, B.A. (Car.), M.A. (Vic.B.C.), Ph.D. (Car.); F. Ishu Ishiyama, B.A. (Concordia, Alta.), M.Ed. (McG.), Ph.D. (Vic.B.C.); Janet R. Jamieson, B.A. (New Br.), M.A. (Gallaudet), Ph.D. (McG.); Nand Kishor, B.Ed., M.A. (S.Pacific), Ph.D. (Br.Col.); Rod McCormick, B.A. (Car.), B.Ed. (Qu.), M.A. (Vic.B.C.), Ph.D. (Br.Col.); Nancy E. Perry, B.A., M.A. (S.Fraser), Ph.D. (Mich.); Kimberly Schonert-Reichl, B.S. (Ill. State), B.A. (Chic.), Ph.D. (Iowa); Izabela Schultz, B.A., M.A., Ph.D. (Warsaw).

Assistant Professors

Susan James, B.A., (Hons.) (Wat.), Ph.D. (Ott.); Joseph Lucyshyn, B.S. (Ill.), M.S. (Oregon), Ph.D. (Oregon); William McKee, B.A., M.A. (Br.Col.), Ph.D. (L.S.U.); Lynn D. Miller, B.A. (Colorado), M.A. (Arizona), M.A. Counselling, Ph.D. (Colorado); Jennifer Shapka, B.B.A. (S.Fraser), M.A., Ph.D. (O.I.S.E., Tor.); Jennifer Vadeboncoeur, Ph.D. (C.-Boulder), M.A. (C.-Boulder), B.S. (N.-Tennessee).

Lecturers

Colleen Haney, B.Ed., M.P.E., Ed.D. (Br.Col.); Elizabeth Jordan, B.A. (Mass. State Coll.), M.Ed. (Maine), Ed.D. (Br.Col.).

DEPARTMENT OF CURRICULUM STUDIES

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Professors

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B.A., M.A. (Oxf.), Ph.D. (Nott.); Wayne Ross, A.B., M.A.T. (N.Carolina), Ph.D. (Ohio); Peter Seixas, B.A. (Swarthmore), M.A. (Br.Col.), Ph.D. (Calif., L.A.).

Associate Professors

Ann Anderson, B.S., B.Ed., M.Ed. (Nfld.), Ph.D. (Alta.); Anthony Clarke, Dip. Physical Education (Melb.), H.D.T.S. (Math), B.Ed. (Melb. State Coll.), M.A., Ph.D. (Br.Col.); Linda Farr Darling, B.A., M.Ed. (New Hampshire), Ph.D. (Br.Col.); Peter Gouzouasis, B.Mus., M.M.E., Ph.D. (Temple); Kit Grauer, B.Ed., M.A. (Br.Col.), M.A. (Stan.), Ph.D. (S.Fraser); Harry Hubbard, B.Sc. (Brighton), M.A., Ph.D. (Br.Col.); Don Krug, B.Sc., M.A., Ph.D. (Wisc.); Jolie Mayer-Smith, B.Sc., M.A. (Stan.), Ph.D. (Br.Col.); Karen A. Meyer, B.A., M.S. (Calif., San Diego), Ph.D. (Br.Col.); Cynthia Nicol, B.Sc., Prof. Tch. Cert. (Vic.B.C.), Ph.D. (Br.Col.); Stephen Petrina, B.Sc. (Calif.), M.A., Ph.D. (Maryland); Ann Phelan, B.Ed. Hons. (N.U.I.), M.A.Ed., Ed.D. (Virginia); Walter Werner, M.Ed. (Calg.), Ph.D. (Alta.).

Assistant Professors

David Anderson, B.A. (Q'ld.U.T.), M.Ed., Ph.D. (Q'ld.U.T.); Joy Butler, Cert.Ed. (Nonington College), B.Ed. (Lond.), CMS (South East Kent College), M.Ed., Ph.D. (Boston); Penney Clark, B.A. (S.Fraser), M.Ed. (Alta.), Ph.D. (Br.Col.); Susan Gerofsky, B.A. (Tor), M.A. (Durham), Tch. Cert., Ph.D. (S.Fraser); Scott Goble, B.A. (Seattle), M.M. (Wash.), Ph.D. (Mich.); Samia Khan, BSc., B.Ed., (Alta.), M.Ed., Ph.D. (Mass.); Lisa Loutzenheiser, B.A. (Calif.), M.A., Ph.D. (Wis.); Samson Nashon, B.Ed. (Nairobi), Dip. Ed., M.Ed. (Leeds), Ed.D. (O.I.S.E., Tor.).

Instructor

Charlene Morton, B.Mus. (Acad.), M.Ed. (W.Ont.), Ed.D. (Tor.).

DEPARTMENT OF EDUCATIONAL STUDIES

Kjell Rubenson, Acting Head

Professors

Kogila Adam-Moodley, B.A. (Natal), M.A. (Mich. State), Ph.D. (Br.Col.); Roger Boshier, B.A., Ph.D. (Well.); Daniel J. Brown, B.Sc., M.A. (Br.Col.), A.M., Ph.D. (Chic.); Donald Fisher, B.Soc.Sc. (Birm.), Ph.D. (Calif., Berkeley); Deirdre Kelly, B.A. (Calif., Santa Clara), M.A. (Tufts), Ph.D. (Stan.); Dan Pratt, M.S. (St. Cloud State Coll.), Ph.D. (Wash.); Kjell Rubenson, B.A., Ph.D. (Gothenburg); Carolyn M. Shields, B.A., M.A. (Qu.), Ph.D. (Sask.); Graham H. Smith, B.A., M.A., Ph.D. (Auck.); Thomas J. Sork, B.S., M.Ed. (Colorado), Ph.D. (Flor.); Veronica Strong-Boag, B.A. (Tor.), M.A. (Car.), Ph.D. (Tor.); Charles S. Ungerleider, B.A. (Calif., San Francisco), M.A. (Col.), Ed.D. (Mass.).

Associate Professors

Lesley Andres, B.Sc.N., B.Ed., M.Ed. (Lakehead), Ed.D. (Br.Col.); Jo-ann Archibald, B.Ed. (Br.Col.), M.Ed., Ph.D. (S.Fraser); Shauna Butterwick, B.Sc., M.A., Ph.D. (Br.Col.); David Coulter, M.A., M.Ed. (McG.), Ph.D. (S.Fraser); Jo-Anne Dillabough, B.A. (W.Ont.), M.A. (Br.Col.), Ph.D. (McG.); Frank H. Echols, B.S. (Flor. State), M.A., Ph.D. (Georgia); Mona Gleason, B.A. (W.Ont.), M.A. (Windsor), Ph.D. (Wat.); Michael Marker, B.A. (E. Wash.), M.Ed. (W. Wash.), Ph.D. (Br.Col.); Andre Mazawi, B.A., M.A., Ph.D. (Tel Aviv); Wendy Poole, B.A. (Mt. All.), B.Ed. (Acadia), M.Ed. (Mt.St. Vin.), Ph.D. (Syr.); Leslie Roman, B.A. (Texas), M.S., Ph.D. (Wis.); Allison R. Tom, B.A. (Wesleyan), M.A., Ph.D. (Stan.); Daniel Vokey, B.A. (Concordia), M.A. (Car.), M.Ed. (Qu.), Ph.D. (Tor.); Pierre Walter, M.A., Ph.D. (Wis.); Handel Wright, B.A. (Sierra Leone U.), M.A. (Windsor), M.Ed.(Qu.), Ph.D. (Tor.,O.I.S.E.).

Assistant Professors

Jennifer Chan-Tiberghien, B.Soc.Sc. (H.K.), M.B.A. (HEC), M.A., Ph.D. (Stan.); Amy Metcalfe, B.A., M.A., Ph.D. (Arizona); Claudia Ruitenber, B.A. (Rotterdam Polytechnic), M.Ed. (Nott.), Ph.D. (S.Fraser); Michelle Stack, B.A. (Alta.), M.A. (Car.), M.A., Ph.D. (Toronto, OISE).

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Geoff Williams, Head

Professors

James Anderson, B.A., B.Ed., M.Ed. (Nfld.), Ph.D. (Alta.); Stephen Carey, B.A. (Br.Col.), M.Sc. (Mich.), M.A., Ph.D. (Tor.); Marilyn Chapman, B.Ed. (Br.Col.), M.Ed. (W. Wash.), Ph.D. (Vic.B.C.); Patricia Duff, B.A. (Calg.), M.A. (Hawaii-Manoa), Ph.D. (Calif., L.A.); Lee Gunderson, M.A. (San Francisco State), Ph.D. (Calif., Berkeley); Ronald Jobe, B.Ed. (Alta.), M.A., Ph.D. (Minn.); Carl Leggo, B.A., B.Ed. (Nfld.), M.A., M.Ed. (New Br.), Ph.D. (Alta.); Bonny Norton, B.A. (Witw.), M.A. (R'dg.), Ph.D. (O.I.S.E., Tor.); Victoria Purcell-Gates, B.S. (Northern Arizona), M.A., Ph.D. (Berkeley); Kenneth Reeder, B.A. (Br.Col.), M.A. (Essex), Ph.D. (Birm.); Jon Shapiro, B.A., M.S. (N.Y. State), Ph.D. (Syr.); Robert J. Tierney, Dip. Teaching (William Balmain Teachers Coll. Aust.), B.Sc. (Education) (Jacksonville State), M.Ed., Ph.D. (Georgia); Geoffrey Williams, B.Ed. (Syd.), M.A. (Syd.), Ph.D. (Macquarrie); John Willinsky, B.A. (Laurentian), M.Ed. (Tor.), Ph.D. (Dal.).

Associate Professors

Marlene Asselin, B.A. (Northwestern), M.A., Ph.D. (Br.Col.); Margaret M. Early, B.Ed., M.A. (Br.Col.), Ph.D. (Calif., L.A.); Maureen Kendrick, B.Ed., M.Ed., Ph.D. (Alta.); Theresa Rogers, B.A. (William Smith, N.Y.), M.A. (Harv.), Ph.D. (Ill., Urbana-Champaign); Ling Shi, B.A. (E. China Normal), M.A. (Lanc.), Ph.D. (Tor.); Gloria Tang, B.A., M.Ed. (H.K.), Ed.D. (Br.Col.).

Assistant Professors

George Belliveau, B.A. (Dal.), B.Ed. (Mt.All.), M.A. (Tor.), Ph.D. (Br.Col.); Monique Bournot-Trites, B.A., M.A., Ph.D. (Br.Col.); Teresa Dobson, B.A., M.A., Ph.D. (Alta.); Jan Hare, B.A., Sc. (Guelph), D.Ed. (Nipissing), M.Ed. (W.Ont.), Ph.D. (Br.Col.); Carmen L. Medina, B.A. (Puerto Rico-Cayey), M.A., Ph.D. (Ohio State); Steven Talmy, B.A. (Wesleyan), M.A. (Wash.), Ph.D. (Hawaii-Manoa).

Instructor

Margot Filipenko, B.Ed., M.Ed., Ph.D. (Br.Col.).

TEACHER EDUCATION

Sydney Craig, B.A., M.A. (Alta.), Ed.D. (Br.Col.), Director of Teacher Education; Rita L. Irwin, B.Ed, Dip.Ed. (Leth.), M.Ed. (Vic.B.C.), Ed.D. (Br.Col.), Associate Dean, Teacher Education, Professor of Art Education & Curriculum Studies; Gary Rupert, B.A., M.Ed., (Vic.B.C.) Program Coordinator, Student Services; Robert Shoofey, B.Sc. (Concordia), Dip.Ed. (McG.), M.Ed. (Br.Col.), Program Coordinator (Elementary and Middle Years Practica); Sheila TeHennepe, B.Ed., M.Ed. (S.Fraser), Program Coordinator, Student Services; Gail Wynston, B.A., (York), M.A. (Br.Col.), Special Projects Coordinator; John Yamamoto, B.Ed., Program Coordinator (Secondary Practica).

ADMINISTRATIVE STAFF

Valerie Rose, Director of Finance & Administration.

**CENTRE FOR CROSS-FACULTY
INQUIRY IN EDUCATION**

F. Graeme Chalmers, Director.

**CENTRE FOR THE STUDY OF
HISTORICAL CONSCIOUSNESS**

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**CENTRE FOR THE STUDY OF
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Co-Director.

**CENTRE FOR POLICY STUDIES IN
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EDUDATA CANADA

Victor Glickman, Director.

**INSTITUTE FOR EARLY
CHILDHOOD EDUCATION AND
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**NATIVE INDIAN TEACHER
EDUCATION PROGRAM (NITEP)**

Jackie Agostinis, B.A. (Vic.B.C.), Dip. Ed. (Br.Col.),
Lecturer; Karen Blain, B.Ed. (Br.Col.), Lecturer;
Lucetta George-Grant, B.Ed. (Br.Col.), Lecturer ;
Felicity Jules, B.Ed., M.Ed. (Br.Col.), Lecturer; Marny
Point, B.Ed., M.E.T. (Br.Col.), Lecturer.

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**OFFICE OF GRADUATE PROGRAMS
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Deborah Butler, Associate Dean.

SCHOOL LEADERSHIP CENTRE

Mark Edwards, Director.

2006-07

9 The Faculty of Forestry

Dean's Office

J. N. Saddler, Dean
P. Marshall, Associate Dean,
Undergraduate Studies
C. Prescott, Associate Dean,
Graduate Studies and Research
2005–2424 Main Mall
Vancouver, BC V6T 1Z4
Telephone: 604-822-2727
Fax: 604-822-8645

Forestry Website (www.forestry.ubc.ca)

The Faculty of Forestry offers four-year degree programs leading to the Bachelor of Science in Forestry with Forest Resources Management and Forest Operations Majors, Bachelor of Science in Natural Resources Conservation, Bachelor of Science in Wood Products Processing, and the Bachelor of Science (Forestry) in Forest Science. The Faculty offers elective Co-operative Education Programs to students in these programs. The Faculty also offers the Diploma in Forestry (Advanced Silviculture) and the Diploma in Forest Engineering. An international specialization option is available in the Forest Resources Management and Forest Science programs. The Faculty's graduate degrees include the *Master of Forestry*, p. 251, *Master of Science*, *Master of Applied Science*, and *Doctor of Philosophy*. Information on Forestry's graduate programs can be found under "Degree Programs" within the *Faculty of Graduate Studies*, p. 229, section of this Calendar.

The Faculty of Forestry is favourably situated for educating men and women as foresters, wood scientists, forest business administrators, renewable resources managers, and forest biologists. It enjoys the benefits of a large university with good libraries and other facilities for study. The Faculty is based in a state-of-the-art 15,000 square metre building. In addition to the lecture and laboratory classrooms, the Faculty supports three research forests in the southcoast, north and central interior regions, totalling almost 25,000 hectares. Formal field classes, special studies, and professional exercises are conducted by students at all of these forests. The Faculty of Forestry also supports the *Centre for Applied Conservation Research*, p. 74, a specialized research centre. The Forest Engineering Research Institute of Canada, *Pulp and Paper Research Institute of Canada*, p. 82, and the Western Laboratory of Forintek Canada

Corporation are on-campus facilities which cooperate in teaching and research in engineering and forest products. The Centre for Advanced Wood Processing, located adjacent to the Forest Sciences Centre, provides a direct link between the wood processing industry and the University.

BACHELOR OF SCIENCE IN FORESTRY (B.S.F.)

The Bachelor of Science in Forestry program is designed to prepare students for entry into the profession of forestry. Education within the Faculty of Forestry can also serve as a foundation for entry into other professions such as teaching, law, engineering, and biology.

The B.S.F. program contains several integrated courses and labs requiring fieldwork and two extra-session field courses. Students must be prepared to participate in field trips off-campus (including some weekends and evenings) and to pay the extra costs associated with these field trips. It is each student's responsibility to make the necessary arrangements regarding employment, extra-curricular activities, personal commitments, and so on, so that they are able to participate fully in required field trips.

With the changing demands on foresters and the importance of articulating positions on social/forestry issues, orally and in writing, emphasis will be placed on developing students' communication skills. Opportunities to develop written and oral skills will be integrated into courses throughout the program.

PROGRAM APPROVAL AND ADVISING

As part of the registration procedure each student must select a program of courses within the limitations of the requirements for the degree and course schedules. All new students are advised to contact the Director of Student Services (candace.parsons@ubc.ca) at 604-822-3547 for program advising. Returning students should contact their program advisor for program approval. In case of conflicts between individual students and their faculty advisors, the student may appeal to the Associate Dean, Undergraduate Studies. It is the student's responsibility to select a schedule that allows attendance of all regularly scheduled lectures and laboratories.

ADMISSION

Students may apply to enter the B.S.F. program with varying educational preparation:

- 1) directly from secondary school graduation;
- 2) following completion of university-level work at UBC or the equivalent at another post-secondary institution;
- 3) after the completion of a two-year forestry diploma program at a recognized college or institute of technology; or
- 4) from an approved one- or two-year forestry transfer program at a BC college.

The majority of applicants from secondary school will be admitted on the basis of admission average, calculated as the average of four specified Grade 12 subjects. Students entering from secondary school must have met the general University entrance requirements including Mathematics 12, and one of Chemistry 12 or Physics 12 (see *Admissions*, p. 13).

Meeting the minimum academic requirements outlined in this chapter and in *Admissions*, p. 13, does not guarantee admission to these programs. Due to limited enrolment, the admission of applicants will be determined competitively on the basis of admission average; however, preference may be given to those applicants who have indicated the Faculty of Forestry as their Faculty of first choice.

Broader Based Admission

Up to ten applicants from secondary school who meet minimum academic requirements, but who do not meet the required competitive average for admission, may be selected for admission by the admissions committee of the Faculty of Forestry on the basis of additional information provided on a supplementary application form. Such applicants may also be interviewed. All applicants who do not meet the admission-average cutoff for early admission will be sent a copy of this form, with an invitation to submit it for possible consideration by the Admission Committee. Submission is optional. The Admission Committee will consider all applicants who submit a supplementary application form and who have a final grade minimum average equal to or above the minimum average for admission to the University (67%). The Admissions committee will consider the following information when making their decision:

- program-related work, community or volunteer experience
- field experience
- completion of high school courses related to program (if offered)
- recent awards, honours or recognition
- participation in school clubs and organizations
- two reference letters from people who can give further information about your academic performance, extra-curricular activities, or work/volunteer experience
- your reasons for choosing the Faculty of Forestry (as outlined in a brief essay)
- extenuating circumstances that may have affected your GPA.

Application for admission by students or graduates of other universities, colleges, or other faculties will be reviewed individually. It may be possible to design study programs for such applicants that meet Forestry degree requirements in less than the full four years. Transfer students may be required to validate advanced standing in a given subject by passing an examination.

Students who enter the B.S.F. program following the completion of at least 24 credits of work at UBC, or its equivalent at another post-secondary institution, must have attained an overall average of at least 60% in all credits attempted. Students entering with less than 24 credits of university-level work must also meet the secondary school requirements outlined above.

Applicants graduating from a two-year forestry technology diploma program must have achieved an overall average of at least 65% in their program, plus have the required secondary school courses as outlined above. Consideration will be given to individual cases of study in determining the exemptions that may be applied to the B.S.F. program.

Students must select one of two Major programs: Forest Resources Management or Forest Operations. Applicants who are uncertain about the selection of a Major, and those who lack some of the required courses but may have other advance credit, are urged to consult the Director of Student Services in the Faculty of Forestry.

To be eligible for the second year of Forest Resources Management or Forest Operations majors, students must have completed 30 credits or more of university-level work, including BIOL 120; MATH 100 and 101 (or [102 or 180] and 103 for the Forest Resources Management Major); and 18 credits selected from the following courses: three credits from 100-level English (ENGL 112 recommended); either CHEM (111 or 112) or PHYS (100 or 101) or an equivalent; ECON 101 and 102; FRST 231; FRST 232; SOIL 200; AGRO 244 (or GEOG 204); PHYS 170 (Forest Operations Major only) or up to six credits of social science electives.

Students who complete the above courses will be placed in second year. Students who enter

with less than 30 credits will normally take two additional years to reach third year.

ACADEMIC REGULATIONS

Graduation Requirements

In order to graduate, students must meet the course requirements for their major. This requires a minimum of four years of university study.

Examinations and Advancement

The University regulations concerning examination and advancement apply. See *Academic Assessment*, p. 46, and *Advancement Regulations*, p. 48. In addition, the Faculty of Forestry sets the following requirements:

- 1) Only those students who have completed at least 27 credits towards the required in-session program will be considered for awards. The standing of students taking more than 27 credits will be determined on the basis of 27 credits required, chosen in a manner most advantageous to the student.
- 2) Students who wish to drop courses may do so within two weeks of the start of the course for one-term courses and three weeks for two-term courses, by obtaining permission from the appropriate undergraduate advisor. After this deadline courses may only be dropped under exceptional circumstances and with the approval of the Associate Dean. Those who fail to write the final examination or who do not complete other course requirements and when circumstances do not warrant deferred standing, will be assigned an 'F' standing. Supplemental privileges will not be granted in such instances.
- 3) Honours standing upon graduation will be granted to those students who have obtained at least an overall average of 82% in all 300- and 400-level credits taken within their program, with no failures or supplementals. 'With Honours' will be noted on their transcript and degree certificate.
- 4) The passing mark in Forestry is 50%. In subjects comprising both lecture and laboratory or problem sessions, the candidate must pass both. If a candidate fails to obtain 50% the faculty may, at its discretion, award a pass in that subject on the basis of a good aggregate standing. Such a pass will be entered on the record of the candidate as an adjudicated pass.
- 5) If a student fails a course and is required to take it again, exemption from the laboratory or problem session portion of such a course may be granted.
- 6) First year students must pass at least 60% of credits undertaken and achieve an overall average grade of at least 60% or be required to withdraw from the Faculty for at least one year. Completion of at least 30 credits is required for promotion to second year. In subsequent years, students who do not pass at least 60% of the credits undertaken and achieve an overall average of 55%, will be required to withdraw from the Faculty for at least one year. Students who do not complete all required courses for their program year will not be promoted to the next program year, but may register in a subsequent session.
- 7) Students registered in first year that attain a Winter Session average of at least 55% but less than 60% may, at the discretion of the Adjudication, Advancement and Scholarship Committee, be placed on Academic Probation. Students registered in subsequent years that attain a Winter Session average of at least 50% but less than 55% may, at the discretion of the Adjudication, Advancement and Scholarship Committee, be placed on Academic Probation. Students assigned Academic Probation in one session will be removed from Academic Probation if, in a following Winter Session, they pass all courses and attain an average of at least 60% on a minimum of 24 credits.
- 8) A candidate who does not complete requirements for graduation in May following fourth year, will be required to register for all incomplete courses, in a subsequent session (summer or winter), and will be assessed the prescribed fees for these courses. Students who do not complete FRST 497 (B.S.F. Essay), FRST 498 (B.Sc. Thesis), WOOD 493 (Wood Processing Project), CONS 498 (Thesis or Special Project) in their fourth year must complete these requirements in time for graduation in the fall of the following year. Students who do not complete these requirements within the specified period of time must formally register in a subsequent session and may be required to take additional courses related to the thesis or project topic.
- 9) Students who have not achieved a Language Proficiency Index (LPI) score of 5 or 6 prior to completing 30 credits of Forestry-eligible courses taken at UBC, will normally be required to withdraw from the Faculty of Forestry. See *Exemptions*, p. 120, under LPI Requirements for First-Year English in the Faculty of Arts section.

Dean's Honour Roll

Any student who achieves 82% on their best 27 credits in the current session with no fails or supplementals on any courses taken will receive the notation 'Dean's Honour Roll' on their transcript. Students must have taken a minimum of 27 credits in the current session to qualify. Grades obtained by students registered in a Study Abroad and Exchange Program during the Winter Session will be considered. Students in a Cooperative Education program, who are registered at UBC for only one term in Winter Session because of a co-op placement, are eligible if they take at least 15 credits, with no fails or supplementals, for that term.

Supplemental Examinations

In addition to University regulations governing supplemental examinations (see *Deferred and*

Supplemental Examinations, p. 47, the Faculty of Forestry will apply the following guidelines for the granting of supplemental examinations:

- 1) Supplemental examination privileges will be granted in a course provided:
- 2) the normal final exam has been written and a grade submitted;
- 3) the grade attained is at least 40%; and
- 4) the overall average for the year including the failed courses is at least 60%.
- 5) Notwithstanding eligibility under point 1, supplemental examination will not be granted if:
- 6) the failure is due to a substandard performance in the laboratory part of a course.
- 7) In departments outside the Faculty of Forestry, supplementals are not offered.
- 8) In no case shall supplemental examination privileges be granted in more than two courses or more than nine credits, whichever is the lower.

Courses

Students from other faculties may take the courses offered in Forestry provided they have the necessary prerequisites, but in all such cases permission of the instructor must be obtained.

Courses for Graduate Students

Formal lecture courses or seminars are indicated by a single credit value assigned to them. In all problem and research courses, as indicated by a variable number of credits, individual laboratory or field investigations or reviews of literature are usually planned to serve the special interests of individual students. When several students have a similar interest in advanced study, formal lectures or seminars may be given. Staff members other than those directing graduate programs may direct studies in specialized topics for interested students, on the recommendation of the students' program supervisors.

Undergraduate students with the necessary background and permission of the instructor may be allowed by the Dean to register in a regularly-scheduled graduate lecture course in Forestry.

FOREST RESOURCES MANAGEMENT MAJOR

The Forest Resources Management major is designed to educate adaptable professionals with a comprehensive understanding of the discipline, an ability to acquire specific knowledge and skills as required, and the confidence to play a decision-making role in a wide variety of resource management situations. Graduates, after appropriate work experience and examination, may be eligible for registration as professional foresters in various Canadian provinces.

Students are provided with an introduction to the biological, physical, and social sciences upon which forest resource management is based, and a working knowledge of the characteristics of forest resources, their interactions, and the ways in which they can be managed to yield a socially desirable mix of goods and

services. Students will also gain an understanding of the political and socio-economic environment in which forestry is practised; and an appreciation for the historical and ethical foundations of the profession. Throughout the program, emphasis is placed on encouraging communication skills, both oral and written, creative thinking, critical analysis, and professional pride.

For students entering the Faculty of Forestry from secondary school, the program consists of 131 or 132 credits of in-session courses. For those students entering the Faculty of Forestry from first-year university (or its equivalent), the program consists of a minimum of 97 credits of in-session courses normally taken over a three-year period. For students entering the Faculty of Forestry with a two-year Forestry Technical Diploma from a BC college or institute of technology, the program consists of 93 or 94 credits normally taken over a three-year period.

STUDENTS ENTERING FROM SECONDARY SCHOOL

First Year	
ENGL 100-level	3
BIOL 111 and 121 ¹	6
CHEM 121 (111) or PHYS 101 (100) ²	4 or 3
ECON 101	3
MATH 100 or 102 ³	3
FRST 100	2
SOIL 200	3
FRST 231	3
FRST 232	3
Total Credits	29 or 30
FOPR 162 immediately following First Year	2

Second Year	
FRST 200	7
FRST 201	7
FRST 239	3
CONS 200	3
FOPR 262	3
AGRO 244 (or GEOG 204)	3
Elective ⁴	6
Total Credits	32
FRST 351 immediately preceding third year	2

Third Year	
FRST 305	3
FRST 306	3
FRST 308	2
FRST 309	2
FRST 318	3
FRST 327	2
FRST 339	3
FRST 385	3
FRST 386	3
FRST 395	3
CONS 370	3
FOPR 365	2
Total Credits	32
FRST 452 immediately following third year	2

Fourth Year

2 of CONS 481, FRST 470, FRST 491 ⁵	6
FRST 415	3
FRST 424	10
FRST 497	2
WOOD 465	3
WOOD 474	2
WOOD 492	3
Electives ⁶	3
Total Credits	32

¹ Students with Biology 12 should replace BIOL 111 with three credits of electives.

² CHEM 111 and PHYS 100 are intended for students without CHEM 12 and PHYS 12, respectively. If students do not have Grade 12 level in both sciences, they are encouraged to select a science not taken at the Grade 12 level.

³ Students who had less than a C+ average in Math 12 must take the non-credit MATH 099 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives requirement.

⁴ Electives taken in Second Year must include 3 credits of social science or a course chosen in consultation with a program advisor.

⁵ The remaining course may be taken as an elective if so desired.

⁶ Electives chosen from courses numbered 200 and above.

Transfer Students

Students entering from first-year university or equivalent must complete all required first and second year courses that were not completed at their previous institution(s) before entering third year. The third and fourth year requirements are the same as listed above.

BC Forestry Technology Graduates

Students entering after graduating with a two-year Forestry Technical Diploma from an approved BC college or institute of technology will receive a one-year exemption. They will enter a special second year program before proceeding to the regular program in Years Three and Four.

Second Year	
ENGL 100-level	3
BIOL 111 ¹	3
CHEM 111 or 121 or PHYS 100 or 101 ²	4 or 3
ECON 101	3
MATH 100 or 102 ³	3
FRST 200	7
FRST 231	3
SOIL 200	3
Total Credits	28 or 29
FRST 351 immediately preceding third year	2

Third Year	
FRST 305	3
FRST 306	3
FRST 318	3
FRST 339	3
FRST 385	3
FRST 386	3

Third Year (Continued)

FRST 395	3
CONS 200	3
CONS 370	3
FOPR 365	2
Total Credits	29
FRST 452 immediately following third year	2

Fourth Year

Two of CONS 481, FRST 470, FRST 491 ⁴	6
FRST 415	3
FRST 424	10
FRST 497	2
WOOD 465	3
WOOD 492	3
WOOD 474	2
Electives ⁵	3
Total Credits	32

¹ Students with Biology 12 should replace BIOL 111 with three credits of electives.

² CHEM 111 and PHYS 100 are intended for students without CHEM 12 and PHYS 12, respectively. If students do not have Grade 12 level in both sciences, they are encouraged to select a science not taken at the Grade 12 level.

³ Students who had less than a C+ average in Math 12 must take the non-credit MATH 098 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.

⁴ The remaining course may be taken as an elective if so desired.

⁵ Electives chosen from courses numbered 200 and above.

FOREST RESOURCES MANAGEMENT (SPECIALIZATION IN INTERNATIONAL FORESTRY)

The Forest Resources Management (Specialization in International Forestry) program combines aspects of forest resources biology and management with developing a global perspective of forest management issues increasingly required for careers in Forestry both in Canada and abroad. The objective of this program is to produce graduates who have a good science foundation, a second language, cultural sensitivity, and both academic and first-hand knowledge of forestry abroad.

The program includes core courses in forest ecology, stand management, silvicultural systems, forest protection, fisheries, hydrology and integrated resource management that are common to the Forest Resources Management program. In addition, to fulfil the International Forestry component, students must select a regional specialization. Students choose from either Asia Pacific, Europe, the Americas, or other region with the approval of a program advisor.

Within the regional specialization, the program requires 12 credits of relevant language other than English, a pre-approved study abroad exchange for a minimum of one term or work experience for a minimum of 13 weeks and relevant course work in the economic, cultural, and political/historical situation of the region selected.

Enrolment in the Forest Resources Management (Specialization in International Forestry) program is limited. To apply for admission, students are required to have a minimum academic standing of 70%. Students can apply to the program after completing 21 credits from the first-year courses (or their equivalent). Graduates receive a Bachelor of Science in Forestry (B.S.F.) and may be eligible for registration as a professional forester. The program consists of a minimum of 146 or 147 credits. Application forms are available after January 15 from the Faculty of Forestry's International Programs Office. Completed application forms and transcripts from all post-secondary institutions attended must be received by the International Programs office by May 15. Applicants will be notified by June 30 whether they have been accepted into the program.

FOREST RESOURCES MANAGEMENT/ INTERNATIONAL FORESTRY

First Year

ENGL 100-level	3
BIOL 111 ¹ and 121	6
CHEM 111 or 121 or PHYS 100 or 101 ²	3 or 4
ECON 101	3
MATH 100 or 102 ³	3
FRST 100	2
FRST 231	3
FRST 232	3
Language ⁴	6
SOIL 200	3
Total Credits	35 or 36
FOPR 162 immediately following First Year	2

Second Year

Language ⁴	6
FRST 200	7
FRST 201	7
FRST 239	3
CONS 200	3
FOPR 262	3
Region-Specific ⁵ Elective ⁶	3
Total Credits	32
FRST 351 immediately preceding third year	2

Third Year

FRST 305	3
FRST 306	3
FRST 308	2
FRST 309	2
FRST 318	3
FRST 327	2
FRST 339	3
FRST 385	3
FRST 386	3
FRST 395	3
FOPR 365	2
Region-Specific Area of Concentration ⁵	3
Region-Specific ⁵ Elective ⁶	3

Third Year (Continued)

Total Credits	35
FRST 452 immediately following third year International Experience ⁷	2

Fourth Year

FRST 415	3
FRST 424	10
FRST 439	3
FRST 491	3
FRST 497	2
WOOD 465	3
WOOD 474	2
WOOD 492	3
Region-Specific Area of Concentration ⁵	6
Region-Specific ⁵ Elective ⁶	3
Total Credits	38

¹ Students with Biology 12 should replace BIOL 111 with three credits of electives.

² Select the subject not taken at the Grade 12 level.

³ Students who had less than a C+ average in Math 12 must take the non-credit MATH 012 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.

⁴ Students who pass an oral proficiency test for a language relevant to their regional specialization are required to choose 12 additional credits of program electives approved by a program advisor.

⁵ Students may choose Asia Pacific, America or Europe as their region of specialization. Other regions can be considered with the approval of an advisor.

⁶ Electives must be approved by a program advisor.

⁷ Met by participation in one of the following: UBC's Education Abroad Program or a study abroad or work internship abroad designed by the student with pre-approval by a program advisor. The Faculty of Forestry cannot guarantee the placement of any student in a study abroad exchange.

FOREST OPERATIONS MAJOR

The Forest Operations Major prepares the graduate for a full range of professional responsibilities associated with forest land use. The program includes core courses in forest ecology, stand management, silvicultural systems, forest protection, fisheries, hydrology, wildlife, and integrated resource management that are common to the Forest Resources Management Major. Graduates are eligible for registration as registered professional foresters (RPF) after appropriate work experience and examination.

The major is divided into two main specialization options:

- 1) Harvest Planning & Engineering
- 2) Commerce (Minor in Commerce)

For students entering the Faculty of Forestry from secondary school, this program major consists of 134 credits. For those students entering the Faculty of Forestry from first-year university (or its equivalent), transfer credits are assigned to equivalent UBC courses. For students entering the Faculty of Forestry with a two-year Forestry Technical Diploma from a BC college or institute of technology, the

program consists of 99 credits normally taken over a three-year period.

STUDENTS ENTERING FROM SECONDARY SCHOOL

First Year	
ENGL 100-level	3
BIOL 111, 121 ¹	6
ECON 101	3
MATH 100 ²	3
FRST 100	2
FRST 231	3
FRST 232	3
SOIL 200	3
Specialization Option and Electives	6
Total Credits	32
Plus FOPR 162 immediately following First Year	2
Second Year	
FRST 200	7
FRST 201	7
FRST 239	3
FOPR 262	3
FOPR 288	3
CONS 200	3
Special Option and Electives	6
Total Credits	32
Plus FRST 351 immediately preceding third year	2
Third Year	
FRST 305	3
FRST 306	3
FRST 308	2
FRST 309	2
FRST 318	3
FRST 327	2
FRST 339	3
FRST 395	3
FOPR 365	2
Specialization Option and Electives ³	9
Total Credits	32
Plus FRST 452 immediately following third year	2
Fourth Year	
FRST 415	3
FRST 424	10
FRST 497	2
FOPR 459	3
WOOD 465	3
WOOD 474	2
WOOD 492	3
Specialization Option and Electives	6
Total Credits	32

¹ Students with Biology 12 are exempt from BIOL 111. Substitute PHYS 100 if needed (exempt with PHYS 12) or CHEM 111 (exempt with CHEM 12). If none of these courses are needed, an elective may be substituted.

² Students who had less than a C+ average in Math 12 must take the non-credit MATH 098 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 (3 credits), but the credit difference cannot be

applied towards program electives. Students planning to obtain a PEng after graduating require MATH 100 & 101.

³ Students taking the Commerce Minor should take FRST 318 in second year in place of 3 elective credits. The three credits in third year are then moved to the specialization option credits.

Note: Some elective or specialization courses may carry credits in addition to the above table.

Transfer Students

Students entering from first year university or equivalent must complete all first and second year courses not completed during their previous studies before entering third year. The third and fourth year requirements are the same as listed above.

BC Forestry Technology Graduates

Students entering after graduating with a two year Forestry Technical Diploma from an approved BC college or institute of technology receive exemptions from several first, second, and third year courses. Students enter directly into second year and follow a modified second and third year program. The fourth year program is identical to that specified for students entering directly from secondary school.

Second Year	
ECON 101	3
ENGL 100-level	3
PHYS 100 ¹ or BIOL 111 ¹ or CHEM 111 ¹	3
MATH 100 ²	3
FRST 200	7
FRST 231	3
FOPR 288	3
SOIL 200	3
Specialization Option and Electives	3
Total Credits	31
Plus FRST 351 immediately preceding third year	2
Third Year	
FRST 305	3
FRST 306	3
FRST 318	3
FRST 339	3
FRST 395	3
FOPR 365	2
CONS 200 or 370	3
Specialization Option and Electives	12
Total Credits	32

¹ Select a science subject not taken at the Grade 12 level. Students that require PHYS 170 for their specialization who do not have Physics 12 or its equivalent must complete PHYS 100 prior to completing PHYS 170. If none of these courses are needed, an elective may be substituted.

² Students who had less than a C+ average in Math 12 must take the non-credit MATH 098 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives. Students planning to pursue registration as a professional engineer (PEng) require MATH 100 and 101.

Specialization Options

The following courses are required for the specialization option chosen by the student. One of the two options is required for graduation. The following tables correlate to the four-year degree program. Students in a three-year degree program (BC Forestry Technology Graduates) should adjust the elective credits (add or delete) as needed.

HARVEST PLANNING AND ENGINEERING OPTION

The Harvest Planning and Engineering Option offers specialized courses in geotechnical engineering, forest road design and location, planning of forest operations at the stand and landscape levels, engineering and economic analysis of logging systems, and forest transportation systems. In addition, graduates of this specialty have the unique skills that are needed to analyze, plan, and implement a wide range of silviculture, logging, and transportation systems which are key elements in forest management. Some graduates of this specialty choose to take additional courses in mathematics and applied science to obtain eligibility for registration as a professional engineer (P.Eng.) in addition to a professional forester (RPF).

First Year	
PHYS 170 ¹	3
MATH 101 or Elective ²	3
Total Specialization Credits	6
Second Year	
Electives	6
Total Specialization Credits	6
Third Year	
FOPR 359	3
FOPR 363	3
WOOD 376	3
Total Specialization Credits	9
Fourth Year	
FOPR 463	3
FOPR 464	3
Total Specialization Credits	6

¹ Students in the three-year program may take PHYS 170 in third year.

² Students planning to pursue registration as a professional engineer (P.Eng.) require MATH 101.

Commerce Option (Minor in Commerce)

Students who desire a stronger foundation in business may consider the Minor in Commerce. Upon successful completion of this minor

program, the notation 'Minor in Commerce' will be placed on the student's transcript.

Enrolment in this program is limited. Applications for admission can be obtained from the Faculty of Forestry Student Services and must be submitted by May 15. For an application to be considered, the student must be eligible for at least third-year standing in the Faculty of Forestry (Operations Major) with a cumulative average of at least 68% in the previous two years. Completion of ECON 101 (or ECON 310) and ECON 102 (or ECON 311) is required. Meeting the stated minimum requirement does not guarantee admission into the Minor.

Students may require an additional term to complete the Minor in Commerce.

First Year	
ECON 102	3
Elective ¹	3
Total Specialization Credits	6

Second Year	
FRST 318	3
Electives ²	3
Total Specialization Credits	6

Third Year	
COMM 399 or 458 ¹	3
COMM 457	3
COMM 329	3
COMM 465	3
Total Specialization Credits	12

Fourth Year	
COMM 473	3
COMM 493	3
Total Specialization Credits	6

¹ For the Commerce Minor, FRST 318 is taken in second year. The credits in third year are replaced with a COMM course.

² PHYS 170 is required for some recommended electives in third and fourth year.

BACHELOR OF SCIENCE IN NATURAL RESOURCES CONSERVATION

The B.Sc. (Natural Resources Conservation) is an interdisciplinary program designed to prepare students for careers in the conservation of renewable natural resources, the management of protected areas, and landscape and regional level planning for the integrated use of terrestrial and aquatic ecosystems. The program provides students with a solid foundation across several disciplines that reflect the multi-faceted character of conservation issues and conservation research. These include the natural and social sciences underlying the conservation and management of natural resources, an appreciation for the political and socioeconomic contexts that affect the design and outcomes of conservation and management strategies, and a working knowledge of technologically advanced tools and quantitative techniques available to renewable resources

planners and managers. Throughout the program, emphasis is placed on developing communication skills, both oral and written, including approaches to public participation in natural resources planning and the techniques of conflict resolution.

ADMISSION

The Faculty of Forestry will accept applications from students with varying educational preparation:

- directly from secondary school graduation, or
- following completion of at least 24 credits at UBC or its equivalent at another post-secondary institution.

Students entering from secondary school must have met the general University entrance requirements (see the chapter *Admissions*, p. 13, in this Calendar) and have completed Mathematics 12 and Chemistry 12. Students who enter following completion of at least 24 credits of work at UBC or its equivalent at another post-secondary institution, must have attained an overall average of at least 60% in all credits attempted. In the case of transfer students,

consideration will be given to individual cases of study in determining the transfer credit that may be applied to the natural resources conservation program. Graduates of a one- or two-year diploma program in a related discipline may be considered for course exemptions that may be applied towards the degree. Such students must have achieved an overall average of at least 65% in their diploma program, plus have the entrance requirements listed above. Further details can be obtained from the Director of Student Services in the Faculty of Forestry.

See also *Broader Based Admission*, p. 205, as listed under "Admission" under Bachelor of Science in Forestry (B.S.F.).

See also *Program Approval and Advising*, p. 205, as listed under Bachelor of Science in Forestry (B.S.F.).

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 206, as listed under Bachelor of Science in Forestry (B.S.F.).

DEGREE REQUIREMENTS

For students entering the Faculty of Forestry from senior secondary school, the program consists of a minimum of 123 in-session credits, normally taken over a four-year period.

First Year	
BIOL 111, 121, and 141 ¹	7
CONS 101	1
ECON 101 and 102	6
ENGL 100-level	6
MATH 100, 102 or 104 ²	3
SOCI 100 ³	6
SOIL 200	3
Total Credits	32

Second Year	
CONS 200	3
FRST 200	7
FRST 201	7
FRST 231 ⁴	3
FRST 232	3
GEOG 101, or GEOG 102 and GEOG 103	6
Elective	3
Total Credits	32

Third Year	
CONS 330	3
CONS 340	3
CONS 481	3
FRST 318 ⁵	2
FRST 385	3
FRST 386	3
FRST 395	3
FRST 495	3
SOCI 360	3
Elective	3
Total Credits	29

Fourth Year	
CONS 440	3
CONS 451 ⁶	15
FRST 443	3
CONS 486	3
CONS 498 or elective ⁷	3
Elective ⁸	3
Total Credits	30

¹ Students with Biology 12 should replace BIOL 111 with three credits of electives. BIOL 140 (2) may be taken in place of BIOL 141 (1); however, the extra credit may not be used towards meeting the total elective requirements for the program.

² Students who had less than a C+ average in Math 12 must take the non-credit MATH 012 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.

³ Students may take a 200-level SOCI (three credits) and another social science course (three credits) in place of SOCI 100. The latter course must be chosen in consultation with the program director.

⁴ Could be replaced with BIOL 300.

⁵ Could be replaced with ECON 371 or 374 (3 credits).

⁶ An integrated course taught in the Term 1. Registration is restricted to this course only during Term 1 and only to students in fourth year of NRC program.

⁷ Elective must be a course numbered 300 or above.

⁸ Elective must be a course numbered 300 or above. To be chosen in consultation with the program advisor.

Courses Toward Registration as a Professional Forester in British Columbia

Students in the B.Sc. (Natural Resources Conservation) program who wish to work towards membership in the Association of BC Forest Professionals are advised to contact the Director of Student Services in the Faculty of Forestry for information on appropriate courses to add to their program.

Courses Toward Registration as a Professional Biologist in British Columbia

Students in the B.Sc. (Natural Resources Conservation) program who wish to work towards membership in the College of Applied Biology of BC (CABBC) are advised to include the following courses in their program: MATH 101 or 103, PHYS 100-level (6), CHEM 100-level (6) BIOL 200 and 201 or BIOL 204 and 205, FRST 302, and one of BIOL 322, 336, 414, 415, 418, or 430. Students wishing to take these courses must complete the necessary prerequisites or have permission of the instructor. Students should contact the CABBC directly for information on their individual requirements. Course requirements are subject to change without notice.

BACHELOR OF SCIENCE IN FORESTRY (B.SC. [FORESTRY])

Forest Science is an academically challenging program for students interested in the biology and dynamics of forest ecosystems. The objective of the program is to develop professionals who understand the dynamics of, and conduct research in, forested ecosystems. The program provides a strong foundation for careers involving the biological and environmental aspects of forestry, forest conservation, research, and teaching.

The program consists of a minimum of 131 credits of course work.

The first two years of the program have a strong core of foundation courses to ensure scientific breadth. No later than the start of third year, students must select an area of concentration, such as forest ecology, forest entomology or pathology, forest fire science, forest genetics or biotechnology, forest hydrology and aquatic sciences, forest soils, tree physiology, silviculture, conservation biology, or wildlife ecology. Each area of concentration consists of 12 credits of course work. It is expected that the 6 credit thesis be in the area of concentration. Students must also select 18 credits from a pool of Forestry Electives. Specific academic packages to suit the interests and needs of individual students can be designed. All Forest Science Majors must have their program of study approved by the Forest Sciences Program Director.

The recommended program of studies is given below. Part-time students or students with advanced credit should consult the Forest Sciences Program Director before registering in an amended program

ADMISSION

General admission requirements to the Bachelor of Science (Forestry) Forest Science Major are the same as those for the Bachelor of Science in Forestry (B.S.F.). See *Admission*, p. 205, as listed under Bachelor of Science in Forestry (B.S.F.).

To be eligible for second year of the Forest Science Major, students must have completed six

credits of first-year English; BIOL 121 and 140 and one of BIOL 111 or Biology 12; MATH 100 and 101 (or 102 or 103); and CHEM 111 and 113 or 123 and 122. The program is designed to allow completion in three years following at least one year (30 credits) of university-level work.

See also *Broader Based Admission*, p. 205, under "Admission" as listed under Bachelor of Science in Forestry (B.S.F.).

See also *Program Approval and Advising*, p. 205, as listed under Bachelor of Science in Forestry (B.S.F.).

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 206, as listed under Bachelor of Science in Forestry (B.S.F.).

DEGREE REQUIREMENTS

FOREST SCIENCE

First Year	
ENGL 100-level	6
BIOL 111, 121, and 140 ¹	8
CHEM 121 (111) and 123 (113)	8
MATH 100 and 101 or MATH 102 and 103 ²	6
FRST 100	2
SOIL 200	3
AGRO 244 (or GEOG 204)	3
Total Credits	36

Second Year	
BIOL 200	3
BIOL 201	3
CHEM 233 and 235	4
FRST 200	7
FRST 201	7
FRST 231 (or BIOL 300)	3
Elective ³	3
Total Credits	30

Third ⁴ and Fourth Years	
FRST 302	3
Two of FRST 308, 309, 327	4
FRST 395	3
FRST 399	3
FRST 430	3
FRST 495 or BIOL 416	3
FRST 498 ⁵	6
Area of concentration ⁶	12
General Electives	9
Forestry Electives ⁷	18
Total Credits	64
Plus FRST 351 immediately preceding third year	2

¹ Students with Biology 12 should replace BIOL 111 with three credits of electives.

² Students who had less than a C+ average in Math 12 must take the non-credit MATH 012 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.

³ PHYS 100 is suggested for students who do not have credit for Physics 12.

⁴ The first term of third year will be immediately preceded by a one-week field school near Williams Lake.

⁵ A 6-credit B.Sc. thesis will be completed in fourth year.

⁶ An area of concentration must be declared before the start of third year. Courses should be selected in consultation with the Forest Science Program Director.

⁷ Eligible 300- and 400-level courses include FRST 305, 306, 311, 352, 385, 386, AGRO 402, 403, 444, CONS 330, 486.

Courses Toward Registration as a Professional Forester in British Columbia

Students who wish to work towards membership in the Association of BC Forest Professionals are advised to contact the Director of Student Services in the Faculty of Forestry for information on appropriate courses to add to their program.

Courses Toward Registration as a Professional Biologist in British Columbia

Students in the B.Sc. (Forestry) program who wish to work towards membership in the College of Applied Biology of BC (CABBC) are advised to include the following courses in their program: PHYS 100-level (6) and one of BIOL 322, 336, 414, 415, 418, or 430.

Students wishing to take these courses must complete the required prerequisites or have permission of the instructor. Students should contact the CABBC directly for information on their individual requirements. Course requirements are subject to change without notice.

FOREST SCIENCE (SPECIALIZATION IN INTERNATIONAL FORESTRY)

The Forest Science (Specialization in International Forestry) program combines the biology and dynamics of forest ecosystems with developing a global perspective of forest issues increasingly required for careers in Forestry both in Canada and abroad. The objective of this program is to produce graduates who have a good science foundation, a second language, cultural sensitivity, and both academic and first hand knowledge of forestry abroad.

The emphasis of the Forest Science component is to provide education in the basic biological and environmental sciences, particularly with regard to the components and functioning of ecosystems. In addition, to fulfil the International Forestry Major, students must select a regional specialization. Students choose from either Asia Pacific, Europe, the Americas, or other regional specialization with the approval of a program advisor.

The first two years of the program have a strong core of basic sciences to ensure scientific breadth. After the completion of their first year, students would select International Forestry as their area of concentration. Within the regional specialization, the program requires 12 credits of relevant language other than English, a pre-approved study abroad exchange for a minimum of one term, or work experience for a minimum of 13 weeks and relevant course

work in the economic, cultural, and political environment of the region selected.

Enrolment in the Forest Science (Specialization in International Forestry) program is restricted. To be considered for admission, students are required to have a minimum academic standing of 70%. Students can apply to the program after completing 21 credits from the first-year courses (or their equivalent). The program consists of a minimum of 134 credits of in-session and seven credits of extra-sessional course work. Students receive a B.Sc. (Forestry) upon completion of the requirements. Application forms are available after January 15 from the Faculty of Forestry's International Programs Office. Completed application forms and transcripts from all post-secondary institutions attended must be received by the International Programs office by May 15. Applicants will be notified by June 30 whether they have been accepted into the program.

FOREST SCIENCE/INTERNATIONAL FORESTRY

First Year

ENGL 100-level	6
BIOL 111, 121 and 140 ¹	8
CHEM 121 (111) and 123 (113)	8
MATH 100 and 101 or MATH 102 and 103 ²	6
FRST 100	2
FRST 231	3
SOIL 200	3
Total Credits	36

Second Year

Language ³	6
FRST 200	7
FRST 201	7
BIOL 200 and BIOL 201	6
CHEM 233 and 235	6
Region-Specific Electives ^{4,5}	3
Total Credits	35

Third Year

FRST 302	3
FRST 305	3
FRST 308	2
FRST 309	2
FRST 327	2
FRST 385	3
FRST 386	3
FRST 395	3
FRST 430	3
Language ³	6
Region-Specific Electives ^{5,6}	3
Total Credits	33
Plus FRST 351 immediately preceding third year	2

Fourth Year

FRST 311	4
FRST 399	4
FRST 439	3
FRST 495	3
FRST 498	6
AGRO 492 or AGRO 403	3

Fourth Year (Continued)

Region-Specific Electives ^{4,5}	3
Region-Specific Area of Concentration ^{4,6}	9
Total Credits	35

International Experience⁷

- Students with Biology 12 should replace BIOL 111 with three credits of electives.
- Students who had less than a C+ average in Math 12 must take the non-credit MATH 012 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.
- Students who pass an oral proficiency test for a language relevant to their regional specialization are exempt, and must choose 12 credits of program electives approved by a program advisor.
- Students may choose Asia Pacific, Americas or Europe as their region of specialization. Other regions can be considered with the approval of an advisor.
- Electives must be approved by a program advisor.
- Three credits in each of Anthropology or Sociology; Economics or Commerce or Law; Geography or History or Political Science.
- Met by participation in one of the following: UBC's Education Abroad Program or Study abroad or work internship abroad designed by the student with pre-approval by a program advisor. The Faculty of Forestry cannot guarantee the placement of any student in a study abroad exchange program or an international work internship program. Selection is competitive and based on academic standing, merit and availability.

BACHELOR OF SCIENCE IN WOOD PRODUCTS PROCESSING

The B.Sc. (Wood Products Processing) program will provide graduates with an understanding of wood as a material. Emphasis is placed on a basic understanding of engineering concepts, business, communication, and problem solving skills to produce graduates capable of managing a wood products manufacturing facility. Graduates will be expected to plan and construct production facilities, develop new methods and processes, and manage production control and co-ordinate personnel.

The program consists of a minimum of 134 credits in-session for all students. An additional 15 credits of extra-sessional work is required by students in the five-year co-operative Major.

Students interested in the program should contact the Department of Wood Science, Room 2900, Forest Sciences Centre, The University of British Columbia, Vancouver, BC, Canada, V6T 1Z4; Tel: 604-827-5195.

ADMISSION

The Faculty of Forestry will accept applications from students with varying educational preparation:

- directly from secondary school graduation;
- following completion of university-level work at UBC or the equivalent at another post-secondary institution; or
- after the completion of a two-year wood products or engineering diploma program at a recognized college or institute of technology.

Achievement of the minimum academic requirements does not guarantee admission in the event that the number of applicants exceeds the number of available spaces. Students entering from secondary school must have met the general University entrance requirements (see the chapter *Admissions*, p. 13, in this Calendar), including Mathematics 12, Chemistry 11, and Physics 12. Students applying following the completion of at least 30 credits of university-level work must have attained an overall average of at least 60% in all credits attempted. Students applying with less than 30 credits must also meet the secondary school requirements listed above. Students applying from a completed two-year wood products or engineering diploma program must have attained an overall average of at least 65% on their completed diploma, plus have the required secondary school courses as outlined above.

See also *Program Approval and Advising*, p. 205, as listed under Bachelor of Science in Forestry (B.S.F.).

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 206, as listed under Bachelor of Science in Forestry (B.S.F.).

DEGREE REQUIREMENTS

STUDENTS ENTERING FROM SECONDARY SCHOOL

First Year

One of ENGL 110, 111 or 112	3
MATH 100 or 102 ¹	3
MATH 101 or 103	3
PHYS 101	3
PHYS 102	3
CHEM 121 (111)	4
CHEM 123 (113)	4
WOOD 120	3
Electives	6
Total Credits	32

Second Year

ECON 101	3
FRST 231	3
WOOD 244	3
WOOD 271	4
WOOD 280	3
WOOD 282	3
WOOD 288	2
WOOD 290	3
WOOD 376	3
APSC 201	3
Total Credits	30
WOOD 305 ²	3

Third Year

WOOD 330	4
WOOD 335	3
WOOD 341	3
WOOD 386	3
WOOD 464	3
WOOD 465	3
WOOD 485	3

Third Year (Continued)

COMM 399	3
MECH 356	3
MECH 463	3
Electives ³	3
Total Credits	34

Fourth Year

WOOD 430	3
WOOD 440	3
WOOD 461	3
WOOD 487	4
WOOD 491	3
WOOD 492	3
WOOD 493	3
WOOD 494	3
COMM 457	3
MECH 492	4
Electives ³	6
Total Credits	38

¹ Students who had less than a C+ average in Math 12 must take the non-credit MATH 099 prior to Mathematics courses. Students may enrol in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.

² Practical woodworking course taken at the end of second year.

³ Electives must be courses numbered 300 or above. To be chosen in consultation with the Program Director.

MINOR IN COMMERCE

Enrolment in this program is limited. An application form may be obtained from the Dean's Office. The completed form must be returned no later than October 15. At the time of application, students must be eligible for fourth-year standing in the Wood Products Processing program with a cumulative average of at least 68% in the previous two years. Meeting the stated requirements does not guarantee admission to the program.

The program consists of ECON 101 and 102 (6), COMM 457 (3), and nine credits selected from COMM 329 (3), COMM 458 (3), COMM 465 (3), COMM 473 (3), and COMM 493 (3). Upon successful completion of this Minor program, the notation 'Minor in Commerce' will appear on the student's transcript.

CO-OPERATIVE EDUCATION PROGRAM

In addition to the four-year B.Sc. (Wood Products Processing) program, students can elect a five-year Co-operative Education Program with work placements in industry. The Wood Products Processing Co-operative Education Program is designed to provide students with work experience integrated with their academic programs. The year-round program normally requires completion of five work terms of targeted employment in four-month co-operative placement sessions including one Winter and one Fall placement. The five sessions are WOOD 300, 311, 312, 411 and 412. Completion of each of these

courses including a technical report and oral presentation will be recorded on the student's transcript. The Co-op program requires an additional year to complete the B.Sc. (Wood Products Processing) requirements.

Students in the program will register in and pay for the appropriate three-credit Co-operative Education placement course for each work term once a suitable position is confirmed. See Special Fees, under Ch. 3, "Fees, Financial Assistance and Scholarships."

Students in the B.Sc. (Wood Products Processing) who wish to be considered for the Co-operative Education Program must apply in the fall term of their second year. To be able to participate in the placement process for the first co-op term, the student needs to have a 64% minimum cumulative average in required Wood Products Processing courses taken at UBC in first and second year, complete the required application, and have a successful interview with the Co-op coordinator. Specific deadlines are available from the co-op office. In addition, students must attend Co-operative education program workshops and a practical wood-working course. Acceptance into the co-op program does not guarantee work term placements. To be accepted into WOOD 311, students must have an average of 68% minimum in required Wood Products Processing courses taken at UBC in first and second year and maintain that average to stay in the Co-op program.

To graduate from the Co-operative Education Program a student must complete the required number of work placements along with the normal academic requirements.

CO-OPERATIVE EDUCATION PROGRAM

First Year

Same as above	30
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Second Year

Same as above	30
Plus WOOD 300 ¹	3

Third Year

WOOD 330	4
WOOD 335	3
WOOD 341	3
WOOD 386	3
MECH 356	3
Total Credits	16
WOOD 311 ¹	3
WOOD 312 ¹	3

Fourth Year

WOOD 440	3
WOOD 464	3
WOOD 465	3
WOOD 485	3
WOOD 492	3
WOOD 494	3
COMM 399	3
COMM 457	3
MECH 463	3
MECH 492	4

Fourth Year (Continued)

Electives ²	6
Total Credits	37
WOOD 411 ¹	3

Fifth Year

WOOD 430	3
WOOD 461	3
WOOD 487	4
WOOD 491	3
WOOD 493	3
Electives ²	3
Total Credits	19
WOOD 412 ¹	3

¹ Co-operative placement.

² Electives must be courses numbered 300 or above. To be chosen in consultation with the Program Director.

DIPLOMA IN FOREST ENGINEERING

The Faculty of Forestry, in co-operation with the Forest Management Institute of British Columbia and the Faculty of Applied Science (Department of Civil Engineering), offers the Diploma in Forest Engineering.

The program is designed for professional foresters, engineers, and geoscientists (including professionals-in-training) specializing in forest engineering practice in BC who wish to improve their job-related knowledge, work performance, and business opportunities. It focuses on advanced engineering principles, recent research, and current practices.

The Diploma in Forest Engineering will be awarded upon successful completion of the program.

ADMISSION

Admission to the Diploma program requires a combination of academic and work experience qualifications. Applicants must be a Registered Professional Forester (R.P.F.) and/or a registered Professional Engineer (P.Eng.) and/or a Registered Professional Geoscientist (P.Geo.), or a professional-in-training or equivalent.

Applicants are expected to have relevant work experience. Applicants normally are practicing forest engineers employed with government, industry, or a consulting firm who are engaged in forest engineering or related forest management work.

DIPLOMA REQUIREMENTS

The Diploma requires the completion of six course modules. Extensive pre-course reading assignments are also required prior to each course module. The program normally takes three years to complete. In order to qualify for the Diploma, the student must complete all requirements within a reasonable time frame.

RESIDENCE REQUIREMENTS AND TRANSFER OF CREDIT

Students are required to attend full-time day and evening sessions for each course module. Classroom sessions are held on campus and in several off-campus locations in British Columbia. There is no transfer of credit available either to or from the Diploma program.

DIPLOMA IN FORESTRY (ADVANCED SILVICULTURE)

The Faculty of Forestry, in co-operation with the Forest Management Institute of British Columbia, offers the Diploma in Forestry (Advanced Silviculture).

The diploma program is designed for foresters specializing in silvicultural practice, and focuses on silvicultural theory and principles relevant to silviculture prescriptions. The Diploma in Forestry (Advanced Silviculture) will be awarded upon successful completion of the program.

ADMISSION

Admission to the diploma program requires a combination of academic and work experience qualifications. Applicants must be Registered Professional Foresters (R.P.F.) or Foresters-in-Training (F.I.T.) or equivalent. Applicants must also have a minimum of five years of forest management work experience. Applicants are normally practising foresters, employed with government, industry, or a consulting firm, who are engaged in silviculture or related forest management work.

DIPLOMA REQUIREMENTS

The Diploma in Forestry (Advanced Silviculture) concentrates on improving the student's awareness and understanding of those subjects that encompass the broad field of silviculture.

The diploma requires the completion of six course modules. Extensive pre-course reading assignments are also required prior to each course module. The program normally takes three years to complete. In order to qualify for the Diploma, the student must complete all requirements within a reasonable time frame.

RESIDENCE REQUIREMENTS AND TRANSFER OF CREDIT

Students are required to attend full-time day and evening sessions for each course module. Classroom sessions are held on campus and in several off-campus locations in British Columbia. There is no transfer of credit available either to or from this diploma program.

CO-OPERATIVE EDUCATION PROGRAM

Students can elect a five-year Co-operative Education Program. This program provides interested and qualified students with paid employment experience, which is directly related to their academic program and future career. It is an optional, year-round program. Apart from the normal academic requirements, a minimum of four work terms must be completed. The co-op program requires an additional year to complete the bachelor's degree.

Work placements are graded Pass or Fail. Students must attend co-operative education program workshops. A technical report is required at the end of each work term. A minimum of four work terms is needed to graduate with a co-op designation on the transcript. Students wishing to enrol in the program must apply in the fall term of their second year. Selection criteria for admission vary for each program, but are based on academic performance and employment suitability. Total enrolment is subject to the availability of appropriate work placements. Acceptance into the co-op program does not guarantee work placements in every work term. Once a suitable work placement is confirmed, students must register in and pay for the appropriate session. See "Program and Course Fees" in Chapter 3.

Contact the Cooperative Education Coordinator for the Faculty of Forestry for further information, including special application forms, specific deadlines, and the appropriate sequence of academic and work terms.

EXCHANGE PROGRAMS

The Faculty of Forestry actively participates in the formal university-wide exchange programs. Undergraduate students who earn a 70% average over 27 credits in the year prior to their exchange are eligible to travel to one of the international or Canadian exchange partner institutions to study for up to one year. Graduate students are also eligible and can transfer up to 12 credits towards their UBC degree. Interested students should see the chapter *Alternative Study Options*, p. 443, for further information or contact the Faculty directly.

CANADIAN EXCHANGES

Opportunities for students exist at the University of Alberta, the University of Quebec, the University of Toronto, and Université Laval. These universities participate with UBC in the Canadian Scholars Exchange Program (CANEX). There are also opportunities for exchange with the University of New Brunswick, which has an exchange agreement with the Faculty of Forestry.

INTERNATIONAL EXCHANGES

The University of British Columbia's Student Exchange Program offers eligible students the opportunity to spend one or two semesters at a variety of partner universities throughout the

world. Partner universities with programs specific to UBC's Faculty of Forestry include the Universities of the Philippines; Melbourne (Australia); Canterbury (New Zealand); Maine (USA); Wales (UK); Aberdeen (UK), Australia National University; Oregon State University (USA); Swedish University of Agricultural Sciences; Albert-Ludwig University Freiburg (Germany); the Instituto Tecnológico de Costa Rica; and the University of Chile.

AWARDS AND FINANCIAL ASSISTANCE

Undergraduate Forestry students are eligible for a range of assistance including prizes, scholarships, bursaries, and loans. Prizes and scholarships are awarded on the basis of academic standing although other factors may also be considered. Many scholarships are awarded on the recommendation of the Faculty, while others are assigned by Student Financial Assistance and Awards. The University also offers bursaries to students demonstrating financial need. These awards are assigned by the Awards Office and students are required to submit a detailed application outlining their financial circumstances. Bursaries to Forestry students amount to about half the value of scholarships and prizes. The major source of financial assistance is available through the British Columbia Student Assistance Program, which combines a Canada Student Loan and a BC Student Loan. Details on these programs and information on financial assistance can be found on the Student Financial Assistance and Awards website (www.students.ubc.ca/finance).

T.E. BURGESS AND D.E. LANE MEMORIAL LECTURESHIP IN FORESTRY

In memory of Thomas E. Burgess and David E. Lane, vice-presidents of long standing with British Columbia Forest Products Limited, a fund has been established by Mrs. Dorothy Burgess and Mrs. Evelyn Lane and Fletcher Challenge Canada Limited, to provide for the presentation and publication of special lectures in forestry by outstanding authorities in forestry or the forest industry.

LESLIE L. SCHAFFER LECTURESHIP IN FOREST SCIENCE

In memory of Leslie L. Schaffer, D.Sc., former executive vice-president of Western Plywood Co. Ltd., a fund has been established by Mrs. Leslie L. Schaffer to finance lectures and publications by visiting forest scientists.

THE NAMKOONG FAMILY LECTURESHIP

This endowed lectureship was established by the late professor Gene Namkoong, former Head of Forest Sciences at UBC, and his wife Carol, to promote the study and development of science or philosophy pertaining to the sustainability and conservation of forests.

ACADEMIC STAFF

DEPARTMENT OF FOREST RESOURCES MANAGEMENT

George Hoberg, Head

Professors

R. Jonathan Fannin, B.Sc. (Belf.), Ph.D. (Oxf.), P.Eng. (joint with Civil Engineering); **George Hoberg**, B.Sc. (Calif., Berkeley), Ph.D. (M.I.T.) (joint with Political Science); **John L. Innes**, B.A., M.A., Ph.D. (Cantab.); **Peter L. Marshall**, B.Sc.F., M.Sc.F. (Tor.), Ph.D. (Br.Col.), R.P.F.

Associate Professors

Younes Alila, B.A.Sc., M.A.Sc., Ph.D. (Ott.), P.Eng.; **Nicholas Coops**, B.A.Sc., Ph.D. (R.Melbourne I.T.); **Valerie LeMay**, B.Sc., M.Sc. (Alta.), Ph.D. (Br.Col.), R.P.F.; **Thomas C. Maness**, B.S.F. (W. Virginia), M.S. (Virginia Polytech.), Ph.D. (Wash.); **R. Daniel Moore**, B.Sc. (Hons.) (Br.Col.), Ph.D. (Cantab.), P.Geo. (joint with Geography); **John D. Nelson**, B.S.F., M.B.A. (Br.Col.), Ph.D. (Oregon), R.P.F.; **Stephen Sheppard**, B.A. (Oxon.), M.Sc. (Br.Col.), M.A. (Oxon.), Ph.D. (Calif., Berkeley), ASLA. (joint with Landscape Architecture); **David Tindall**, B.A., M.A. (Vic.B.C.), Ph.D. (Tor.) (joint with Sociology); **Ronald L. Trospert**, B.A., M.A., Ph.D. (Harv.); **Paul M. Wood**, B.Sc., Ph.D. (Br.Col.), R.P.F., R.P.Bio.

Assistant Professors

Gary Bull, B.S.F., M.F. (Br.Col.), Ph.D. (Tor.); **Sumeet Gulati**, B.A. (Mumbai), M.A. (Delhi), M.Sc., Ph.D. (Maryland) (joint with Land and Food Systems); **Kevin Lyons**, B.S.F., M.S.F. (Br.Col.), Ph.D. (Oregon State); **Michael Meitner**, B.A., M.A., Ph.D. (Arizona); **David E. N. Tait**, B.Sc., M.Sc., Ph.D. (Br.Col.); **Marcus Weiler**, B.Sc., M.Sc. (Freiburg), Ph.D. (Zurich).

Senior Instructor

Dennis Bendickson, B.S.F. (Br.Col.), R.P.F.

Adjunct Professors

Robert D'Eon, HBSc.F. (Lake.), M.Sc.F. (New Br.), Ph.D. (Br.Col.), R.P.F.; **Dan Hogan**, B.A., M.Sc. (Br.Col.); **Robert Hudson**, B.Sc., M.Sc. (Calg.), Ph.D. (Br.Col.); **Kimberley Iles**, B.S., M.Sc. (Oregon), Ph.D. (Br.Col.); **Don Leckie**, B.Sc. (Manit.), Ph.D. (Br.Col.); **Patrick Matakala**, B.Sc., M.Sc. (Lakehead), Ph.D. (Br.Col.); **Guillaume Therien**, B.A.Sc. (Laval), Ph.D. (Br.Col.); **Clifford White**, B.Sc. (Mont.), M.Sc. (Col.Str.), Ph.D. (Br.Col.); **Bill Wilson**, B.A. (Car.), M.Sc., Ph.D. (Alta.); **Rita Winkler**, B.S.F. (Br.Col.), M.Sc. (Alta.), Ph.D. (Br.Col.); **Mike Wulder**, B.Sc. (Calg.), M.Sc., Ph.D. (Wat.).

DEPARTMENT OF FOREST SCIENCES

Robert D. Guy, Head

Professors

Sally N. Aitken, B.Sc. (Br.Col.), M.Sc., Ph.D. (Calif., Berkeley); **Peter Arcese**, B.A. (Wash.), M.Sc., Ph.D. (Br.Col.); **Frederick L. Bunnell**, B.S.F. (Br.Col.), Ph.D. (Calif., Berkeley), R.P. Bio; **Christopher P. Chanway**,

B.Sc. (Winn.), B.S.Ag. (Manit.), M.Sc., Ph.D. (Br.Col.); **Yousry A. El-Kassaby**, B.Sc. (Alexandria), M.Sc. (Tanta), Ph.D. (Br.Col.), R.P.F.; **Robert D. Guy**, B.Sc., Ph.D. (Calg.); **Scott G. Hinch**, B.Sc., M.Sc. (W.Ont.), Ph.D. (Tor.); **James P. Kimmins**, B.Sc. (N. Wales), M.Sc. (Calif., Berkeley), M.Phil., Ph.D. (Yale), R.P.F. (Hon.); **Bruce C. Larson**, A.B. (Harv.), M.F.S. (Yale), Ph.D. (Wash.); **Katherine M. Martin**, B.Sc. (P.E.I.), M.Sc. (Alta.), Ph.D. (Qu.); **John A. McLean**, B.Sc., M.Sc. (Auck.), Ph.D. (S.Fraser), F.R.E.S., R.P.Bio; **Cindy E. Prescott**, B.Sc. (Brock), M.Sc., Ph.D. (Calg.); **Kermit Ritland**, B.Sc. (Wash.), Ph.D. (Calif., Davis); **Thomas Sullivan**, B.Sc., M.Sc., Ph.D. (Br.Col.).

Associate Professors

Joerg Bohlmann, B.Sc., M.Sc., Ph.D. (Braunschweig); **Michael C. Feller**, B.Sc., M.Sc. (Melb.), Ph.D. (Br.Col.), R.P.Bio; **Susan Grayston**, B.Sc., Ph.D. (Sheff.); **Steve Mitchell**, B.S.F., Ph.D. (Br.Col.), R.P.F.; **John S. Richardson**, B.Sc. (Tor.), M.Sc. (Alta.), Ph.D. (Br.Col.); **Suzanne Simard**, B.S.F. (Br.Col.), M.S., Ph.D. (Oregon).

Assistant Professors

Sarah Gergel, B.Sc. (Flor.), M.Sc., Ph.D. (Wisc.); **Maja Krzic**, B.Sc., M.Sc. (Belgrade), Ph.D. (Br.Col.).

Lecturer

Susan B. Watts, B.Sc. (N. Wales), M.F., Ph.D. (Br.Col.), R.P.F.

Sessional Instructor

Suzie Lavallee, B.Sc., M.Sc., Ph.D. Candidate (Br.Col.).

Adjunct Professors

Christine A. Bishop, B.Sc. (Guelph), M.Sc. (York), Ph.D. (McM.); **Max Bothwell**, B.A., M.A., (Calif., Santa Barbara), Ph.D. (Wis., Madison); **Charles E. Bulmer**, B.S.F. (Br.Col.), M.Sc. (Oregon), Ph.D. (Br.Col.); **Philip J. Burton**, B.Sc. (Sask.), M.Sc. (Hawaii), Ph.D. (Ill.); **David K. Coates**, B.Sc., M.Sc. (Alta.), Ph.D. (Br.Col.), R.P.F.; **Brad C. Hawkes**, B.S.F. (Br.Col.), M.Sc. (Alta.), Ph.D. (Montana); **Leland Humble**, B.Sc., Ph.D. (Vic.B.C.); **Walt Klenner**, B.Sc., M.Sc. (Manit.), Ph.D. (Br.Col.), R.P.Bio; **Werner A. Kurz**, Diplom Holzwirt (Hamburg), Ph.D. (Br.Col.); **Duncan J. Morrison**, B.S.F., M.Sc. (Br.Col.), Ph.D. (Cantab.); **Reg F. Newman**, B.Sc., B.S.F. (Br.Col.), Ph.D. (Alta.); **Simon Shamoun**, B.Sc. (Iraq), M.Sc. (Raleigh), Ph.D. (Arkansas); **Terrence Shore**, B.Sc. (Br.Col.), Ph.D. (Br.Col.); **Michael Stoehr**, B.Sc., M.Sc. (Lakehead), Ph.D. (Tor.); **Alvin Yanchuk**, B.Sc., M.Sc., Ph.D. (Alta.).

Faculty Associates

Dan, Durall, B.Sc. (Calif.), Ph.D. (Calg.).

DEPARTMENT OF WOOD SCIENCE

Paul McFarlane, Head

Professors

Stavros Avramidis, B.S.F. (Thessaloniki), M.S., Ph.D. (N.Y. State, Syracuse), F.I.W.Sc.; **Colette Breuil**, B.Sc. (Lyon), M.Sc. (Ott.), Ph.D. (Lyon); **David H. Cohen**, Dipl. For. Tech. (Selkirk), B.S. (Idaho), Ph.D. (Virginia); **Philip Evans**, B.Sc. (Hons.), Ph.D. (Wales); **Frank Lam**, B.A.Sc., M.A.Sc., Ph.D. (Br.Col.), F.I.W.Sc., P.Eng; **Shawn Mansfield**, B.Sc. (Mt. All.), M.Sc. (Dal.), Ph.D. (Br.Col.); **Paul McFarlane**, B.Tech. (Hons.), Ph.D. (Massey); **John N. R. Ruddick**, B.Sc., M.Sc. (N'cle., U.K.), Ph.D. (Lond.); **John N. Saddler**, B.Sc. (Edin.), Ph.D. (Glas.).

Associate Professors

Simon C. Ellis, B.Sc. (N. Wales), M.Sc., Ph.D. (Br.Col.), F.I.W.Sc; **John Kadla**, B.Sc. (Br.Col), Ph.D.

(N.Car.); **Robert Kozak**, B.Sc., Ph.D. (Br.Col.); **Helmut Prion**, B.Eng. (Stell.), Ph.D. (Tor.), P. Eng.

Assistant Professors

Gregory Smith, B.A.Sc. (Br.Col.), D.Sc.T. (E.P.F.L., Switzerland); **Taraneh Sowlati**, B.Sc. (Sharif U. Tech.), M.A.Sc. (Tarbiat Modares), Ph.D. (Tor.).

Senior Instructor

Patrick Cramond, B.A.Sc. (Br.Col.).

Instructor

Robert Furst, Instructor.

Adjunct Professors

Rodger Beatson, B.Sc. (Exeter), Ph.D. (Ont.); **Chunping Dai**, B.Sc., M.Sc. (Nanjing Forestry), Ph.D. (Br.Col.); **Christopher Gaston**, B.Sc. (Br.Col.), M.Sc. (Guelph), Ph.D. (Br.Col.); **Paul Morris**, B.Sc., Ph.D. (Lond.); **Luiz Oliveira**, B.Sc., (Mackenzie U., Brazil), M.Sc. (V.A Tech.), Ph.D. (V.A .Tech.).

STUDENT SERVICES

Geoff Anderson, B.Comm. (M.U.N), Co-operative Education Coordinator; **Samantha Berdej**, Recruitment Officer; **Barbara Bremner**, B.A. (Vic., B.C.), Cooperative Education Coordinator; **Lesley Fettes**, B.S.F. (Br.Col.); **Warren Fortier**, B.Sc. (Kam., B.C.); **Chiara Longhi**, B.A., M.A. (Pisa), International Programs and Recruitment Officer; **Candace Parsons**, B.S.F. (Br.Col.), Director of Student Services; **Sandra Schinnerl**, B.Com. (Br.Col.), Associate Director, International Programs.

UNIVERSITY RESEARCH FORESTS

Ken Day, B.Sc.F. (Lake.), M.F. (Br.Col.), R.P.F., Manager, Alex Fraser Research Forest, Williams Lake; **Michael Jull**, B.S.F., M.Sc. (Br. Col.), R.P.F., Manager, Aleza Lake Research Forest, Prince George; **Paul Lawson**, B.S.F., M.B.A. (Br.Col.), R.P.F., Manager, Malcolm Knapp Research Forest, Maple Ridge.

2006-07

10 The Faculty of Graduate Studies

Dean's Office

Frieda Granot, Dean
Lynn Alden, Associate Dean, Awards and Student Development
Ann Rose, Associate Dean, Student Academic Services
Douw Steyn, Associate Dean, Research and Faculty Development
Jim Thompson, Associate Dean, Graduate Policy and Program Review
Kersti Krug, Assistant Dean, Strategic Planning and Faculty Development
Jenny Phelps, Director, Student Academic Services
180-6371 Crescent Road
Vancouver, BC V6T 1Z2
Telephone: 604-822-2848
Fax: 604-822-5802

Graduate Studies Website (grad.ubc.ca)

The Faculty of Graduate Studies works in conjunction with departments, schools, and other faculties to coordinate and maintain the quality of all master's and doctoral programs at UBC. Among its functions with respect to graduate students and graduate programs are the following: approving new graduate programs, curriculum changes and graduate-level (500 to 699) courses; determining or verifying the admissibility of students applying for graduate programs; maintaining records of the academic performance of all graduate students; approving requests for transfer between programs, leaves of absence, reinstatements after interruptions of study, extensions after the maximum time-in-program has been exhausted; coordinating scholarships, fellowships and awards for graduate students across the entire University; assuring uniformity of practices and standards for doctoral orals; assisting departments and other units with recruitment of new graduate students; helping individual graduate students who encounter problems during their programs; determining whether graduate students are eligible to graduate. For more information about the role of Graduate Studies and to view the Faculty's policies and procedures manual, visit the Graduate Studies website (grad.ubc.ca).

In addition to the above functions, the Faculty of Graduate Studies is responsible for the Individual Interdisciplinary Studies Graduate Program and a number of other interdisciplinary programs: Genetics, Neuroscience, and

Resource Management and Environmental Studies. Details of these, as well as graduate programs which operate within other faculties, are provided below. The Faculty of Graduate Studies also acts as the administering faculty for the School of Community and Regional Planning, the School of Occupational and Environmental Hygiene, Green College, St. John's College and a number of interdisciplinary centres, institutes, committees and journals. The titles of the degrees are given under the headings in the following pages. Where no degrees are listed under these headings, graduate research leading to a degree may be coordinated by the institutes, centres, or committees described.

ADMISSION

DOCTORAL DEGREES

A student may apply for admission to the degree program by writing directly to the graduate program (grad.ubc.ca/apply/programs) in which the degree is offered. Up-to-date information on admission is available on the Faculty of Graduate Studies website (grad.ubc.ca). Students are normally admitted to study only in fields that are formally authorized by Senate to offer doctoral programs. All applications must be accompanied by an application fee at the time of submission. Consult the Faculty of Graduate Studies website (grad.ubc.ca) for information on current application fees.

The number of candidates that can be accommodated is limited and graduate programs will accept the best qualified students as vacancies occur. Most students begin their program of study at the start of the Winter Session (the beginning of September) but other start dates may be available, depending on the specific program. Limitations on the number of students that can be accommodated require that applicants be selected well before the start date. Students are encouraged to submit applications for admission as early as possible.

Applicants for the Doctor of Philosophy (Ph.D.), Doctor of Musical Arts (D.M.A.) and Doctor of Education (Ed.D.) must have completed one of the following requirements prior to admission:

1) In the case of the Ph.D., a master's degree

(or equivalent) from an approved institution with clear evidence of research ability or potential, or in the case of the D.M.A., a master's degree (or equivalent) from an approved institution with outstanding ability in performance or composition.

- 2) In the case of the Ed.D., a master's degree in Education (or equivalent degree) from an approved institution.
- 3) A bachelor's degree with one year of study in a master's program with 12 credits of first class average, of which nine credits must be at the 500-level or above and at least nine credits must be of first class standing. Also:
 - (a) (for Ph.D.) clear evidence of research ability or potential;
 - (b) (for Ph.D., Elementary Education) first class standing in Teacher Training or a B.Ed.;
 - (c) (for Ed.D.) first class standing and first class standing in such prerequisite work as may have been required, and five years professional experience; or
 - (d) (for D.M.A.) outstanding ability in performance or composition. Transfer directly into a doctoral program is normally accomplished after completion of the first year of study at the master's level and will not be permitted after completion of the second year.
- 4) In exceptional cases, applicants who hold an honours bachelor's degree with an overall average in the 'A' grade range and who demonstrate advanced research ability may be granted direct admission to a doctoral degree program on recommendation of the admitting graduate program and approval of the Dean of the Faculty of Graduate Studies. Students entering directly from a bachelor's degree must, during the first year of study, complete 12 credits with a first class average, of which at least nine credits must be at the 500-level or above and at least nine credits must be of first class standing, to maintain registration as a doctoral student.

International Students

Applications for admission to doctoral programs at UBC are welcomed and encouraged from international students who hold a

credential deemed comparable to a Canadian master's degree and who demonstrate superior academic standing. Specific minimum admission requirements established by the Faculty of Graduate Studies for graduates of different countries may be found on the Graduate Studies Admission website (grad.ubc.ca/apply/how). These are minimum requirements; specific programs may have higher requirements.

ENGLISH LANGUAGE PROFICIENCY REQUIREMENT

Applicants from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission. Minimum acceptable English language proficiency scores for applicants to graduate studies are:

- TOEFL (Test of English as a Foreign Language): minimum score of 550 (paper version); 213 (computer version); 80 (Internet version, effective September 2005)
- IELTS (International English Language Testing Service): minimum overall band score of 6.5 with no other component score less than 6.0
- MELAB (Michigan English Language Assessment Battery): minimum overall score of 81

Graduate programs may set higher English language proficiency scores than those listed above. See the chart *TOEFL and GRE Requirements*, p. 220.

Required Documentation

The following information is required in support of an application to the Faculty of Graduate Studies:

- Graduate Studies Application Form (online or paper form);
- Application fee;
- Three confidential reference reports (must contain original signature and be received in sealed envelopes endorsed by referees);
- Two sets of all official post-secondary academic records in original language and certified translation (if originals cannot be attained by applicant, then attested, certified copies of originals are acceptable). To be considered official, academic records must be received in official university envelopes, sealed and endorsed by the issuing institution
- Evidence of adequate English proficiency where applicable (TOEFL, IELTS, or MELAB are all acceptable); and
- Supplementary information as may be required by admitting graduate program (e.g. GRE, statement of intent, research proposal, etc.).

Admission

Admission to the Ph.D., D.M.A. or Ed.D. program will be in one of the following categories:

- 1) **Unconditional admission.** Granted when the applicant meets all admission requirements and all final official documentation has been received. Applicants who have a bachelor's degree, or its academic equivalent, which does not meet the requirements stated above, but who have had significant formal training and relevant professional experience to offset such deficiencies, may be granted admission on the recommendation of the appropriate graduate program or faculty and approval of the Dean of the Faculty of Graduate Studies.
- 2) **Conditional admission.** Contains condition(s) that must be met before an offer can be considered final. Such conditions may include final documentation showing degree conferred, or submission of academic records from previous institutions. The Letter of Admission stipulates deadline dates as to when the conditions must be met. Failure to comply with a condition will normally result in a student being required to withdraw from the program.

INTERNATIONAL STUDENTS

Students who are not Canadian citizens or permanent residents must apply for a study permit (student visa) to enter Canada. Applications can be made at any Canadian Consulate or High Commission.

MASTER'S DEGREES

A student may apply for admission to a master's degree program by writing directly to the graduate program (grad.ubc.ca/apply/ programs) in which the program is offered. Up-to-date information on admission is available on the Faculty of Graduate Studies website (grad.ubc.ca). Students are admitted to study only in fields that are authorized by Senate to offer master's-level programs. All applications must be accompanied by an application fee at the time of submission. Consult the Faculty of Graduate Studies website for more information. The number of candidates that can be accommodated is limited, and graduate programs with limited facilities will accept the best-qualified students as vacancies occur.

Most students begin their program of study in September, but limitations on the number of students that can be accommodated require that applicants be selected well before this date. Students are encouraged to submit applications for admission as early as possible.

Students with a Baccalaureate Degree from a Canadian or American University or College

Applicants for a master's degree program must hold the academic equivalent of a four-year baccalaureate degree from UBC with:

- A minimum overall average in the 'B+' range (at UBC 76%) in third- and fourth-year courses; or
- Academic standing with at least 12 credits of third- or fourth-year courses in the 'A' grade range (at UBC 80% or higher) in the field of study; or

- Applicants who have a four-year baccalaureate degree or its academic equivalent, which does not meet the requirements stated above, but who have had significant formal training and relevant professional experience to offset such deficiencies, may be granted admission on the recommendation of the appropriate graduate program or faculty and approval of the Dean of the Faculty of Graduate Studies.

These are the minimum requirements for admission to the Faculty of Graduate Studies. Graduate programs may have additional admission requirements. Consult the graduate program listings in the Calendar to confirm the admission requirements for specific degree programs.

International Students

Applications for admission to the Faculty of Graduate Studies are welcomed and encouraged from international students who hold a credential deemed comparable to an approved Canadian four-year baccalaureate degree and who demonstrate superior academic standing. Specific minimum admission requirements established by the Faculty of Graduate Studies for graduates of different countries may be found on the Graduate Studies Admission website (grad.ubc.ca/apply/how). These are minimum requirements; specific programs may have higher requirements.

ENGLISH LANGUAGE PROFICIENCY REQUIREMENT

Applicants from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission. Acceptable English language proficiency tests for applicants to graduate studies are:

- TOEFL (Test of English as a Foreign Language): minimum score of 550 (paper version); 213 (computer version); 80 (Internet version, effective September 2005);
- IELTS (International English Language Testing Service): minimum overall band score of 6.5 with no other component score less than 6.0;
- MELAB (Michigan English Language Assessment Battery): minimum overall score of 81.

Graduate programs may set higher English language proficiency scores than those listed above. See the chart *TOEFL and GRE Requirements*, p. 220.

Required Documentation

The following information is required in support of an application to the Faculty of Graduate Studies:

- Graduate Studies Application (online or paper form);
- Application fee;
- Three confidential reference reports (must contain original signature and be received in sealed envelopes endorsed by referees);

- Two sets of all official post-secondary academic records in original language and certified translation (if originals cannot be attained by applicant, then attested, certified copies of originals are acceptable). To be considered official, academic records must be received in official university envelopes, sealed and endorsed by the issuing institution.
- Evidence of adequate English proficiency where applicable (TOEFL, IELTS, or MELAB are all acceptable); and
- Supplementary information as may be required by admitting graduate program (e.g. GRE, statement of intent, research proposal, etc.).

Admission

Admission to the master's program will be in one of the following categories:

- 1) **Unconditional admission.** Granted when the applicant meets all admission requirements and all final official documentation has been received. Applicants who have a bachelor's degree, or its academic equivalent, which does not meet the requirements stated above, but who have significant formal training and relevant professional experience to offset such deficiencies, may be granted admission on the recommendation of the appropriate graduate program or faculty and approval of the Dean of the Faculty of Graduate Studies.
- 2) **Conditional admission.** Contains condition(s) that must be met before an offer can be considered final. Such conditions may include final documentation showing degree conferred, or submission of academic records from previous institutions. The Letter of Admission stipulates deadline dates as to when the conditions must be met. Failure to comply with a condition will normally result in a student having to withdraw from the program.

On the recommendation of the graduate program, a student with a bachelor's degree who lacks prerequisites for a chosen field of graduate study may be allowed to register as a "qualifying" student for a period of no more than one year. Satisfactory completion of a qualifying term or year does not guarantee admission to a graduate program. Qualifying status is granted to students only at the recommendation of the graduate program. Qualifying students are not considered graduate students.

INTERNATIONAL STUDENTS

Students who are not Canadian citizens or permanent residents must apply for a study permit (student visa) to enter Canada. Applications can be made at any Canadian Consulate or High Commission.

STUDENTS TRANSFERRING TO UBC WITH FACULTY SUPERVISORS

Students who transfer to UBC with newly hired faculty members may choose one of the following:

- Transfer to UBC in order to complete a UBC degree. In this case, students should apply for admission in the usual way by submitting the application form, application fee, transcripts, letters of reference and any other supporting documentation required by the graduate program. It is expected that fees will be assessed as if the years spent by the student at the previous university were paid at UBC for that period. The maximum time to complete the program will be calculated on the same basis. Eligibility for awards will be as if the years spent by the student at the previous university were spent at UBC.

or

- Apply to become a visiting student in order to complete their work and graduate from their original university. Students may spend up to a year at UBC as a visiting graduate student. Credits completed while a visiting student may not subsequently be credited toward completion of a degree at the University of British Columbia.

VISITING STUDENTS

A visiting graduate student is one who is attending UBC to complete course work and/or research toward the requirements of a graduate degree at the home university. To be eligible for admission as a visiting student to UBC, the student must be currently registered in a graduate program with good standing at another recognized university. Normally, students may hold visiting status at UBC for a maximum of 12 months.

Applicants for regular visiting student status (other than those applying under the Western Deans Agreement or the Graduate Exchange Agreement) must submit the following documentation:

- Graduate Studies Application (online or paper form) and the application fee;
- Two sets of official transcripts of the graduate program for which the applicant is currently registered;
- Evidence of English proficiency, where applicable, in the form of an official TOEFL, IELTS or MELAB score; and
- Letter of permission from the home university's registrar or department head confirming that the course work and/or research undertaken at UBC while a visiting student is for the purpose of completing the graduate degree requirements at the home university.

At the recommendation of the graduate program, the Dean of the Faculty of Graduate Studies will issue a formal offer of admission to the visiting student. Visiting students cannot use the Student Service Centre on the web to register; they must be registered in course work

or non-credit activity (if doing research only) by the Faculty of Graduate Studies.

STAFF AS GRADUATE STUDENTS

Staff at the University of British Columbia are permitted to register for degree programs in the Faculty of Graduate Studies provided standard admission requirements are met. See UBC Policies website, Policy #45 (www.university-counsel.ubc.ca/policies/policy45.pdf).

FACULTY AS GRADUATE STUDENTS

Full-time faculty are not normally allowed to register for programs leading to University of British Columbia degrees or diplomas. See UBC Policies website, Policy #46 (www.university-counsel.ubc.ca/policies/policy46.pdf).

AUTHENTICITY OF DOCUMENTS

Every student who applies to the Faculty of Graduate Studies must confirm that all statements made and all documentation submitted in support of their application are true, complete and valid. Students are responsible for the authenticity of the documentation submitted in support of their application for admission to the University of British Columbia.

The Faculty of Graduate Studies reserves the right to return transcripts, degree certificates and/or reference letters to the originator for verification. The Dean of the Faculty of Graduate Studies reserves the right to rescind a letter of admission or to require that a student withdraw if it is determined that a student has submitted falsified documents in support of their application for admission.

TOEFL AND GRE REQUIREMENTS

Note: A new, Internet-based version of the TOEFL is now available. It is intended to replace both the paper and computer versions. Paper or computer test results will still be valid for two years after the date the test is taken. The minimum total score for all applicants to the Faculty of Graduate Studies is 550 for paper-based TOEFL and 213 for computer-based TOEFL.

The minimum total score on the new Internet-based TOEFL for all applicants to the Faculty of Graduate Studies is 80, effective September 2005.

Many graduate programs will require higher minimum total scores, and may require minimum scores on individual components of the test. The chart TOEFL and GRE Requirements on the online version of this Calendar will have updated information on minimum TOEFL scores for individual graduate programs throughout the year.

Paper- and Computer-based TOEFL Scores

Program	TOEFL (Paper)	TOEFL (Computer)	GRE
Adult Education	600	250	
Adult Learning and Global Change	600	250	
Agricultural Economics	577	233	
Anatomy and Cellular Biology	550	213	Yes
Ancient Culture, Religion and Ethnicity	600	250	
Animal Science	577	233	
Anthropology	600	250	
Architecture (M.A.S.A.)	600	250	Yes ¹
Architecture (M.Arch.)	600	250	Yes ¹
Archival Studies (M.A.S. and M.A.S.L.I.S.)	600	250	
Art Education	580	237	
Art History	600	250	
Asia Pacific Policy Studies	600	250	Yes ¹
Asian Studies	570	230	
Astronomy	550	213	
Atmospheric Science	600	250	Yes ¹
Audiology and Speech Sciences	600	250	
Biochemistry and Molecular Biology	625	263	Yes
Botany	550	213	
Chemical and Biological Engineering	550	213	
Chemistry	580	237	Yes
Children's Literature	600	250	
Civil Engineering ¹⁰	600	250	
Classics and Classical Archaeology	600	250	
Commerce and Business Admin. (M.Sc. [Bus.Admin.], Ph.D.)	600	250	Yes ²
Comparative Literature	625	260	
Computer Science	600	250	Yes
Counselling Psychology	553	217	Yes
Creative Writing	550	213	
Critical and Curatorial Studies	600	250	
Cross-Faculty Inquiry in Education	567	227	
Curriculum Studies	580	237	
Dental Science	580	237	
Economics	550	213	Yes
Educational Administration	600	250	
Educational Leadership and Policy	600	250	
Educational Psychology	553	217	Yes ³
Educational Studies	600	250	
Educational Technology	550	213	
Electrical and Computer Engineering	600	250	
English	615	258	
European Studies	580	237	
Experimental Medicine	590	243	
Family Studies	575	232	
Film (M.F.A.)	600	250	
Film Studies (M.A. and Ph.D.)	600	250	
Food Science	577	233	
Forestry	550	213	
French Studies	550	213	
Genetic Counselling	600	250	
Genetics	600	250	
Geography	600	250	
Geological Engineering	600	250	
Geological Science	600	250	
Geophysics	600	250	
Germanic Studies	550	213	

Program (Continued)	TOEFL (Paper)	TOEFL (Computer)	GRE
Health Administration	625	263	
Health Care and Epidemiology (M.H.A.)	625	263	Yes ²
Health Science	625	263	
Higher Education	600	250	
Hispanic Studies	550	213	
History	570	230	Yes ⁴
History of Education	600	250	
Home Economics Education	580	237	
Human Kinetics	577	233	
Human Nutrition	577	233	
Interdisciplinary Studies	550	213	
Italian Studies	550	213	
Journalism	600	250	
Landscape Architecture	577	233	
Language and Literacy Education	550	213	
Law ⁵	600	250	
Library, Archival and Information Studies	600	250	
Linguistics	550	213	
Materials Engineering	560	220	
Mathematics	600	250	
Mathematics Education	580	237	
Measurement, Evaluation and Research Methodology	553	217	
Mechanical Engineering ⁶	580	237	Yes ¹
Medical Genetics	600	250	
Medicine M.D./Ph.D. (Combined Program)	550	213	
Microbiology and Immunology	600	250	Yes ⁸
Mining Engineering	550	213	
Modern Language Education	550	213	
Music	580	237	
Neuroscience	600	250	Yes ⁸
Nursing	600	250	Yes
Occupational and Environmental Hygiene	600	250	Yes
Occupational Therapy	600	250	
Oceanography	600	250	
Oncology	600	250	
Oral Biology	580	237	
Pathology and Laboratory Medicine	577	233	Yes ⁸
Pharmaceutical Sciences	600	250	
Pharmacology and Therapeutics	600	250	
Philosophy	600	250	
Philosophy of Education	600	250	
Physical Education	580	237	
Physical Therapy	600	250	
Physics	550	213	Yes ^{7,9}
Physiology	550	213	
Planning	600	250	Yes ¹
Plant Science	577	233	
Political Science ¹⁰	580	237	Yes ⁸
Psychology	550	230	Yes
Rehabilitation Sciences	600	250	
Rehabilitation Sciences (M.R.Sc.)	627	263	
Religious Studies	600	250	
Reproductive and Developmental Science	550	213	
Resource Management and Environmental Studies	600	250	
School Psychology	553	217	

Program (Continued)	TOEFL (Paper)	TOEFL (Computer)	GRE
Science Education	580	237	
Social Studies Education	580	237	
Social Work	580	237	
Society, Culture and Politics in Education	600	250	
Sociology	600	250	
Software Systems	600	250	
Soil Science	577	233	
Special Education	553	217	
Statistics	600	250	
Surgery	550	213	
Teacher Librarianship	550	213	
Teaching English as a Second Language	550	213	
Technology Studies Education	580	237	
Theatre (M.F.A.)	550	213	
Theatre (M.A. and Ph.D.)	600	250	
Visual Art	600	250	
Vocational Rehabilitation Counselling	553	217	
Women's Studies and Gender Relations	590	243	
Zoology	570	230	

¹ Not mandatory, but strongly recommended.

² Or GMAT.

³ Ph.D. program only.

⁴ US applicants only.

⁵ TWE: 5.5

⁶ TSE: 40; TWE: 4.0

⁷ TSE: 55; TWE: 5.0

⁸ Applicants from outside North America only.

⁹ General and subject tests required.

¹⁰ TWE: 5.0

¹¹ GMAT required. Internet-based TOEFL Scores

Internet-based TOEFL Scores

Program	Reading	Writing	Listening	Speaking	Overall
Adult Education					100
Adult Learning and Global Change					100
Agricultural Economics					90
Anatomy and Cellular Biology					80
Ancient Culture, Religion and Ethnicity					100
Animal Science					90
Anthropology	25	25	22	22	100
Architecture (M.A.S.A.)					100
Architecture (M.Arch.)					100
Archival Studies (M.A.S. and M.A.S.L.I.S.)					100
Art Education					92
Art History					100
Asia Pacific Policy Studies					100
Asian Studies					89
Astronomy					80
Atmospheric Science				24	100
Audiology and Speech Sciences					100
Biochemistry and Molecular Biology					106
Botany					80
Chemical and Biological Engineering					80

Program (Continued)	Reading	Writing	Listening	Speaking	Overall
Chemistry					92
Children's Literature					100
Civil Engineering ¹⁰					100
Classics and Classical Archaeology					100
Commerce and Business Admin. (M.Sc. [Bus.Admin.], Ph.D.)					100
Comparative Literature					107
Computer Science					100
Counselling Psychology					82
Creative Writing					80
Critical and Curatorial Studies					100
Cross-Faculty Inquiry in Education					86
Curriculum Studies					92
Dental Science					92
Economics					80
Educational Administration					100
Educational Leadership and Policy					100
Educational Psychology	21	20	21	20	82
Educational Studies					100
Educational Technology	20	20			80
Electrical and Computer Engineering					100
English					104
European Studies					92
Experimental Medicine	22	22	22	22	96
Family Studies					93
Film (M.F.A.)					100
Film Studies (M.A. and Ph.D.)					100
Food Science					90
Forestry					80
French Studies					80
Genetic Counselling					100
Genetics					100
Geography					100
Geological Engineering				24	100
Geological Science				24	100
Geophysics				24	100
Germanic Studies					80
Health Administration					107
Health Care and Epidemiology					107
Health Science					107
Higher Education					80
Hispanic Studies					80
History					89
History of Education					92
Home Economics Education					92
Human Kinetics	23	23	23	21	90
Human Nutrition					90
Interdisciplinary Studies					80
Italian Studies					80
Journalism					100
Landscape Architecture					90

Program (Continued)	Reading	Writing	Listening	Speaking	Overall
Language and Literacy Education					80
Law ⁵					100
Library, Archival and Information Studies					100
Linguistics					80
Materials Engineering					83
Mathematics					100
Mathematics Education					92
Measurement, Evaluation and Research Methodology	21	20	21	20	82
Mechanical Engineering ⁶					93
Medical Genetics					100
Medicine M.D./Ph.D. (Combined Program)					80
Microbiology and Immunology					100
Mining Engineering					80
Music					93
Music Education					92
Neuroscience					100
Nursing					100
Occupational and Environmental Hygiene					100
Oceanography					100
Oncology	22	24	22	22	100
Oral Biology					92
Pathology and Laboratory Medicine					90
Pharmaceutical Sciences	22	22	22	22	100
Pharmacology and Therapeutics					100
Philosophy					100
Philosophy of Education					100
Physical Education					100
Physical Therapy					100
Physics					80
Physiology					80
Planning					100
Plant Science					90
Political Science ¹⁰	22	25	22	23	92
Psychology					88
Rehabilitation Sciences					100
Rehabilitation Sciences (M.R.Sc.)					108
Religious Studies					100
Reproductive and Developmental Science					80
Resource Management and Environmental Studies					100
School Psychology	21	20	21	20	82
Science Education					92
Social Studies Education					92
Social Work					93
Society, Culture and Politics in Education					100
Sociology	25	25	22	22	100
Software Systems					100
Soil Science					90
Special Education	21	20	21	20	82
Statistics					100
Surgery					80

Program (Continued)	Reading	Writing	Listening	Speaking	Overall
Teacher Librarianship					80
Teaching English as a Second Language					80
Technology Studies Education					92
Theatre (M.F.A.)					80
Theatre (M.A. and Ph.D.)					100
Visual Art					100
Vocational Rehabilitation Counselling	21	20	21	20	82
Women's Studies and Gender Relations					97
Zoology					89

¹ Not mandatory, but strongly recommended.

² Or GMAT.

³ Ph.D. program only.

⁴ US applicants only.

⁵ TWE: 5.5

⁶ TSE: 40; TWE: 4.0

⁷ TSE: 55; TWE: 5.0

⁸ Applicants from outside North America only.

⁹ General and subject tests required.

¹⁰ TWE: 5.0

¹¹ GMAT required.

CLASSIFICATION OF STUDENTS

DOCTORAL STUDENT

Full-time students are expected to engage in their studies on a full-time basis. All doctoral students are considered full-time students and are assessed fees according to Schedule A. (See *Graduate Student Fees*, p. 31, in the “Fees, Financial Assistance and Scholarships” chapter.) Full-time students are eligible for graduate scholarships and fellowships. Normally, teaching assistantships (TAs) and research assistantships (RAs) are limited to full-time students.

Graduate programs may articulate specific limitations regarding concurrent paid employment as consistent with the definition of full-time study. Recipients of teaching assistantships (TAs) must adhere to the TA union's regulations governing number of hours worked while holding a teaching assistantship.

MASTER'S STUDENT

Full-Time Classification

Students classified as full-time are expected to engage in their studies on a full-time basis. Master's students are normally considered full-time and are assessed tuition fees according to Schedule A. Full-time students are eligible for graduate scholarships and fellowships. Normally, teaching assistantships (TAs) and research assistantships (RAs) are limited to full-time students.

Graduate programs may articulate specific limitations regarding concurrent paid employment as consistent with the definition of full-time study. Recipients of Teaching Assistantships (TAs) must adhere to the TA union's regulations governing number of hours worked while holding a Teaching Assistantship.

Part-Time Classification

In some programs, master's students have the option of pursuing the degree through part-time study. The expected academic workload of students classified as part-time is determined by the graduate program. Students classified as part-time are assessed tuition fees according to Schedule B.

Students who wish to be classified as part-time must obtain approval from their graduate program advisor and the Faculty of Graduate Studies prior to the beginning of the first term of the program (i.e., prior to the commencement of the degree program) in which fees are first assessed.

Students classified as part-time are advised that:

- they are not eligible to receive interest-free status government loans, University fellowships or scholarships;
- they are not eligible for teaching assistantships, research assistantships, student housing, or assigned desk space at the University; and
- the five-year maximum time allowed for the master's program also applies to part-time students.

Students who pay tuition fees according to Schedule B are not permitted to revert back to Schedule A after the initial payment of the tuition fees in the first term of the program.

QUALIFYING STUDENT

A student whose academic background entitles him or her to serious consideration for admission to graduate studies but who is considered to be inadequately prepared to enter a graduate program in the specific discipline (e.g., three-year degree holders from other Canadian universities, a student changing from one field of study to another, or a student upgrading academic standing) may be admitted as a qualifying student. Qualifying students are not considered graduate students.

If, at the end of a qualifying term or year, the graduate program and the Faculty of Graduate Studies are satisfied with the calibre of the student's work, the student may apply for admission to a graduate degree program.

Courses taken during a qualifying year or term that are necessary in order to meet the requirements for full admission to Graduate Studies cannot be transferred to a subsequent graduate program. However, other courses may be transferred upon the recommendation of the department and with the approval of the Dean of Graduate Studies.

Qualifying student status is available only to applicants who do not require a study permit to enter Canada.

VISITING GRADUATE STUDENT

A visiting graduate student is one who is attending UBC to complete course work and/or research toward the requirements of a graduate degree at another recognized university. To be eligible for admission as a visiting student to UBC, the student must be currently registered in a graduate program with good standing at the home university. Normally, students may hold visiting status at UBC for a maximum of 12 months. Prior approval of the home university, the UBC graduate program, and the Dean of the Faculty of Graduate Studies is required.

Visiting students, with the exception of those governed by the Western Deans' Agreement, Graduate Exchange Agreement, and other

special agreements, pay tuition fees on a per-credit basis.

Visiting Students under the Western Deans' Agreement

The Western Deans' Agreement provides an automatic tuition fee waiver for visiting students from participating universities. Under the terms of this agreement, graduate students in good standing from UBC can register in any of the universities listed below without paying tuition or student fees. The same is also true for students of other participating institutions who wish to attend classes or conduct research at UBC.

The Western Deans' Agreement is supported by the Universities of: Alberta, Athabasca, Brandon, British Columbia, Calgary, Lethbridge, Manitoba, Northern British Columbia, Regina, Saskatchewan, Simon Fraser, and Victoria.

Visiting Students under the Graduate Exchange Agreement

The Graduate Exchange Agreement allows graduate students in good standing at UBC, McGill University, the University of Toronto, and the University of Montreal to take courses at each other's universities without having to pay tuition fees to the host institution.

Students wishing to apply for visiting student status under either of these special agreements should consult the Graduate Studies website (grad.ubc.ca/policy/) for more information.

Other Exchange Agreements

Graduate programs may have exchange agreements with similar programs at other institutions. Students should consult their Graduate Advisor or UBC's *Go Global Student Mobility programs office*, p. 62, for more information.

ON-LEAVE STATUS

Students who find it necessary to interrupt their graduate studies may apply to the Dean of the Faculty of Graduate Studies for on-leave status. Leave is granted when a student is best advised for personal, health or other reasons to have time completely away from his/her academic responsibilities. Leave, not including parental leave or leave to pursue concurrent programs, for master's or doctoral students is limited to one year. A leave will normally begin on the first day of a term, for a period of four, eight or twelve months. Students granted leave-of-absence or parental leave retain the full value of any University graduate fellowship or other award whose terms and conditions are established by the Faculty of Graduate Studies. Awards will be suspended at the onset of the leave, and reinstated at the termination of the leave period, provided the student returns to full-time study at that time. Other awards will be paid according to the conditions established by the donor or granting agency. Leaves of absence must be approved by the student's home graduate program. Requests for leaves for medical reasons must be accompanied by a doctor's note recommending the leave.

It is understood that students with on-leave status will not undertake any academic or research work, or use any of the University's facilities during the period of leave. Students must inform the University immediately upon return.

The time spent on-leave is not counted as part of the allowed time to completion for the degree. On-leave students continue to be registered and must pay a reduced fee for the leave period.

Parental Leave

A graduate student who is bearing a child or who has primary responsibility for the care of an infant or young child is eligible for parental leave. A request for parental leave should be made through the student's graduate program for a minimum leave of four months to a maximum of 12 months. Where possible, students enrolled in course work should coordinate their leave to coincide with the beginning of an academic term.

Leave to pursue a second program of study

Following academic consultation, graduate students may apply for leave of absence from one program to pursue a second program of study. In this case, the student is responsible for both on-leave tuition fees as well as the tuition fees associated with the second program. A leave of absence for these reasons may exceed one year. Time to completion of the first degree program would be extended by the span of time on the leave of absence.

ACADEMIC REGULATIONS

PROGRAM OF STUDY

Doctoral Students

All doctoral students admitted to the Faculty of Graduate Studies must register when they begin their studies. Students must remain continuously registered until the degree is completed, except for periods of time for which the student is away on an approved leave of absence. Failure to register for two consecutive terms may result in the student being required to withdraw.

Each doctoral student is supervised by a committee of not less than three faculty members, which may include faculty members from graduate programs other than the student's home graduate program. With the approval of the Dean of the Faculty of Graduate Studies, the committee may also include qualified persons who are not faculty members. The supervisory committee is responsible for guiding the student in planning research and preparing the thesis.

In some graduate programs, the student is responsible for securing the chair of the supervisory committee; in others, the department will assign the chair. Students should consult with their graduate program advisor in this respect. Changes may be made to the student's committee with the approval of his or her home department. Students who are unable to secure a chair should ask either the graduate program

advisor or the department head for assistance. In very exceptional circumstances, the head may ask the Dean of the Faculty of Graduate Studies to appoint a chair. In some instances and for a brief period of time only, a student may be assigned an interim committee until such time as a more permanent committee can be established.

Upon registration, the doctoral student will consult with his or her supervisor(s) to develop a program of study, subject to the approval of the home program. The program of study will consist of seminars, directed readings, consultations and such formal courses as may be deemed essential for the fulfilment of the requirements for the degree. Some graduate programs require competence in languages other than English. The graduate program in which the student intends to write the thesis shall determine the number of such languages and a satisfactory level of competence. A major part of the doctoral student's work will consist of a thesis embodying the results of original research.

Changes in the program of study may be required during the period of study. These changes must be reviewed and approved by the student's supervisory committee and the home graduate program.

Note: courses listed in the Calendar may not all be offered annually. Students should apply to the department concerned for detailed information about course offerings in any given year.

TRANSFER CREDIT

Doctoral students are not normally eligible for transfer credit. In doctoral programs where there is a prescribed amount of course work, students may be eligible for course exemptions on the basis of previous courses taken.

Master's Degree Students

All master's degree students admitted to the Faculty of Graduate Studies must register when they begin their studies. Students must remain continuously registered until the degree is completed, except for periods of time for which the student is away on an approved leave of absence. Failure to register for two consecutive terms may result in the student being required to withdraw.

Each student's program of study must be approved by the home graduate program.

Some graduate programs require competence in languages other than English. The graduate program in which the student intends to write the thesis shall determine the number of such languages and a satisfactory level of competence.

Faculty of Graduate Studies regulations for master's degrees provide for full- or part-time studies, as well as for programs with thesis and programs without thesis. The choice of these options lies with the individual graduate program and student. Graduate programs are also free to prescribe work beyond the minimum requirements described below. Students should contact graduate programs directly for more information on program options.

PROGRAM REQUIREMENTS (THESIS AND NON-THESIS PROGRAMS)

The minimum course requirements are 30 course credits, of which at least 24 must be numbered 500 to 699. A maximum of 6 credits at the undergraduate level in courses numbered 300 to 499 may be counted toward the requirements of a master's degree. A comprehensive examination in the form of a final written and/or oral examination is at the discretion of the graduate program.

In specific programs, minimum requirements may be higher than 30 course credits. Students should consult the graduate program listing in the Calendar for more information.

Note: courses listed in the Calendar under graduate programs may not all be offered annually. Students should consult the graduate program listing in the Calendar for more information.

TRANSFER CREDIT

- 1) Students registered in a master's program may be permitted to take up to 12 credits or up to 40% of the total number of credits needed for degree completion (whichever is more) at another university to be counted toward a University of British Columbia graduate degree. These credits cannot have been counted toward the completion of another credential, nor have been used to upgrade an applicant's academic standing to justify admission. Only courses in which at least a 'B' standing (UBC 74%) is obtained will be considered for transfer.
- 2) Undergraduate students who have maintained an overall 'B+' (76%) average in their completed third- and fourth-year courses, and who have completed at least 75% of the third- and fourth-year requirements for their undergraduate degree, may be eligible to register in graduate courses. Upon admission to the Faculty of Graduate Studies, these credits, to a maximum of 12 credits or 40% of the total number of credits needed for degree completion (whichever is more), may be applied towards a graduate degree.
- 3) The 12-credit (40%) restriction does not apply to students in UBC approved Exchange Agreements established by the UBC Go Global Office.
- 4) Requests for transfer credit must be accompanied by a letter from the home graduate program addressed to the Dean of the Faculty of Graduate Studies. The letter must provide an academic justification for allowing the transfer credit on a course by course basis.

EXEMPTIONS

Students may be exempted from specific course requirements if the graduate program is satisfied that the student has acquired the knowledge from courses previously taken or from experience. Exemptions do not reduce the total credits required for a degree. In such cases, the graduate program should substitute a more appropriate course. The exemption from the specific requirement must be recorded on the student's academic record.

ACADEMIC PROGRESS

Doctoral Students

The progress of all students working toward the Ph.D., D.M.A. and Ed.D. will be reviewed regularly and at least once each year in June by the home graduate program and the Dean of the Faculty of Graduate Studies. A student may be required to withdraw if progress has not been satisfactory as shown by course work, the comprehensive examination, advancing to candidacy, progress on the thesis, or other requirements of the graduate program or the faculty.

DEFINITION OF SATISFACTORY PROGRESS

A minimum of 68% (B-) must be achieved in all course work taken for credit. Where a grade of less than 68% (B-) is obtained in a course, and on the recommendation of the graduate program and the approval of the Dean of the Faculty of Graduate Studies, the student may repeat the course for higher standing or take an alternate course. If the graduate program advisor does not make such a recommendation, or if the recommendation is not approved by the Dean of the Faculty of Graduate Studies, the student will be required to withdraw. A student who obtains a grade of less than 68% in more than one course will normally be required to withdraw. If progress in research is unsatisfactory, a student will be required to withdraw. **The student will be informed of unsatisfactory academic progress in writing before any action regarding withdrawal (grad.ubc.ca/forms/?formID=FST) is taken.**

A minimum mark of 68% must be obtained in all courses taken as part of a qualifying year for a doctoral program. When repeating a failed required course, a minimum mark of 74% must be obtained. Higher minimum marks may be required by the graduate program or the Faculty of Graduate Studies.

If a course is repeated, both marks will appear on the transcript. The higher mark will be used to determine promotion in a program and in any decision to admit or withdraw a student from a program. For all other purposes, averages will be calculated using both marks.

It is required that all doctoral students be admitted to candidacy within 36 months from the date of initial registration. A student who is not admitted to candidacy within this time period will be required to withdraw from the program. Extensions may be granted under exceptional circumstances and with the permission of the Dean of the Faculty of Graduate Studies.

Master's Students

The progress of all students working toward the master's degree will be reviewed regularly and at least once each year in June by the home graduate program and the Dean of the Faculty of Graduate Studies. A candidate may be required to withdraw if progress has not been satisfactory as shown by course work, the comprehensive examination, progress on the

thesis, or other requirements of the graduate program or the faculty.

DEFINITION OF SATISFACTORY PROGRESS

A minimum of 60% must be obtained in any course taken by a student enrolled in a master's program for the student to be granted pass standing. However, only 6 credits of pass standing may be counted towards a master's program. For all other courses, a minimum of 68% must be obtained.

On the recommendation of the graduate program and the approval of the Dean of the Faculty of Graduate Studies, the student may repeat a course for higher standing or take an alternate course. If the graduate program does not make such a recommendation, or if the recommendation is not approved by the Dean of the Faculty of Graduate Studies, the student will be required to withdraw. A student who obtains a grade of less than 68% in an excessive number of courses will normally be required to withdraw. **The student will be informed of unsatisfactory academic progress in writing before any action regarding withdrawal is taken.**

A minimum mark of 68% must be obtained in all courses taken as part of a qualifying year. When repeating a failed required course, a minimum mark of 74% must be obtained. Higher minimum grades may be required.

If a course is repeated, both marks will appear on the transcript. The higher mark will be used to determine promotion in a program and in any decision to admit or withdraw a student from a program. For all other purposes, averages will be calculated using both marks.

DURATION OF PROGRAM

Doctoral Students

Students admitted to a doctoral program will normally be expected to spend the equivalent of at least two consecutive years of full-time study at the University. With the approval of the Dean of the Faculty of Graduate Studies, graduate programs may make different regulations concerning duration of study, sequence of study and location of full-time study.

Students must maintain continuous registration throughout all years until graduation by keeping up with tuition fee payments.

If the degree is not awarded within a period of six years from initial registration, the student's eligibility for the degree will be terminated and the student will be required to withdraw from the program. Under exceptional circumstances, extensions may be granted by the Dean of the Faculty of Graduate Studies.

Students who, for health or personal reasons including childbirth and having primary responsibility for the care of a child, must interrupt their studies should apply for a leave. See *On-Leave Status*, p. 223, under Classification of Students. The period of leave is not counted toward time to completion.

Master's Students

Students in a master's program are expected to spend the equivalent of at least one year in full-time study. Some programs may be of longer minimum duration. Students must maintain continuous registration throughout all years until graduation by keeping up with fee payments.

If a degree is not awarded within a period of five years from initial registration, the student's eligibility for the degree will be terminated and the student will be required to withdraw from the program. Under exceptional circumstances, extensions may be granted by the Dean of the Faculty of Graduate Studies. This restriction applies equally to full-time and part-time students.

Students who, for health or personal reasons including childbirth and having primary responsibility for the care of a child, must interrupt their studies should apply for a leave. See *On-Leave Status*, p. 223, under Classification of Students. The period of leave is not counted toward time to completion.

EXAMINATIONS AND THESIS

Doctoral Students

The doctoral student will take the following examinations:

- 1) Course examinations where applicable; a minimum of 68% must be obtained unless otherwise specified;
- 2) Tests of the student's ability to read languages other than English where program regulations require it;
- 3) A comprehensive examination normally held after completion of all required coursework and intended to test the student's grasp of the chosen field of study as a whole, and the student's ability to communicate his or her understanding of it in English or in French. The candidate's committee will set and judge this examination in a manner compatible with the policy of the graduate program concerned. Programs should make available to students a written statement of examination policy and procedures. The comprehensive examination is separate and distinct from the evaluation of the thesis prospectus;
- 4) A graduate program may require a formal examination of the thesis before it is transmitted to the Faculty of Graduate Studies for final oral examination.

Students should consult their respective graduate program advisors for information about program requirements.

All doctoral candidates are required to complete a thesis. A candidate's thesis must be presented according to procedures described at Master's and Doctoral Thesis Submission (grad.ubc.ca/students/thesis). Students should refer to the current year's Calendar or check the Faculty of Graduate Studies website (grad.ubc.ca) for information regarding deadlines for submission of doctoral theses.

All doctoral students will take a final oral examination or thesis defence:

- 1) All doctoral theses must be assessed by an examiner external to the University, as well as by internal examiners. The external examiner is chosen by the Dean of the Faculty of Graduate Studies in consultation with the graduate program concerned. Procedures for choosing a suitable external examiner must be initiated at least three months before completion of the thesis. The external examiner's written report must be received before the final examination can take place.
- 2) Final oral examinations can be scheduled no sooner than eight weeks after submission of the approved thesis to the Faculty of Graduate Studies. All other degree requirements must also have been completed.
- 3) The final oral examination is open to all members of the University and to the public. Notice of the examination will be available on the Faculty of Graduate Studies website (grad.ubc.ca).
- 4) The Dean of the Faculty of Graduate Studies must approve the membership of the examining committee. The Dean or the Dean's designate chairs the examination. The examining committee judges the candidate's success and makes a recommendation to the Dean of the Faculty of Graduate Studies.

More information on oral examination procedures is available on the Faculty of Graduate Studies website (grad.ubc.ca/students/oralexams). Students registered in a doctoral program are not permitted supplemental examinations.

Master's Students

There is no general requirement for a comprehensive examination at the master's level. Graduate programs may, at their own discretion, require a comprehensive examination in the student's field of study as part of the degree requirements.

Where a comprehensive examination is required, programs must make available to students a written statement of examination procedures such as the purpose, form, length, subject area(s) and scope of the examination, as well as information on the criteria for evaluation.

In the creative and performing arts, a thesis may consist of creative work (e.g., paintings, writing) or of a performance. Programs may, at their discretion, require additional supporting documentation.

In programs requiring a thesis, the thesis must be presented according to procedures described at Thesis Submission (grad.ubc.ca/students/thesis).

WITHDRAWAL, REINSTATEMENT AND READMISSION

Students will normally be required to withdraw if they do not make adequate academic progress according to the timelines and policies set by their home graduate program and/or the Faculty of Graduate Studies. When a student is

required to withdraw, the academic record will indicate “required to withdraw.”

A student in any graduate program who is required to withdraw will not normally be eligible to apply for readmission to the University of British Columbia for at least one year. After one year, students who have been required to withdraw from a graduate program may be admitted to a different program in the Faculty of Graduate Studies provided they meet all admission requirements in effect for that program at the time they apply. Such applications must be accompanied by a statement from the graduate program which recommended withdrawal outlining the reasons for which the student was required to withdraw. Students who have been required to withdraw from a graduate program may also apply to be readmitted to the same program after at least one year has passed from the effective date of withdrawal. Compelling evidence must be presented that a more successful outcome is likely if the student is to be readmitted. All cases for readmission must be reviewed and approved by the Dean of Graduate Studies. Students required to withdraw from a graduate program more than once are not eligible to be considered for admission to any program in the Faculty of Graduate Studies.

A student wishing voluntarily to withdraw from the University must obtain the approval of the dean, director or department head, and the graduate advisor in the home graduate program on the *Change of Registration* form. When the withdrawal is approved, the academic record will indicate “voluntary withdrawal,” the date of withdrawal and a standing of ‘W’ in all courses not completed on that date.

If withdrawal is not approved, the student will remain registered in all courses and a final grade and/or standing will be assigned at the end of the term or session. A student who fails to register and/or becomes absent without leave from their program for two or more consecutive terms will normally be withdrawn from the program. The academic record will indicate “withdrawal—did not register.” Graduate programs must document that an attempt was made to contact a missing student when recommending a withdrawal for non-registration.

A student who does not complete formal withdrawal procedures will be liable for all assessed fees until such procedures are completed.

Request to Withdraw for Non-Academic Reasons

The Faculty of Graduate Studies reserves the right to require a student to withdraw from a program of study if the Faculty, in consultation with the graduate program, considers the student to be unsuited to proceed with the study or practice of the chosen discipline or field of study. Request to withdraw for non-academic reasons would not prevent the student from immediately applying for entry into a different program of study.

Reinstatement

This applies when a student’s registration has lapsed but the student is permitted to resume

the program. Normally, if the student is reinstated, courses that have been completed will be credited to the degree, and only outstanding degree requirements must be completed. The student’s start date remains the date of initial entry to the program and the time limit for completion of the degree is not affected.

A student may be reinstated on the recommendation of the graduate program if:

- The student is in good academic standing.
- Any delinquent fees or charges are paid including tuition and continuing fees owing for the period during which the student did not register.
- The time limit for degree completion, including the sessions in which the student was not registered, has not expired.

Sometimes, even if the student is reinstated, he or she does not have enough time left to complete the outstanding degree requirements. A decision, based on the academic merits of the case, will determine whether the student should be readmitted as a new student or reinstated. In the latter case, an extension of the time limit may be requested. In addition, if more than two years have elapsed since the student last registered, the Faculty of Graduate Studies may impose additional requirements to ensure that the student is current in the field and is academically prepared to complete the degree requirements.

A student who is required to withdraw for academic reasons is not eligible for reinstatement.

Readmission

This applies when it is appropriate to admit a student who was previously registered, as if for the first time. An application for admission, whether to the same or a different program, will be evaluated as a new application. A new application form and application fee must be submitted.

A maximum of 12 credits or up to 40% of the total number of degree credits of previously completed course work may be applied toward the new degree program requirements, provided the courses were completed no longer than five years from the date of readmission. Courses eligible for transfer must have been awarded a grade of at least ‘B’ (74%). Normal program requirements apply, as does the standard time allowed for degree completion: five years for a master’s student; six years for a doctoral student.

Readmitted doctoral students are not eligible for a Ph.D. Tuition Fee Award.

ACADEMIC RECORD

Transcript of Academic Record

The transcript is a student’s official academic record and includes the student’s complete record at the University of British Columbia. Student records and transcripts are confidential and transcripts will be issued only at the request of the student or appropriate agencies or officials.

Apply for a transcript online (www.students.ubc.ca/ssc) or in person at Brock Hall. Please allow at least one week from the date the application is made. Transcripts will not be issued to students who have any outstanding fees, including library and other charges, to the University. Fees for transcripts are payable in advance; transcripts will not be provided until payment is received.

Students are encouraged to order transcripts as early as possible. Transcripts may be requested up to six months in advance of a due date.

Retention of Student Records

UBC academic records, including all information appearing on a Transcript of Academic Record, are retained indefinitely. Notations of student discipline are retained according to the terms of the penalty imposed. Materials supporting applications for admission, correspondence and transcripts from other institutions and similar material may be destroyed five years after a student’s last registration, except for doctoral students, where materials may be destroyed after two years from the date of graduation. Other material may be destroyed sooner.

Students who submit irreplaceable material may request the return of that material. Such requests must be submitted with the original material. The office to which the material is submitted will return the material as soon as possible, and not later than six months after the student’s graduation or last registration.

Senate Appeals on Academic Standing

Students may protest decisions relating to their academic standing. Students should protest a decision first with the faculty member directly involved in the decision and then, if necessary, with the department head, the dean of the faculty involved, and finally with the Dean of the Faculty of Graduate Studies.

The Committee on Appeals on Academic Standing is a standing committee of the University Senate, which is the senior academic authority in the University. Information on the policies and procedures of this committee can be found in the Calendar (see *Senate Appeals on Academic Standing*, p. 51, in the chapter Academic Regulations).

Student Discipline

The President of the University has the right under the *University Act* (section 61) to take whatever disciplinary action is deemed to be warranted by a student’s misconduct. The specific provisions as to Offences, Penalties and Procedures are in the Calendar (see *Student Discipline*, p. 52, in the chapter Academic Regulations).

AWARDS AND SCHOLARSHIPS

The University offers a wide range of programs to recognize students with high academic achievement and to provide financial assistance to those who cannot meet basic education costs. Academic merit-based awards for graduate study (grad.ubc.ca/awards) are administered by the Dean's Office, Faculty of Graduate Studies. Financial need-based awards are administered by Student Financial Assistance & Awards (www.students.ubc.ca/finance), The University of British Columbia, 1036-1874 East Mall, Vancouver, BC, Canada, V6T 1Z1; telephone 604-822-5111.

Financial support for graduate students usually comes from the following sources:

- Merit-based awards, scholarships and fellowships administered by the Faculty of Graduate Studies, including University Graduate Fellowships, Izaak Walton Killam Predoctoral Fellowships, endowed awards and annual donors.
- External funding agencies including Natural Science and Engineering Research Council (NSERC), Social Science and Humanities Research Council (SSHRC), the Canadian Institutes of Health Research (CIHR), the Michael Smith Foundation for Health Research, and others.
- Ph.D. Tuition Fee Award administered by the Faculty of Graduate Studies.
- International Partial Tuition Scholarships administered by the Faculty of Graduate Studies.
- UBC teaching and research assistantships administered by individual graduate programs.
- Need-based awards and financial assistance including loans, bursaries, work/study program and emergency assistance.

MERIT-BASED AWARDS

University Graduate Fellowships (UGF)

The Faculty of Graduate Studies administers an annual competition that provides approximately 300 graduate fellowships to students who are engaged in full-time study or research leading to a graduate degree. The funds for these awards are made available from the University budget.

Awards are made on the basis of merit, and are open to any graduate student regardless of citizenship or visa status. The value of these awards is reviewed annually. Each award covers a twelve-month period beginning September 1, and is offered for either one or two years.

Awards are made on the basis of nominations provided by graduate programs to the Faculty of Graduate Studies. Students must contact their graduate programs for deadline dates. Recipients are notified in late April. Only current UBC graduate students are eligible for nomination.

Izaak Walton Killam Predoctoral Fellowships

The Izaak Walton Killam Predoctoral Fellowships are the most prestigious awards available to graduate students at UBC. The awards are funded from an endowment to the University from the I.W. Killam Trust. Awards are made each year to the top doctoral candidates in the University Graduate Fellowship (UGF) competition. The value of the awards is reviewed annually. No special application is required since all UGF nominations are automatically considered for Killam Predoctoral Fellowships.

Endowed Awards

There are several endowed awards that are adjudicated as part of the University Graduate Fellowship (UGF) competition. These include several fellowships with a stipend equivalent to that of a UGF. There are some restrictions with respect to field of study as specified by the donor. Students wishing to be considered for these affiliated awards should indicate those awards for which they are eligible on their UGF Application Form. Detailed descriptions of these awards are available on the Awards, Fees and Finances website (www.students.ubc.ca/finance). For application procedures students should consult their graduate programs.

University Awards

There are a limited number of awards available to graduate students in specific fields of study. These awards are provided by external donors. Details can be found at the Awards, Fees and Finances website (www.students.ubc.ca/finance). Awards are normally made on the recommendation of graduate programs. Nominations for these awards are normally submitted to the Faculty of Graduate Studies prior to June 15 for distribution in the upcoming academic year.

Graduate Entrance Scholarships

Graduate Entrance Scholarships are offered by graduate programs to the best and brightest incoming master's and doctoral students for full-time graduate study or research at UBC. Inquiries about this scholarship should be addressed to the graduate program advisor.

Deferral of Awards

University Graduate Fellowship (UGF) awards can be deferred within the academic year (i.e., students can take up their awards in September or January) but cannot be deferred to the following academic year. Students who are unable to access their UGF award within the academic year must re-apply to the UGF competition.

AWARDS FROM EXTERNAL FUNDING AGENCIES

Natural Sciences and Engineering Research Council (NSERC)

NSERC administers Canada-wide scholarship competitions for graduate students. The competitions are open only to Canadian

citizens or permanent residents. Awards are made on the basis of academic excellence.

Students should discuss eligibility and application procedures with their graduate program. The deadline for submission of NSERC scholarship nominations by graduate programs to the Faculty of Graduate Studies is early October. Files are reviewed by a University-wide committee that selects UBC's quota of ranked nominations. These nominations are forwarded to NSERC in time to meet the late November national deadline. Competition results are announced in April. For more information visit the NSERC website (www.nserc.gc.ca).

Social Sciences and Humanities Research Council (SSHRC)

SSHRC administers a national competition for doctoral and master's students in the social sciences and humanities. The Faculty of Graduate Studies solicits nominations for SSHRC doctoral and master's fellowships from graduate programs in early October. Files are reviewed and ranked by a University-wide committee. In accordance with quotas established by SSHRC, UBC sends lists of the highest-ranking candidates to the Council in January. SSHRC competition results are announced in April. For more information visit the SSHRC website (www.sshrc.ca/web/home_e.asp).

Canadian Institutes of Health Research (CIHR)

CIHR administers Canada-wide scholarship competitions for graduate students. The Faculty of Graduate Studies solicits nominations for CIHR master's awards from graduate programs in early October. The competitions are open only to Canadian citizens or permanent residents. Awards are made on the basis of academic excellence. The value of the awards is reviewed annually. For more information visit the CIHR website (www.cihr-irsc.gc.ca/).

Michael Smith Foundation for Health Research

The Michael Smith Foundation for Health Research was established in March 2001 with the mandate to provide leadership and to implement core funding programs to build BC's capacity for excellence in health research. To improve BC's ability to attract, support and retain outstanding health researchers and trainees, the Foundation provides awards to support researchers' development from trainee through to the scholar, senior scholar and distinguished scholar levels.

Fellowship guides and application forms for the national research council awards are available from their websites early in the Winter Session. Information about all research awards administered by the Faculty of Graduate Studies can be found on the Graduate Studies website (grad.ubc.ca/awards).

The Bridge Program

The Program provides fellowship funding, and brings together graduate students, post-doctoral fellows, faculty members, visiting

scholars, and practitioners from the public health sciences, engineering, and policy arenas in an innovative milieu that:

The Bridge Program is a graduate research training program whose goal is to develop creative evidence-based primary prevention strategies to solve the complex public, environmental and occupational health problems facing Canadians.

- promotes the application of their combined knowledge and methodologies to the identification and prevention of disease and injury;
- promotes practice-relevant research and evidence-based practice; and
- cultivates interchange and the development of productive partnerships.

The Bridge Program is a scholarship-funding program, **not a degree-granting program**. Its academic requirements sit as a superstructure over existing master's and doctoral programs in the following nine participating units in UBC's Faculties of Medicine, Graduate Studies, and Applied Science:

- Dept. of Health Care and Epidemiology
- School of Occupational and Environmental Hygiene
- Institute for Resources, Environment and Sustainability
- Institute for Health Promotion Research
- Dept. of Civil Engineering
- Dept. of Chemical and Biological Engineering
- Dept. of Mechanical Engineering
- Dept. of Mining Engineering
- UBC Centre for Disease Control

Admitted M.Sc. and Ph.D. students receive fellowships and must fulfill the academic requirements of their underlying degree program and of the Bridge Program. For more information, visit the Bridge Program website (www.bridge.ubc.ca).

ADMISSION

After graduate students are accepted for admission to a graduate degree program in one of the nine participating academic units (see above), their applications will be screened by the Bridge Admissions Committee. Admission will be based on excellence as demonstrated by academic standing, the candidate's letter of interest and goals, and potential for integration of the Bridge themes. The committee will attempt to ensure there is equal representation of the core areas among entering students.

For detailed admissions information, please see the Bridge Program website (www.bridge.ubc.ca).

PH.D. TUITION AWARD

Effective September 2003, all Ph.D. and D.M.A. students in the first four years of their doctoral programs are eligible for a Ph.D. Tuition Fee Award, except in cases when Ph.D. tuition fees are directly billed to a third party. The Ph.D. Tuition Fee Award is equivalent to the tuition fee assessment.

INTERNATIONAL PARTIAL TUITION SCHOLARSHIPS

International graduate students are eligible for an International Partial Tuition Scholarship of up to \$3,488.00, which is applied to assist with their tuition fees if they are registered full-time in master's programs or in fifth or later years of doctoral programs that assess tuition fees of \$7,200.00 per year. Students in the following master's programs in the Faculty of Education are eligible for the following amounts: Master of Arts in Education, \$1,893.00, Master of Education \$1,893.00, and Master of Human Kinetics \$2,992.00. Students are eligible as long as they are not recipients of external scholarships or external funding that pays their tuition. Some graduate programs may offer additional money toward the International Partial Tuition Scholarship. More information is available from graduate program offices and in the chapter *Fees, Financial Support, and Scholarships*, p. 39.

International students in eligible programs are automatically considered for this scholarship by the Faculty of Graduate Studies in August of each year and do not need to apply.

TEACHING AND RESEARCH ASSISTANTSHIPS

Student service appointments are intended to help qualified graduate students meet the cost of their studies at the University. Student appointments may involve part-time duties in teaching, research or other academic activities. Normally, only those students registered full-time in the Faculty of Graduate Studies are eligible. Appointments offered to students prior to their admission to the Faculty are contingent upon admission.

Teaching Assistantships (TAs)

Most graduate programs have a limited number of TAs available for registered full-time graduate students. Full teaching assistantships involve 12 hours work per week in preparation, lecturing or laboratory instruction although many graduate programs offer partial TA appointments at less than 12 hours per week. Teaching assistantship rates are set by collective bargaining between the University and the teaching assistants Union, a local of the Canadian Union of Public Employees.

Since 1996/97, ten Teaching Prizes that include a Certificate and \$1,000.00 are offered to UBC teaching assistants.

Research Assistantships (RAs)

Many professors are able to provide RAs from their research grants to support full-time graduate students under their supervision. The duties constitute part of the student's graduate degree requirements. Research assistantships are coordinated and administered at the program level. Stipends vary widely and are dependent on the field of study and the type of research grant from which the assistantship is being funded.

The entire stipend of a research assistantship is considered a scholarship, the conditions of

which may be specified by the granting agency. For tax purposes, the stipend is considered an award rather than payment for work. Appointments may be for any specified period satisfactory to the grantee, and conditions of appointment may be specified by the granting agency. A research assistantship is a form of financial support for a period of graduate study and is therefore not covered by a collective agreement.

Note: Research assistantships are less common in the humanities and social sciences.

NEED-BASED AWARDS FOR GRADUATE STUDENTS

Need-based awards are administered by Student Financial Assistance & Awards, The University of British Columbia, 1036-1874 East Mall, Vancouver, BC, Canada, V6T 1Z1. For more information, telephone 604-822-5111 or visit the Awards, Fees and Finances website (www.students.ubc.ca/finance).

DEGREES OFFERED

Doctor of Education	Ed.D.
Doctor of Musical Arts	D.M.A.
Doctor of Philosophy	Ph.D.
Doctor of Medicine with Doctor of Philosophy	M.D./Ph.D.
Master of Advanced Studies in Architecture	M.A.S.A.
Master of Advanced Studies in Landscape Architecture	M.A.S.L.A.
Master of Applied Science	M.A.Sc.
Master of Architecture	M.Arch.
Master of Archival Studies	M.A.S.
Master of Archival Studies with Master of Library and Information Studies	M.A.S./M.L.I.S.
Master of Arts	M.A.
Master of Arts in Asia Pacific Policy Studies	M.A.P.P.S.
Master of Arts in Planning	M.A.P.
Master of Education	M.Ed.
Master of Educational Technology	M.E.T.
Master of Fine Arts	M.F.A.
Master of Forestry	M.F.
Master of Health Administration	M.H.A.
Master of Health Science	M.H.Sc.
Master of Human Kinetics	M.H.K.
Master of Journalism	M.J.
Master of Jurisprudence in Common Law	M.Jur.
Master of Landscape Architecture	M.L.A.
Master of Laws	LL.M.
Master of Library and Information Studies	M.L.I.S.
Master of Music	M.Mus.
Master of Occupational Therapy	M.O.T.
Master of Physical Therapy	M.P.T.
Master of Rehabilitation Science	M.R.Sc.
Master of Science	M.Sc.
Master of Science in Business Administration	M.Sc.B.

Master of Science in Nursing	M.S.N.
Master of Science in Planning	M.Sc.P.
Master of Social Work	M.S.W.
Master of Software Systems	M.S.S.

DEGREE PROGRAMS

UBC's Faculty of Graduate Studies is one of Canada's largest graduate communities with more than 7,000 students working towards 36 graduate degrees in 132 different fields of study.

ADULT EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

R. Boshier, D. Pratt, K. Rubenson, T. Sork.

ASSOCIATE PROFESSORS

L. Andres, S. Butterwick, P. Walter

ASSISTANT PROFESSORS

A. Metcalfe, J. Chan-Tiberghien.

Program Overview

The mission of the Adult Education graduate program at UBC is to contribute to the creation, elaboration, exchange and application of knowledge concerning the education and learning of adults wherever they occur. This includes the development of scholars and reflective practitioners who will shape society and its institutions in ways that promote lifelong education and learning for all.

All on-campus master's students take a "core" of 12 credits of adult education courses. These are supplemented with electives that allow students to go deeper into the study of adult education or to explore topics and issues addressed elsewhere in the department and the university that have implications for adult education.

Students wishing to pursue doctoral studies in the field of adult education should apply to the Doctor of Philosophy program in *Educational Studies*, p. 246, or the Doctor of Education program in *Educational Leadership and Policy*, p. 246.

Degree Requirements

MASTER OF ARTS

The M.A. is a research-oriented program for students who wish to develop skills as researchers or who may go on to doctoral-level study. It is a 30-credit program with required and elective courses and a six-credit thesis. Detailed information about course requirements for the M.A. are available online (www.edst.educ.ubc.ca/programs/adult_ed).

MASTER OF EDUCATION

The M.Ed. program is considered a professional degree for people who wish to work as practitioners in any adult education setting, most often as instructors, program planners, consultants or administrators. It is a 30-credit program with required and elective courses and a three-credit graduating paper. Detailed information about course requirements for

the M.Ed. are available online (www.edst.educ.ubc.ca/programs/adult_ed).

Contact Information

Department of Educational Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6647
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Web: www.edst.educ.ubc.ca/programs/adult_ed
Lynda McDicken, Graduate Secretary

ADULT LEARNING AND GLOBAL CHANGE

Degree Offered: M.Ed.

Members

PROFESSORS

R. Boshier, D. Pratt, K. Rubenson, T. Sork.

ASSOCIATE PROFESSORS

L. Andres, S. Butterwick.

ASSISTANT PROFESSORS

J. Chan-Tiberghien, P. Walter.

Program Overview

UBC, in cooperation with partner universities in Australia (University of Technology, Sydney), South Africa (University of the Western Cape) and Sweden (Linköping University), offers an innovative online, coursework-only, professional graduate program in Adult Learning and Global Change. Instructors in required courses are drawn from these four universities, so students benefit from a truly international instructional staff.

This program is for those seeking multiple, critical perspectives on the central role adult learning plays as individuals and communities engage with the positive and negative effects of globalization. The program attracts those interested in international development work, cross-cultural education and training, the role of education in addressing various global health and environmental issues, promoting social justice in the face of economic globalization, and learning more about adult education around the world.

Degree Requirements

MASTER OF EDUCATION

Students proceed through the two-year, 30-credit M.Ed. program as a cohort drawn from the four participating institutions and will get to know one another well, working together in various groupings throughout the program.

Required courses are sequenced so that, with careful planning of electives, all requirements can be completed in 24 months. The 9 credits of electives may be taken at any time and are usually selected from on-campus courses (for those in the Vancouver area), from various distance-mode courses at UBC and elsewhere, and from directed studies courses tailored to student interests. For detailed information about admission and course requirements, please see the website (www.edst.educ.ubc.ca/programs/algc.html).

Students who complete the UBC Certificate in Intercultural Studies through the UBC Centre for Intercultural Communication within 5 years of being admitted to the M.Ed. in Adult Learning and Global Change will receive 6 credits toward elective requirements in the M.Ed.

Contact Information

Department of Educational Studies
2125 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4553
Fax: 604-822-4244
Email: garnet.grosjean@ubc.ca
Web: www.edst.educ.ubc.ca/programs/algc.html
Garnet Grosjean, Coordinator

AGRICULTURAL ECONOMICS

Degree Offered: M.Sc.

Members

PROFESSOR

J. A. Vercammen.

ASSOCIATE PROFESSOR

R. Barichello.

ASSISTANT PROFESSORS

K. Baylis, T. Beatty, S. Gulati.

Program Overview

The Food and Resource Economics (FRE) Group offers the Master of Science (M.Sc.) degree in Agricultural Economics through the Faculty of Graduate Studies.

The coursework provides students with rigorous training in applied economics and quantitative methods. Students develop specialized research skills by working with faculty throughout UBC on important real-world issues.

FRE faculty members have been involved with projects in a variety of countries throughout Asia and other parts of the world (e.g., Dr. Barichello has extensive experience with food security issues in Indonesia). Formal educational linkages exist that allow FRE graduate students to study and research abroad.

FRE does not have its own Ph.D. program. However, FRE is working toward a joint Ph.D. program with the Department of Agricultural Economics at the University of Saskatchewan. Currently, students must apply, be accepted and will ultimately graduate with a doctorate issued by the U of S.

Degree Requirements

MASTER OF SCIENCE

The M.Sc. program can normally be completed in 18 to 20 months. After completing 18 credits of coursework, a thesis is written under the guidance of a UBC-wide committee that is chaired by a FRE faculty member. M.Sc. students generally elect the thesis option, but on occasion a non-thesis option is pursued. With the thesis option, students with an adequate undergraduate background in economic theory, mathematical economics and quantitative methods must complete AGEC 501, ECON 500, ECON 526, ECON 527 and two field

courses, which may be at the senior undergraduate level. Students without an adequate background must take additional preparatory courses.

The thesis normally involves identifying a research topic mutually agreed upon by the student and supervising faculty, undertaking an extensive review of the literature, developing the appropriate theoretical framework and then performing some form of empirical analysis.

Contact Information

Faculty of Land and Food Systems

270-2357 Main Mall

Vancouver, BC V6T 1Z4

Tel: 604-822-4593

Fax: 604-822-4400

Email: gradapp@interchange.ubc.ca

Web: www.landfood.ubc.ca/programs/agec_grad.htm

Alina Yuhymets, Graduate Programs Manager

ANATOMY AND CELL BIOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

J. Church, B. J. Crawford, J. T. Emerman, I. R. Nabi, C. C. G. Naus, W. K. Ovalle, A. W. Vogl, J. Weinberg.

ASSOCIATE PROFESSORS

T. O'Connor, C. Roskelley, T. M. Underhill.

ASSISTANT PROFESSORS

K. Haas, H. Moukhles, V. Viau.

Program Overview

The Division of Anatomy and Cell Biology offers opportunities and facilities for advanced studies in anatomy, cellular biology and neurobiology leading to the Master of Science and Doctor of Philosophy. Members of the division undertake research programs in a wide range of basic and clinically relevant areas. Special research areas include cell and developmental biology, neurobiology, oncology, immunology, muscular dystrophy, muscle and membrane biophysics, and morphological aspects of cell structure and function at the light and electron microscopic levels.

The division is well equipped and has the following: transmission electron microscopes, fluorescence and photo-microscopes, confocal microscope, video image analysis, freeze-fracturing equipment, ultramicrotomes, molecular biology facilities and equipment, tissue culture facilities, spectro-photometric and radioisotope equipment, electrophysiological instrumentation, laser diffraction equipment and ultracentrifuges.

The division is well equipped and has the following: transmission electron microscopes, fluorescence and photo-microscopes, confocal microscope, video image analysis, freeze-fracturing equipment, ultramicrotomes, molecular biology facilities and equipment, tissue culture facilities, spectro-photometric and radioisotope equipment, electrophysiological instrumentation, laser diffraction equipment and ultracentrifuges.

Degree Requirements

DOCTOR OF PHILOSOPHY

Admission requirements include:

- 1) A bachelor's degree with First class honours (or equivalent). These students may be granted direct admission to a doctoral degree program on recommendation of the program and approval of the Dean of the Faculty of Graduate Studies;

or

- 2) A bachelor's degree with one year of study in a master's program with 18 credits of First class average, of which normally 10 credits must be at the graduate level or above and at least 10 credits must be of First class standing, and clear evidence of research ability or potential. Students in the M.Sc. program may transfer into the Ph.D. program at the end of their first year provided they meet the transfer requirements of the Faculty of Graduate Studies and the graduate program; or
- 3) A master's degree (or equivalent) with clear evidence of research ability or potential.

MASTER OF SCIENCE

Admission requirements include:

- 1) Honours in a field related to the proposed master's program with at least 12 credits of third- and fourth-year courses in the 'A-' grade range (at UBC, 80%) or higher in the field of study; or
- 2) A minimum overall average in the 'B+' range (at UBC, 76%) in third- and fourth-year courses prescribed by the program concerned as prerequisite to the master's program.

Contact Information

Department of Cellular and Physiological Sciences

2146 Health Sciences Mall

Vancouver, BC, V6T 1Z3

Tel: 604-822-2494

Fax: 604-822-2316

Email: alanj@interchange.ubc.ca

Web: www.cellphys.ubc.ca

Alan Jay, Graduate Secretary

ANCIENT CULTURE, RELIGION AND ETHNICITY

Degree Offered: M.A.

Members

PROFESSORS

A. A. Barrett, S. D. Sullivan, R. Todd, E. H. Williams.

ASSOCIATE PROFESSORS

D. Arbel, P. C. Burns, R. Cousland, F. De Angelis, C. Marshall, R. Menkis, P. G. Mosca, D. Neufeld.

ASSISTANT PROFESSORS

L. Bablitz, E. Cooper, D. Creese, R. Daum, T. Hikade, C. Johnson, C. Marshall, M. Yazigi.

Program Overview

The graduate program in Ancient Culture, Religion, and Ethnicity offers a course of instruction leading to the Master of Arts (M.A.). For detailed information about the program, please consult the program's website (cnrs.arts.ubc.ca/index.php?id=3747).

Degree Requirements

MASTER OF ARTS

The M.A. program requires 30 credits of coursework and two comprehensive examinations. Of the 30 credits, 24 must be numbered

500 or above (graduate courses) and must include CNRS 500 (3), 501 (3), and 579 (3-credit graduating paper). The remaining 6 credits may, at the discretion of the program, be at the 300- or 400-level (undergraduate).

Prerequisites for the M.A. program include a Bachelor of Arts in Classics (Greek and Latin), Classical Studies (non-language program), Near Eastern Studies, Religious Studies, or a related discipline.

For details on the language prerequisites and requirements, see the program's website (cnrs.arts.ubc.ca/index.php?id=3747).

Contact Information

Department of Classical, Near Eastern and Religious Studies

Buch. C260-1866 Main Mall

Vancouver, BC, V6T 1Z1

Tel: 604-822-2515

Fax: 604-822-9431

Email: cnrs@interchange.ubc.ca

Web: cnrs.arts.ubc.ca/index.php?id=3747

Christine Dawson, Graduate Secretary

ANIMAL SCIENCE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

K. M. Cheng, D. G. Fraser, S. McKinley, R. Rajamahendran, J. R. Thompson, D. M. Shackleton, D. Weary, A. Farrell.

ASSOCIATE PROFESSOR

S. E. Samuels.

ASSISTANT PROFESSOR

M. Von Keyserlingk.

Program Overview

Animal Science offers opportunities for advanced study and research leading to M.Sc. and Ph.D. degrees in the areas of physiology, nutrition, biochemistry, behaviour, welfare, genetics, and management of livestock, poultry, aquaculture, and wildlife species. Graduate training in Animal Science normally involves a combination of courses in both basic and applied sciences, with research leading to a thesis. Students are expected to publish their research results in refereed journals.

The program is enriched through collaboration with colleagues in other graduate programs such as Food Science, Human Nutrition, Obstetrics & Gynaecology and Zoology, and in agencies such as Agriculture and Agri-Food Canada, Canada Department of Fisheries and Ocean, Canadian Wildlife Service, the SPCA and various government agencies.

Coursework selected in consultation with the student's supervisory committee includes graduate courses in animal science and from other areas relevant to each student's research.

On-campus facilities include laboratories in the MacMillan Building. Off-campus research facilities available to students include: the UBC Dairy Education and Research Centre in Agassiz; shared research facilities at the Department of Fisheries and Oceans at West Vancouver; Agri-

culture and Agri-Food Canada, the Agassiz Poultry Centre including unique poultry and quail stocks for biomedical and genetic research. Field research facilities for studies in range and wildlife productivity are also available.

Degree Requirements

DOCTOR OF PHILOSOPHY

Appropriate coursework will be selected in consultation with the student's supervisory committee. All students are required to take a comprehensive examination. The major requirement for the Ph.D. is completion of a research thesis demonstrating ability to conduct significant and original scientific research.

MASTER OF SCIENCE

Completion of the M.Sc. program requires a minimum of 18 credits of coursework plus 12 credits of thesis research.

Contact Information

Faculty of Land and Food Systems
270-2357 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Email: gradapp@interchange.ubc.ca
Web: www.landfood.ubc.ca/programs/
animal_sc_grad.htm
Alina Yuhymets, Graduate Programs Manager

ANTHROPOLOGY

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

J. Boddy, B. G. Miller, A. Shelton.

ASSOCIATE PROFESSORS

J. Barker, A. Bloch, T. M. Blake, M. Creighton, C. Menzies, D. L. Pokotylo.

ASSISTANT PROFESSORS

M. Collard, G. Gordillo, Z. Jing, V. Kamat, J. Kramer, W. McKellin, A. Martindale, P. Moore, A. Pandian, S. Rowley, F. Wyndham.

Program Overview

UBC offers graduate study in the fields of socio-cultural anthropology (including political anthropology, medical anthropology, environmental anthropology, oral and aesthetic traditions, contemporary theory and applied anthropology), anthropological archaeology, physical anthropology, and museum studies. Area interests include North America, East Asia, Mesoamerica, South America, Oceania and Europe. The program provides training in quantitative, qualitative, archaeological and museum methods. Extensive research facilities are available in the Museum of Anthropology, and in the Laboratory of Archaeology. The UBC Library has excellent collections to support program interests, as well as a large collection of microform theses, and the Human Relations Area files. Anthropology has a dedicated graduate computer lab with a wide range of software to support quantitative and qualitative research. Interdisciplinary contacts are encouraged, and links are maintained with departments and programs such as Asian

Studies (which has major library collections), Linguistics, History, Comparative Literature, Geography and Sociology.

Degree Requirements

DOCTOR OF PHILOSOPHY

Applicants for the Ph.D. program must be in the final year or have completed an M.A. as well as a B.A. in Anthropology (for details, see the M.A. admission requirements below). The Ph.D. degree proceeds in two stages. A student first gains full standing as a doctoral candidate within the program by completing: (1) a 24 months residency, (2) 18 credits of coursework, (3) an acceptable research proposal, and (4) satisfactory performance in a comprehensive examination. Candidates then undertake a substantive independent research project normally based in large part on field research which forms the basis for their dissertation. Students are expected to attain their degrees within a maximum of six years.

MASTER OF ARTS

The M.A. is based upon a combination of coursework, research and a thesis. Most students attain their degree within two years of starting the program; it is possible for a well-organized person to complete degree requirements during the first 12 to 18 months of study. Compared to the Ph.D., the M.A. is a structured course of study. Students must successfully complete 30 credits: (1) Anthropology 500 (History of Anthropology, six credits); (2) an advanced methods course in ethnographic, archaeological or museum studies (three credits); (3) coursework in a specific culture area or region (three credits); (4) at least 12 credits of elective courses; and (5) after submitting an approved thesis proposal, a six-credit thesis.

Contact Information

Department of Anthropology and Sociology
6303 NW Marine Drive
Vancouver, BC, V6T 1Z1
Tel: 604-822-5421
Fax: 604-822-6161
Email: ansograd@interchange.ubc.ca
Web: www.anso.ubc.ca

APPLIED ETHICS

The field of applied ethics is not taught by a single department and there is no formal program leading to a degree in this area. However, the W. Maurice Young Centre for Applied Ethics offers facilities and opportunities for graduate study in applied ethics through the academic departments of its faculty members. For more information, see the *W. Maurice Young Centre for Applied Ethics*, p. 79, in the chapter Research Units, Centres, and Institutes.

APPLIED MATHEMATICS

The field of applied mathematics is not taught by a single department and there is no formal program leading to a degree in this area. However, the Institute of Applied Mathematics offers facilities and opportunities for graduate study in applied mathematics through the

academic departments of its faculty members. For more information, see the *Institute of Applied Mathematics*, p. 79, in the chapter Research Units, Centres, and Institutes.

ARCHITECTURE

Degrees Offered: M.Arch., M.A.S.A.

Members

PROFESSORS

R. J. Cole, C. Macdonald, P. Patkau, J. Wojtowicz.

ASSOCIATE PROFESSORS

L. Brock, S. McKay, G. S. Wagner, D. Weiner.

ASSISTANT PROFESSORS

J. Bass, M. Fujita, O. Lang, O. Neumann, I. Roecker.

Program Overview

Architecture offers graduate education in both professional and research degree programs: the Master of Architecture (M.Arch.) and the Master of Advanced Studies in Architecture (M.A.S.A.) respectively. While Architecture does not at present have a Ph.D. program, it does support advanced Ph.D. study in architecture through the Ph.D. program in *Interdisciplinary Studies*, p. 259.

Degree Requirements

MASTER OF ARCHITECTURE

The M.Arch. program is an accredited professional graduate program for those with an undergraduate degree who wish to pursue professional studies in architecture as a prerequisite to becoming a registered architect. While an undergraduate degree in a field related to architecture may be advantageous in reducing the length of the program, it is not a necessary prerequisite as the demonstration of interest and aptitude in the field occurs as a component of the application process of the program. The full program is 119 credits, requiring three and a half years of full-time study.

For detailed information, please see *Architecture*, p. 112, as well as the Architecture website (www.arch.ubc.ca).

MASTER OF ADVANCED STUDIES IN ARCHITECTURE

The M.A.S.A. program is a post-professional graduate program primarily for those with a professional degree in architecture or a related field who wish to expand their knowledge in a particular branch of architectural studies. Major research thrusts within the M.A.S.A. program include environmental imperatives, history and cultural studies, advanced design research, urban design and community activism, advanced research in digital applications. It is a 30-credit program culminating in a thesis. The degree can be completed in 16 months with two terms of full-time residency required. The program is not accredited and therefore does not fulfil the educational requirements for architectural registration.

For detailed information, please see *Architecture*, p. 114, as well as the Architecture website (www.arch.ubc.ca).

Contact Information

Architecture
402–6333 Memorial Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-2779
Fax: 604-822-3808
Email: soadmit@interchange.ubc.ca
Web: www.arch.ubc.ca
Trish Poehnell, Graduate Admissions Secretary

ARCHIVAL STUDIES

Degree Offered: M.A.S.

Members

PROFESSOR
L. Duranti.

ASSOCIATE PROFESSORS
T. Eastwood, H. McNeil.

ASSISTANT PROFESSOR
F. Marini.

Program Overview

The Master of Archival Studies (M.A.S.) program is a professional degree program, open to those holding a bachelor's degree considered suitable by the admissions committee and which meets the minimum admission requirements of the Faculty of Graduate Studies. Archival work is related to that of many other disciplines, including history, political science, business administration, and sociology. The program is unique in North America as the only separate graduate degree program in the field. Graduates obtain positions as archivists and records managers across Canada in businesses, government agencies, religious bodies, and institutions; some engage in freelance work.

Degree Requirements

MASTER OF ARCHIVAL STUDIES
The program comprises 48 credits including an optional thesis and an optional internship. Students must begin the program in September of a year and normally cannot complete it before April of the second year following. The full-time core of required courses occupies the first Winter Session. The internship, if taken, can be expected to occupy much of a summer. University, public, and other archives within easy reach provide models of archival practice. The application of archival theory is also demonstrated through field trips in courses.

Contact Information

School of Library, Archival and Information Studies
TEF III, 301–6190 Agronomy Road
Vancouver, BC, V6T 1Z3
Tel: 604-822-2404
Fax: 604 822-6006
Email: slaisad@interchange.ubc.ca
Web: www.slais.ubc.ca
Helen Chang, Grad Admissions Secretary

ARCHIVAL STUDIES AND LIBRARY AND INFORMATION STUDIES

Degrees Offered: M.A.S./M.L.I.S.

Members

PROFESSORS

L. Duranti, E. Rasmussen.

ASSOCIATE PROFESSORS

A. Curry, T. Eastwood, H. McNeil, J. Saltman.

ASSISTANT PROFESSORS

M. Dowding, R. Kopak, F. Marin, J. Tennis.

Program Overview

The Joint Degree Program is designed to allow students to earn both a Master of Archival Studies and a Master of Library and Information Studies within a reasonable period of time (generally between three and five years). Students considering this option should carefully read the descriptions for each of the two individual degrees. Students who wish to complete the Joint Degree Program should indicate this as early as possible, preferably on their application submitted to the School prior to admission, or following admission by speaking to a faculty advisor.

Degree Requirements

MASTER OF ARCHIVAL STUDIES WITH MASTER OF LIBRARY AND INFORMATION STUDIES

The two master's degrees, M.A.S. and M.L.I.S., are awarded on the completion of 81 credits of work approved by the School plus required non-credit studies such as the practicum in the M.L.I.S. program. Students must complete the following:

- 1) the required courses in the M.L.I.S. program: LIBR 500, 510, 540, 560, 570, 590, and two three-credit LIBR elective courses (21 credits);
- 2) the required courses in the M.A.S. program: ARST 510, 515, 516, 520, 530, 540, and 587 (21 credits);
- 3) either LIBR 500 or ARST 593B (3 credits);
- 4) 15 credits in the M.L.I.S. program;
- 5) 15 credits in the M.A.S. program; and
- 6) 6 additional credits in either program.

Students in the two degrees should not take courses outside those offered in the M.A.S. and M.L.I.S. programs.

Practicum: A required non-credit practicum provides direct library experience under actual library operating conditions. In addition, some field experience in an archival repository is highly desirable for a student who has had limited prior contact with the work of the practising archivist. These two work experiences will be scheduled in consultation with the student's advisors.

Thesis: A student with research interests may elect to write a thesis in one of the two fields, but not both. Consultation with the appropriate faculty advisor should begin before the student has completed one-half of the required courses.

Contact Information

School of Library, Archival and Information Studies
TEF III, 301–6190 Agronomy Road
Vancouver, BC, V6T 1Z3
Tel: 604-822-2404
Fax: 604-822-6006
Email: slaisad@interchange.ubc.ca
Web: www.slais.ubc.ca
Helen Chang, Grad Admissions Secretary

ART EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

R. Irwin, G. Chalmers, A. Kindler.

ASSOCIATE PROFESSORS

K. Grauer, D. Krug.

Program Overview

The graduate programs (M.Ed. and M.A.) in Art Education are part of the graduate offerings in the Department of Curriculum Studies. The research interests of faculty in Art Education are diverse. They encourage a wide spectrum of student inquiry: art curriculum, early childhood, teacher education, First Nations art and education, histories of art education, multiculturalism, museum and gallery education, perception and cognition, studio practices, technology and visual culture, theory/practice relationships, and gender studies.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires:

- 1) Normally, 18 credits of senior coursework or a professional concentration in the area of interest.
- 2) Normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A total of six credits may be taken at the 300 or 400 level. A thesis, normally nine credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A total of six credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, ten three-credit courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

ART HISTORY (CRITICAL AND CURATORIAL STUDIES)

Degree Offered: M.A.

Members

PROFESSORS

M. S. Cohodas, S. Guilbaut, K. Lum, J. O'Brian, R. Prince, S. Watson, R. Windsor-Liscombe.

ASSOCIATE PROFESSORS

M. P. Ryan, C. Townsend-Gault.

ASSISTANT PROFESSORS

H. Tsao, W. Wood.

Program Overview

The Department of Art History, Visual Art, and Theory offers the Critical and Curatorial Studies graduate program, a stream leading to the Master of Arts (M.A.) in Art History (Critical Curatorial Studies). Critical and Curatorial Studies aims to address the growing need for curators and critics who have theoretical knowledge and practical experience in analyzing institutions, preparing displays and communicating about contemporary art.

For information on additional graduate programs in the Department of Art History, Visual Art, and Theory, please see *Fine Arts*, p. 250.

Degree Requirements

MASTER OF ARTS

Critical and Curatorial Studies is a stream within the Department of Art History, Visual Art, and Theory; students will receive a Master of Arts in Art History (Critical Curatorial Studies). The degree requires 30 credits of which 15 credits are in Critical and Curatorial Studies courses, plus a major paper worth three credits. A minimum of 6 credits must be selected from the graduate-level courses in the Department of Art History, Visual Art, and Theory with the ARTH course designation. Up to 6 elective credits may be graduate courses selected from outside of the program. Students wishing to apply for this concentration must specify Critical and Curatorial Studies in a written application to the Department of Art History, Visual Art, and Theory.

Program Courses:

- CCST 500: Seminar in Historical Frameworks for Critical Curatorial Studies (3 credits)
- CCST 501: Seminar in Contemporary Contextual Issues for Critical and Curatorial Practice (3 credits)
- CCST 502: Case Studies in Exhibitions and Institutions (3 credits)
- CCST 503: Graduate Practicum (6 credits)
- CCST 504: Major Paper (3 credits)

Contact Information

Department of Art History, Visual Art, and Theory
403-6333 Memorial Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-4340
Fax: 604-822-9003
Email: ahvagr@interchange.ubc.ca
Web: www.finearts.ubc.ca
Leah Buchan, Graduate Secretary

ASIA PACIFIC POLICY STUDIES

Degrees Offered: M.A.P.P.S., M.A.P.P.S./LL.B., M.A.P.P.S./M.B.A.

Members

PROFESSORS

T. Cheek, P. Evans, M. Nakamura, P. Potter, I. Vertinsky.

ASSOCIATE PROFESSORS

M. Kandlikar, A. Kusno, K. A. Park.

ASSISTANT PROFESSORS

J. Dierkes, H. G. Lynn.

Program Overview

The Institute of Asian Research's Master of Arts in Asia Pacific Policy Studies program provides advanced training in research and analysis on policy issues relevant to the Asia and Pacific regions, to graduate students preparing for positions in government departments, non-profit organizations, private sector enterprises, and as preparation for academic doctoral programs.

The M.A.P.P.S. program is organized into five thematic streams that structure and guide students in their program element selections. The five thematic streams are:

- 1) Economic and Social Change
- 2) Security
- 3) Women and Development
- 4) Governance and Human Rights
- 5) Infrastructure Policy

Degree Requirements

MASTER OF ARTS IN ASIA PACIFIC POLICY STUDIES

Applicants to the program must satisfy the admission requirements of the Faculty of Graduate Studies. Applicants also must have a sufficient background in area studies and/or social sciences to permit advanced research and analysis of policy issues relevant to the Asia and Pacific regions and should include methodological training (esp. basic knowledge of statistical

analysis). Preference will be given to applicants who have received formal training in one or more languages (other than English) of the Asia and Pacific region. Applicants must satisfy the English language admission standard set by the Faculty of Graduate Studies and the Institute of Asian Research (see *TOEFL and GRE Requirements*, p. 219). The Graduate Record Examination (GRE) is not required but is highly recommended. Admission of the applicant is not complete until the application has been accepted and the course of study has been approved by the Institute of Asian Research and the Faculty of Graduate Studies. For more details on the admission process, see *Admission for Master's Degrees*, p. 218, or visit the Faculty of Graduate Studies website (grad.ubc.ca).

The program consists of three distinct elements:

- Core courses (6 credits)
- Elective courses (18 credits)
- Master's thesis (12 credits) or practicum (12 credits)

MASTER OF ARTS IN ASIA PACIFIC POLICY STUDIES WITH BACHELOR OF LAWS

The M.A.P.P.S./LL.B. program allows students to obtain the degrees of Bachelor of Laws (LL.B.) and Master of Arts (Asia Pacific Policy Studies) (M.A.P.P.S.) through combined enrolment in the Faculty of Law and the Institute of Asian Research.

Students wishing to pursue the combined LL.B./M.A.P.P.S. degree program must be admitted separately by the Faculty of Law for the LL.B. and the Institute of Asian Research for the M.A.P.P.S. The graduate program advisor from the Institute of Asian Research serves as graduate program advisor for the combined degree program.

For detailed information about admission and requirements for the M.A.P.P.S. and LL.B., please see the Institute of Asian Research (www.iar.ubc.ca) and the Faculty of Law (www.law.ubc.ca) websites respectively.

MASTER OF ARTS IN ASIA PACIFIC POLICY STUDIES WITH MASTER OF BUSINESS ADMINISTRATION

The M.A.P.P.S./M.B.A. degree program permits students to obtain the degrees of M.B.A. and M.A. in Asia Pacific Policy Studies (M.A.P.P.S.) through combined enrolment in the Sauder School of Business and the Institute of Asian Research. Interested applicants are required to apply directly to both the Sauder School of Business and the Institute of Asian Research indicating their desire to be considered for the combined M.A.P.P.S./M.B.A. program.

Enrolment is limited to students who have demonstrated academic excellence. Students are required to complete 30 credits in Asia Pacific Policy Studies and 45 credits in the M.B.A. program.

For detailed information about admission and requirements for the M.A.P.P.S. and M.B.A., please see the Institute of Asian Research (www.iar.ubc.ca) and Sauder School of Business (www.sauder.ubc.ca) websites respectively.

Contact Information

Institute of Asian Research
C.K. Choi Bldg., 251-1855 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-3801
Fax: 604-822-5207
Email: mapps@interchange.ubc.ca
Web: www.iar.ubc.ca/mapps
Nilda Oñate, MAPPs Graduate Secretary

ASIAN STUDIES

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

A. Aklujkar, J. Mostow, P. Nosco, H. Oberoi, J. Schmidt.

ASSOCIATE PROFESSORS

D. Baker, K. Bryant, B. Fulton, T. Hellwig, N. Hur, R. King, S. Orbaugh, E. Slingerland, C. Swatek.

ASSISTANT PROFESSORS

S. Burk, J. Chen, C. Laffin, D. D. Li, L. Preston, A. Sathaye, L. Shin.

Program Overview

University of British Columbia's Asian Studies Department is the flagship Asian Studies department in Canada and is widely acknowledged as one of the very finest in North America.

In many ways, UBC Asian Studies is a representative department within the Faculty of Arts. It has over 20 regular faculty, as well as an exceptionally well-qualified pool of instructors and sessional instructors.

In other ways, the program is in a league all its own. It has grown since its inception, but this growth became explosive during the 1980s and 1990s, reflecting the demographic shifts of Greater Vancouver. Where most of its counterparts at leading universities might offer instruction in Chinese and Japanese, and perhaps Korean, UBC-Asian Studies adds Hindi, Urdu, Sanskrit, Punjabi and Indonesian to this list and it is hoping to offer a term of Tibetan. We have by far the largest and—in terms of issues related to heritage language learning—most complex programs in Chinese and Japanese language in North America, with thousands of registrations between just these two.

Degree Requirements

DOCTOR OF PHILOSOPHY

The program in Asian Studies offers the Doctor of Philosophy, focusing on the fields of language, literature, and pre-modern history, linguistics, religion and thought and cultural studies. It also provides language training for those doing graduate work relating to China, Japan, and South Asia in other departments. Those interested in graduate studies relating to Asia in fields such as modern history, political science, economics, sociology, geography, anthropology, fine arts, etc., should apply to the departments concerned.

Admission to the Ph.D. program in Asian Studies normally requires an M.A. in Asian Studies

or its equivalent. Candidates for the Ph.D. must have, prior to admittance, an adequate command of Chinese, Japanese, Hindi/Urdu, Punjabi, Sanskrit, Korean or Indonesian. In the case of Chinese, this will normally mean a competent reading knowledge of both modern and classical forms of the language.

MASTER OF ARTS

Admission to the M.A. program in Asian Studies normally requires a Bachelor of Arts with First class standing in Chinese, Japanese, Korean or South Asian languages. This implies a minimum of four years of language study prior to undertaking the M.A. The program is prepared to accept a limited number of students who are otherwise well-qualified and show linguistic aptitude but have less than this amount of preparation in language. Such students will be required to spend one or two extra years in their M.A. program making up this deficiency.

Contact Information

Department of Asian Studies
403-1871 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-5728
Fax: 604-822-8937
Email: asiagrad@interchange.ubc.ca
Web: www.asia.ubc.ca
Jasmina Miodragovic, Graduate Secretary

ASTRONOMY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

M. Halpern, P. Hickson, W. McCutcheon, H. B. Richer.

ASSOCIATE PROFESSORS

B. Gladman, J. Matthews, D. Scott.

ASSISTANT PROFESSORS

J. S. Heyl, L. Van Waerbeke, I. Stairs.

Program Overview

The Department of Physics and Astronomy is a broadly based department with a wide range of research interests that cover most of the key topics in contemporary physics and astronomy. These activities are supported by several computing and experimental facilities within the Department, and excellent electronics and machine shops.

UBC research in astronomy and astrophysics covers most areas of current interest in this broad field, including a wide range of theoretical and observational studies in astronomy, and also experimental and theoretical studies in cosmology. Research at optical wavelengths includes photometric studies of stellar populations, particularly globular clusters, studies of distant galaxies and active galactic nuclei, and time-resolved spectroscopy of variable stars and active binary star systems. Studies at microwave frequencies include research on variable radio sources, the early stages of star formation, relativistic jets, and balloon-borne measurements of the cosmic microwave background radiation. A variety of theoretical

work complements this research, with topics that range from the structure and dynamics of hot and cool stellar atmospheres to theoretical studies of structure formation in the early universe. Development of astronomical instrumentation is also supported. These and many other possibilities are available through UBC researchers' involvement in facilities such as the Dominion Astrophysical Observatory (near Victoria), the Canada-France-Hawaii telescope and the James Clerk Maxwell mm-wave telescope on Mauna Kea, the MOST Telescope, the Hubble Space Telescope, the Very Large Array in New Mexico and the Very Long Baseline Array. Faculty are also involved in upcoming projects such as the Gemini telescopes in Chile and Hawaii, a new six-metre liquid mirror telescope developed at UBC, and a number of future space missions.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Department of Physics and Astronomy offers Ph.D. programs in Astronomy. Students can be admitted to the Ph.D. program after obtaining a Master of Science. A minimum of 12 credits in graduate-level courses in any Science or Applied Science departments are required for the Ph.D., with details of the course load determined in consultation with the thesis advisor and supervisory committee but must conform to the Department's quantum mechanics requirements. Alternatively, well-qualified students admitted to the M.Sc. program may transfer to the Ph.D. program after a year's residence at UBC if they have at least 18 credits in M.Sc. coursework with an overall average of at least 85%, clear evidence of research ability, and approval of the thesis supervisor. Direct transfer students require a further 12 credits in graduate-level coursework in any Science or Applied Science departments for the Ph.D.

MASTER OF SCIENCE

Master of Science programs are offered in Astronomy. The prerequisite for the program is a B.Sc. in Physics, Mathematics or Astronomy (single or combined). An overall average of 'A-' or better in third- and fourth-year courses is expected for entry into the program. The M.Sc. program requires a minimum of 30 credits with the thesis counting for 12 credits. The remaining 18 credits must include at least 12 credits in relevant graduate courses in the Faculties of Science or Applied Science and may include up to a maximum of 6 300- or 400-level credits in undergraduate courses. All Astronomy M.Sc. students are required to satisfy the program's quantum physics course requirements and the Astronomy Journal Club requirement.

Contact Information

Department of Physics and Astronomy
6224 Agricultural Road
Vancouver, BC, V6T 1Z1
Tel: 604-822-4245
Fax: 604-822-5324
Email: gradsec@physics.ubc.ca
Web: www.physics.ubc.ca
Olivia dela Cruz-Cordero, Graduate
Coordinator

ATMOSPHERIC SCIENCE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

N. Balmforth, A. Black, W. Hsieh, I. McKendry,
T. Oke, D. Steyn, R. Stull.

ASSOCIATE PROFESSORS

S. Allen, P. Austin, M. Novak, R. Pawlowicz.

ASSISTANT PROFESSORS

A. Bertram, L. Pandolfo, A. Ridgwell.

Program Overview

Programs leading to the M.Sc. and Ph.D. are offered by the Atmospheric Science program under joint sponsorship of the Department of Earth and Ocean Sciences and the Department of Geography. Biometeorology students in Soil Science also have the option to work toward the Atmospheric Science graduate degrees.

Areas of graduate research are:

- Boundary layer and micrometeorology, including turbulence and urban meteorology;
- Weather, including mesoscale meteorology, numerical weather prediction and weather disasters;
- Air pollution and atmospheric chemistry;
- Climate, including climatology, climate variability and prediction, earth system modelling, climate change, remote sensing of clouds;
- Ocean-atmosphere interactions;
- Biometeorology, including agricultural and forest meteorology; and
- Geophysical fluid dynamics.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. consists of either EOSC 571 or GEOG 500, independent study, a spring review at the end of the first year, a comprehensive examination (oral and written components) during the second year, and research leading to a written dissertation that is defended in an oral final examination.

MASTER OF SCIENCE

The M.Sc. program consists of 12 credits of thesis with an oral thesis defence, and 18 credits of coursework, or 30 credits of coursework and an essay.

Contact Information

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC, V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Email: aallen@eos.ubc.ca
Web: www.eos.ubc.ca
Alex Allen, Graduate Secretary

AUDIOLOGY AND SPEECH SCIENCES

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

J. R. Johnston, D. R. Stapells.

ASSOCIATE PROFESSORS

B. M. Bernhardt, J. A. Small.

ASSISTANT PROFESSORS

L. Jenstad, A. McCoy, S. Marinova-Todd, N. Shahnaz.

Program Overview

The School of Audiology and Speech Sciences endeavours to advance knowledge of human communication and its disorders by actively engaging in research, and by educating individuals to become audiologists, speech-language pathologists, and researchers. In its teaching and research programs, the School emphasizes both the importance of basic science to the understanding of communication disorders and the relevance of clinical data to theories of human communication.

The School's Master of Science and Doctor of Philosophy programs are designed to ensure that graduates are grounded in the basic and applied sciences, can address complex communication problems within an interdisciplinary framework, and understand the relevance of theory in research as well as practical endeavours. The School's Master of Science graduates meet the requirements for professional practice in audiology or speech-language pathology in Canada.

Degree Requirements

DOCTOR OF PHILOSOPHY

The School of Audiology and Speech Sciences offers a program leading to the Doctor of Philosophy with specialization in one of the following areas: neurolinguistics/linguistic aphasiology, developmental phonetics and phonology, language acquisition, developmental language disorders, discourse analysis, phonological and phonetic disorders, speech understanding in the elderly, electrophysiology and otoacoustic emissions diagnosis, and hearing science. A brochure giving details of this program is available from the School's office.

MASTER OF SCIENCE

The School of Audiology and Speech Sciences offers a post-graduate program leading to the Master of Science. This program is primarily designed to provide the scientific and clinical education necessary for the professions of audiology and speech-language pathology.

These professional fields require a thorough understanding of human communication and its disorders. The Master of Science program thus builds upon background studies in linguistics, psychology, acoustics, physiology and other related disciplines, and incorporates both basic and applied science. After completing basic level courses, students pursue advanced work in a professional specialty, i.e., either audiology or speech-language pathology. Supervised clinical externships are provided in hospitals, schools, rehabilitation centres, and other service settings throughout British Columbia. Graduates of the clinical education program will have completed the academic and practical requirements for professional certification. This program will usually require 24 to 36 months to complete, depending upon the student's academic preparation.

Contact Information

School of Audiology and Speech Sciences
James Mather Bldg., 5804 Fairview Avenue
Vancouver, BC, V6T 1Z3
Tel: 604-822-5591
Fax: 604-822-6569
Email: inquiry@audiospeech.ubc.ca
Web: www.audiospeech.ubc.ca
Sue Bryant, Program Assistant

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

G. Brayer, D. Bromme, R. Brownsey, P. Cullis,
S. Dedhar, D. Devine, B. B. Finlay, P. Hieter, V.
Ling, R. MacGillivray, G. Mackie, G. Mauk, L.
McIntosh, R. Molday, C. Overall, C. Proud, M.
Roberge, I. Sadowski, S. Withers.

ASSOCIATE PROFESSORS

F. Duong, L. Eltis, N. Strynadka.

ASSISTANT PROFESSORS

E. Conibear, L. Foster, L. Howe, A. Mui, M.
Murphy, M. Numata.

Program Overview

Facilities are available for original investigations in many fields of biochemistry and molecular biology. Possible areas of research include: control of gene expression in eucaryotes and bacteria; structure and function of genes; systems biology; blood proteins; the mechanism of the action of insulin; membrane and membrane protein structure and function; protein trafficking; cell-surface receptors, signal transduction, and cell-growth control; neural and retinal photoreceptor membranes; lipid-based targeted delivery systems; macromolecular crystallography and X-ray diffraction techniques for the characterization of enzymes and protein complexes; metalloprotein structure and function; mechanisms of enzyme activity; mechanism of hemoprotein electron transfer; structural analysis of proteins by nuclear magnetic resonance; mechanisms of multi-drug resistance; and cancer.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students must hold an honours bachelor's degree in Biochemistry with high standing or a master's degree in Biochemistry, or the equivalent, and are required to complete courses in biochemistry and related fields in accordance with the recommendations of the program and the candidate's committee.

MASTER OF SCIENCE

Students with a degree in Biochemistry or in related disciplines can be accepted providing they have graduated with high standing from university programs giving a strong background in science. The M.Sc. program includes a thesis (12 credits) and courses approved by the program in Biochemistry and related fields (18 credits). BIOC 303 and 301, or the equivalent, are prerequisites to all graduate courses in Biochemistry and Molecular Biology.

Contact Information

Department of Biochemistry and Molecular Biology

2350 Health Sciences Mall

Vancouver, BC, V6T 1Z3

Tel: 604-822-5925

Fax: 604-822-5227

Email: biograd@interchange.ubc.ca

Web: www.biochem.ubc.ca

Hiltrud M. Vogler, Graduate Secretary

BIOMEDICAL ENGINEERING

Degrees Offered: Ph.D., M.A.Sc.

Members

This is an interdisciplinary program. Professors come from a number of departments including, but not limited to, Chemical and Biological Engineering, Electrical and Computer Engineering, Materials Engineering, and Mechanical Engineering. The program website provides a link to all faculty members associated with the program.

PROFESSORS

G.A. Dumont, C.A. Hayes, M. Hodgson, V. Krishnamurthy, P.D. Lawrence, J.M. Piret, A. Poursartip, T. Salcudean, T. Troczynski, R. Ward.

ASSOCIATE PROFESSORS

S.A. Baldwin, S.S. Fels, G. Fernlund, A.J. Hodgson, E. Kwok (Director), T.R. Oxland, D.P. Romilly, R.F.B. Turner.

ASSISTANT PROFESSORS

M. Chiao, L. Chrowstowski, P.A. Crompton, C. Hansen, J. Madden, R.N. Rohling, B. Stoeber, R. Wang, Z.J. Wang, D. Wilson, J. Yan.

Program Overview

Biomedical Engineering is a multidisciplinary field that involves the application of engineering techniques and technologies to medical and healthcare areas. The Biomedical Engineering Program, administered by the Faculty of Applied Science, offers advanced study and research leading to the M.A.Sc. and Ph.D. degrees in Biomedical Engineering. The program is designed to provide graduates with

a balance of materials in life science, clinical practice, and bio-engineering. Opportunities for interdisciplinary education and research exist in areas such as biomechanics, biomaterials, biochemical processing, cellular engineering, imaging, medical devices, micro-electromechanical implantation systems, physiological modeling, simulation, monitoring and control, as well as medical robotics.

Doctor of Philosophy

ADMISSION REQUIREMENTS

Doctoral degree applicants must hold a Master's degree in Biomedical Engineering from an institution recognized by UBC, or hold a Bachelor's degree with course credits equivalent to that of the UBC M.A.Sc. degree in Biomedical Engineering. Transfer from the Master's to the Ph.D. program is permitted under regulations set by the Faculty of Graduate Studies and the Program.

PROGRAM REQUIREMENTS

The program is based on the satisfactory completion of a doctoral dissertation thesis and selected courses suitable to the student's research interests as determined by the supervisory committee. A qualifying examination is usually held within 18 months of commencement. All students must satisfy coursework requirements equivalent to UBC's M.A.Sc. in BME prior to graduation. Those students with a graduate degree in BME from another institution may fulfill coursework requirements with their previous credits as long as the course content is equivalent to the ones offered by UBC.

All doctoral students are required to complete a comprehensive examination successfully. The major requirement for the Ph.D. is completion of a research thesis meeting the requirements of the Faculty of Graduate Studies.

Master of Applied Science

ADMISSION REQUIREMENTS

The program is open to those holding a Bachelor's degree in engineering, science, or medical science, or a graduate degree in medicine. Prospective students must make application for admission to one of the four engineering departments in the Faculty of Applied Science: Chemical and Biological Engineering, Electrical and Computer Engineering, Materials Engineering, or Mechanical Engineering. A student will be admitted to the degree program upon the recommendation of a faculty member associated with the Biomedical Engineering Program and the approval of the Program Director and the Faculty of Graduate Studies.

PROGRAM REQUIREMENTS

The Master of Applied Science program requires a minimum of 30 credits, including a thesis of 12 credits. It usually requires two years of study. The program is based on a thesis and selected courses. The common course requirements for all students are three credits in clinical and industrial practice of biomedical engineering and one credit of Graduate Seminar. All candidates must also select a minimum of six credits from a list of core

biomedical engineering courses and six credits of life science courses, including physiology and anatomy. The remaining credits, upon approval by the research supervisor, can be used for courses related to the student's research project.

Graduation from this program, with an M.A.Sc. or Ph.D. degree, does not form an acceptable basis alone for application to associations of Professional Engineers in Canada. Please refer to the "Professional Associations" section of the UBC Calendar, under the Faculty of Applied Science.

Contact Information

Biomedical Engineering Program

2360 East Mall

Vancouver, BC, V6T 1Z3

Tel: 604-822-0367

Fax: 604-822-6003

Email: bme@apsc.ubc.ca

Web: www.bme.ubc.ca

Dr. Ezra Kwok, Director and Graduate Advisor

BIOTECHNOLOGY

The field of biotechnology is not taught by a single department and there is no formal program leading to a degree in this area. However, the Michael Smith Laboratories offer facilities and opportunities for graduate study in biotechnology through the academic departments of its faculty members. For more information, see *Michael Smith Laboratories*, p. 84, in the chapter Research Units, Centres, and Institutes.

BOTANY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

C. J. Douglas, F. R. Ganders, G. W. Haughn, W. Maddison, L. Rieseberg, F. Sack, C. Suttle, R. A. Turkington, G. Wasteneys.

ASSOCIATE PROFESSORS

M. Berbee, J. Bohlmann, G. E. Bradfield, P. G. Harrison, R. Jetter, P. Keeling, L. Kunst, L. A. F. Oliveira, J. Whitton.

ASSISTANT PROFESSORS

K. Adams, J.-G. Chen, N. M. Fast, S. Graham, B. S. Leander, X. Li, A. L. Samuels, P. Tortell, M. Vellend.

Program Overview

Research in Botany extends from genomics, molecular genetics, biochemistry and physiology of plants and eukaryotic microorganisms (e.g., fungi and protists) through their cytology and development to systematics, ecology and phytogeography. Such a broad spectrum of activities provides for dynamic interactions between subdisciplines. In addition, opportunities for interdisciplinary research projects exist with colleagues in other departments and units on campus, such as Forest Science, Botanical Garden/Centre for Plant Research, Zoology, Chemistry, Microbiology, Physics, the Michael Smith Laboratories, and the Centre for Biodiversity Research. Several of our faculty apply their strengths in the basic sciences to

problems relevant to forestry, agriculture, marine biology, and medicine.

The broad areas of research possible within the program are cell biology and biochemistry; genomics and genetics, plant molecular biology; plant and algal physiology; terrestrial and marine ecology; biosystematics and evolution; development and ultrastructure; protistology; and mycology.

Faculty members supervise students in projects funded by NSERC, CIHR, Genome Canada, and other agencies.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students who are admitted to the Master of Science program may, subject to the regulations of the Faculty of Graduate Studies, be granted permission to transfer to a Ph.D. program provided a First class performance has been obtained in coursework and there is clear evidence of research prowess. Exceptional students may be admitted straight to the Ph.D. program from the bachelor's level. Students with a Master of Science apply directly for the Ph.D. program. Although there are few formal course requirements, courses are selected in accordance with the recommendation of the graduate program and the candidate's Ph.D. committee.

MASTER OF SCIENCE

The Master of Science program requires a minimum of 30 credits with the thesis counting for 12 credits. Courses may be selected from Botany and a wide range of related programs on campus, in consultation with the research supervisor and the student's committee. A non-thesis M.Sc. option is also available.

Contact Information

Department of Botany
3529-6270 University Boulevard
Vancouver, BC, V6T 1Z4
Tel: 604-822-2134
Fax: 604-822-6089
Email: botagrad@interchange.ubc.ca
Web: www.botany.ubc.ca
Lebby Balakshin, Head Secretary

BUSINESS ADMINISTRATION

Degrees Offered: Ph.D., M.Sc.B.

Members

PROFESSORS

D. R. Atkins, B. Bemmels, I. Benbasat, J. Berechman, A. E. Boardman, J. A. Brander, H. Chen, G. A. Feltham, M. Frank, R. M. Giammarino, D. Gillen, D. Granot, F. Granot, D. Griffin, S. W. Hamilton, K. Head, R. L. Heinkel, R. Helsley, A. Kraus, M. D. Levi, S. T. McCormick, D. F. Muzyka, M. Nakamura, P. N. Nemetz, T. H. Oum, M. L. Puterman, M. Queyranne, J. C. Ries, S. Robinson, T. W. Ross, D. A. Simunic, D. Skarlicki, B. Spencer, J. A. Vercammen, I. Vertinsky, Y. Wand, T. Wang, D. Wehrung, C. B. Weinberg, R. Winter, A. Zhang.

ASSOCIATE PROFESSORS

K. Aquino, W. Antweiler, J. Begley, J. Berkowitz, S. Chamberlain, G. Chow, D. Dahl, P. R.

Darke, R. G. Donaldson, R. C. Goldstein, T. Hellmann, T. Knight, N. Langton, K. Li, D. Putler, M. Schulz, C. T. Somerville, C. Woo.

ASSISTANT PROFESSORS

H. Bhamra, A. Burton-Jones, M. D. Carlson, H. Cavusoglu, R. Cenfetelli, H. Chen, X. Chen, Xinlei Chen, Q. Cheng, P. Chwelos, E. Cope, S. Dasgupta, J.-E. de Bettignies, T. Dhar, A. Fisher, M. Kacperczyk, H. Krishnan, C. Kullmann, A. Lazrak, S. Lee, K. Lo, S. Maitlis, M. Nagarajan, H. Ortiz-Molina, M.-D. Seidel, J.-Y. Son, D. van Jaarsveld, Y. Yanadori, R. Zhu.

Program Overview

The Sauder School of Business is considered the top research business school in Canada and one of the top schools in North America. It offers courses of instruction leading to both the Master of Science in Business Administration (M.Sc.B.) and Doctor of Philosophy (Ph.D.).

The areas of study for the Ph.D. program include the fields of accounting, finance, management information systems, management science, marketing, organizational behaviour and human resources, strategy and business economics, and urban land economics. In addition, a student may pursue a cross-field program within the Sauder School of Business in such areas as transportation and logistics or international business.

The areas of study for the M.Sc.B. program include finance, management information systems, management science and transportation and logistics.

Degree Requirements

DOCTOR OF PHILOSOPHY

The objectives of the Ph.D. program in Business Administration are to prepare appropriately qualified individuals for careers in academic research and teaching and for research positions in business and government. Since each student enters the program with a unique academic background and pursues a course of study which reflects the student's own special interests, it is possible to give only very approximate estimates of the time which may be necessary to complete the major phases of the program. However, doctoral work beyond the master's degree in business administration or its equivalent ordinarily involves about two years of formal coursework. The thesis research normally requires about two years of additional work.

Students with limited financial resources should not be discouraged from applying for admission to the Ph.D. programs, since all students who are admitted, but who have not obtained financial assistance from an external source, will normally receive financial support for the first four years in the program.

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

The Master of Science in Business Administration (M.Sc.B.) is intended primarily for graduate students who plan to pursue, at a later stage, a Ph.D. program in business administration.

The program normally requires two years of study. It is designed by an advisor and a com-

mittee so as to best prepare the student for advanced study and research in the chosen area of specialization.

For information on Master of Business Administration (M.B.A.) or Master of Management (M.M.) programs, please see *the Faculty of Commerce and Business Administration (Sauder School of Business)*, p. 170 in the Calendar or visit the program websites for the M.B.A. (www.sauder.ubc.ca/mba) and M.M. (www.sauder.ubc.ca/mm)

Contact Information

Sauder School of Business
2053 Main Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-8366
Fax: 604-822-8755
Email: elaine.cho@sauder.ubc.ca
Web: www.sauder.ubc.ca
Elaine Cho, Ph.D. and M.Sc. Programs Administrator

CHEMICAL AND BIOLOGICAL ENGINEERING

Degrees Offered: Ph.D., M.A.Sc., M.Sc.

Members

PROFESSORS

B. D. Bowen, S. J. B. Duff, P. Englezos, J. R. Grace, S. G. Hatzikiriakos, R. J. Kerekes, C. J. Lim, J. M. Piret, K. J. Smith.

ASSOCIATE PROFESSORS

S. A. Baldwin, C. P. J. Bennington, J. Feng, C. A. Haynes, E. Kwok, A. Lau, R. J. Petrell, M. D. Martinez, X. Bi.

ASSISTANT PROFESSORS

N. Ellis, E. Gyenge, M. Mohseni, F. Taghipour.

Program Overview

The Department of Chemical and Biological Engineering offers graduate programs leading to research degrees of Doctor of Philosophy, Master of Applied Science (M.A.Sc.) and Master of Science (M.Sc.). Thesis topics are available in the fields of faculty research. Joint research is carried out at the master's and doctoral levels with the Pulp and Paper Research Institute of Canada (Paprican) and with *Michael Smith Laboratories*, p. 84, in areas of common interest. Graduates from other branches of engineering or from science may also be accepted, but may be required to successfully complete selected undergraduate courses in chemical and biological engineering before receiving a degree. A list of undergraduate course requirements may be obtained from the Department of Chemical and Biological Engineering.

A list of faculty members and their research interests is available from the Department.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy is for superior students who wish to acquire the knowledge, techniques and skills required for advanced research. The program is based on a thesis and selected courses suitable to the student's

research interests. The program must also include the seminar course (CHBE 598).

MASTER OF APPLIED SCIENCE

The Master of Applied Science requires a thesis (12 credits) and advanced coursework (18 credits). Normally, the required 18 credits will consist of 12 credits chosen from graduate courses in Chemical and Biological Engineering and 6 credits of relevant courses outside the program. The program must also include CHBE 598. Part-time students may enrol in the Master of Applied Science program.

MASTER OF SCIENCE

The Master of Science is offered for qualified graduates from the Faculties of Land and Food Systems, Forestry and Science. The program requires a thesis (12 credits) and 18 credits of advanced coursework, of which 12 credits must be selected from courses in Chemical and Biological Engineering. The program must also include CHBE 598. Part-time students may enrol in the Master of Science program.

For information about the professional Master of Engineering (M.Eng.) program, please see *the Faculty of Applied Science*, p. 107, or visit the program website (www.chml.ubc.ca).

Contact Information

Department of Chemical and Biological Engineering
306–2216 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-3457
Fax: 604-822-6003
Email: gradsec@chml.ubc.ca
Web: www.chml.ubc.ca
Helsa Leong, Graduate Secretary

CHEMISTRY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

R. Andersen, M. Blades, D. Brooks, D. Chen, E. E. Burnell, L. D. Burtnick, M. Ciufolini, M. Comisarow, D. Douglas, M. D. Fryzuk, C. Fyfe, E. Grant, J. Hepburn, P. Legzdins, L. McIntosh, T. Momose, C. Orvig, G. N. Patey, G. Sawatzky, M. Shapiro, J. Sherman, M. Tanner, S. G. Withers.

ASSOCIATE PROFESSORS

J. Barth, G. S. Bates, D. Bizzotto, D. Dake, D. Gates, R. Jetter, K. Orians, R. Signorell, M. Thachuk, M. Wolf.

ASSISTANT PROFESSORS

A. K. Bertram, K. Chou, J. Kast, P. Kennepohl, H. Li, J. Love, A. MacFarlane, M. MacLachlan, P. Mehrkhodavandi, D. Perrin, G. Sammis, L. Schafer, S. Straus, Y. A. Wang.

Program Overview

The graduate program in Chemistry offers a wide variety of research programs leading to degrees of M.Sc. and Ph.D. across the full breadth of chemistry including inorganic, organic, analytical, biological, physical, theoretical, nuclear, environmental and materials chemistry.

These programs are supported by an extensive in-house service infrastructure, the TRIUMF cyclotron and radioactive beams facility (ISAC), as well as support personnel and cutting-edge research equipment.

Research facilities are available for accommodation of over 300 graduate students, postdoctoral fellows and academic staff.

Degree Requirements

DOCTOR OF PHILOSOPHY

Applicants are required to hold a Master of Science or equivalent in chemistry, biochemistry, physics or related fields or a Bachelor of Science with an 'A' average in an honours or combined honours chemistry program or equivalent. Students in the Master of Science program may transfer into the Ph.D. program at the end of their first year provided they meet the transfer requirements of the Faculty of Graduate Studies and the graduate program.

Coursework in the Ph.D. program is assigned in accordance with the recommendation of the graduate program and the student's Ph.D. committee.

MASTER OF SCIENCE

Applicants are required to hold an honours degree in chemistry or biochemistry or physics, or combined honours in chemistry and physics, chemistry and mathematics, chemistry and biochemistry, chemistry and oceanography, or chemistry and biology; or a bachelor's degree in chemical engineering with at least Second class standing; or a single major in chemistry with at least Second class standing; or the equivalent to any of the above is prerequisite.

The program requires a thesis and 12 additional credits in graduate or advanced courses in chemistry and/or related subjects.

Contact Information

Department of Chemistry
300–6174 University Blvd.
Vancouver, BC, V6T 1Z3
Tel: 604-822-6102
Fax: 604-822-2847
Email: secgrad@chem.ubc.ca
Web: www.chem.ubc.ca
Janis Hanen, Graduate Secretary

CHILDREN'S LITERATURE

Degrees Offered: M.A.

Members

PROFESSOR

R. Jobe.

ASSOCIATE PROFESSORS

M. Asselin, A. Curry, J. Flick, J. K. Kealy, T. Rogers, J. Saltman.

Program Overview

The School of Library, Archival and Information Studies, with the participation of the Departments of English, Language and Literacy Education, and Theatre, Film and Creative Writing, offers a multi-disciplinary Master of Arts program in Children's Literature. The program provides specialized education for

graduate students in the study of children's literature using a multi-disciplinary approach. The program is designed to provide each student with the opportunity to study the creative writing and publishing of this literature, examine models of sharing its rich heritage with the young, and also facilitate the literary, social, historic, and psychological analyses of children's literature as literature. This multi-disciplinary approach will expose students to many schools of literary criticism, educational theory, and professional and creative practice. It will acquaint students with the broad literary canon of children's literature across a spectrum of languages and cultures and with a variety of critical perspectives and professional application.

An undergraduate student considering working in the field of children's literature should consult the School about useful preparatory classes. An interview may be arranged at any time.

A broad cultural background is expected of M.A. applicants. The prospective student should select courses which will give some acquaintance with the humanities and social sciences during their undergraduate studies. Particular attention should be paid in undergraduate or graduate studies to courses in children's literature, English, writing for children, child psychology, and the history of childhood.

Degree Requirements

MASTER OF ARTS

The Master of Arts in Children's Literature is awarded on the completion of 30 credits of work, including 24 credits of coursework and a 6-credit thesis. The coursework will be selected in consultation with the supervisory committee to support the multi-disciplinary nature of the program. Six credits of coursework may be taken at the 300 or 400 level; the remainder must be at the 500 level and above.

Of the 24 credits of coursework, 3 credits are required from each of the following categories, including at least 6 credits at the 500 level:

- Historical Overview: LLED 441, ENGL 468, LIBR 522A, LIBR 522B
- Contemporary Children's/Young Adult Literature: LLED 442, LLED 449, LIBR 522A, LIBR 522B, LIBR 524, LLED 540, LLED 541
- Research Methodology: EDUC 500, LIBR 590

The remaining 15 credits of courses may be chosen from the wide range of offerings available in the Departments of English, French, Language and Literacy Education, Theatre, Film and Creative Writing, and the School of Library, Archival, and Information Studies; from relevant courses, not specific to children's literature, offered elsewhere at UBC; and from approved courses offered by other institutions.

A maximum of 12 credits earned no more than five years prior to entry into the program may be transferred from another institution or another program at UBC. Transfer credit will not be accepted for a course that has been applied to another degree. The degree may be

taken on a full-time or part-time basis. Students may begin the program in either term of Winter or Summer Session. The application dates are:

- for September admission: February 1
- for January admission: May 1
- for May admission: September 15

Thesis: The supervisory committee will advise on, monitor, and evaluate the six-credit thesis.

Contact Information

School of Library, Archival and Information Studies
TEF III, 301–6190 Agronomy Road
Vancouver, BC, V6T 1Z3
Tel: 604-822-2404
Fax: 604-822-6006
Email: slaisad@interchange.ubc.ca
Web: www.slais.ubc.ca/programs/macl.htm
Helen Chang, Grad Admissions Secretary

CIVIL ENGINEERING

Degrees Offered: Ph.D., M.A.Sc.

Members

PROFESSORS

P. E. Adebar, N. Banthia, S. Chieng, R. J. Fannin, E. R. Hall, M. Isaacson, G. A. Lawrence, B. J. Lence, K. V. Lo, D. S. Mavinic, A. D. Russell, S. F. Stiemer, T. A. Sayed, R. Vaziri, C. E. Ventura.

ASSOCIATE PROFESSORS

J. W. Atwater, T. M. Froese, J. A. Howie, L. Li, R. G. Millar, H. G. L. Prion, D. A. Shuttle, D. Wijewickreme.

ASSISTANT PROFESSORS

P. Bérubé, K. Elwood, T. Haukaas, J. Jenkins, B. Laval, S. Staub-French.

Program Overview

Civil Engineering offers two graduate degree programs under the Faculty of Graduate Studies: Master of Applied Science (M.A.Sc.), and Doctor of Philosophy (Ph.D.). In each of these programs, students may select one of the following areas of specialization:

- civil engineering materials
- environmental engineering (environmental fluid mechanics, geo-environmental engineering, pollution control and waste management, agricultural waste management)
- geotechnical engineering
- hydrotechnical engineering
- project and construction management
- structural and earthquake engineering
- transportation engineering

Persons interested in taking advanced graduate courses, but who do not wish to undertake a full graduate degree program, may apply on an Unclassified (i.e., non-degree) basis through Enrolment Services. Permission of the instructor is required before an Unclassified student can register in a course.

English Language requirements: TOEFL minimum score of 100 starting September 2005; IELTS minimum overall band of 7 with nothing less than 6.5 per individual test.

Doctor of Philosophy

ADMISSION REQUIREMENTS

Students admitted to the Ph.D. degree will normally possess a master's degree in civil engineering or a related area with a minimum GPA of B+ (76%–79%).

PROGRAM REQUIREMENTS

This research degree is offered in each of the areas of specialization listed above. The Ph.D. program is based on individual objectives with close supervision and consultation with a faculty advisor. The minimum number of course credits required beyond the bachelor's degree is 36; however, students generally need about one full year of coursework beyond a master's degree. A doctoral dissertation, including coursework, normally takes three to five years.

Master of Applied Science

ADMISSION REQUIREMENTS

Students admitted to the M.A.Sc. degree will normally possess a bachelor's degree in civil engineering or a related area with a minimum GPA of B+ (76%–79%).

PROGRAM REQUIREMENTS

This degree requires a minimum of 30 credits made up of at least 18 credits of coursework in addition to the research necessary for a master's thesis. At least 12 credits in graduate courses in civil engineering subjects are required.

Full-time students can complete the coursework requirements for the M.A.Sc. in two terms (Term 1: September to December; Term 2: January to April). Students in the M.A.Sc. program spend full time on directed research following completion of their coursework requirements. It usually takes 16 to 24 months of full-time study to complete the coursework and thesis requirements of the M.A.Sc. program.

Engineering Management Subspecialization:

The subspecialization is intended for all graduate engineering students seeking a more balanced education in both technical and management related subjects. The subspecialization requires students complete 12 credits in management-related courses while satisfying the requirements of their graduate engineering program. For more information, refer to the program website (www.civil.ubc.ca/ems).

Professional Partnership Program: Students may complete all or part of the work for their graduate degrees in a joint industry-university partnership program. Students spend part of their time working for industry or government and the rest at University, with joint supervision from faculty members and industry representatives. Details may be obtained from the department office.

Part-time Students: Students may complete the Master of Applied Science (M.A.Sc.) program on a part-time basis; however, part-time students may spread their program over not more than five years.

Master of Engineering

For information about the professional Master of Engineering (M.Eng.) program, please see

the Faculty of Applied Science, p. 107, or visit the program website (www.civil.ubc.ca).

Contact Information

Department of Civil Engineering
6250 Applied Science Lane
Vancouver, BC V6T 1Z4
Tel: 604-822-2637
Fax: 604-822-6901
Email: gradsec@civil.ubc.ca
Web: www.civil.ubc.ca
Christine Adams, Graduate Secretary

CLASSICAL AND NEAR EASTERN ARCHAEOLOGY

Degree Offered: M.A.

Members

PROFESSORS

A. A. Barrett, S. D. Sullivan, R. Todd, E. H. Williams, R. J. A. Wilson.

ASSOCIATE PROFESSORS

D. Arbel, P. C. Burns, R. Cousland, F. De Angelis, C. Marshall, R. Menkis, P. G. Mosca, D. Neufeld.

ASSISTANT PROFESSORS

L. Bablitz, E. Cooper, D. Creese, R. Daum, F. De Angelis, T. Hikade, C. Johnson, C. Marshall, M. Yazigi.

Program Overview

The graduate program in Classical and Near Eastern Archaeology offers a course of instruction leading to the Master of Arts (M.A.). For detailed information about the program, please consult the program's website (www.cnrs.ubc.ca).

Degree Requirements

MASTER OF ARTS

The M.A. program requires a minimum of 30 credits of coursework and two comprehensive examinations. Of the 30 credits, 24 must be numbered 500 or above (graduate courses), while the remaining six may, at the discretion of the program, be at the 300- or 400-level (undergraduate). Students are also required to have completed a course in archaeological field training with high standing.

Prerequisites for the M.A. program include a Bachelor of Arts in Classics (Greek and Latin), Classical Studies (non-language program), Near Eastern Studies, Religious Studies, or a related discipline.

For details on the language prerequisites and requirements, see the program's website (cnrs.arts.ubc.ca/index.php?id=3745).

Contact Information

Classical, Near Eastern & Religious Studies
Buch. C260–1866 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-2515
Fax: 604-822-9431
Email: cnrs@interchange.ubc.ca
Web: cnrs.arts.ubc.ca/index.php?id=3738
Christine Dawson, Graduate Secretary

CLASSICS

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

A. A. Barrett, S. D. Sullivan, R. Todd, E. H. Williams, R. J. A. Wilson.

ASSOCIATE PROFESSORS

D. Arbel, P. C. Burns, R. Cousland, F. De Angelis, C. Marshall, R. Menkis, P. G. Mosca, D. Neufeld.

ASSISTANT PROFESSORS

H. Bablitz, E. Cooper, D. Creese, R. Daum, T. Hikade, C. Johnson, C. Marshall, M. Yazigi.

Program Overview

The Classics graduate program offers courses of instruction leading to both the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.).

The M.A. in Classics is taken by concentrating on one of three fields: (1) Latin and Greek; (2) Latin; (3) Greek.

The Ph.D. in Classics offers a core program in Latin and Greek language and literature, and also less language-intensive options in Classical Archaeology and Ancient History.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of coursework, preliminary examinations, and research leading to a dissertation that is defended in an oral final examination.

Prerequisites for the Ph.D. include either (1) an M.A. in Classics or equivalent, or (2) in exceptional cases, an honours B.A. with First class standing and clear demonstration of advanced research ability.

For details on the prerequisites and the Graduate Regulations (including language prerequisites and requirements), see the program's website (cnrs.arts.ubc.ca/index.php?id=3746).

MASTER OF ARTS

There are two options for the Master of Arts:

- 1) Non-thesis Option. The degree will normally be attained by 30 credits of coursework in Latin and Greek, reading examination(s), and a major essay. Of the 30 credits, 24 must be numbered 500 or above (graduate courses), while the remaining 6 may, at the discretion of the program, be at the undergraduate level.
- 2) Thesis Option. In exceptional cases students who have completed 24 credits of Latin and/or Greek at the 400 level before entering the program will be allowed to attain the degree by coursework and thesis. Under this option the thesis counts for 12 credits. The remaining 18 credits must be in Latin and Greek courses numbered 500 or above.

Prerequisites for the M.A. program include a Bachelor of Arts in Classics or equivalent.

For details on the language prerequisites and requirements, see the program's website (cnrs.arts.ubc.ca/index.php?id=3746).

Contact Information

Classical, Near Eastern & Religious Studies
Buch. C260-1866 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-2515
Fax: 604-822-9431
Email: cnrs@interchange.ubc.ca
Web: cnrs.arts.ubc.ca/index.php?id=3738
Christine Dawson, Graduate Secretary

COMPARATIVE LITERATURE

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

J. X. Cooper, M. S. Duke, E. Durbach, M. Fee, A. V. Globe, G. Good, D. J. Gregory, S. E. Grace, E.-M. Kröller, J. O'Brian, G. J. Pratt, V. A. Raoul, R. Sarkonak, M. L. Weir.

ASSOCIATE PROFESSORS

V. D. Arbel, D. Boccassini, P. C. Burns, R. A. Cavell, R. F. De Grandis, N. S. N. Godfrey, N. Frelick, C. M. S. Hellwig, A. Lamontagne, T. M. Kemple, B. S. McLroy, J. S. Mostow, D. Neufeld, P. Petro, T. Salumets, A. Smith, S. Taubeneck, C. Testa, M. Vessey, G. H. Winthrop-Young.

ASSISTANT PROFESSORS

G. Onyeoziri-Miller, W. G. Winder.

Program Overview

While retaining a primary focus in the study of literary texts, the Program in Comparative Literature attempts to bridge the gaps which have arisen as a result of the institutional compartmentalization of knowledge, and thus to arrive at a more productive understanding of literature in global contexts. Through courses in the history of literary theory and in current developments in this rapidly expanding field, the program seeks to provide a foundation for the study of interrelationships among discourse systems in the humanities and social sciences. Students select from a range of courses in Comparative Literature, in the national literatures studied in their original languages, and in other related disciplines in order to develop a coherent program of individual study which will have its own logic and lead to interdisciplinary work of a high order.

Comparative Literature studies at the University of British Columbia may be grouped under four major headings. (Note that in each case texts in at least two different languages must be involved.)

- Comparisons across linguistic and cultural groups
- Comparisons among the Arts
- Comparisons across discourse systems
- Comparisons involving Western poetics and literary theory

For detailed information about the program and its requirements, please see the Comparative Literature website (complit.arts.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. represents the culmination of training in the discipline of Comparative Literature.

Applicants must have fluency in three different languages including English and knowledge of literary texts studied in the three original languages. Normally an M.A. degree with First class standing is the prerequisite for admission. Applicants from certain countries outside North America, Great Britain, and Europe may be required to enrol in the M.A. program even if they already possess an M.A. degree. Students with a high 'A' standing and fluency in three languages who have passed the Qualifying Examination have the option of transferring into the Ph.D. program after one year of master's study. The languages studied must be available (taught) at the graduate level at UBC.

For detailed information, please consult the program's website (complit.arts.ubc.ca).

MASTER OF ARTS

Applicants to the M.A. in Comparative Literature at UBC must have academic training in the literature of three languages (English may be chosen) and have studied in the original three languages during their final two years as undergraduates. Language competence will be established by obtaining at least a high Second class grade in a fourth-year course (6 credits) in that language. Senior courses with a literary or theoretical focus will be accepted for entrance into Comparative Literature, but senior level courses in composition, reading knowledge, the translation of technical documents, and the like, will not be accepted. The languages studied must be available (taught) at the graduate level at UBC.

For detailed information, please consult the program's website (complit.arts.ubc.ca).

Contact Information

Program in Comparative Literature
Buch. C258-1866 Main Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-5157
Fax: 604-822-9431
Email: complit@interchange.ubc.ca
Web: complit.arts.ubc.ca
Christine Dawson, Graduate Secretary

COMPUTER SCIENCE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

B. Aiello, U. M. Ascher, K. S. Booth, A. Condon, J. Friedman, M. Greenstreet, G. Kiczales, D. G. Kirkpatrick, L. Lakshmanan, J. J. Little, D. Lowe, A. K. Mackworth, R. T. Ng, D. Pai, D. Poole, R. J. Woodham.

ASSOCIATE PROFESSORS

C. Conati, A. Doucet, W. Evans, M. J. Feeley, W. Heinrich, H. Hoos, A. Hu, N. Hutchinson, K. McLean, G. C. Murphy, R. Rensink, M. Van de Panne, S. T. Vuong, A. Wagner.

ASSISTANT PROFESSORS

R. Bridson, N. de Freitas, K. De Volder, G. Carenini, M. P. Friedlander, C. Greif, C. Krasic, K. Leyton-Brown, J. McGrenere, I. Mitchell, T. Munzner, K. Murphy, R. A. Pottinger, A. Sheffer, E. A. Wohlstadter.

Program Overview

The graduate program in Computer Science offers opportunities for advanced study leading to the Doctor of Philosophy and Master of Science. Fields of study include computational intelligence (computational vision, automated reasoning, multi-agent systems, intelligent user interfaces and machine learning), computer communications, databases, integrated systems design, computer graphics, distributed and parallel systems, integrated systems, human-computer interaction, scientific computational visualization, theoretical aspects of computer science (computational complexity, computational geometry, empirical algorithms and parallel processing), operating systems, networks, robotics, software engineering, programming languages, educational technologies, bioinformatics, and social issues in computing.

Degree Requirements

DOCTOR OF PHILOSOPHY

Applicants to the Doctor of Philosophy (Ph.D.) program must meet the minimum admission requirements of the Faculty of Graduate Studies.

All students enrolled in the Ph.D. program in Computer Science must satisfy a breadth requirement that covers a wide-range of fields of study within computer science. However, the primary focus of the Ph.D. program is the doctoral thesis. The thesis must demonstrate original knowledge in the student's field of study and must be defended at an oral final examination set up by the Faculty of Graduate Studies.

For detailed information about Ph.D. program requirements, please see the Computer Science website (www.cs.ubc.ca/prospective/grad).

MASTER OF SCIENCE

There are three options available to the M.Sc. student, as follows:

- 1) 18 credits of coursework plus a 12-credit M.Sc. thesis;
- 2) 24 credits of coursework plus a 6-credit M.Sc. thesis; or
- 3) 27 credits of coursework satisfying a breadth requirement plus a 3-credit master's essay plus an oral examination.

For detailed information about M.Sc. program requirements, please see the Computer Science website (www.cs.ubc.ca/prospective/grad).

Contact Information

Department of Computer Science
2366 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-827-5409
Fax: 604-822-5485
Email: gradpgm@cs.ubc.ca
Web: www.cs.ubc.ca/prospective/grad/
Joyce Poon, Graduate Program Administrator

COUNSELLING PSYCHOLOGY

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSORS

N. Amundson, W. Borgen, J. Daniluk, S. Kahn, B. Long, M. Westwood, R. Young.

ASSOCIATE PROFESSORS

M. Arvay, B. Haverkamp, I. Ishiyama, R. McCormick, I. Schultz.

ASSISTANT PROFESSORS

S. James, L. Miller.

Program Overview

The Counselling Psychology (CNPS) program offers the Ph.D., M.A., and M.Ed. degrees. The Ph.D. program is accredited by the Canadian and American Psychological Associations, and the master's programs are being reviewed for accreditation by the CCA Council on Accreditation of Counsellor Education Programs. Faculty members are involved in a wide range of research activities including intercultural counselling, First Nations counselling, career development and counselling, stress and coping, sexuality and reproductive health, disabilities, trauma, working with families and children in school settings, prevention of anxiety disorders, and empirically supported approaches utilizing both quantitative and qualitative methodologies.

Degree Requirements

DOCTOR OF PHILOSOPHY

Admission Requirements: Applicants must satisfy the general academic standards of the Faculty of Graduate Studies, and have completed a thesis-based master's degree equivalent to the CNPS M.A. in counselling (or its equivalent) with an overall average of at least 80%. Applicants are also required to write the Graduate Record Examination (GRE) general test, and, if applicable, the TOEFL test.

Program Requirements: The Ph.D. program is designed to educate counselling psychologists as researchers, practitioners, and educators. The focus of the program is on developing doctoral level competence in research, counselling theory and counselling skills. The program involves completion of 51 credits of coursework, theory and specialty comprehensive examinations, a 1,600 hour internship and a dissertation. In order for students to meet deadlines for comprehensive examinations and candidacy, the program requires students to be engaged in full-time study for a minimum of two calendar years.

MASTER OF ARTS

Admission Requirements: Applicants must satisfy the general academic standards of the Faculty of Graduate Studies. In addition, applicants should have completed a senior undergraduate course in abnormal psychology or behaviour disorders, learning, and statistics. CNPS 362, 363 and 365 also are required prerequisites. Applicants should have a minimum of three years work/volunteer experience that involves helping children, adolescents and/or adults. Applicants are required to write the Graduate Record Examination (GRE) general test, and, if applicable, the TOEFL test.

Program Requirements: The program requires completion of 48 credits of coursework and a 6-credit thesis. In addition to offering core courses in research, counselling theory and skill acquisition/practica, the program provides the opportunity for students to focus on one of the three areas recognized by the organization that accredits the program (CACEP). These areas of focus are School Counselling, Counselling in Higher Education, Community and Agency Counselling. The program may be completed on a full- or part-time basis.

MASTER OF EDUCATION

Admissions Requirements: Applicants must satisfy the general academic standards of the Faculty of Graduate Studies. In addition, applicants should have completed a senior undergraduate course in abnormal psychology or behaviour disorders, and learning. CNPS 362 and 365 also are required prerequisites. Applicants should have a minimum of three years work/volunteer experience that involves helping children, adolescents and/or adults. If applicable, applicants are required to write the TOEFL test.

Program Requirements: The program requires completion of 48 credits of coursework. In addition to offering core courses in counselling theory, skill acquisition/practica and research the program provides the opportunity for students to focus on one of the three areas recognized by the organization that accredits the program (CACEP). These areas of focus are School Counselling, Counselling in Higher Education, Community and Agency Counselling. The program may be completed on a full- or part-time basis.

Contact Information

Department of Educational and Counselling Psychology, and Special Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6371
Fax: 604-822-3302
Email: karen.yan@ubc.ca
Web: www.ecps.educ.ubc.ca/cnps/
Karen Yan, Graduate Program Assistant

CREATIVE WRITING

Degree Offered: M.F.A.

Members

PROFESSORS

S. Alderson, K. Maillard, L. Svendsen.

ASSOCIATE PROFESSORS
P. Thompson, B. Wade.

ASSISTANT PROFESSORS
M. Cadell, R. Tregobov, M. Medved.

Program Overview

The Creative Writing Program offers two streams of study leading to the Master of Fine Arts (M.F.A.). The first is a two year resident program. The second is an online distance program with part-time and residency options (see website for genres). All candidates may choose to take the M.F.A. in creative writing. Candidates in the resident program only may also concentrate in playwriting in conjunction with the Theatre Program (CRWR/Theatre) or in the joint Creative Writing & Film (CRWR/Film) program. The joint Creative Writing & Film (CRWR/Film) program requires that the candidate must be accepted by the Film program first before applying to the CRWR/Film program. Consult the film program website.

The Creative Writing Program publishes *PRISM international* (prism.arts.ubc.ca) and *FUGUE*; resident graduate students participate in the editing and production of the magazines.

Applicants to the Creative Writing Program should submit work in two or more of the genres listed in the Creative Writing brochure, specifying which is their major area of interest. Short and long fiction are considered one genre. Applicants who intend to focus on translation should submit translated material in any of the above genres and a sample of their own original creative writing. Consult the Creative Writing Program website or email for more information.

The deadline for receiving (not postmarked) manuscripts is November 3, 2006 for a September 2007 entrance date. Late manuscripts will not be considered. Length of the manuscripts accompanying the application depends on choice of genres. Guidelines are available from the Creative Writing Program Office or on the program's website (www.creativewriting.ubc.ca).

Degree Requirements

MASTER OF FINE ARTS
During the program, a minimum of 36 credits of work must be completed, including a thesis. (A reduction of the second-year residency requirement for resident students will be considered in exceptional circumstances.) The Creative Writing Program consists of work in three genres, chosen in consultation with the program advisor, as described in the program brochure.

In their final year, students will complete a 6-credit thesis consisting of a full-length work in the area(s) of their special interest. The thesis may be a substantial revision and extension of work done during the first year. A work of translation may be used to fulfil the thesis requirement by students with the required ability and linguistic knowledge. (M.A. candidates in the Comparative Literature Program who have their advisor's permission and are accepted by the instructor of the course in

translation may include a translation in partial satisfaction of their thesis requirements.)

Students may be required to take advanced creative writing undergraduate courses as part of their programs.

Contact Information

Creative Writing Program
Buch. E462-1866 Main Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-0699
Fax: 604-822-3616
Email: patrose@interchange.ubc.ca
Web: www.creativewriting.ubc.ca
Pat Rose, Creative Writing Program and Graduate Secretary

CREATIVE WRITING/FILM

Degree Offered: M.F.A.

Members

ASSOCIATE PROFESSORS
S. McGowan, P. Thompson.

Program Overview

The Creative Writing and Film Studies Programs of the Department of Theatre, Film, and Creative Writing offer a joint two-year course of resident study leading to the Master of Fine Arts (M.F.A.) in Creative Writing and Film. Please consult both the Film Program website (www.film.ubc.ca) and the Creative Writing Program website (www.creativewriting.ubc.ca) for additional information.

Degree Requirements

MASTER OF FINE ARTS
The joint Creative Writing and Film Studies Program requires that the applicant be accepted by the *Film Program*, p. 250, before applying to the Creative Writing/Film Program.

Only applicants with an undergraduate degree in 16/35mm Film Production and verifiable completion of a course in digital editing or the equivalent in professional experience and an undergraduate degree will be considered for admission.

Contact Information

Film Program
Buchanan 235A-1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-6037
Fax: 604-822-0508
Email: film@interchange.ubc.ca
Web: www.film.ubc.ca
Zanna Downes, Film Program Secretary and Graduate Secretary

CREATIVE WRITING/THEATRE

Degree Offered: M.F.A.

Members

ASSOCIATE PROFESSORS
S. Heatley, S. Malloy, B. Wade.

Program Overview

The Creative Writing and Theatre Programs of the Department of Theatre, Film, and Creative

Writing offer a joint two-year course of resident study leading to the Master of Fine Arts (M.F.A.) in Stage Playwriting. Applicants must be accepted by both the *Creative Writing*, p. 241, and *Theatre*, p. 285, Programs.

Degree Requirements

MASTER OF FINE ARTS
Admission to the M.F.A. in Stage Playwriting is on the basis of a script submission, including some work in another writing genre, and also relevant coursework in theatre at the undergraduate level or equivalent. Inquiries should be directed to the Creative Writing Program. Please consult the Creative Writing Program website (www.creativewriting.ubc.ca) for additional information regarding manuscript submission and deadlines.

Students are required to take appropriate coursework in Creative Writing and Theatre, as described in their respective brochures. They must also be involved in the staging or production of some of their own work and, in fulfillment of the six-credit thesis requirement, write the equivalent of a full-length stageplay acceptable to both programs. The thesis requirement must be met in the second year and may be a substantial revision and extension of work done during the first year.

Contact Information

Creative Writing Program
Buch. E462-1866 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-0699
Fax: 604-822-3616
Email: patrose@interchange.ubc.ca
Web: www.creativewriting.ubc.ca
Pat Rose, Creative Writing Program and Graduate Secretary

CURRICULUM STUDIES

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSORS
F. G. Chalmers, G. L. Erickson, P. J. Gaskell, R. Irwin, A. Kindler, L. Peterat, W. Pinar, S. Pirie, W. Ross, P. Seixas.

ASSOCIATE PROFESSORS
A. Anderson, J. Butler, A. Clarke, L. Farr Darling, P. Gouzouasis, K. Grauer, H. Hubball, D. Krug, J. Mayer-Smith, K. Meyer, C. Nicol, S. Petrina, A. Phelan, W. H. Werner.

ASSISTANT PROFESSORS
D. Anderson, J. Butler, P. Clark, S. Gerofsky, J. S. Goble, H. Hubball, S. Khan, L. Loutzenheiser, S. Nashon, C. Nicol.

Program Overview

Graduate programs in the field of Curriculum Studies encompass but are not limited to investigations into: the teacher education, the social construction of knowledge, the curriculum as culturally and politically situated, contemporary curriculum and instructional discourses, and the role of curriculum and curricular reform in K-12 and other learning environments. Students learn about issues

around planning and development, program implementation, and evaluation, and pre-service and in-service teacher education. Inquiry in the field is multi-disciplinary and includes numerous perspectives and orientations such as: cultural studies, historical consciousness, post structuralism, feminism, multicultural education, semiotics, and critical theory.

Degree Requirements

DOCTOR OF PHILOSOPHY

Admission Requirements: In addition to the Faculty of Graduate Study requirements, the program requires: a master's degree with high standing in a relevant educational discipline and evidence of potential to carry out research.

Degree Requirements: The Doctor of Philosophy program combines coursework with a research thesis. Students select their courses in consultation with faculty to suit their research needs. The doctoral program in Curriculum Studies is not based on the mastery of a specific body of knowledge covered in a set of courses. Rather, the program invites students at this advanced stage of study to work with their advisors in designing programs of course-work that provide a focus to their studies, along with supporting breadth. The common core to the program are two doctoral seminars (an introductory and an advanced). Subject areas establish additional requirements for their doctoral students. A student's coursework typically takes the form of 18 to 24 credits, with additional courses audited, over a one to two year period. The coursework, as it relates to the dissertation topic and proposed research method, may be drawn from both within and outside of the Faculty of Education.

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Study requirements, the program requires:

- 1) Normally, 18 credits of senior coursework or a professional concentration in the area of interest.
- 2) Normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A maximum of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The M.Ed. program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A maximum of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, ten 3-credit courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

CURRICULUM STUDIES AND EDUCATIONAL ADMINISTRATION AND LEADERSHIP

Degree Offered: M.Ed.

Members

PROFESSORS

D. Brown, C. Shields.

ASSOCIATE PROFESSORS

D. Coulter, W. Poole, A. Mazawi.

ASSISTANT PROFESSORS

M. Stack.

Program Overview

This program allows students to complete a joint master's program in Curriculum Studies and in Educational administration and Leadership. The focus of the program is K-12 schooling contexts.

Degree Requirements

MASTER OF EDUCATION

The 30-credit M.Ed. program includes 27 hours of coursework and a three-credit graduating paper, portfolio or capstone course. Students are expected to complete a minimum of 12 credits in EADM and 12 credits in CUST. For details on required and elective courses see the program's website (www.edst.educ.ubc.ca/programs/EADM_CUST.htm).

Contact Information

Educational Administration, Department of Educational Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6647
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Web: www.edst.educ.ubc.ca/programs/EADM_CUST.htm
Garnet Grosjean, Coordinator

DENTAL SCIENCE

Degrees Offered: Ph.D., M.Sc., M.Sc./P.D.T.

Members

PROFESSORS

D. Bromme, D. M. Brunette, D. C. Clark, V. M. Diewert, D. Donaldson, M. P. Haapasalo, H. S. Larjava, A. A. Lowe, M. I. MacEntee, C. M. Overall, E. H. K. Yen.

ASSOCIATE PROFESSORS

B. J. Craig, R. L. Harrison, D. MacDonald, E. Putnins, J. M. Richman, C. R. Roberts, N. D. Ruse, R. M. Shah, D. Sweet, J. N. Walton, J. D. Waterfield, C. Wyatt, L. Zhang.

ASSISTANT PROFESSORS

J. M. Coil, L. Hakkinen, I. Matthew, R. W. Priddy, E. M. Whitney.

Program Overview

The M.Sc. program ordinarily requires two full academic years of study. There is also the option to enrol in the M.Sc. program as a part-time student. The Ph.D. program ordinarily requires at least three full academic years of study. Both M.Sc. and Ph.D. programs are research-oriented, consisting of didactic courses and original research carried out under supervision. Both the M.Sc. and Ph.D. programs are not clinical programs leading to clinical specialization and are unrelated to licensure.

The combined M.Sc. (Dental Science)/Diploma in Periodontics Program is a clinical specialty program. Normal course of study is three full academic years. Successful graduates are eligible to take the examination for the Fellowship Examination of The Royal College of Dentists of Canada and Diploma Exam of the American Board of Periodontology. Upon completion of the program graduates receive a Master of Science Degree in Dental Science and a Diploma in Periodontics.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students in the Ph.D. in Dental Science are accepted under the general regulations of the Faculty of Graduate Studies to study in one of the major recognized fields of dentistry and dental hygiene. Applicants for a Ph.D. degree must hold a D.D.S., D.M.D., M.D., D.V.M. or their equivalents, or an M.Sc. in Dental Science or a related discipline.

MASTER OF SCIENCE

Applicants for a master's degree must hold a bachelor's degree with honours in the field of the proposed master's courses with First class standing in at least 12 credits of third- and fourth-year coursework in that field, or First class standing in at least 12 credits of the coursework and at least upper Second class standing in the remaining coursework at the third- and fourth-year level prescribed by the program concerned as prerequisite to the master's program.

MASTER OF SCIENCE WITH DIPLOMA IN PERIODONTICS

The Faculty, through its Division of Periodontics and Dental Hygiene, offers graduate training in Periodontics as a 3-year program aimed at producing clinical specialists. Applicants must satisfy the requirements for admission to the Faculty of Graduate Studies, and hold a D.M.D. or its equivalent from a recognized university.

Contact Information

Office of Graduate/Postgraduate Studies
Faculty of Dentistry
2199 Wesbrook Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-4486
Fax: 604-822-3562
Email: vickybk@interchange.ubc.ca
Web: www.dentistry.ubc.ca
Viki Beretanos Koulouris, Graduate Programs
Coordinator

DEVELOPMENT, LEARNING AND CULTURE

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSORS

H. Goelman, S. Hymel, M. Porath.

ASSOCIATE PROFESSORS

M. Bryson, L. Ford, A. Hubley, N. Perry, K. Schonert-Reichl.

ASSISTANT PROFESSOR

J. Shapka.

Program Overview

The graduate program in Development, Learning and Culture (DLAC) is concerned with key factors (cognitive, linguistic, social-emotional and cultural) that inform models of typical and atypical learning and development across the life span and how best to support learners and learning in formal educational and other settings. DLAC courses and research weave together theoretical models and concepts in their application to real world educational issues. Investigations of learning and development are applied to a wide range of contexts including classroom, work and technological environments, and are interpreted through a variety of theoretical lenses (e.g., constructivist, cognitive, socio-cultural, social-developmental). Students are encouraged to participate in educational research throughout their program. Coursework emphasizes four primary areas: 1) life span development and education, 2) design of learning environments, 3) culture and diversity, and 4) research methods, both qualitative and quantitative, experimental and developmental. DLAC graduates have found careers in a variety of settings including university teaching and research, social policy analysis, curriculum and program evaluation, community and business.

Degree Requirements

DOCTOR OF PHILOSOPHY

Doctoral students are expected to acquire a broad background within the field of educational psychology including a basic knowledge of theories, principles and models of learning/development, an understanding of developmental processes in the cognitive, social-emotional and cultural domains, an understanding of individual differences, atypical development, and individuals with exceptionalities, and familiarity with current approaches to research. Coursework is determined on an individual, case-by-case basis

in an individualized program of graduate studies developed by the student in consultation with his/her faculty advisory committee. Assuming an appropriate background at the master's level, students are required to take two to four DLAC content area courses at the advanced level (500 and 600 level), and at least one course (3 credits) from outside DLAC that is relevant to one's primary area of specialization. Students must also participate in a year-long, department-wide doctoral seminar (EPSE 601), complete at least two advanced courses in research methodology (qualitative and/or quantitative), pass a comprehensive examination to demonstrate breadth and depth of knowledge in the field, and complete and defend a doctoral thesis.

MASTER OF ARTS

Students in the 30-credit DLAC Master of Arts (M.A.) program are required to take three core courses: Human Development in Education (EPSE 505), Applications of Educational Psychology (EPSE 501), and Cultural Perspectives on Learning, Development and Media (EPSE 503), plus three elective courses either within the DLAC area (EPSE 584 on motivation, EPSE 585 on social-emotional development, EPSE 503 on cognition language and literacy processes, or 511 on a special topic) or outside the area, selected in consultation with the student's advisory committee. Two methodology courses, one in quantitative methods (e.g., EPSE 592), and one in qualitative methods (e.g., EPSE 595) are also required. In addition, students participate in a research seminar (EPSE 571) which is designed to facilitate progress toward completion of their master's thesis (6 credits).

MASTER OF EDUCATION

Students in the 30-credit DLAC M.Ed. program are required to take three core courses: Human Development in Education (EPSE 505), Applications of Educational Psychology (EPSE 501), and Cultural Perspectives on Learning, Development and Media (EPSE 503), plus four elective courses either within the DLAC area (EPSE 584 on motivation, EPSE 585 on social-emotional development, 503 on cognition language and literacy processes, or EPSE 511 on a special topic) or outside the area, selected in consultation with your advisory committee. Two additional elective courses are also required, selected in consultation with the student's program advisor. At the end of their program, students participate in a required Graduating Seminar (EPSE 590), which is designed as a "capstone experience" that brings together their goals and objectives as well as their accomplishments and experiences throughout the program in the development of a professional portfolio.

Contact Information

Department of Educational & Counselling
Psychology & Special Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5351
Fax: 604-822-3302
Email: ecps.gradinfo@ubc.ca
Web: www.ecps.educ.ubc.ca
Lynda McDicken, Graduate Program Assistant

EARLY CHILDHOOD EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

M. Chapman, P. Crocker, K. Reeder, J. Shapiro.

ASSOCIATE PROFESSORS

A. Anderson, J. Anderson.

ASSISTANT PROFESSORS

L. Ford, M. Gleason, M. Kenrick.

Program Overview

Graduate programs in Early Childhood Education, offered through the Centre for Cross-Faculty Inquiry in Education (CCFI), are interdisciplinary, cross-departmental programs that consist of core courses in early childhood and related courses in departments. For example, approved elective courses might be found in child development, and special education (Department of Educational and Counselling Psychology & Special Education), in early literacy (Language and Literacy Education), in early numeracy (Curriculum Studies) or in the history of childhood (Educational Studies).

Degree Requirements

MASTER OF ARTS

The M.A. program is a thesis degree and consists of eight or nine courses plus the thesis/research study (ECED 599).

MASTER OF EDUCATION

The M.Ed. program consists of nine courses and a capstone experience (ECED 590: Graduating Paper).

Contact Information

Centre for Cross-Faculty Inquiry in Education
Scarfe Bldg., 2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-8638
Fax: 604-822-8234
Email: cruzcord@interchange.ubc.ca
Web: earlychildhood.educ.ubc.ca/graduate-programs.html
Oliva Dela Cruz-Cordero, Graduate Secretary

ECONOMICS

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

P. Beaudry, B. Copeland, M. Deverux, W. E. Diewert, M. Eswaran, R. G. Evans, N. Fortin, D. Green, A. Kotwal, T. Lemieux, H. Neary, D. Paterson, M. Peters, A. Redish, W. C. Riddell.

ASSOCIATE PROFESSORS
N. Fortin, A. Lahiri, P. Norman.

ASSISTANT PROFESSORS
K. S. Anderson, M. Bombardier, G. Celik, A. Chneerov, M. Drelichman, S. Firpo, P. Ghosh, Y. Halevy, V. Marmer, K. Milligan, N. Nunn, S. Sakata, H. Siu, U. Song, O. Yilankaya.

Program Overview

The Department of Economics ranks as one of the top economics departments in Canada and graduates of the Ph.D. and M.A. programs have been offered jobs at prestigious institutions around the globe. The Department has internationally recognized expertise in many fields including: macroeconomics, labour economics, international trade and finance, environmental economics, industrial organization, information and incentives, economic theory, health economics, development economics and economic history. Programs are small enough to provide detailed supervision of dissertations, but large enough to offer expertise in a wide range of theoretical, applied and policy areas.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program is designed to equip students to design and implement an economic research program, with a view toward a career as an academic, or in the private or public sectors. Students take two years of coursework in the core areas of microeconomics, macroeconomics and econometrics in the first year and, in the second year, in fields of their choice. Students then write a dissertation (typically this takes two to three years) in their chosen field. Recent graduates have been offered tenure track positions at leading departments in Canada, the US, the UK, and Australia, as well as non-academic positions at consulting companies in Canada and the US, and in a variety of government departments.

MASTER OF ARTS

The M.A. program is a 12-month program designed to prepare students for employment in the private or public sectors, or to enter a Ph.D. program. Students take microeconomics, macroeconomics and econometrics courses, and then pursue fields of their choice. The program is capped off by an applied economics course and major paper intended to showcase the skills the students have mastered. Recent graduates have entered Ph.D. programs at Princeton, Stanford, and Michigan, as well as UBC's own Ph.D. program, and have taken positions at the Bank of Canada, Statistics Canada, KPMG and other consulting companies. For the placements of the most recent graduating class, see the Economics Graduates website (www.econ.ubc.ca).

Contact Information

Department of Economics
997-1873 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-4616
Fax: 604-822-5915
Email: econgrad@econ.ubc.ca
Web: www.econ.ubc.ca
Maureen Chin, Graduate Secretary

EDUCATION, CURRICULUM AND INSTRUCTION

Degrees Offered: Ph.D., M.A., M.Ed.

Members

This is an interdisciplinary program. Members of the Faculty of Graduate Studies in other Education programs are eligible to serve as supervisors of students in the CCFI programme. Faculty currently associated with the Centre for Cross-Faculty Inquiry in Education (as members of the Advisory Committee) include:

PROFESSORS

F. G. Chalmers, M. Chapman, M. Westwood.

ASSOCIATE PROFESSORS

M. Arvay, D. Butler, L. Farr-Darling, A. Phelan, T. Rogers, H. Wright.

Program Overview

G. Chalmers, Acting Director
Located in the Centre for Cross-Faculty Inquiry in Education (CCFI), two core courses "Living Inquiry in Learning Communities" and "Theorizing Knowing in Education" are at the theoretical heart of the M.Ed., M.A. and Ph.D. programs. In addition students are introduced to a broad spectrum of research methodologies and ways of (re)presenting research in education. Each year a variety of cross-faculty courses are offered to complement the programs and are also open to students from across the Faculty of Education. In addition EDCI students are encouraged to enrol in courses offered in other programs and faculties which may inform or enrich their work. Opportunities for individual flexibility, collaborative investigations, and a variety of communal experiences are built in to the program. As the Centre for Cross-Faculty Inquiry in Education has no permanent faculty, advisors and course instructors are selected from among members of the Faculty of Education, and occasionally from other faculties.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program combines coursework (doctoral seminars, the two core courses "Living Inquiry in Learning Communities" and "Theorizing Knowing in Education," advanced courses in research methodology and (re)presenting research, and electives) with a research thesis. This small cross-faculty program is a response to the challenges of the twenty-first century offering educators dialogical, experiential and proactive spaces that

foster intercultural explorations and shared communication.

MASTER OF ARTS

The M.A. program is a thesis/research degree consisting of two core courses "Living Inquiry in Learning Communities" and "Theorizing Knowing in Education;" 6 credits in research methodologies/ways of representing research; elective opportunities (12 credits selected in consultation with an advisor); and a 6-credit thesis.

MASTER OF EDUCATION

The 30 credit M.Ed. program consists of nine courses and a capstone experience: EDCI 590 (Graduating Paper). Students complete two core courses "Living Inquiry in Learning Communities" and "Theorizing Knowing in Education;" six credits in research methodologies/ways of representing research; and elective opportunities (15 credits) are selected in consultation with an advisor.

Contact Information

Centre for Cross-Faculty Inquiry in Education
Scarfe Bldg., 2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-8638
Fax: 604-822-8234
Email: ccfi.grad.secretary@ubc.ca
Web: www.ccfi.educ.ubc.ca/
Keri Frasca, Graduate Program Assistant

EDUCATIONAL ADMINISTRATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSOR
D. Brown.

ASSOCIATE PROFESSORS

D. Coulter, A. Mazawi, W. Poole.

ASSISTANT PROFESSOR

M. Stack.

Program Overview

The Master of Education program in Educational Administration attracts those who are interested in leadership positions in K-12 education. The program aims to engage students in learning that will help them to understand, critique, and thereby improve their practice to better serve children, communities, and the wider society. Graduates will be prepared to assume administrative roles as well as to provide leadership as teachers. The master's program is known for its ability to generate student professional growth. It challenges assumptions, offers new perspectives on organizational life, develops thinking skills, and has a distinctive Canadian content. A focus on education rather than training gives it a special character. This program has been operating for over 36 years and has over 800 graduates, many of whom occupy strategic roles such as superintendents, central office personnel, and principals in BC schools and districts.

Degree Requirements

MASTER OF ARTS

The M.A. in Educational Administration is for students wishing a more academic focus and the opportunity to complete a more in-depth research based thesis. Students must complete 30 credits of coursework which includes 24 credits of coursework plus a six-credit thesis. Course requirements are similar to the M.Ed. with the exception that M.A. student must complete six credits of research methods courses, rather than 3 credits for the M.Ed. For details on required and elective courses see the program website (www.edst.educ.ubc.ca/programs/mea.html).

MASTER OF EDUCATION

The M.Ed. program is considered a professional degree for people working in educational administration. Students must complete 30 credits of coursework which includes 27 credits of coursework plus a three-credit graduating paper or capstone course. For details on required and elective courses see the program website (www.edst.educ.ubc.ca/programs/mea.html). Students proceed at their own pace but start with a group whose members tend to share classes. Students can also pursue courses from other recognized universities. Completion may be as short as two and a half years but most students take three years to finish. Another way to take the program is in a cohort format on Saturdays for 24 months. There are cohorts in the Fraser Valley, on the North Shore and in Boundary Bay with others being planned.

Contact Information

Department of Educational Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6647
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Web: www.edst.educ.ubc.ca/programs/mea.html
Lynda McDicken, Graduate Secretary

EDUCATIONAL LEADERSHIP AND POLICY

Degrees Offered: Ed.D.

Members

PROFESSORS

K. Adam-Moodley, R. Boshier, D. Brown, D. Fisher, D. Kelly, D. Pratt, K. Rubenson, T. Sork, V. Strong-Boag, C. Ungerleider.

ASSOCIATE PROFESSORS

L. Andres, J.-A. Archibald, S. Butterwick, D. Coulter, J.-A. Dillabough, F. Echols, M. Gleason, M. Marker, A. Mazawi, W. Poole, L. Roman, A. Tom, D. Vokey, P. Walter.

ASSISTANT PROFESSORS

J. Chan-Tiberghien, M. Stack.

Program Overview

The Ed.D. in Educational Leadership and Policy provides advanced preparation for education practitioners with leadership and policy responsibilities in both formal and

nonformal settings. These settings include, among many others, the post-secondary sector, business and health organizations, unions, and community groups, as well as the K-12 school system.

The program is grounded in the belief that it is important for participants to engage in scholarly discourse about understanding, critiquing, and improving practice in educational settings. It consists of six required seminars, two elective courses, a comprehensive examination, and a thesis. While the program addresses Canadian educational issues and perspectives in a global context, it is the particular settings and leadership or policy responsibilities of the participants that are the starting points of seminars. The expertise of qualified adjunct faculty from related professional fields supplements that of the regular faculty members.

Degree Requirements

DOCTOR OF EDUCATION

Students are admitted to the Ed.D. in cohorts of 10 to 15 and proceed through the program as a group. It is possible to complete program requirements in three years but most students take somewhat longer. Each cohort attends classes on campus for two consecutive Summer Sessions (July to mid-August) and two consecutive Winter Sessions (on weekends from September to early April). Coursework consists of 18 credits of required seminars and six credits of elective courses. In addition, a comprehensive examination, and research leading to a Ed.D. thesis that is defended in an oral final examination are required.

For detailed information about requirements for the Ed.D. program, please see the Graduate Programs website (www.edst.educ.ubc.ca/programs/Ed-D/structure.html).

Contact Information

Department of Educational Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-4553
Fax: 604-822-4244
Email: garnet.grosjean@ubc.ca
Web: www.edst.educ.ubc.ca/programs/Ed-D
Garnet Grosjean, Coordinator

EDUCATIONAL STUDIES

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSORS

K. Adam-Moodley, R. Boshier, D. Brown, D. Fisher, D. Kelly, D. Pratt, K. Rubenson, C. Shields, T. Sork, V. Strong-Boag, C. Ungerleider.

ASSOCIATE PROFESSORS

L. Andres, J.-A. Archibald, S. Butterwick, D. Coulter, J.-A. Dillabough, F. Echols, M. Gleason, M. Marker, A. Mazawi, W. Poole, L. Roman, A. Tom, D. Vokey, P. Walter.

ASSISTANT PROFESSORS

J. Chan-Tiberghien, M. Stack.

Program Overview

The Ph.D. in Educational Studies is a flexible, research-oriented doctoral program that can be pursued by students interested in any of the fields of study offered in Educational Studies.

These include: Adult Education (www.edst.educ.ubc.ca/programs/adult_ed.html), Educational Administration (www.edst.educ.ubc.ca/programs/mea.html), Higher Education (www.edst.educ.ubc.ca/programs/higher_ed.html), and Society, Culture and Politics in Education (www.edst.educ.ubc.ca/programs/SCPE.htm).

The only course that is required of all students is the first-year doctoral seminar. All other courses in a student's program are determined in consultation with a faculty advisor or program advisory committee and are based on the student's prior academic work and research interests. Students in the Ph.D. program typically devote two years to coursework, and two to four years to carrying out a research project designed to make an original contribution to knowledge in the area of specialization. The university allows doctoral students up to six years to complete program requirements. There is no set number of credits required for Ph.D. programs at UBC.

Degree Requirements

DOCTOR OF PHILOSOPHY

The first-year doctoral seminar (EDST 601) is required of all Ph.D. students in the program. Students are expected to take courses in their specialization and also typically take courses to give them the breadth and depth of understanding of contemporary educational theories, issues and debates expected of those pursuing the highest degree awarded by the university. All students in the Ph.D. program are required to successfully complete a comprehensive examination after most of their coursework is completed and before they present their research proposal.

The Ph.D. thesis is an original piece of research that contributes to knowledge in the student's area of specialization. Students develop research proposals which must be presented to and approved by a research supervisory committee made up of a research supervisor and at least two other committee members. Research supervisory committees provide direction to the student, read and critique drafts of the thesis, and, when the thesis is complete, participate in the oral final examination.

MASTER OF ARTS

Please see the Graduate Programs website (edst.educ.ubc.ca/programs/MA_M-Ed.html).

MASTER OF EDUCATION

Please see the Graduate Programs website (edst.educ.ubc.ca/programs/MA_M-Ed.html).

Contact Information

Department of Educational Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6647
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Web: www.edst.educ.ubc.ca/programs/
Ph-D.html
Ph.D. Management and Admissions
Committee, Chair

EDUCATIONAL TECHNOLOGY

Degree Offered: M.E.T.

Members

PROFESSORS

J. Gaskell, L. Peterat, R. Boshier.

ASSOCIATE PROFESSORS

J. Mayer-Smith, S. Petrina, S. Carey, M. Bryson,
M. Marker.

ASSISTANT PROFESSORS

T. Dobson, S. Khan, C. Nicol, J. Shapka, S.
Nashon.

Program Overview

The Master of Educational Technology (M.E.T.) (met.ubc.ca) is a Faculty of Education joint degree program offered online in partnership with *Tec de Monterrey*, p. 444, a Mexican University that has a special collaborative relationship with UBC. The program provides students with an opportunity to participate with a culturally diverse student population.

Degree Requirements

MASTER OF EDUCATIONAL TECHNOLOGY Admission Requirements: Students are required to meet the general requirements for admission to the Faculty of Graduate Studies at UBC. Students who started a *Technology Based Distributed Learning (TBDL)*, p. 200, or a *Technology Based Learning for Schools (TBLS) Certificate program*, p. 200, in 2002 or later may transfer their courses to the M.E.T degree program.

Program Requirements: The M.E.T. degree supports a professional development, course-based program (non-thesis) consisting of a minimum of 30 credits of coursework with at least 12 credits of core coursework and 18 credits of electives. An option of an independent project, integrating work across the program is available for students who wish to meet British Columbia's TQS Level 6 criteria or other similar qualification standards. Fees are on a per course basis. Further information can be obtained at met.ubc.ca or email info@met.ubc.ca.

Contact Information

External Programs & Learning Technologies
1304-2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-3622
Fax: 604-822-2015
Email: info@met.ubc.ca
Web: www.met.ubc.ca
Dave Roy, Program Assistant

ELECTRICAL AND COMPUTER ENGINEERING

Degrees Offered: Ph.D., M.A.Sc.

Members

PROFESSORS

H. M. Alnuweiri, V. K. Bhargava, I. Cumming,
G. A. M. Dumont, A. Ivanov, N. A. F. Jaeger, V.
Krishnamurthy, P. Kruchten, P. D. Lawrence, C.
S. K. Leung, V. C. M. Leung, J. R. Marti, D. L.
Pulfrey, S. Salcudean, R. Saleh, T. Tiedje, R. K.
Ward.

ASSOCIATE PROFESSORS

W. G. Dunford, S. S. Fels, J. Joyce, P. Nasiopoulos,
P. Palmer, R. F. B. Turner, S. J. E. Wilton,
M. Yedlin.

ASSISTANT PROFESSORS

T. Aamodt, R. Abugharbieh, K. Beznosov, K.
Cheung, L. Chrostowski, E. Cretu, C. Hansen,
L. A. Iverson, J. Jatskevich, L. Lampe, G.
Lemieux, J. Madden, D. Michelson, S.
Mirabbasi, M. Ripeanu, R. Rohling, R.
Schober, B. Stoeber, K. Walus, Z. J. Wang, W. S.
V. Wong, J. Yan.

Program Overview

Graduation in electrical or computer engineering, engineering physics, physics, computer science, or other related subjects is a prerequisite. Some students may be required to supplement their graduate studies by taking specific undergraduate courses in electrical or computer engineering. Alternatively, interdisciplinary degrees may be appropriate and can be arranged.

Facilities are provided for research in: communications and signal processing; computers and computer applications; digital system design, VLSI design and software engineering; electromagnetics; power systems and power electronics; solid state devices; microelectronics, nanoelectronics and optoelectronics; robotics and telerobotics; and systems and control.

Collaboration with other departments is facilitated by membership in the *Advanced Materials and Process Engineering Laboratories (AMPEL)*, p. 83, *The Institute for Computing, Information and Cognitive Systems (ICICS)*, p. 80, and the *Pulp and Paper Centre*, p. 82.

Students should consult the Department of Electrical and Computer Engineering for information regarding courses to be offered. For details describing current research projects visit the Electrical and Computer Engineering website (www.ece.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The program includes a thesis and 24 credits of approved courses. For those holding a master's degree or transferring from a master's program, appropriate credit will be given for courses completed.

MASTER OF APPLIED SCIENCE

The program includes a thesis plus (as a minimum) the University requirement of 18 credits of approved courses, 12 of which must be at the 500 level. Normally at least 6 of the

18 credits will be taken in Electrical and Computer Engineering, 12 credits for students with degrees in subjects other than electrical or computer engineering.

Qualified students are admissible to programs leading to the M.A.Sc. on a part-time basis.

For information about the professional Master of Engineering (M.Eng.) program, please see the *Faculty of Applied Science*, p. 107, or visit the program website (www.ece.ubc.ca).

Contact Information

Department of Electrical and Computer
Engineering
2332 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-2872
Fax: 604-822-4187
Email: gradsec@ece.ubc.ca
Web: www.ece.ubc.ca
Doris Metcalf, Graduate Secretary

ENGINEERING PHYSICS

Degrees Offered: Ph.D., M.A.Sc.

Members

PROFESSORS

I. Affleck, J. Aldrich, D. Bonn, J. Brewer, D.
Bryman, J. Carolan, M. Chopuik, R. Durand,
J. Eldridge, E. Evans, G. Fahlman, M. Halpern,
W. Hardy, M. Hasinoff, J. Hepburn, P.
Hickson, W. Hsieh, R. Kiehl, H. Lam, A.
MacKay, W. McCutcheon, H. Richer, G.
Sawatzky, G. Semenoff, P. Stamp, T. Tiedje, W.
Unruh, C. Waltham, L. Whitehead, J. Young,
A. Zhitnitsky.

ASSOCIATE PROFESSORS

J. Barth, A. Celler, B. Gladman, C. Hearty, G.
Hoffman, J. Matthews, T. Mattison, J.
McKenna, K. Schleich, D. Scott, Q. S. Xiang.

ASSISTANT PROFESSORS

M. Berciu, A. Damascelli, J. Folk, M. Franz, C.
Hansen, J. Heyl, D. Jones, P. Kozlowski, A.
MacFarlane, K. Madison, A. Marziali, C.
Michal, S. Plotkin, M. Rozali, V. Sossi, I. Stairs,
M. Van Raamsdonk, L. Van Waerbeke, H.
Zeng, F. Zhou.

Program Overview

The Department of Physics and Astronomy is comprised of over 50 faculty members with a wide range of research interests that cover most of the key topics in contemporary physics, applied physics, and astronomy. These activities are supported by computing and experimental facilities within the Department, and excellent electronics and machine shops. Research is enhanced by local facilities such as the TRIUMF National Laboratory, the Advanced Materials and Process Engineering Laboratory (AMPEL), and the BC Cancer Agency, UBC and Vancouver General Hospitals, in addition to many specialized research laboratories housed within the Department. Over the years, applied research within UBC's Department of Physics and Astronomy has spawned a number of spin-off companies such as Dynapro, MoLi Energy, Vortek, Quartz Imaging, Xillix, TIR Systems, Sonigistics, Techware Systems, Corona

Vacuum Coaters, and Brooks Automation. Although there is a great deal of collaboration and overlap of interests among the various groups, the research topics presently available to incoming students with specific interest in applied physics can be roughly grouped into the following areas:

- Applied Physics
- Medical Physics
- Applied Biophysics
- Nuclear and Particle Physics
- Astronomy and Astrophysics
- Atomic, Molecular, and Optical Physics
- Condensed Matter Physics
- Structured Surface Physics

Full details on research programs and facilities are available on the departmental website (www.physics.ubc.ca) and the AMPEL website (www.ampel.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The Department offers Ph.D. programs in Engineering Physics. Students can be admitted to the Ph.D. program after obtaining a Master of Science, or Master of Applied Science. A minimum of 12 credits in graduate level courses in any Science or Applied Science (or Medicine for Medical Physics students) departments are required for the Ph.D., with details of the course load determined in consultation with the thesis advisor and supervisory committee, but must conform to the department's quantum mechanics requirements. Students who do not already have credit for the required master's degree courses for their program or the equivalent graduate-level courses from another university (approved by Graduate Chair) must take these courses in the Ph.D. program. Alternatively, well-qualified students admitted to the M.A.Sc. program may transfer to the Ph.D. program after a year's residence at UBC if they have at least 18 credits in M.A.Sc. coursework with an overall average of at least 85%, clear evidence of research ability, and approval of the thesis supervisor. Direct transfer students require a further 12 credits of graduate level coursework in any Science or Applied Science departments for the Ph.D.

MASTER OF APPLIED SCIENCE

A B.A.Sc. in Engineering Physics or Electrical Engineering is a prerequisite. An overall average of 'A-' or better in third- and fourth-year courses is expected for entry into the program. The M.A.Sc. program requires a minimum of 30 credits with the thesis counting 12 credits. The remaining 18 credits must include at least 12 credits from graduate courses in any Science or Applied Science departments, and may include up to 6 300 or 400 level credits in undergraduate courses. All M.A.Sc. students are required to satisfy the Department's quantum mechanics course requirements.

Contact Information

Department of Physics and Astronomy
6224 Agricultural Road
Vancouver, BC, V6T 1Z1
Tel: 604-822-4245
Fax: 604-822-5324
Email: gradsec@physics.ubc.ca
Web: www.physics.ubc.ca
Olivia dela Cruz-Cordero, Graduate Coordinator

ENGLISH

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

L. J. Brinton, R. C. Cavell, J. X. Cooper, D. R. Danielson, A. B. Dawson, S. Egan, M. Fee, J. Giltrow, A. V. Globe, G. Good, S. E. Grace, S. Gunew, N. J. Hudson, L. M. Johnson, E. Kroller, I. B. Nadel, L. R. Ricou, H. J. Rosengarten, J. S. Wasserman, M. L. Weir, G. R. Wieland, J. L. Wisenthal.

ASSOCIATE PROFESSORS

L. K. Arnovick, P. Badir, M. Burgess, M. Chapman, P. Dalziel, S. Echard, J. Flick, R. B. Hatch, L. Kesler, E. P. Levy, K. McNeilly, J. Z. Segal, S. M. Tomc, M. Vessey, M. Zeitlin.

ASSISTANT PROFESSORS

S. Anger, M. Briggs, B. Dancygier, J. de Villiers, G. Deer, A. Dick, A. Frank, S. Guy-Bray, E. Hodgson, J. K. Kealy, C. Lupton, J. Menon, L. Moss, M. Mota, S. B. Partridge.

Program Overview

The Department of English has awarded the M.A. degree since 1919 and the Ph.D. degree since 1962. In 2003-2004, approximately 100 students from Canada, the United States, and other countries were enrolled in graduate studies in English at UBC.

The department offers the following degrees:

- Master of Arts (M.A.): English literature or language, with or without thesis, full-time or part-time
- Doctor of Philosophy (Ph.D.): English literature or language, full-time only

Degree Requirements

DOCTOR OF PHILOSOPHY

The program limits Ph.D. admissions to students with at least First class standing in the M.A. degree, and also advises that entry to the program is very competitive: First class standing at the M.A. is not enough in itself to guarantee admission.

Students undertaking Ph.D. studies in English, with either a language or literature emphasis, will complete 18 credits of coursework in their first year of study, prepare for and write their Qualifying Papers in Year 2, write their thesis prospectus for approval at the beginning of Year 3, and research into their theses in Years 3 and 4.

In their first year of Ph.D. study, students take 18 credits of coursework (six graduate seminars). Coursework enables students to prepare for research, as well as to broaden their knowl-

edge of the discipline and fulfil the breadth expectations.

Students consult with the Ph.D. advisor and their qualifying supervisor in planning their coursework. Students of contemporary areas of English will be reminded of the value of advanced study of historical periods and topics in professional preparation. Serious study in a range of areas gets students ready for their own projects, and for the job market.

Normally, students select courses from the rich variety of graduate seminars (www.english.ubc.ca/grad/sem2005.htm) offered by the program each year.

MASTER OF ARTS

Non-thesis option: M.A. in Literature or Language. Thirty credits of coursework, of which not more than 6 credits may be 300 or 400 level courses.

Thesis option: M.A. in Literature or Language. Twenty-one credits of coursework, of which not more than 6 may be 300 or 400 level courses and a 9-credit thesis and oral examination.

M.A. applicants must normally hold a bachelor's degree with a minimum of high Second class standing (76% or better) or a grade point average of at least 3.33 on a four-point scale based upon all academic courses taken during the two senior undergraduate years. While upper-year English grades are the most important feature of a record, applicants should note that a First class record overall is preferred.

While applicants who have minimum requirements and grade point averages are eligible to be considered for admission, spaces in the M.A. program are very limited and lower grade averages are usually not competitive.

For detailed information on M.A. admission and program requirements, please see the graduate program website (www.english.ubc.ca/Grad/Grad.htm).

Contact Information

Department of English, Graduate Office
397-1873 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-3855
Fax: 604-822-6906
Email: english.graduate.program@ubc.ca
Web: www.english.ubc.ca/Grad/Grad.htm
Louise Soga, Graduate Student Services

EUROPEAN STUDIES

Degree Offered: M.A.

Members

ASSOCIATE PROFESSORS

S. Godfrey, J. Torpey.

ASSISTANT PROFESSORS

S. Gaenzle, M. Kuus, L. Biukovic.

Program Overview

The *Institute for European Studies*, p. 80, offers a Master of Arts program in European Studies. The M.A. program in European Studies is a two-year, full-time, interdisciplinary course of study that addresses the need for students to meet and understand the complex and changing realities of European politics, economics and culture in the twenty-first century. With the enlargement of the European Community, Europe represents a major political and cultural force as well as a major trading partner for Canadians. Students trained in the M.A. program will be well equipped to go on to academic research interests centring on Europe or professional career opportunities with a European focus.

Degree Requirements

MASTER OF ARTS

- The Master of Arts in European Studies is awarded on the completion of 30 credits of coursework or 21 credits of coursework plus a 9-credit thesis.
- A prerequisite or corequisite for the program is HIST 463: Europe in the Twentieth Century: Europe since 1945, or equivalent.
- Students must take five core courses and write either a master's thesis or take a total of 30 credits.
- First-year students in the M.A. program will be expected to take a 1-credit pro-seminar in European Studies to be offered every two weeks for one year. The seminar is designed to ensure a sense of community among European Studies students by bringing them together as a group on a regular basis.
- Elective courses will be selected in consultation with the program's graduate advisor to support the interdisciplinary nature of the program. Electives should constitute a coherent field of study and should include at least one humanities course.

Contact Information

Institute for European Studies
C.K. Choi Bldg., 182-1855 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-1452
Fax: 604-822-3433
Email: europe@interchange.ubc.ca
Web: www.ies.ubc.ca
Rob Stoddard, Assistant to the Director

EXPERIMENTAL MEDICINE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

T. Bai, M. Brauer, R. Brunham, A. Chow, A. Churg, V. Duronio, A. Eaves, C. Eaves, J. Esdaile, J. Fleetham, V. Ho, K. Humphries, S. Kennedy, P. Keown, G. Krystal, S. Lam, V. Ling, H. Lui, J. McLarnon, J. Montaner, J. Oger, P. Paré, S. Pelech, G. Quamme, S. Rabkin, N. Reiner, J. Road, J. Russell, R. Schellenberg, J. Schrader, U. Steinbrecher, G. Stiver, J. Stoessl, F. Takei, J. Taunton, J. Tsui, S. Vincent, K. Walley, Y. Wang, G. Warnock, N. Wong, P. Wong, M. Yeung, H. Ziltener.

ASSOCIATE PROFESSORS

R. Armstrong, J. Dutz, J. Fitzgerald, S. Hayashi, R. Hegele, A. Karsan, N. Khalil, T. Oxland, T. Podor, D. Reid, C. Roberts, W. P. Robinson, C. Seow, C. Shaw, E. Skarsgard, P. Sorensen, R. Stokes, H. Ward, P. Wilcox.

ASSISTANT PROFESSORS

C. Helgason, F. Rossi, Y. Av-Gay, A. Cherkasov, M. Cox, D. Dorscheid, S. Dunn, M. Grigg, Z. Hmama, J. Kast, K. Khan, M. Levings, G. Li, H. McKay, K. McNagny, A. Mui, D. Nandan, C. Nelson, D. Redenbach, B. Salh, S. Spacey, T. Steiner, B. Vallance, P. von Dadelszen, Y. Zhou.

Program Overview

The Experimental Medicine Program is intended for individuals seeking a career in medical research. It furnishes the opportunity for students to work toward both the Master of Science and Doctor of Philosophy in the following specialties: cardiology, cancer biology, dermatology, gastroenterology, hematology/oncology, infectious diseases, molecular medicine, nephrology, neurology, and respiratory medicine. All these fields can involve patients and/or experimental animal models.

The Experimental Medicine Program accepts students with career goals compatible with the training the program provides. The requirements of the Faculty of Graduate Studies must also be met. A suitable research supervisor must agree to accept a potential student prior to an offer of admission to the program.

Please note that a TOEFL score of 590 or greater is required for international students applying to this program.

Students should contact the Experimental Medicine Program Office for further information. A brochure is available on request.

Degree Requirements

DOCTOR OF PHILOSOPHY

Normally, applicants for the Ph.D. program will have a M.Sc. in life sciences, biology, zoology or biochemistry. Students with equivalent degrees may also apply for admission.

MASTER OF SCIENCE

Normally, applicants for the Master of Science program will have a Bachelor of Science in life sciences, biology, zoology or biochemistry, or have a M.D., D.M.D. or D.V.M. Students with

equivalent degrees may also apply for admission.

Contact Information

Experimental Medicine Program
Room S-125 Koerner Pavilion, 2211 Wesbrook Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-7215
Fax: 604-822-7897
Email: exptlmed@interchange.ubc.ca
Web: www.medicine.ubc.ca/experimental-medicine/index.shtml
Patrick Carew, Graduate Secretary

FAMILY STUDIES

Degree Offered: M.A.

Members

PROFESSORS

A. Martin-Matthews, D. Perlman, J. M. White.

ASSOCIATE PROFESSORS

P. J. Johnson, J. Ponzetti.

ASSISTANT PROFESSORS

S. Marshall, C. Yodanis.

Program Overview

The Master of Arts in Family Studies program is an interdisciplinary program that stresses behavioral sciences relevant to family development, life span human development in the family context, and family resource management. In addition to satisfying the normal admission requirements of the Faculty of Graduate Studies, the applicant must have an undergraduate degree in Family Studies or in a relevant behavioral or social sciences program.

For information on the Ph.D. Program see *Social Work and Family Studies*, p. 275.

Degree Requirements

MASTER OF ARTS

The master's program requires a minimum of 30 credits including 18 credits of coursework and a 12-credit thesis. At least 12 credits of coursework must be at the 500 level including the three required courses: FMST 520, 522, and 523. Elective courses which form a coherent plan of study compose the remainder of the coursework. In addition to the formal coursework, as evidence of research and scholarly capability, a thesis (12 credits) is required.

Contact Information

The School of Social Work and Family Studies
2080 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-2609
Fax: 604-822-8656
Email: socialwork.familystudies@ubc.ca
Web: www.swfs.ubc.ca
Michelle Baulch, Program Advisor; Marjorie Paukner, Admissions Secretary

FILM STUDIES

Degrees Offered: M.A., M.F.A.

Members

PROFESSOR
B. McLroy.

ASSOCIATE PROFESSORS
C. Gallagher, S. McGowan.

ASSISTANT PROFESSOR
L. Coulthard.

Program Overview

The Film Program offers the Master of Arts (M.A.) in history/theory/criticism and the Master of Fine Arts (M.F.A.) in Film Production. Each is a two-year course of study and requires, as a prerequisite, an undergraduate degree in film or the equivalent.

The Film Program and Creative Writing Program offer a Joint M.F.A. in Film and Creative Writing. The successful applicant must first be accepted into the Film Production M.F.A. For details of this joint program, please see the Film Program website (www.film.ubc.ca) or the Creative Writing website (www.creativewriting.ubc.ca).

The UBC Library has an extensive holding of film studies literature, and the program provides film production and post-production equipment.

Further information may be obtained from the program's website (www.film.ubc.ca). The Film Program is part of the Department of Theatre, Film and Creative Writing.

Degree Requirements

MASTER OF ARTS

For detailed information about specific application and program requirements for the Master of Arts in the Film Program program, please visit the Film Studies website (www.film.ubc.ca/programs/studies/film_studies_ma.htm).

MASTER OF FINE ARTS

For detailed information about specific application and program requirements for the Master of Fine Arts in Film Production program, please visit the Film Production website (www.film.ubc.ca/programs/production/film_production_mfa.htm).

Please see *Creative Writing/Film*, p. 242, for information about the joint Creative Writing and Film M.F.A. program.

Contact Information

Film Program
Room 2354A-1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-6037
Fax: 604-822-0508
Email: film@interchange.ubc.ca
Web: www.film.ubc.ca
Zanna Downes, Film Program Secretary

FINE ARTS

Degrees Offered: Ph.D., M.A., M.F.A.

Members

PROFESSORS
M. S. Cohodas, S. Guilbaut, K. Lum, J. O'Brien, R. Prince, S. Watson, R. Windsor-Liscombe.

ASSOCIATE PROFESSORS
M. P. Ryan, C. Townsend-Gault, B. Zeigler.

ASSISTANT PROFESSORS
X. Gu, K. Hacker, C. Knicely, N. Nisbet, M. Pina, M. Roy, H. Tsao, W. Wood.

Program Overview

The Department of Art History, Visual Art, and Theory offers opportunities for advanced study of art history in the major periods of European and North American art, in certain areas of Asian art and in the indigenous arts of the Americas leading to the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.). It also offers advanced studies in visual art, leading to the Master of Fine Arts (M.F.A.). For information about the Critical and Curatorial Studies option, leading to the Master of Arts in Art History (Critical Curatorial Studies), please see *Art History (Critical Curatorial Studies)*, p. 233.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. in Art History encourages high scholastic achievement, original research, and firm theoretical grounding. Normally, admission to the Ph.D. requires the completion of an M.A. in Art History, including reading knowledge of one language other than English. Students with master's degrees in related fields may be required to complete additional art history courses for their Ph.D. program.

The program involves coursework, a language requirement, two comprehensive examinations, a thesis proposal, a round table presentation and a Ph.D. thesis. Students are normally required to take coursework at the 500 level, including ARTH 571, the methodology seminar, unless it has been taken within the previous five years. Exams require students to be proficient in both a major and a minor field, in order to qualify them for both doctoral thesis research and university teaching. Reading knowledge of a second language, other than English, (the first language having been required for the M.A.), relevant to the field of study is also required. Students are admitted to candidacy once they have completed the residency period, all required coursework, the language requirement, and passed the candidacy examinations.

MASTER OF ARTS

The M.A. in Art History is a two-year program with thesis, designed to instruct students in methods of research and presentation of scholarly materials. It qualifies them for professional work in the discipline. Applicants for the M.A. program in Art History should have preparation in the discipline equivalent to the undergraduate major at UBC.

The M.A. degree requires 30 credits of which 24 credits must be in courses numbered 500 or above. These will include the methodology seminar (ARTH 571, 6 credits) and the master's thesis (ARTH 599, 6 credits). Reading knowledge of one language other than English and relevant to the field of study is required.

MASTER OF FINE ARTS (VISUAL ART)

The program provides a period of intensive conceptual and technical development for those students wishing to pursue a professional career in advanced contemporary art. The M.F.A. degree is also the standard qualifying degree for teaching visual arts at the post-secondary level. The M.F.A. program is dedicated to helping students understand both the making and theorizing of the art object against the background of the diverse intellectual environment of a major university.

Students in the program may work in any area of contemporary art production including painting, drawing, printmaking, three-dimensional and installation work, photography, digital, multimedia, or in any interdisciplinary form. The program does not include training in applied art, commercial art and design, film or television.

Applications will be considered from persons who hold a bachelor's degree and satisfy the requirements for admission to Graduate Studies. Applicants normally hold a B.F.A., B.A. or B.Ed. degree with a major in Visual Art. It is strongly advised that, at a minimum, an applicant have 18 academic credits (i.e., non-visual art courses) at the 300 level or above, with at least a 'B-' (68%) standing in each. This is to ensure that, if admitted, the student will benefit from the academic components of the program.

Important consideration governing the admission process is the assessment of the portfolio submitted as evidence of artistic standing. Assessment is also based on the statement of intent, letters of reference, academic record, published writing or other evidence of achievement.

The M.F.A. program requires two academic years of coursework and completion within two years (24 months) minimum and five years (60 months) maximum after initial registration. The specific requirements are as follows:

- 1) VISA 581 (12 credits) and VISA 582 (12 credits). These seminars constitute an integrated, two-year Visual Art program worked out in consultation with the student, leading to the final major paper and exhibition.
- 2) Academic courses, numbered 400 or above, carrying a total of 12 credits.

The M.F.A. degree is awarded after the successful completion of all coursework, the round-table presentation, a final exhibition of art work and completion of a major paper. The final exhibition of work must demonstrate to the satisfaction of the faculty the candidate's capacity for independent creative work. The major paper should focus on a topic related to the student's own interests and artistic practice placing the creative work in the context of both

the intellectual interests of the candidate and a wider field of study. At least one external examiner will be involved in the examination of the final presentation and major paper.

Contact Information

Department of Art History, Visual Art, and Theory
403-6333 Memorial Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-4340
Fax: 604-822-9003
Email: ahvgrad@interchange.ubc.ca
Web: www.finearts.ubc.ca
Leah Buchan, Graduate Secretary

FOOD SCIENCE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

T. Durance, D. D. Kitts, E. Li-Chan, H. Van Vuuren.

ASSOCIATE PROFESSORS

C. Scaman, B. J. Skura.

ASSISTANT PROFESSOR

S. Lund., V. Measday.

Program Overview

The Food Science graduate program offers opportunities for advanced study and research leading to M.Sc. and Ph.D. degrees in the areas of Food Chemistry and Biochemistry, Food Process Science, Food Microbiology, Food Safety and Toxicology, Food Biotechnology, Food Quality Evaluation and Wine Biotechnology. The Food Science graduate program also offers a Master of Food Science (M.F.S.) degree, with a focus on professional rather than research skills. The M.F.S. program is designed for food professionals in government, industry, or private practice, who are looking to expand their knowledge and skills in the food science discipline.

Research areas of faculty members in the Food Science graduate program are described in the Faculty section of the website (www.agsci.ubc.ca/grad/food_sc.htm). Students may also be involved in research projects in collaboration with adjunct faculty and researchers from other university departments, Agriculture and Agri-Food Canada, Fisheries and Oceans Canada, or other research centres.

Applicants to the graduate program in Food Science are expected to have completed prerequisite fundamental undergraduate courses in organic chemistry, biochemistry, calculus, physics, statistics, and microbiology. Applicants who lack some of these prerequisites and/or who do not have previous undergraduate background courses in the field of food science (food process science, food chemistry, food analysis, food laws, regulations and quality assurance, micro-organisms in food systems, and principles in food engineering) may be required to take additional coursework for their program. Applicants who have completed a degree in which English is not the primary language of instruction must present evidence of sufficient

competency to pursue studies in the English language prior to admission. Specific requirements can be found at the Graduate Studies TOEFL and GRE Requirements page (www.students.ubc.ca/calendar/index.cfm?tree=12,204,345,0).

Degree Requirements

PH.D. ADMISSION REQUIREMENTS

Students admitted to the Ph.D. degree program will normally possess an M.Sc. degree in Food Science or a related area, with clear evidence of research ability of potential. Transfer from the M.Sc. to the Ph.D. program is permitted under regulations set by the Faculty of Graduate Studies.

PH.D. PROGRAM REQUIREMENTS

Students admitted to the Ph.D. degree will normally possess an M.Sc. in Food Science or a related area. Transfer from the M.Sc. to the Ph.D. program is permitted under regulations set forth by the Faculty of Graduate Studies.

All Ph.D. students are required to take FOOD 600 (Graduate Seminar). Students are also required to complete 6 credits of graduate level Food Science courses, but courses completed during an M.Sc. program may be used to satisfy this requirement. Additional coursework may be selected in consultation with the student's supervisory committee. All Ph.D. students are required to take a comprehensive examination. The major requirement for the Ph.D. is completion of a research thesis demonstrating ability to conduct significant and original scientific research.

M.SC. ADMISSION REQUIREMENTS

Students admitted to the M.Sc. degree program will possess a B.Sc. degree in Food Science or a related area, and must meet the general requirements for master's degree programs set by the Faculty of Graduate Studies.

M.SC. PROGRAM REQUIREMENTS

The M.Sc. degree requires successful completion of 12 credits of thesis research plus a minimum of 18 credits of coursework. The coursework includes FOOD 500 (Graduate Seminar), a minimum of 6 credits of graduate-level Food Science courses, and other courses that may include a maximum of 6 credits of senior-undergraduate level courses. Additional coursework may be recommended upon consultation with the student's supervisory committee.

Contact Information

Faculty of Land and Food Systems
270-2357 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Email: gradapp@interchange.ubc.ca
Web: www.agsci.ubc.ca/grad/food_sc.htm
Alina Yuhymets, Graduate Programs Manager

FORESTRY

Degrees Offered: Ph.D., M.A.Sc., M.F., M.Sc.

Members

PROFESSORS

S. Aitken, P. Arcese, S. Avramidis, C. Breuil, F. Bunnell, C. Chanway, D. Cohen, Y. El-Kassaby, P. Evans, R. J. Fannin, R. Guy, D. Haley, S. Hinch, G. Hoberg, J. Innes, J. P. Kimmins, B. Larson, P. Marshall, K. Martin, P. McFarlane, J. McLean, C. Prescott, K. Ritland, J. Ruddick, J. Saddler, T. Sullivan, B. van der Kamp.

ASSOCIATE PROFESSORS

Y. Alila, J. Bohlmann, N. Coops, S. Ellis, M. Feller, S. Grayston, R. Guy, J. Kadla, R. Kozak, F. Lam, V. Lemay, T. C. Maness, S. Mansfield, R. D. Moore, J. Nelson, H. Prion, J. Richardson, S. Sheppard, S. Simard, D. Tindall, R. Trostler, P. Wood.

ASSISTANT PROFESSORS

G. Bull, S. Gergel, S. Gulati, M. Krzic, C. K. Lyons, M. Meitner, S. Mitchell, G. Smith, T. Sowlati, D. Tait, M. Weiler.

Program Overview

The graduate program in Forestry offers advanced study in natural and social science, management, and economic aspects of forestry and wood science, in an interdisciplinary setting. Detailed information about specific areas of research can be found on the Faculty of Forestry website (www.forestry.ubc.ca).

The program offers opportunities for advanced study in a broad array of topics in forest resources management, forest sciences, and wood science. Topics include: Forest resource management (forest operations, forest economics, terrain stability, forest policy, sustainable forest management, biometrics and mensuration, forest engineering, growth and yield, remote sensing, environmental perception, hydrology, timber supply planning, visualization, environmental sociology, conservation policy, systems analysis, and environmental ethics); Forest sciences (forest genetics, population ecology, genomics and biochemistry of trees, conservation biology, quantitative genetics, fire science, water quality, landscape ecology, soil ecology, plant physiology, aquatic ecology and fish conservation, modeling forest ecosystems, research methods, soil quality, silviculture, avian ecology, forest entomology, forest nutrition, stream-riparian ecosystems, forest ecology, silvics, and forest pathology); Wood science (wood physics and drying, wood products engineering, forest products biotechnology, forest products marketing, wood products processing, wood anatomy and quality, photoprotection and modification of wood, advanced biomaterials, forest products business management, wood mechanics, biotechnology and chemistry of wood fibres, engineered timber structures design, wood preservation, wood composites, and operational research and performance).

The *Centre for Applied Conservation Research (CACR)*, p. 74, investigates science-based solutions to complex problems within managed and natural landscapes. The Centre for Advanced

Wood Processing (CAWP) is a national centre for education, extension and research for the advanced wood products industries. A graduate program in *Soil Science*, p. 282, is offered jointly with the Faculty of Land and Food Systems.

The Faculty operates three research forests near Vancouver, Williams Lake, and Prince George (with UNBC), which support many research and education activities.

The Faculty encourages international and First Nations students to be involved in our research.

Degree Requirements

DOCTOR OF PHILOSOPHY

A research-based master's degree in an appropriate area is a prerequisite. Any coursework is selected in consultation with the student's supervisory committee.

MASTER OF APPLIED SCIENCE

A Bachelor of Applied Science (B.A.Sc.) or higher degree in engineering is a prerequisite.

The Master of Applied Science in Forestry program includes a thesis (6 to 18 credits), a Forestry communications course FRST 544 (or approved alternate), and other approved courses for a total of 30 credits. The program may also be taken without thesis.

MASTER OF FORESTRY

A bachelor's degree equivalent to the B.S.F., or B.A.Sc. in forest engineering is a prerequisite.

The Master of Forestry program includes a thesis (6 to 18 credits), a Forestry communications course FRST 544 (or approved alternate), and other approved courses for a total of 30 credits. The program may also be taken without thesis.

MASTER OF SCIENCE

A bachelor's degree in science, applied science, agricultural sciences, social science or forestry is a prerequisite.

The Master of Science in Forestry program includes a thesis (6 to 18 credits), a Forestry communications course FRST 544 (or approved alternate), and other approved courses for a total of 30 credits. The program may also be taken without thesis.

Contact Information

Forestry Graduate Programs Office
2005-2424 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6177
Fax: 604-822-8645
Email: grad.for@ubc.ca
Web: www.forestry.ubc.ca
Tracey Teasdale, Graduate Program Assistant

FRENCH

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

R. Beaudoin, D. Boccassini, H. Curat, R. Hodgson, A. Lamontagne, J.-A. McEachern, V. Raoul, R. Sarkonak, C. Testa.

ASSOCIATE PROFESSORS

N. Frelick, S. N. Godfrey, G. Onyeoziri-Miller, D. Rogers, C. Rouget.

ASSISTANT PROFESSORS

C. Phan, A.-M. Rocheleau, W. G. Winder.

Program Overview

The graduate program in French offers opportunities for advanced study in the language and literatures of France and Québec, as well as African and Caribbean literatures in French, leading to the Ph.D. and to the M.A. with or without thesis.

The UBC Library and the Departmental Reading Room have extensive holdings in French.

The program makes available a list of courses to be offered as early as possible, usually in February of the preceding academic year.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of coursework, a qualifying examination, candidacy examinations, and research leading to a dissertation that is defended in a final oral examination. See the graduate regulations located on the website (www.fhis.ubc.ca) for details.

MASTER OF ARTS

There are two options for the Master of Arts:

- 1) **M.A. without Thesis.** This option requires 30 credits of coursework, up to 6 of which may be drawn from 400-level undergraduate courses in literature or linguistics given in French, and a graduating essay followed by an oral examination.
- 2) **M.A. with Thesis.** This option requires 24 credits of coursework, up to 6 of which may be drawn from 400-level undergraduate courses in literature or linguistics given in French, and a 6-credit thesis followed by an oral thesis defence.

Contact Information

Department of French, Hispanic and Italian Studies
797-1873 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-0016
Fax: 604-822-6675
Email: fhisgrad@arts.ubc.ca
Web: www.fhis.ubc.ca
Carol Schoenfeld, Graduate Secretary

GENETIC COUNSELLING

Degree Offered: M.Sc.

Members

PROFESSOR

A. D. Sadovnick.

ASSOCIATE PROFESSOR

L. A. Clarke, S. F. Langlois.

ASSISTANT PROFESSOR

L. Arbour.

PROGRAM DIRECTOR

A. Dircks

Program Overview

The Department of Medical Genetics, through the Faculty of Graduate Studies, offers a two-year graduate program leading to a M.Sc. degree in Genetic Counselling. Students entering the Program will be eligible to apply for "Active Candidate" status for both the American Board of Genetic Counseling (ABGC) and the Canadian Association of Genetic Counsellors (CAGC) certification exams.

The Program is a non-thesis program that consists of coursework in basic, molecular, and clinical genetics; counselling techniques; and bioethics as well as practical experience through clinical and laboratory rotations. Students also attend and participate in educational sessions offered by the Department of Medical Genetics and other departments within the Hospital and University.

Degree Requirements

MASTER OF SCIENCE

Applicants for the Program come with a wide range of life experiences and communication skills. These are evaluated along with the individual's academic transcript. Applicants are expected to have a minimum of a B.Sc. or equivalent degree. Previous coursework needs to include a strong genetics component as well as biochemistry and basic statistics. Coursework in embryology, human anatomy/physiology, and psychology/counselling is an asset. It is essential that applicants have one-on-one counselling experience (either paid or volunteer) in a setting such as a Distress Line, Peer Counselling, Hospice, Rape Relief Centre etc. It is also important that candidates have knowledge of the profession and, if possible, experience in a clinical genetics unit. This may be obtained through volunteer work, a Work Study position or a Directed Study project.

Please contact the Program Secretary for an application package or visit the program's website (www.medgen.ubc.ca/programs/mast-gen.htm) for further information.

Contact Information

Genetic Counselling Program, Dept. of Medical Genetics
Room C234, 4500 Oak St.
Vancouver, BC, V6H 3N1
Tel: 604-875-3486
Fax: 604-875-3490
Email: cslevin@cw.bc.ca
Web: www.medgen.ubc.ca/programs/mast-gen.htm
Cheryl Slevin, Program Secretary

GENETICS

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

J. T. Beatty, H. Brock, C. J. Brown, R. Brunham, D. Hogge, K. M. Cheng, M. B. Coulter-Mackie, S. Dedhar, C. J. Douglas, C. J. Eaves, B. E. Ellis, J. M. Friedman, F. R. Ganders, B. R. Green, A. J. F. Griffiths, T. A. Grigliatti, J. G. Hall, R. E. W. Hancock, G.

Haughn, M. R. Hayden, P. Hieter, R. Holt, W. Honer, R. K. Humphries, W. A. Jefferies, P. Johnson, D. M. Juriloff, R. J. Kay, J. W. Kronstad, G. Krystal, R. T. A. MacGillivray, D. L. Mager, B. C. McGillivray, W. R. McMaster, D. G. Moerman, J. Piret, C. H. Rankin, P. Rennie, K. Ritland, W. P. Robinson, A. M. Rose, A. D. Sadovnick, I. J. Sadowski, J. W. Schrader, J. K. Smit, T. P. Snutch, G. B. Spiegelman, F. Takei, H. S. Teh, H. Van Vuuren, G. Weeks, R. D. Wilson.

ASSOCIATE PROFESSORS

F. J. Dill, M. Gold, M. J. Harris, S. F. Langlois, M. Marra, K. M. McNagny, C. Nelson, S. Otto, R. J. Redfield, E. M. Simpson, J. Vielkind, W. Wasserman.

ASSISTANT PROFESSORS

K. Adams, J. Bohlmann, E. Conibear, A. Cherkasov, M. Cox, N. Fast, C. Helgason, P. A. Hoodless, S. Jones, P. Keeling, L. Lefebvre, M. Levings, X. Li, S. Lund, V. Measday, A. Mui, C. Ong, F. Ouellette, M. Wilkinson.

Program Overview

Studies leading to the Master of Science and Doctor of Philosophy in Genetics and Genomics are available through the Genetics Graduate Program in the Faculty of Graduate Studies.

The Genetics Graduate Program is flexible and is intended to accommodate the diverse background of students and the broad nature of genetic research. Students who apply for entrance must satisfy the general regulations of the Faculty of Graduate Studies, and must be acceptable to the Genetics graduate program admissions committee and to the head of the department in which they will work.

The student's graduate program will be decided by the student, thesis supervisor, and the thesis committee. All students must complete 18 credits of coursework in their first year, including GENE 502, and meet the formal requirements of the Faculty of Graduate Studies. In addition, students are strongly advised to take a seminar course if possible. The supervisor and thesis committee will ensure that the student takes courses that remedy any deficiencies in the student's undergraduate preparation.

Degree Requirements

DOCTOR OF PHILOSOPHY

Each student proceeding towards a Ph.D. must pass an oral qualifying examination within the first 18 months of study. All students are expected to attend seminars regularly during all years of their registration in the program. All students are required to present a Genetics Program seminar upon completion of their program, and before the thesis defense.

A student's committee for the doctorate will consist of the supervisor and three others. The supervisor and at least one other member must be members of the Genetics graduate program. For detailed information about application and program requirements, please visit the program's website (www.genetics.ubc.ca).

MASTER OF SCIENCE

A student's committee for the Master of Science will consist of the supervisor and two others. The supervisor and at least one other member must be members of the Genetics graduate program.

For detailed information about application and program requirements, please visit the program's website (www.genetics.ubc.ca).

Contact Information

Genetics Graduate Program
Room 308, 2206 East Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-8764
Fax: 604-822-9865
Email: genetics@interchange.ubc.ca
Web: www.genetics.ubc.ca
Monica Deutsch, Graduate Secretary

GEOGRAPHY

Degrees Offered: Ph.D., M.A., M.Sc.

Members

PROFESSORS

T. J. Barnes, M. A. Church, D. J. Gregory, D. J. Hiebert, D. F. Ley, D. M. McClung, I. G. McKendry, T. R. Oke, G. J. Pratt, J. B. Robinson, D. G. Steyn, R. B. Stull, G. C. Wynn.

ASSOCIATE PROFESSORS

P. H. Austin, D. W. C. Edgington, G. H. R. Henry, B. Klinkenberg, R. D. Moore, E. K. Wyly.

ASSISTANT PROFESSORS

K. J. Bakker, M. D. Buzzelli, L. D. Daniels, B. C. Eaton, M. D. Evenden, J. F. Glassman, M. Hassan, M. Kuus, P. Le Billon, J. R. Sundberg, M. Weiler.

Program Overview

Programs in physical geography have a strong natural science emphasis. They focus on physical and ecological systems at or close to the earth's surface, and the interaction of these systems with people. The major substantive specializations are biogeography (plant ecology, arctic environments); climatology (air pollution meteorology; mesoscale modelling; urban climatology); GIS and remote sensing (accuracy, fractals, integrated systems); geomorphology (alpine hydrology and geomorphology, avalanche prediction, hillslope geomorphology and mass movements); fluvial sediment transport and the interpretation of river channel changes in BC; hydrology (surface water, snow and land use hydrology); sediment yield and quality; and energy and mass balance studies in the Coast Mountains and Lower Fraser Valley of BC.

Programs in human geography are more pluralistic. Many projects explore the connections between human geography and political economy, social theory, and cultural studies and pursue their substantive implications for interpreting changes in past and present landscapes. Other work focuses on the political and policy aspects of these changes (especially in North America and Asia). Major areas of specialization are development geography (espe-

cially East and South-East Asia); economic geography (Marxist and post-Marxist theories of the space-economy; analytical modelling; development theory; industrial restructuring and technological change); feminist geography (gender, sexuality, and geography); historical geography (environmental history, colonialism and imperialism, urbanization, with a particular focus on North America (especially Canada), Europe, Latin America, and the British Empire); and social and cultural geography (theories of modernity and postmodernity; popular culture and the geography of everyday life; ethnicity, race, class, and gender; consumption, place, and landscape). Work in these fields often feeds into a strong general interest in urban geography (urban systems, urban growth and restructuring, and social and economic change, with a particular focus on North America and Asia) and intersects with work in environmental geography (environmental sustainability, environmental policy, and community development).

Programs in regional geography focus upon the following regions: Canada (especially Western Canada); Asia and the Pacific Rim (especially China, Japan and Southeast Asia); Russia and Eastern Europe; and Latin America.

The Department participates actively in many interdisciplinary programs: Polar and Alpine, Asian Studies, Canadian Studies, Community and Regional Planning, Comparative Literature, Global Studies, Hydrology, International Relations, Latin American Studies, Liu Centre for the Study of Global Issues, Remote Sensing, Resource Management and Environmental Studies, Sustainable Development, Transportation Studies, Urban Studies, Women's Studies, and the UBC-Ritsumeikan University Academic Exchange Program. Field studies include ongoing projects in the Western Arctic and Cordilleran regions of Canada and special projects in Asia.

A detailed guide to graduate studies in Geography is available from the Department or on the Department's website (www.geog.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of one course (either GEOG 500 or GEOG 520), additional coursework if recommended by the research supervisor and/or doctoral committee, independent study, a spring review, comprehensive examination (both written and oral), and research leading to a dissertation that is defended in an oral final examination.

MASTER OF ARTS

There are two options for the Master of Arts:

- 1) **Thesis Option.** This option requires 15 credits of coursework, which must include GEOG 520 or GEOG 500 (3 credits) and a 15-credit thesis.
- 2) **Non-thesis Option.** This option requires 30 credits of coursework (including a major essay) and a comprehensive examination.

MASTER OF SCIENCE

There are two options for the Master of Science:

- 1) **Thesis Option.** This option requires 15 credits of Science credit coursework of which at least 9 credits must be at the graduate level, which must include GEOG 500 (3 credits) and a 15-credit thesis.
- 2) **Non-thesis Option.** This option requires 30 credits of coursework (including a major essay) and a comprehensive examination.

Contact Information

Department of Geography
1984 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-2663
Fax: 604-822-6150
Email: gradprog@geog.ubc.ca
Web: www.geog.ubc.ca
Junnie Cheung, Graduate Secretary

GEOLOGICAL ENGINEERING

Degrees Offered: Ph.D., M.A.Sc., M.Eng.

Members

PROFESSORS

O. Hungr, L. Smith.

ASSOCIATE PROFESSOR

R. Beckie.

ASSISTANT PROFESSORS

E. Eberhardt, U. Mayer.

Program Overview

The Geological Engineering Program is intended for students interested in the application of earth sciences principles to engineering problems. While most geological engineering degree programs are based in the Department of Earth and Ocean Sciences, students may also base their studies in allied Applied Science departments such as Civil or Mining Engineering. The program is highly interdisciplinary and draws upon courses, laboratories and faculty members from the departments of Earth and Ocean Sciences, Civil Engineering, Mining Engineering, Forestry, Geography, and others. Graduate students are often co-supervised by faculty members from different departments.

Geological engineering faculty members in the Department of Earth and Ocean Sciences have research interests in the following general areas:

- Landslides, debris flows, engineering geology, slope stability;
- Groundwater hydrology, groundwater contamination and remediation, reactive transport modeling, environmental geochemistry; and
- Rock engineering, rock slopes and tunneling.

Other research areas include geotechnical engineering, environmental geology, engineering geology, economic geology, and applied geophysics. The specific fields of study may involve geomorphology and terrain analysis, groundwater hydrology, natural hazards, slope stability, petroleum and coal geology, coalbed methane, mineral prospecting and valuation,

and other similar subjects. Students are encouraged to consult individual faculty members for information about current research areas.

Admission to graduate studies in geological engineering is only open to students with an undergraduate degree in engineering or, at the discretion of the program director, to students with sufficient engineering work experience.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. degree typically requires four to five years to complete. There are no course requirements for the Ph.D. program.

MASTER OF APPLIED SCIENCE

The M.A.Sc. degree typically requires two years to complete. It consists of a 12-credit thesis and 18 credits in graduate or advanced courses in geological engineering and related fields selected in consultation with the candidate's committee.

MASTER OF ENGINEERING

This professional degree requires 27 credits of coursework plus a 3-credit major essay. Upon admission, students are assigned to an advisor who approves courses, typically from Earth and Ocean Sciences and Applied Sciences, and supervises the major essay research project. It is possible for full-time students commencing in September to complete the coursework requirements in one year. The M.Eng. in Geological Engineering can be completed on a part-time basis.

Contact Information

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC, V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Email: aallen@eos.ubc.ca
Web: www.eos.ubc.ca
Alex Allen, Graduate Secretary

GEOLOGICAL SCIENCES

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

M. Bustin, L. Groat, O. Hungr, J. Mortensen, K. Russell, L. Smith, P. Smith, D. Weis.

ASSOCIATE PROFESSORS

R. Beckie, G. Dipple, K. Grimm, L. Kennedy, J. Scoates.

ASSISTANT PROFESSORS

E. Eberhardt, M. Jellinek, M. Kopylova, U. Mayer, S. Rowins.

Program Overview

UBC and the Province of British Columbia offer exceptional opportunity for combined field and laboratory research. The Canadian Cordillera offers research opportunities in the petrology of intrusive and volcanic rocks of many kinds, and of metamorphic rocks of all grades; in structural studies of complex metamorphic terrains exposed in three dimensions; in metalliferous deposits of varied genetic types; in

mineral exploration methods; in mineralogy associated with many different environments; in complexly folded and faulted successions of bedded rocks in the mountain belts and plateaus, and in virtually undisturbed coal- and gas-bearing strata of the north-eastern part of the province; and in numerous problems of engineering and environmental geology related to water, slope stability, natural geological hazards, and hydrogeology. The lakes, fjords, deltas, tidal flats, continental shelf, and oceanic depths provide a wide range of aquatic environments for students interested in sedimentology, geochemistry, biostratigraphy, and geological oceanography.

The Department of Earth and Ocean Sciences maintains excellent provisions for research and study. The Department hosts the Pacific Centre for Isotopic and Geochemical Research (PCIGR), a regional facility providing state-of-the-art laboratories for isotopic and geochemical analyses of rocks and fluids. Facilities include: a Nu Instruments multi-collector inductively coupled plasma mass spectrometer; a Finnigan Triton thermo-ionization mass spectrometer; an automated VG solid source mass spectrometer for U-Pb geochronology; a micro-mass 5400 noble gas mass spectrometer; a Finnigan Delta Plus XL stable isotope mass spectrometer; a Finnigan Element2 high resolution CIP-MS; Class 100 clean laboratory; a CAMECA SX-50 electron microprobe and scanning electron microscope; equipment for x-ray diffraction, including a modern single-crystal camera and powder diffractometer; analytical geochemical equipment for atomic absorption, colorimetry, wet chemistry, chromatography, and spectrography; a rock deformation laboratory, including three triaxial rock deformation presses; a physical properties laboratory; rock and mineral preparation equipment; microscopes and computer imaging laboratories; hydrogeology and palaeontology laboratories; and a machine shop. The Mineral Deposit Research Unit conducts industry-sponsored research.

Degree Requirements

DOCTOR OF PHILOSOPHY

Courses in Geology and related fields will be selected in consultation with the candidate's committee.

MASTER OF SCIENCE

The Master of Science (with thesis) program consists of a 12-credit thesis and 18 credits in graduate or advanced courses in geology and related fields selected in consultation with the candidate's committee.

The Master of Science (without thesis) program includes 27 credits in graduate or advanced courses in geology and related subjects and a three-credit graduating paper, selected in consultation with the candidate's committee.

Contact Information

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Email: aallen@eos.ubc.ca
Web: www.eos.ubc.ca
Alex Allen, Graduate Secretary

GEOPHYSICS

Degrees Offered: Ph.D., M.Sc., M.A.Sc.

Members

PROFESSORS

N. Balmforth, M. Bostock, G. Clarke, R. Clowes, D. Oldenburg.

ASSISTANT PROFESSORS

E. Hearn, F. Herrmann, M. Jellinek.

Program Overview

Theoretically and experimentally oriented Master of Science (M.Sc.), Master of Applied Science (M.A.Sc.), and Doctor of Philosophy (Ph.D.) programs are offered in a number of key areas of geophysics. Current fields of interest are: glaciology with studies in glacier physics; geodynamics of the crust and upper mantle with an emphasis on numerically modeling lithosphere deformation and earthquakes; reflection seismology with the goal to make inferences on the geological and rock-physical processes responsible for seismic discontinuities; time-series analysis and wavelet processing; inversion methodologies with application to reflection seismology, mineral exploration and environmental studies; seismology with observational programs in crustal and upper mantle studies; reflection, refraction, and earthquake studies focused on understanding past and current tectonic processes in western Canada; and theoretical model studies to investigate wave propagation in laterally heterogeneous media.

Degree Requirements

DOCTOR OF PHILOSOPHY

Applicants are expected to have a master's degree in science or engineering, with a firm background of mathematics and physics up to fourth-year level. While some undergraduate instruction in geophysics or geology is an advantage, it is not a prerequisite for entry into geophysics graduate programs of the Department of Earth and Ocean Sciences. Geophysics students who have not completed a course in physics of the Earth at either the senior undergraduate or graduate level will be required to register for EOSC 453.

MASTER OF SCIENCE

Applicants are expected to have the equivalent of an honours degree in science, with a firm background of mathematics and physics up to fourth-year level. While some undergraduate instruction in geophysics or geology is an advantage, it is not a prerequisite for entry into geophysics graduate programs of the Department of Earth and Ocean Sciences. Geophysics students who have not completed a course in

physics of the Earth at either the senior undergraduate or graduate level will be required to register for EOSC 453. The M.Sc. program consists of 12 credits of thesis and 18 credits of coursework.

MASTER OF APPLIED SCIENCE

Applicants are expected to have the equivalent of an honours degree in engineering, with a firm background of mathematics and physics up to fourth-year level. While some undergraduate instruction in geophysics or geology is an advantage, it is not a prerequisite for entry into geophysics graduate programs of the Department of Earth and Ocean Sciences. Geophysics students who have not completed a course in physics of the Earth at either the senior undergraduate or graduate level will be required to register for EOSC 453. The M.A.Sc. program consists of 12 credits of thesis and 18 credits of coursework.

Contact Information

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC, V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Email: aallen@eos.ubc.ca
Web: www.eos.ubc.ca
Alex Allen, Graduate Secretary

GERMANIC STUDIES

Degrees Offered: Ph.D., M.A.

Members

PROFESSOR

P. A. Stenberg.

ASSOCIATE PROFESSORS

G. Pailer, T. Salumets, S. Taubeneck, G. H. Winthrop-Young, K. A. Zaenker.

ASSISTANT PROFESSORS

M. Hallensleben, C. Rieger.

Program Overview

Our graduate program provides excellent opportunities to cross and join boundaries by participating in the continued construction of new disciplinary configurations. In order to facilitate research and development of unique scholarly projects, students are free to draw on a broad range of faculty both on and off campus. They are encouraged to explore canonical and non-canonical texts, and to take advantage of the many interdisciplinary, intercultural and other dimensions which presently give shape to the Program in German at UBC.

For details please visit our website (www.german.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

It is expected that students who enter the Ph.D. program will have a general knowledge of the broad outlines of German language and literature and of German political, cultural, and social history, and that they are familiar with both the basic tools of study and the basic methods of critical analysis.

With this as a foundation, the Ph.D. program will focus on the application of the major critical theories and the development of discipline-related expertise. The methods by which the students develop this expertise may vary from one-to-one discussions and small tutorial groups to formal seminars and lectures. Students will also participate in departmental colloquia.

Whatever the format, students should be mindful of the general goal, which, in addition to their expertise in German language and literary study, is to develop their capacity for critical thinking and their ability to express their thoughts and ideas independently.

For details please visit the program's website (www.german.ubc.ca).

MASTER OF ARTS

Students entering the M.A. program are expected to have a high level of linguistic proficiency and a working familiarity with German literary, cultural, social, political, and intellectual history.

Students are required to complete 30 credits and to take a comprehensive examination. The program of study intended as preparation for a career in teaching and/or research in German literature and provides a possible foundation for doctoral study in Germanic Studies.

Since the emphasis is on the study of literature and literary historiography, students have the opportunity to develop a comprehensive knowledge and critical judgement of German literary history, acquire an understanding of literary texts in their aesthetic, social, political, (inter)cultural, and historical dimensions, apply a variety of critical methods and theories to the study of literary texts, and refine literary sensibilities, analytical skills, and conceptual abilities.

For details please visit the program's website (www.german.ubc.ca).

Contact Information

Department of Central, Eastern and Northern European Studies
1873 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-6403
Fax: 604-822-9344
Email: german@interchange.ubc.ca
Web: www.german.ubc.ca
Christa Rathje, Department Secretary

HEALTH ADMINISTRATION

Degree Offered: M.H.A.

Members

PROFESSORS

A. Anis, A. Boardman, R. Evans, R. Giammarino, R. Hogg, J. Ries, T. Ross, J. Singer, D. Skarlicki.

ASSOCIATE PROFESSOR

J. Kopec.

ASSISTANT PROFESSORS

P. Chwelos, R. Hanvelt, S. Morgan, N. Shaw, H. Wong.

Program Overview

The Master of Health Administration (M.H.A.) is offered by the Department of Health Care and Epidemiology, in conjunction with the Faculty of Commerce and Business Administration (Sauder School of Business).

The M.H.A. curriculum provides the educational and professional foundations for leadership in the health services field. It emphasizes analytical thinking and aims to provide graduates who are skilled professionals with in-depth applied administrative research tools. Graduates are expected to be capable of identifying and solving complex organizational and assessment problems in the health services sector.

The M.H.A. has a professional executive focus and is taught in modular (1.5 credit) format: Friday afternoon through to Sunday afternoon, approximately one weekend per month. The full program takes two calendar years to complete. All 24 courses are required, in addition to a major Research Project (HCEC 590) worth six credits. The program is cohort-based and delivered at UBC Robson Square, and is therefore not available as a distance education or online option.

Degree Requirements

MASTER OF HEALTH ADMINISTRATION
Applications for admission to the M.H.A. program will be evaluated based on a combination of academic achievement, GMAT/GRE results, and/or relevant work experience. If the applicant does not already have GMAT or GRE results, the GMAT should be written prior to submission of the application or shortly thereafter. In addition to the minimum requirements, applicants are required to include a letter of intent that outlines their motivation for completing the M.H.A. program, as well as a current resumé.

Professional experience and publications may be considered for those who do not meet the minimum GPA requirements. Applicants who have limited relevant work experience may be required to complete a Residency/Internship placement in addition to the regular graduation requirements.

Ideally, the three letters of reference should indicate how the referee has come to know the applicant and why they feel the applicant will succeed in the M.H.A. program. Where feasible, the selection of referees should be made so that two of the letters relate primarily to work experience and career progression including community service, while the third deals with academic performance.

Contact Information

Master of Health Administration Program
James Mather Bldg., 5804 Fairview Avenue
Vancouver, BC, V6T 1Z3
Tel: 604-822-2366
Fax: 604-822-4994
Email: mha.program@ubc.ca
Web: www.healthcare.ubc.ca/MHA_Program
Isabella Losinger, M.L.S., M.A., M.H.A.
Program Manager

HEALTH CARE AND EPIDEMIOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

R. Armstrong, M. Barer, C. Black, E. Goldner, C. Hertzman, R. Hogg, A. Kazanjian, S. Kennedy, R. G. Mathias, M. T. Schechter, S. B. Sheps, J. Singer, K. Teschke, C. Van Netten, A. Yassi.

ASSOCIATE PROFESSORS

A. H. Anis, P. Demers, J. Frankish, J. Kozak, C. Lovato, S. A. Marion, D. Patrick, J. A. Shovel-ler, B. Sobolev, J. J. Spinelli, J. K. H. Tan.

ASSISTANT PROFESSORS

J. Buxton, B. Henry, R. A. Hanvelt, P. Janssen, M. Koehoorn, J. Kopec, J.F. Kozak, A. Levy, Y. MacNab, C. Mitton, S. Morgan, M. Naus, A. Ostry, R. Reid, J. Spiegel, P. Spittal, H. Wong.

Program Overview

Research-oriented graduate programs in Health Care and Epidemiology are offered leading to the Doctor of Philosophy and to the Master of Science, both with thesis. These may be focused on any of the areas of strength of the faculty, with particular examples being clinical epidemiology, community health, health services management and planning, health-care policy, occupational and environmental health, and preventive medicine and health promotion.

Degree Requirements

DOCTOR OF PHILOSOPHY

For Ph.D. students the requirements are nine required courses and any additional courses defined by the student and/or their Ph.D. committee. Individuals with a basic degree in the health or related sciences will be considered eligible to apply for admission, but the number of positions is limited. Application deadline is February 1 for entry in September. For additional information see the program's website (www.healthcare.ubc.ca).

MASTER OF SCIENCE

The minimum requirement for a Master of Science (including thesis) is 30 credits. However the actual courses required are at the discretion of program supervisors and often the number of credits required is 36 to 42. For additional information see the program's website (www.healthcare.ubc.ca).

Contact Information

Department of Health Care and Epidemiology
5804 Fairview Avenue
Vancouver, BC V6T 1Z3
Tel: 604-822-5405
Fax: 604-822-4994
Email: laurel.slaney@ubc.ca
Web: www.healthcare.ubc.ca
Laurel Slaney, Graduate Programs Coordinator

HEALTH SCIENCE

Degree Offered: M.H.Sc.

Members

PROFESSORS

R. Armstrong, M. Barer, C. Black, E. Goldner, C. Hertzman, R. Hogg, A. Kazanjian, S. Kennedy, R. G. Mathias, M. T. Schechter, S. B. Sheps, J. Singer, K. Teschke, C. Van Netten, A. Yassi.

ASSOCIATE PROFESSORS

A. H. Anis, P. Demers, J. Frankish, C. Lovato, S. A. Marion, D. Patrick, J. Shoveller, B. Sobolev, J. J. Spinelli, J. K. H. Tan.

ASSISTANT PROFESSORS

J. Buxton, B. Henry, R. A. Hanvelt, P. Janssen, M. Koehoorn, J. Kopec, J. Kozak, A. Levy, Y. MacNab, C. Mitton, S. Morgan, M. Naus, A. Ostry, R. Reid, J. A. J. Spiegel, P. Spittal, H. Wong.

Program Overview

The Master of Health Science (M.H.Sc.) program is designed to provide graduate education for physicians in the areas of Clinical Epidemiology, Occupational Health or Community Health.

Degree Requirements

MASTER OF HEALTH SCIENCE
Minimum admission requirements for this 30 credit program include an academic record that meets Faculty of Graduate Studies requirements and a Doctor of Medicine (M.D.) or equivalent. For additional information see the Department's website (www.healthcare.ubc.ca).

All application materials must be received by February 1 for international applicants and March 1 for Canadian applicants.

Contact Information

Department of Health Care and Epidemiology
5804 Fairview Avenue
Vancouver, BC, V6T 1Z3
Tel: 604-822-5405
Fax: 604-822-4994
Email: laurel.slaney@ubc.ca
Web: www.healthcare.ubc.ca
Laurel Slaney, Graduate Programs Manager

HIGHER EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

R. Boshier, D. Fisher, D. Pratt, K. Rubenson, T. Sork.

ASSOCIATE PROFESSORS

L. Andres, S. Butterwick, A. Mazawi, P. Walter.

ASSISTANT PROFESSORS

A. Metcalfe, J. Chan-Tiberghien.

Program Overview

The Higher Education graduate program at the University of British Columbia focuses on the study of institutions of higher education and their members, activities, and policies. The program draws on such disciplines and fields as

history, philosophy, sociology, economics, political science, psychology, sociology, law, and administrative studies.

The Higher Education graduate program offers two master's level degrees: Master of Arts (M.A.) and Master of Education (M.Ed.). Part-time study is possible in the M.Ed. and M.A. programs.

Students wishing to pursue doctoral research in the field of Higher Education can do so as part of a Doctor of Philosophy (Ph.D.) in *Educational Studies*, p. 246, or a Doctor of Education (Ed.D.) in *Educational Leadership and Policy*, p. 246.

Degree Requirements

MASTER OF ARTS

The M.A. is a 30-credit program that involves advanced academic study and the preparation of an original thesis. Students enrolled in the M.A. program must complete 6 credits of required coursework, 6 credits of research methods coursework, 12 credits of electives, and a 6-credit master's thesis.

MASTER OF EDUCATION

The M.Ed. is a 30-credit program designed for professionals in education whose primary focus is understanding and improving educational practice. Students enrolled in the M.Ed. program must complete 6 credits of required coursework, 3 credits of research methods coursework, 18 credits of electives, and a 3-credit graduating project/paper.

Contact Information

Department of Educational Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6647
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Web: www.edst.educ.ubc.ca/programs/higher_ed.html
Lynda McDicken, Graduate Secretary

HISPANIC STUDIES

Degrees Offered: Ph.D., M.A.

Members

ASSOCIATE PROFESSORS

D. C. Carr, R. De Grandis, M. S. Fernández Utrera, I. Rubio.

ASSISTANT PROFESSORS

J. Beasley-Murray, R. Cacho.

Program Overview

The graduate program in Hispanic Studies offers opportunities for advanced study in the literatures of Spain and Spanish America, leading to the Ph.D. and to the M.A. with or without a thesis.

The UBC Library has extensive holdings in all Hispanic areas, especially in periodicals and Latin-American studies, both in Spanish and Portuguese. There is also a Departmental reading room for graduate students, containing basic texts, scholarly collections, and reference works.

The program makes available a list of courses to be offered as early as possible, usually in February of the preceding academic year.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of coursework, a qualifying examination, candidacy examinations, and research leading to a dissertation that is defended in an oral final examination. See the graduate regulations located on the program's website (www.fhis.ubc.ca) for details.

MASTER OF ARTS

There are two options for the Master of Arts:

- **M.A. without Thesis.** This option requires 30 credits of coursework, up to 6 of which may be drawn from 400-level undergraduate courses in Spanish, a graduating essay followed by an oral examination, and regular participation in SPAN 500: Seminar in Hispanic Studies.
- **M.A. with Thesis.** This option requires 24 credits of coursework, up to 6 of which may be drawn from 400-level undergraduate courses in Spanish, a 6-credit thesis followed by an oral thesis defence, and regular participation in SPAN 500: Seminar in Hispanic Studies.

Contact Information

Department of French, Hispanic and Italian Studies
797-1873 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-0016
Fax: 604-822-6675
Email: fhisgrad@mail.arts.ubc.ca
Web: www.fhis.ubc.ca
Carol Schoenfeld, Graduate Secretary

HISTORY

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

K. Benson, D. Breen, T. Brook, C. Friedrichs, D. Lary, P. Moogk, D. Newell, A. Ray, R. Unger, P. Ward.

ASSOCIATE PROFESSORS

J. Dixon, G. Egerton, W. French, A. Gorsuch, P. Kojevnikov, P. Krause, S. Lee, T. Loo, R. McDonald, R. Menkis, G. Peterson, A. Smith, J. Wang, W. Wray, H. Yu.

ASSISTANT PROFESSORS

C. Booker, R. Brain, A. Bronfman, M. Ducharme, E. Glassenheim, T. Myers, L. Paris, P. Raibmon, J. Roosa, L. Shin, C. Thrush.

Program Overview

The Department of History offers M.A. and Ph.D. programs, each requiring a thesis, in the fields of Asian, Canadian, First Nations, British and European (early modern and modern), international relations, U.S., and Latin American history. At the Ph.D. level, the Department stresses Asian, Canadian, and European history. The Department especially emphasizes comparative and interdisciplinary

approaches to the study of the past. Within these areas the program offers graduate reading courses and research seminars in the main varieties of social, cultural, political, intellectual, economic, diplomatic, and international relations history. Research in all these fields is facilitated by extensive library holdings including government publications, state papers, newspapers, and extensive collections of early modern European pamphlets and literature. UBC is home to one of the leading research libraries for East Asian Studies in North America. There are also notable collections of books in the history of the American West, of Canada (one of the best in Canada, with especially large sections on British Columbia and the Prairie West), international relations, Germany (the best in Canada), radical movements in Europe and North America, and medicine, science, and technology (Woodward Library). For detailed information describing the Ph.D. and M.A. programs in History at UBC, please visit the History website (www.history.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of coursework, comprehensive examinations in one major and two minor fields, and a dissertation that is defended in an oral final examination.

Prerequisites for admission to the PhD program include a master's degree (or equivalent) in History. In certain cases others may also be eligible to apply. Consult the History website (www.history.ubc.ca) for details.

MASTER OF ARTS

The Master of Arts program consists of coursework and a 40-page thesis.

Prerequisites for admission to the M.A. program include a four-year B.A. with History honours or History Major. Consult the History website (www.history.ubc.ca) for details.

Contact Information

Department of History
1297-1873 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-6070
Fax: 604-822-6658
Email: histgrad@interchange.ubc.ca
Web: www.history.ubc.ca/content.php?pk_pageid=6&go=1, Graduate Jennifer Kho, Graduate Secretary

HOME ECONOMICS EDUCATION

Degrees Offered: M.A., M.Ed.

Member

PROFESSOR
L. Peterat.

Program Overview

Graduate study in Home Economics Education is a small but lively program in Curriculum Studies, and works closely in areas of shared interest in research and practice with colleagues throughout the Faculty of Education and in

related units across campus. Graduates of our programs have moved into positions in school administration, college and university teaching, and leadership in home economics and school districts in a variety of special areas.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires:

- 1) Normally, 18 credits of senior coursework or a professional concentration in the area of interest.
- 2) Normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: M.Ed. program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A total of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, ten 3-credit courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

HUMAN KINETICS

Degrees Offered: Ph.D., M.A., M.Sc., M.H.K.

Members

PROFESSORS

P. Crocker, I. Franks, T. Inglis, D. McKenzie, E. Rhodes, D. Sanderson, J. Taunton, P. Vertinsky.

ASSOCIATE PROFESSORS

R. Chua, W. Frisby, R. Mosher, W. Sheel, R. Sparks, B. Wilson.

ASSISTANT PROFESSORS

M. Beauchamp, S. Bredin, M. Carpenter, N. Hodges, L. Hurd Clarke, K. Khan, T. Lam, J. Rupert, D. Warburton.

Program Overview

The School of Human Kinetics offers graduate students original investigations (M.A., M.Sc., Ph.D.) and advanced study (M.H.K.) in biological, behavioural, and socio-cultural research in

Human Kinetics. Students work in excellent research facilities alongside some of the top researchers in the field of Human Kinetics. The School's graduate program follows a mentorship model and admission to the graduate program requires a faculty member to agree to act as a research supervisor. Applications meeting the minimum eligibility requirements are forwarded to potential supervisors identified by the applicant, and the recommendation for admission is made by individual faculty members.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program is governed by the general requirements set out by the Faculty of Graduate Studies. Admission to the program normally requires a thesis-based master's degree in Human Kinetics, Physical Education, Kinesiology, or other related field of study, along with appropriate undergraduate and graduate coursework. Applicants with an undergraduate or graduate degree in a non-Human Kinetics program may be considered for admission, particularly if they have a strong background in Human Kinetics. There is no required coursework.

MASTER OF ARTS

The Master of Arts (M.A.) program in Human Kinetics consists of a minimum of 30 credits (including a 12-credit thesis). A maximum of 6 of the required 18 course credits may be taken at the 300 and 400 level. Admission to the program requires a First class standing (80% or above) in at least 12 credits of coursework relevant to the chosen program of study, and at least an upper Second Class standing (76% or above) in all third- and fourth-year level courses.

MASTER OF SCIENCE

The Master of Science (M.Sc.) program in Human Kinetics consists of a minimum of 30 credits, (including a 12 credit thesis). A maximum of 6 of the required 18 course credits may be taken at the 300 and 400 level. Admission to the program requires a First class standing (80% or above) in at least 12 credits of coursework relevant to the chosen program of study, and at least an upper Second Class standing (76% or above) in all third- and fourth-year level courses.

MASTER OF HUMAN KINETICS

The Master of Human Kinetics (M.H.K.) non-thesis program consists of a minimum of 30 course credits (including a 3-credit major paper). A maximum of 6 of the required 27 course credits may be taken at the 300 and 400 level. Applicants are normally expected to have a Bachelor of Human Kinetics or its equivalent. Admission to the program requires a First class standing (80% or above) in at least 12 credits of coursework relevant to the chosen program of study, and at least an upper Second Class standing (76% or above) in all third- and fourth-year level courses.

Contact Information

School of Human Kinetics
210-6081 University Boulevard
Vancouver, BC, V6T 1Z1
Tel: 604-822-2767
Fax: 604-822-6842
Email: hkin-gradsec@interchange.ubc.ca
Web: www.hkin.educ.ubc.ca
Rochelle de la Giroday, Graduate Secretary

HUMAN NUTRITION

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

S. I. Barr, S. Innis.

ASSOCIATE PROFESSORS

G. E. Chapman, Z. Xu.

ASSISTANT PROFESSORS

K. Keiver, R. Levy Milne.

Program Overview

The graduate program in Human Nutrition offers opportunities for advanced study and original investigations in basic applied human nutrition at both the master's and doctoral levels. The curriculum includes coursework and thesis research through laboratory or field work in a variety of areas relevant to human nutrition, including nutrient metabolism, diet and disease, nutrition through the life cycle, and nutrition behaviours.

The program is enriched through collaboration with colleagues in graduate programs such as Animal Science, Food Science, Pediatrics, and Pharmaceutical Sciences.

Coursework selected in consultation with the student's supervisory committee includes graduate courses in human nutrition and from other areas relevant to each student's research.

Research facilities are housed both within the Family and Nutritional Sciences (FNS) Building and, on a shared basis, in other buildings on campus. Within the FNS Building, the research facilities include various modern analytical laboratories and other equipment for conduction biochemical and basic molecular biological research, and computers for conducting dietary and qualitative data analysis.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program does not require a fixed number of courses but appropriate coursework will be selected in consultation with the candidate's committee. All candidates are required to take a comprehensive examination, ordinarily at the end of the first year. The major requirement for the Ph.D. is completion of a research thesis demonstrating ability to conduct significant and original scientific research.

Applicants to the Ph.D. program will be expected to meet the requirements of the *Faculty of Graduate Studies*, p. 217.

MASTER OF SCIENCE

The Master of Science program requires completion of a minimum of 30 credits,

including a 12-credit research thesis and at least 18 credits of coursework. HUNU 500, 531 (an advanced statistics or research methods course), and two of HUNU 503, 505, 507 and 509 are required of all students in the M.Sc. program. A student's committee may require more than the minimum credits.

For admission with full standing into the M.Sc. program, applicants must meet minimum academic requirements as specified on the Faculty of Graduate Studies website (grad.ubc.ca/apply/how/require.asp). In addition, required prerequisite courses include biochemistry, human or vertebrate physiology, and advanced nutrition. A minimum of 6 credits (three hours per week for two academic terms or one academic year) is required in each of these areas, preferably at the third- or fourth-year level. Students deficient in one of these areas may apply to the program, but if admitted will be required to take the appropriate courses early in the graduate program, in addition to the usual M.Sc. course requirements. Applicants deficient in more than one area will have to complete the required courses as unclassified students before they can be considered for admission to the graduate program.

Contact Information

Faculty of Land and Food Systems
270–2357 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Email: gradapp@interchange.ubc.ca
Web: www.agsci.ubc.ca/grad/human_nut.htm
Alina Yuhymets, Graduate Programs Manager

INTERDISCIPLINARY STUDIES

Degrees Offered: Ph.D., M.A., M.Sc.

Members

Due to the interdisciplinary nature of this program, a list of faculty is not available. Members of the Faculty of Graduate Studies in other programs are eligible to serve as supervisors of students in the Interdisciplinary Studies graduate program, based on the student's chosen area of research.

Program Overview

The Faculty of Graduate Studies encourages the realignment of traditional disciplines into new patterns, and crossing departmental and faculty boundaries to foster the development of new areas of research.

A major function of the various centres and institutes of the Faculty of Graduate Studies is to promote interdisciplinary research; the associated interdepartmental and inter-faculty groupings are usually able to guide students in setting up disciplinary programs. Where no established degree program exists, a student may request admission into a special individual interdisciplinary program administered by a supervisory committee representing the various disciplines involved.

In the program as it now exists, the prospective student has to bring together three or four qual-

ified faculty from different departments or units. Because there are no constraints on which fields are brought together, there are virtually no two students in the same subfield.

Research topics in this program have included, for example:

- Nisga'a Architecture and Landscapes: Ecological Wisdom and Community-led Design (involving the Schools/Departments of Architecture, Landscape Architecture, Forest Ecology, Environmental Studies, Ethnobotany, and Nisga'a House of Wisdom)
- Matters of Life and Death in the Neonatal Intensive Care Nursery: Decision Making for the Not Yet Competent (involving the Departments of Pediatrics, Comparative Religion, Medical Anthropology, and Bioethics)
- Red Rhetorics: Politics, Polemics and the Marx-Machine (involving the Departments of English, Germanic Studies, and Philosophy)
- Multicultural Practices of Canadian Immigrant Youth: "A Work in Progress" (involving the Departments of Educational Studies, English, and Anthropology).

Interdisciplinary Studies, in collaboration with the *Media and Graphics Interdisciplinary Centre*, p. 76, offers a specialization in Human-Computer Interaction.

Degree Requirements

DOCTOR OF PHILOSOPHY

The student is strongly advised to form their supervisory committee by the end of their second term, after enrolling in the degree. The Committee must be approved by the fourth term of study. Annual progress reports are required from the supervisory committee and from the student. Comprehensive exams are mandatory for Ph.D. programs. In order to advance to candidacy, students must also defend a thesis prospectus. Finally, a doctoral thesis must be prepared and defended at a final oral examination.

Full details of the application process and program information are available on the program's website (www.iisgp.ubc.ca).

MASTER OF ARTS

Coursework is decided in consultation between the student and their supervisory committee. Course enrolment requires formal approval. 30 credits of coursework are required to complete the Master of Arts degree, including a 6-credit master's thesis. There is no oral examination required for the master's thesis.

Full details of the application process and program information are available on the program's website (www.iisgp.ubc.ca).

MASTER OF SCIENCE

Same as M.A.

Contact Information

Individual Interdisciplinary Studies Graduate Program
230–6356 Agricultural Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-0954
Fax: 604-822-0470
Email: iisgp@interchange.ubc.ca
Web: www.iisgp.ubc.ca
Janice Matautia, Graduate Program Assistant

JOURNALISM

Degree Offered: M.J.

Members

PROFESSOR
D. Logan.

ASSOCIATE PROFESSOR
S. J. A. Ward.

ASSISTANT PROFESSOR
M. L. Young.

Program Overview

The School of Journalism is part of the Faculty of Arts, but is governed by the admissions and curriculum requirements of the Faculty of Graduate Studies. Graduates of the program in journalism will receive a Master of Journalism (M.J.) degree.

The mission of the School of Journalism is to achieve the highest professional standards in journalism through instruction in journalistic practice and the scholarly understanding of journalism, critical thinking, and teaching of ethical responsibility. By combining advanced journalism practice and theory with academic studies at the graduate level, the program not only enhances advanced journalism, but also improves the information base and scholarly preparation of students for journalistic writing in their specialty subject areas. The program serves the profession of journalism and brings developments in many areas of academic investigation to a wider reading public. Workshops, seminars, tutorials, conferences, and publications deal with reportage as well as major issues, theories, and developments in the field of journalism. Emphasis is placed on the writing of journalism, on the historic evolution of journalism as a profession, ethics and journalism, journalism and the legal system, and the role and character of journalism in a changing society.

For more information, please visit the Journalism website (www.journalism.ubc.ca) and our online magazine *The Thunderbird* (www.tojr.ca/).

Degree Requirements

MASTER OF JOURNALISM

Applicants with journalism experience must submit an extensive sample of their professional work; those without such experience will be selected on the basis of a manuscript of original writing that meets the standard of the peer group selected for entry into the program. The admissions panel will assess the applicant's potential for satisfactory performance in the

program and for potential creative and constructive contribution to the profession.

Candidates for admission to the M.J. program must possess a four-year honours baccalaureate degree in a discipline or interdisciplinary area regarded as appropriate by the admissions committee for the program. Only applicants with superior performance at the baccalaureate level and appropriate journalism knowledge and experience will be admitted. Applicants will be required to indicate their intended academic specialty at the time they apply. Because the number of applicants greatly exceeds the number of places available, a record that satisfies basic entrance requirements does not guarantee admission to the program. Registration in graduate seminars in the academic specialty will be subject to the approval of the Director.

Applicants must meet the admission requirements of the Faculty of Graduate Studies. International applicants will require a score of 600 (or computer-based equivalent, i.e., 250) or more on the Test of English as a Foreign Language (TOEFL).

Students will be required to spend two Winter Sessions (i.e., eight months from September to April) on campus as full-time students. In exceptional circumstances, the School and the program will accommodate the needs of working journalists and others who may find it difficult to take more than eight or 12 months away from regular employment. A non-credit Internship will be required as part of the newsroom practice for students with no professional experience. It will consist of at least three months of full-time work, after the Winter Session of residence, in any media establishment approved by the Director for this purpose. Internship performance will be graded on a pass/fail basis by the Director in consultation with the establishment.

Contact Information

School of Journalism
6388 Crescent Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-6688
Fax: 604-822-6707
Email: journal@interchange.ubc.ca
Web: www.journalism.ubc.ca
Barry Warne, Department Secretary

LAND AND FOOD SYSTEMS, INTEGRATED STUDIES

Degrees Offered: M.Sc., Ph.D.

Program Overview

The challenge to provide sufficient, safe, and economically accessible food for the world requires researchers and managers able to seek solutions that rely on integrating the traditional agricultural disciplines with those of related areas of knowledge and inquiry.

The objective of the graduate program in Integrated Studies in Land and Food Systems is to aid students in developing the knowledge base and integrative skills necessary to evaluate food production systems and develop sustainable solutions based on agroecological, economic, and social dimensions.

The Integrated Studies in Land and Food Systems program offers opportunities for advanced study and research leading to M.Sc. and Ph.D. degrees. Most students entering the program are expected to have an academic background in agriculture and/or food, but applicants from other academic disciplines will be considered.

Acceptance into the program depends on meeting the admission requirements of the Faculty of Graduate Studies, and acceptance by a faculty member willing to act as the student's supervisor.

Doctor of Philosophy

For the Doctor of Philosophy, all candidates must complete AGSC 501 or 504, and LFS 500, 501, 502, and 649. Any other courses deemed necessary for the academic program are determined by the candidate and the supervisory committee.

Master of Science

For the master's degree, all candidates must complete AGSC 501 or 504, and LFS 500, 501, and 502. An additional 6 credits of coursework are required along with a 12-credit research thesis (LFS 549).

Contact Information

Graduate Programs
Faculty of Land and Food Systems
University of British Columbia
270-2357 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Email: gradapp@interchange.ubc.ca
Web: www.agsci.ubc.ca/grad
Graduate Programs Manager email
(gradmgr@interchange.ubc.ca)

LANDSCAPE ARCHITECTURE

Degrees Offered: M.L.A., M.A.S.L.A.

Members

PROFESSORS
P. M. Condon, R. Kellet, M. Quayle.

ASSOCIATE PROFESSORS
C. Girling, S. Herrington, P. F. Mooney, D. Paterson, S. Sheppard.

Program Overview

Landscape Architecture is concerned with the design, planning, and management of the land. It involves the physical design of sites or places with particular emphasis on resource conservation, sustainability, social responsiveness, and aesthetics. It is one of several professions concerned with both the natural and human environments, with both nature and culture and, as such, places heavy emphasis on interdisciplinary knowledge and cooperation. As an academic discipline, landscape architecture encompasses the fields of the humanities, sciences, technology, and the creative arts; it is also concerned with design as an act of critical inquiry, design criticism, and issues of critical regionalism.

Degree Requirements

MASTER OF LANDSCAPE ARCHITECTURE
The Master of Landscape Architecture (M.L.A.) degree is designed for candidates seeking admission to the profession. Full-time students normally complete this program in three years. Students with a UBC-recognized undergraduate degree in Architecture, Environmental Design, or Landscape Architecture may apply for admission to a two-year 72-credit variant of the professional M.L.A. Program, comprised of the final two years of M.L.A. design studio courses, as well as courses required for professional degree accreditation by the Canadian Society of Landscape Architects. The particular course requirements will be determined by the graduate advisor for each student upon acceptance and entry into the program, based on prior experience and a portfolio review.

Admission: Applicants for admission to the program must have a strong academic record and demonstrate potential for creative problem solving. The Landscape Architecture Program selects students from a variety of disciplines on which to build landscape architectural understanding, competence, and the sharing of knowledge. Students entering the program should demonstrate interest and potential in the broad fields of environment, the creative arts, and landscape architecture.

Students are accepted into the three-year M.L.A. from all disciplines; applicants seeking admission into the two-year M.L.A. variant must be in possession of a four-year undergraduate degree in Architecture, Environmental Design, or Landscape Architecture. Certain students may be expected to fulfill additional requirements in order to adequately prepare them for design and environmental studies. In addition, students are required to submit examples of their creative abilities in the form of an application portfolio, and demonstrate, in writing, their understanding of the profession. Please contact us for detailed admission information. Approximately 18 students will be admitted each year.

Course of Study: The master's degree is awarded upon the completion of 109 credits of work, including a major graduating project. The core curriculum includes a structured first year of 38 credits and 56 additional required credits in years two and three. All students must declare a study stream and take 9 required, and 6 elective credits in the chosen area. Study streams are: site design; urban design; and regional design. Detailed information on specific, yearly course requirements are available on the program's website (www.agsci.ubc.ca/landscape_architecture).

A grade of 68% is required as a passing grade for all design studio courses (LARC 501, 502, 503, 504, or any substituting classes). The faculty will conduct a year-end evaluation at the conclusion of Year one. Students who, in a consensus opinion of the regular faculty, are not making satisfactory progress will be asked to leave the program.

MASTER OF ADVANCED STUDIES IN LANDSCAPE ARCHITECTURE

The Master of Advanced Studies in Landscape Architecture (M.A.S.L.A.) is a 31-credit program. Part-time study is allowed with prior approval from the Graduate Program Committee. Full-time students normally complete this program within two academic years. The program provides students an opportunity to examine and research specific issues relating to landscape, place, and environment. This post-professional program is not intended to fulfill the requirements for membership as established by the British Columbia Society of Landscape Architects or similar organizations in other provinces of Canada. Those wishing professional credentials should enrol in the Master of Landscape Architecture (M.L.A.) program.

Admission: Applicants for admission to the M.A.S.L.A. program must have a four-year bachelor's degree in a design discipline as well as some experience in a design practice. All candidates must also meet the basic academic requirements of the Faculty of Graduate Studies. In addition, all applicants must submit a design portfolio. The minimum TOEFL score required of international applicants is 560. For additional information, please visit the program's website (www.agsci.ubc.ca/landscape_architecture) or see Contact Information below.

Course of Study: The course of study is comprised of LARC 500, 520, 541, 599, 6 credits of 500-level electives, and 6 credits of 300-level and above electives. At least one of the elective courses must focus on design-research methodologies. Research activities and thesis development will be focused within the two broad areas of advanced design, design theory and design education, and environmental design, planning and management at the site-specific scale.

Contact Information

Landscape Architecture
393-2357 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6916
Fax: 604-822-2184
Email: larc@interchange.ubc.ca
Web: www.larc.ubc.ca
Sonia Sangha, Program Assistant

LANGUAGE AND LITERACY EDUCATION

Degree Offered: Ph.D.

Members

PROFESSORS

J. Anderson, S. Carey, M. Chapman, P. Duff, L. Gunderson, R. Jobe, C. Leggo, B. Norton, V. Purcell-Gates, K. Reeder, J. Shapiro, R. Tierney, G. Williams, J. Willinsky.

ASSOCIATE PROFESSORS

M. Asselin, P. Duff, M. Early, M. Kendrick, T. Rogers, L. Shi, G. Tang.

ASSISTANT PROFESSORS

G. Belliveau, M. Bournot-Trites, T. Dobson, J. Hare, C. Medina, S. Talmay.

Program Overview

The Department of Language and Literacy Education offers a program leading to a Ph.D. in Language and Literacy Education (LLED). Students can study in the areas of: Literacy Education, Teacher Librarianship, Teaching English as a Second Language, and Modern Language Education.

The Department of Language and Literacy is committed to excellence in scholarship, teaching, and professional leadership and is responsive to Canada's multicultural, multilingual context. Its goal is to advance the study of language learning, and the teaching and learning of language, literacy, and literature in their broadest frames of reference.

Graduate courses in research in the various subject matter fields, as well as doctoral seminars are offered on a rotating basis. Department members are actively involved with graduate students in local, provincial, national, and international research.

Degree Requirements

DOCTOR OF PHILOSOPHY

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires:

- a master's degree with high standing in a relevant educational discipline;
- a sample of work demonstrating an ability to undertake research and scholarly writing;
- a letter of intent describing the proposed focus and how it fits with the research programs of two or three faculty members as well as benefits to the applicant of the program;
- the support of three referees including an assessment by at least two university instructors, preferably one of whom is the supervisor of the master's thesis; and
- equivalent of at least two years of successful teaching experience.

Program Requirements:

- 18 to 24 credits (including the LLED doctoral seminar, LLED 601).
- Comprehensive exams. Following the completion of coursework, and within three years, students will complete a written comprehensive examination which may be followed by an oral examination. The examination will cover three areas:
 - (a) the student's area of specialization within Language and Literacy Education
 - (b) one additional area or group of areas of special interest
 - (c) appropriate research methodology
- Dissertation proposal: The proposal for the dissertation outlines the research problem and methodology, sets the context for the work, and summarizes the scope of each chapter.
- Ph.D. dissertation.

Contact Information

Department of Language and Literacy Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5788
Fax: 604-822-3154
Email: anne.eastham@ubc.ca
Web: www.lled.educ.ubc.ca
Anne Eastham, Graduate Programs Assistant

LAW

Degrees Offered: Ph.D., LL.M., M.Jur.

Members

PROFESSORS

J. Bakan, J. Blom, M. A. Bobinski, S. Boyd, C. L. M. Boyle, R. M. Elliot, I. Grant, M. Jackson, M. Le Baron, B. W. MacDougall, S. Matsui, R.K. Paterson, P. B. Potter, W. W. Pue, A. F. Sheppard, J. M. P. Weiler, C. Young.

ASSOCIATE PROFESSORS

R. Buchanan, G. Christie, C. Dauvergne, R. Davis, Shi-Ling Hsu, K. T. Mickelson, J. Mosoff, J. Sarra, I. Townsend-Gault, S. Wexler, M. Young.

ASSISTANT PROFESSORS

N. Affolder, L. Biukovic, K. Brooks, C. Ford, D. Harris, A. Rochette, M. Sundara-Rajan.

Program Overview

Please be advised that this is a general overview of the graduate programs offered at the Faculty of Law. For more comprehensive information please refer to the program's website (www.law.ubc.ca).

The UBC Faculty of Law is one of the world's leading law schools and one of Canada's oldest university faculties of law. Graduates have assumed leadership positions in a broad range of spheres, both nationally and internationally, in the legal profession, the judiciary, government, public interest organizations, business, and academia.

There are many reasons for choosing graduate studies in law at UBC. The outstanding faculty are respected worldwide for their innovative and interdisciplinary research. Students are offered one of the largest and most diverse course lists in Canada so students can pursue their academic interests, whatever their focus.

The deadline for application to all graduate programs in the Faculty of Law is February 15. Early application is strongly encouraged.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program is designed to provide advanced training for outstanding graduate students who have already obtained a Master of Laws (LL.M.) degree or equivalent. Through the program, highly accomplished graduate students will be trained to carry out advanced research under supervision by members of the UBC Law Faculty.

The Ph.D. curriculum consists of a one-year, two-part seminar and other coursework as required by a student's supervisory committee.

Students must complete all requirements for the Ph.D. within six years of the date of first registration in the program. Each student will have a faculty supervisor drawn from the UBC Faculty of Law. The selection of faculty supervisors will be administered by the Graduate Committee of the Faculty of Law, subject to approval by the Dean of the Faculty of Law and the Dean of the Faculty of Graduate Studies.

For more information please refer to the Faculty of Law website (www.law.ubc.ca).

MASTER OF LAWS

The Master of Laws (LL.M.) is a rigorous thesis-based degree program. It provides excellent preparation for academic research and policy work and enables graduates to pursue careers in law teaching, legal research, policy development, public and governmental service, and the practice of law. This is an intense research-based degree which has both coursework and thesis requirements. The research produced for the thesis is expected to be of publishable quality.

Curriculum: The program is of one year's duration, and combines coursework with the preparation of a thesis of acceptable quality. Students are required to complete successfully 36 credits of work, of which 20 credits are allocated to the thesis, 12 credits to coursework (usually comprising four one-term courses or seminars), and 4 credits to the required master's seminar.

Admission Information: For more comprehensive information please refer to the program's website (www.law.ubc.ca).

MASTER OF JURISPRUDENCE IN COMMON LAW

The new Master of Jurisprudence in Common Law is a one-year professional program that provides international law graduates from non-common law countries with an in-depth understanding of the theory and practice of common law. The M.Jur. (Common Law) degree is designed to introduce accomplished lawyers from other legal systems to common law concepts and methods. It is not intended to serve as a professional qualification for the practice of law in British Columbia or elsewhere.

Curriculum: This program is of one year's duration and combines course and seminar work with a year-long Seminar in Common Law Theory and Practice. Students are required to successfully complete 30 credits of work, of which 6 credits comprise the above seminar, 18 comprise graduate-level courses and seminars and the remaining six comprise 300- or 400-level LL.B. courses or seminars.

Admission Information: For more comprehensive information please refer to the program's website (www.law.ubc.ca).

Contact Information

Graduate Program, UBC Faculty of Law
1822 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-6449
Fax: 604-822-4781
Email: graduates@law.ubc.ca
Web: www.law.ubc.ca
Joanne Chung, Graduate Program
Administrator

LIBRARY AND INFORMATION STUDIES

Degree Offered: M.L.I.S.

Members

PROFESSORS
E. Rasmussen.

ASSOCIATE PROFESSORS
M. Dowding, R. Kopak, J. Tennis.

ASSISTANT PROFESSORS
R. Hopkins.

Program Overview

Program Chair: M. S. Stephenson
The Master of Library and Information Studies (M.L.I.S.) is a professional degree program open to those holding a bachelor's degree considered suitable by the admissions committee, and which meets the minimum admission requirements of the Faculty of Graduate Studies. Those applying to enter the program are expected to have a strong foundation in some specialist studies, as well as an enthusiasm for information and its uses in the wider sense. The program, accredited by the American Library Association, is one of some 50 in North America, including seven in Canada, which gives its graduates professional stature. Graduates employed in academic, public, school, special libraries, or other information agencies combine work with information and its users with some aspects of supervision knowledge management services. Graduates not working in libraries as such are to be found in a wide variety of positions involving the uses of information in their broadest context, and many are self-employed.

The required practicum and field trips in courses, the option of formal professional experience, and the use of some practitioners as adjunct professors assure a practical orientation to the theory of information management.

Degree Requirements

MASTER OF LIBRARY AND INFORMATION STUDIES

The degree is awarded on successful completion of 48 credits including an optional thesis, plus a non-credit practicum. Much of the program, which can include Summer Session courses, may be taken on a part-time basis (i.e., taking less than a full load of courses). Students may begin the program in either September or January, but part-time studies are best begun in September. The required practicum and field trips in courses, the option of formal professional experience, and the use of some practitioners as adjunct professors assure a practical

orientation to the theory of information management.

Contact Information

School of Library, Archival and Information Studies
TEF III, 301-6190 Agronomy Road
Vancouver, BC, V6T 1Z3
Tel: 604-822-2404
Fax: 604-822-6006
Email: slaisad@interchange.ubc.ca
Web: www.slais.ubc.ca
Helen Chang, Grad Admissions Secretary

LIBRARY, ARCHIVAL AND INFORMATION STUDIES

Degree Offered: Ph.D.

Members

PROFESSORS
L. Duranti, E. Rasmussen.

ASSOCIATE PROFESSORS
A. Curry, T. Eastwood, H. McNeil.

ASSISTANT PROFESSORS
M. Dowding, R. Kopak, J. Tennis.

Program Overview

The School of Library, Archival and Information Studies (SLAIS) offers a program leading to the Doctor of Philosophy. The Ph.D. program is designed to provide advanced research training for outstanding students who have already obtained a Master of Archival Studies (M.A.S.) degree or a Master of Library and Information Studies (M.L.I.S.).

Upon entering the doctoral program, a student will be assigned an advisor who will work with the student to develop an appropriate set of courses relevant to the student's research plan. All incoming students will take the advanced research methods course. Advanced study in the major area will normally be taken with the faculty member most interested in the student's research topic. In many cases this faculty member will become the thesis supervisor at a later stage. The courses in the minor area may be directed studies courses, courses from other departments at the university, or master's-level courses at SLAIS, depending on the research interests of individual students. Additional courses may be required as appropriate.

Upon successful completion of the comprehensive examinations, the student will enter the thesis stage of the program. A thesis supervisor will be appointed by the Doctoral Studies Committee at the request of the student and with agreement of the faculty member. The thesis supervisor, after discussion with the student and other faculty members, will suggest other members of the thesis committee to be approved by the doctoral studies committee. The student, working with the thesis supervisor and other members of the thesis committee, will prepare a thesis proposal to be presented to the Doctoral Studies Committee for approval. When the thesis proposal has been approved, the student enters the thesis stage of the program. The thesis will be prepared following the Guidelines of the Faculty of Graduate Studies.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students entering the doctoral program with an approved master's degree will be required to take four 6-credit (two-term) courses. In most cases, courses additional to these four courses will be recommended to students. In consultation with the student's advisor, the student may be required to take courses in the SLAIS Master of Library Studies program or the Master of Archival Studies program to enhance the knowledge acquired in the student's master's degree and to provide sufficient background for the doctoral courses. Doctoral students will be strongly encouraged to take graduate level courses from other UBC departments that will increase their knowledge in their chosen area of research. These courses are chosen in consultation with the student's advisor, and are additional to those required for ARST 621 or LIBR 621.

The five required courses for students in the Archival stream are:

- ARST 600 Advanced Research Methods;
- ARST 610 Theoretical and Research Foundations of Archival Studies;
- ARST 620 Advanced Study in Major Area. Directed studies course normally taught by the student's research advisor;
- ARST 621 Advanced Study in Minor Area. Each student must take 6 credits in a minor area. These credits may be taken outside of SLAIS; and
- ARST 699 Dissertation.

The five required courses for students in the Library and Information Science stream are:

- LIBR 600 Advanced Research Methods;
- LIBR 610 Theoretical and Research Foundations of Library and Information Science;
- LIBR 620 Advanced Study in Major Area. Directed studies course normally taught by the student's research advisor;
- LIBR 621 Advanced Study in Minor Area. Each student must take 6 credits in a minor area. These credits may be taken outside of SLAIS; and
- LIBR 699 dissertation.

Contact Information

School of Library, Archival and Information Studies
TEF III, 301–6190 Agronomy Road
Vancouver, BC, V6T 1Z3
Tel: 604-822-2404
Fax: 604-822-6006
Email: slaisad@interchange.ubc.ca
Web: www.slais.ubc.ca
Helen Chang, Grad Admission Secretary

LINGUISTICS

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

D. Pulleyblank, M. S. Rochemont, J. P. Stemberger, E. Vatikiotis-Bateson.

ASSOCIATE PROFESSORS

G. Carden, H. Davis, R.-M. Déchaine, B. Gick, P.A. Shaw.

ASSISTANT PROFESSORS

G. Hansson, L. Matthewson, H. Rullmann, M. Wiltschko.

Program Overview

The Department of Linguistics offers degree programs leading to both the Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.). Training is offered in the core areas of theoretical linguistics (phonetics, phonology, semantics, syntax), with the possibility of specialising in the following areas: First Nations languages, African languages, first language acquisition.

Detailed information about both degree programs may be obtained in the Graduate Handbook at the Department's website (www.linguistics.ubc.ca/grad.htm).

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program in Linguistics consists of course work, two qualifying papers, and a dissertation.

Prerequisites for the Ph.D. include either an M.A. or an honours B.A. with First Class Standing or equivalent.

MASTER OF ARTS

A Master of Arts in Linguistics may be obtained through full-time or part-time studies. Both thesis and non-thesis options are possible.

The prerequisite for the M.A. is an undergraduate degree. Applicants are normally expected to have substantial preparation in linguistics and linguistic theory, although it is possible to apply for the graduate program with an undergraduate degree in another subject area.

Contact Information

Department of Linguistics
E270–1866 Main Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-0415
Fax: 604-822-9687
Email: csarahc@interchange.ubc.ca
Web: www.linguistics.ubc.ca
Sarah Chen, Graduate Secretary

LITERACY EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

J. Anderson, M. Chapman, L. Gunderson, C. Leggo, R. Jobe, B. Norton, V. Purcell-Gates, K. Reeder, J. Shapiro, R. Tierney, G. Williams, J. Willinsky.

ASSOCIATE PROFESSORS

M. Early, M. Kendrick, T. Rogers.

ASSISTANT PROFESSORS

G. Belliveau, T. Dobson, J. Hare, C. Medina.

Program Overview

The graduate program in Literacy Education (LITR) in the Department of Language and Literacy Education offers opportunities to

study in the areas of English Education, Drama Education, and Reading from cognitive, social, cultural and poststructuralist perspectives. Research areas within the program include: child language development in education, composition (writing); early, intermediate, adolescent and adult literacy; family literacy; children's and young adult literature; Aboriginal literacy; and arts-based and multi-modal approaches to literacy learning.

Students who would like to undertake a Ph.D. specializing in Literacy Education can do so through the program in *Language and Literacy Education*, p. 261.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the Department of Language and Literacy Education requires:

- 1) at least an 18-credit concentration in the subject area (see the website (www.lled.educ.ubc.ca) for specifics)
- 2) normally two years of formal teaching experience.

Program Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. A thesis, either 6 or 9 credits, is included.

Full-time and part-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Program Requirements: The program consists of 30 credits of which 24 must be at the 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. Students may opt for a program consisting entirely of courses, or may elect to do 27 credits of coursework plus a graduating paper.

Full-time and part-time study options are offered.

Contact Information

Department of Language and Literacy Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5788
Fax: 604-822-3154
Email: anne.eastham@ubc.ca
Web: www.lled.educ.ubc.ca
Anne Eastham, Graduate Programs Assistant

M.D./PH.D. (COMBINED PROGRAM)

Degrees Offered: M.D./Ph.D.

Members

PROFESSORS

A. Chow, L. Raymond.

Program Overview

This is an integrated program jointly offered by the Faculty of Medicine and the Faculty of Graduate Studies. Its purpose is to provide

selected and highly qualified students the opportunity to combine their medical school experience with intensive scientific training in pursuing a career as clinician-scientists in a chosen field. The program is designed such that students can receive the dual Doctor of Medicine (M.D.) and the Doctor of Philosophy (Ph.D.) degrees after successful completion of six to seven years of enrolment. The program is built upon the regular M.D. curriculum, but is further customized to meet the unique career goals of individual students based on their background, previous research experience, and their chosen medical field of expertise. Thus, graduates of the M.D./Ph.D. program are trained as competent physicians as well as skilled scientists who can sustain a successful and competitive clinical investigative career.

Degree Requirements

DOCTOR OF MEDICINE WITH DOCTOR OF PHILOSOPHY

To be eligible for admission, the student must have a Bachelor of Science with First class standing (or equivalent), and have fulfilled all the requirements of acceptance into the four-year medical curriculum of the Faculty of Medicine, and the doctoral requirements of the Faculty of Graduate Studies. All candidates are required to take the Medical College Admission Test (MCAT), but the Graduate Record Examination (GRE) is optional. Students already enrolled in the first year of Medicine at UBC are also eligible for admission. Students must demonstrate proficiency in all required coursework by examination. They must also successfully complete a comprehensive examination based on their proposed research, and defend their thesis by oral examination. Additionally, each student will be evaluated at least annually by the research supervisory committee; continuation in the combined degree program is contingent upon satisfactory scholastic and research progress.

Contact Information

UBC M.D./Ph.D. Program
D25-2733 Heather Street
Vancouver, BC, V5Z 3J5
Tel: 604-875-5063
Fax: 604-875-5236
Email: ubcmdphd@interchange.ubc.ca
Web: www.med.ubc.ca/mdphd
Jane Lee, Program Coordinator

MATERIALS AND PROCESS ENGINEERING

The field of materials engineering is not taught by a single department and there is no formal program leading to a degree in this area. However, the Advanced Materials and Process Engineering Laboratory (AMPEL) offers facilities and opportunities for graduate study in materials engineering through the academic departments of its faculty members. For more information, see *Advanced Materials and Process Engineering Laboratory (AMPEL)*, p. 83, in the chapter Research Units, Centres, and Institutes.

MATERIALS ENGINEERING

Degrees Offered: Ph.D., M.A.Sc., M.Sc.

Members

PROFESSORS

S. L. Cockcroft, D. B. Dreisinger, W. J. Poole, A. Poursartip, T. Troczynski, R. Vaziri.

ASSOCIATE PROFESSORS

P. V. Barr, D. G. Dixon, G. Fernlund, M. Militzer, M. A. Wells.

ASSISTANT PROFESSORS

A. Alfantazi, D. M. Maijer, C. W. Sinclair, R. Wang.

Program Overview

The Department of Materials Engineering offers opportunities for study in the following fields: casting and solidification of metals; ceramic processing and properties; refractories; corrosion; composites; high temperature coatings, biomaterials; extractive metallurgy including hydrometallurgy, bio-hydrometallurgy, electrometallurgy, and pyrometallurgy; physical metallurgy; thermo-mechanical processing related to materials production and environmental issues related to materials productions.

Students must satisfy the admission requirements of the Faculty of Graduate Studies including, for international students whose first language is not English, a minimum TOEFL score of 550.

Students should note that not all courses listed are offered every year.

Degree Requirements

DOCTOR OF PHILOSOPHY

A Master of Science (M.Sc.) or Master of Applied Science (M.A.Sc.) in a suitable discipline is prerequisite. Outstanding M.A.Sc. and M.Sc. candidates who have demonstrated clear evidence of research ability may be transferred to a Ph.D. program after one year's residence at UBC, subject to the regulations of the Faculty of Graduate Studies.

MASTER OF APPLIED SCIENCE

Graduation in materials engineering, metallurgical engineering, mechanical engineering, chemical engineering or engineering physics with at least upper second class standing (76%) is prerequisite for admission to the program leading to the Master of Applied Science (M.A.Sc.).

MASTER OF SCIENCE

Graduation in physics, chemistry, mathematics and physics with at least upper second class standing is prerequisite for admission to the program leading to the Master of Science (M.Sc.).

For information about the professional Master of Engineering (M.Eng.) program, please see the *Faculty of Applied Science*, p. 107, or the program website (www.mmat.ubc.ca).

Contact Information

Department of Materials Engineering
309-6350 Stores Road
Vancouver, BC, V6T 1Z4
Tel: 604-822-4878
Fax: 604-822-3619
Email: gradsec@mmat.ubc.ca
Web: www.mmat.ubc.ca
Nancy Oikawa, Graduate Secretary

MATHEMATICS

Degrees Offered: Ph.D., M.A., M.Sc.

Members

PROFESSORS

A. Ademm, R. P. Anstee, N. Balmforth, M. Barlow, K. Behrend, G. W. Bluman, D. W. Boyd, D. Brydges, W. A. Casselman, J. Chen, I. Ekeland, J. S. Feldman, J. J. F. Fournier, J. Friedman, R. G. Froese, N. Ghossoub, U. G. Haussmann, R. Kenyon, L. Keshet, I. Laba, P. D. Loewen, B. Marcus, A. Pierce, E. A. Perkins, Z. Reichstein, D. P. Rolfsen, B. R. Seymour, D. K. Sjerve, G. Slade, M. Ward, B. Wetton.

ASSOCIATE PROFESSORS

M. Bennett, J. Bryan, M. Doebeli, J. Feng, I. Frigaard, R. Gupta, R. B. Israel, R. Kuske, Y. X. Li, G. Martin, K. W. Nagata, D. H. Peterson, T.-P. Tsai, V. Vatsal.

ASSISTANT PROFESSORS

P. Brosnan, D. Coombs, E. Cytrynbaum, A. Fraser, S. Gustafson, A. Holroyd, A. Horst, K. Karu, C. W. Lamb, V. Limic, D. Schoetzau, L. Scull, J. Solymosi, S. van Willigenburg, O. Yilmaz.

Program Overview

The Department of Mathematics offers programs of study in most branches of pure and applied mathematics. Students should see the Mathematics website for descriptions of courses and of programs as well as information on financial assistance and application forms. Students particularly interested in applied mathematics and/or statistics should also see *the Institute of Applied Mathematics*, p. 79, and *Statistics*, p. 283.

Degree Requirements

DOCTOR OF PHILOSOPHY

For detailed information and requirements on our degree programs, please see the Mathematics website (www.math.ubc.ca).

MASTER OF ARTS

For detailed information and requirements on our degree programs, please see the Mathematics website (www.math.ubc.ca).

MASTER OF SCIENCE

For detailed information and requirements on our degree programs, please see the Mathematics website (www.math.ubc.ca).

Contact Information

Department of Mathematics
121–1984 Mathematics Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-3079
Fax: 604-822-6074
Email: admiss@math.ubc.ca
Web: www.math.ubc.ca
Lee Yupitun, Graduate Program Assistant

MATHEMATICS EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSOR

S. Pirie.

ASSOCIATE PROFESSOR

A. Anderson, C. Nicol.

ASSISTANT PROFESSOR

S. Gerofsky.

Program Overview

The graduate programs (M.Ed. and M.A.) in Math Education are part of the graduate offerings in the Department of Curriculum Studies. Students can pursue a wide variety of research and professional interests in mathematics teaching and learning. Large scale research projects such as the Early Numeracy Project can bring students into a number of regional, national, and international studies on mathematics.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires:

- 1) Normally, 18 credits of senior coursework or a professional concentration in the area of interest.
- 2) Normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A maximum of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A maximum of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (e.g., ten 3-credit courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

MEASUREMENT EVALUATION AND RESEARCH METHODOLOGY

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSORS

M. Arlin, S. Mathison, B. Zumbo.

ASSOCIATE PROFESSORS

K. Erickan, A. Hubley, N. Kishor.

Program Overview

The graduate program in Measurement, Evaluation, and Research Methodology (MERM) offers Ph.D., M.A., and M.Ed. degrees. MERM area focuses on the preparation of graduate students as methodological and measurement specialists. We strive to promote in our research, student supervision, and teaching the highest standards of measurement and research methodology in our discipline. Upon completion, our master's and Ph.D. students are employed as university faculty, data analysts, research scientists, test developers, directors of research in school districts or government, research consultants, assessment and testing specialists in business, industry, and education, certification and credentialing professionals, and psychometricians at research and testing organizations.

MERM students generally fit into one of three categories:

- 1) Students who have an applied interest in educational and psychological measurement, program evaluation, or data analysis. Although they often have some preparation in measurement and data analysis in their undergraduate studies, this is not always the case. These students are more oriented toward the use of measurement, program evaluation, or data analysis techniques in substantive research in the areas of test development, personality assessment, clinical measurement, computer applications, program planning or evaluation, and so on.
- 2) Students possessing strong theoretical interests in technical problems in test theory, item response theory, assessment, statistics, factor analysis, multi-level modeling, and the like. Although some of these students come to the Program with some statistical and/or mathematical background, often obtained while studying in another social science discipline such as Psychology or Sociology, sometimes students arrive with degrees in statistics or mathematics as well.
- 3) Some students find it compatible with their career goals to give equal attention to both

these major aspects (i.e., applied and theoretical) of this program.

Degree Requirements

DOCTOR OF PHILOSOPHY

Specific coursework requirements for the MERM doctoral program are determined on a case-by-case basis, as outlined in an individualized Program of Graduate Studies (PGS) developed for each student, in consultation with their academic advisor and a Faculty Advisory Committee. The PGS specifies the kind and number of courses to be taken by the student for their degree, with consideration of the their own background, research interests, and preparation at the master's level. It is assumed that the student will have taken all required MERM M.A. courses (or their equivalents). A representative program would normally include coursework, seminars, consultations, directed readings and, where appropriate, practical and field work related to the student's major area of interest and selected to prepare the student for their comprehensive examination and thesis.

MASTER OF ARTS

The M.A. in MERM is a 30-credit program. The core coursework includes 12 credits in research designs and measurement, 6 to 9 credits of which are in approved methodology electives, and 3 to 6 credits of which are in non-MERM areas. The master's thesis is 6 credits. Specific coursework enables an individualized Program of Graduate Studies (PGS) to be developed for each student, in consultation with their academic advisor and a Faculty Advisory Committee.

MASTER OF EDUCATION

The M.Ed. in MERM is a 30 credit program. It is entirely based on core MERM courses, methodology electives, and approved non-MERM courses. The coursework enables an individualized Program of Graduate Studies (PGS) to be developed for each student, in consultation with their Academic Advisor and a Faculty Advisory Committee.

Contact Information

Department of Educational and Counselling Psychology, and Special Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5351
Fax: 604-822-3302
Email: ecps.gradinfo@ubc.ca
Web: www.ecps.educ.ubc.ca
Lynda McDicken, Graduate Program Assistant

MECHANICAL ENGINEERING

Degrees Offered: Ph.D., M.A.Sc.

Members

PROFESSORS

Y. Altinas, S. M. Calisal, C. W. de Silva, R. L. Evans, M. S. Gadala, S. I. Green, M. R. Hodgson, N. Rajapakse, F. Sassani, G. S. Schajer, I. Yellowley.

ASSOCIATE PROFESSORS

E. A. Croft, B. Dunwoody, I. Frigaard, A. J. Hodgson, C. F. Ollivier-Gooch, J. A. Olson, T. R. Oxland, S. Rogak, D. Romilly.

ASSISTANT PROFESSORS

W. K. Bushe, M. Chiao, P. Crompton, M. Davy, O. E. Kesler, W. Mérida, R. N. Rohling, D. Yip-Hoi.

Program Overview

Fields of research include: acoustics; aerodynamics and fluid mechanics; automatic controls; robotics and industrial automation; energy conversion, combustion, thermodynamics and heat transfer; vibrations and space dynamics; solid mechanics; bioengineering and biomechanics; design and manufacturing processes; industrial engineering, fuel cells, micro-electromechanical systems, mechatronics and CAD; and naval architecture.

Applicants for graduate degrees may be considered for appointment as research assistants, teaching assistants or markers in the Department. Students' courses are selected in consultation with faculty to suit their research or career needs. Not all courses listed in the Course Descriptions (www.students.ubc.ca/calendar/courses.cfm?code=MECH) section of the Calendar, are offered every year.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. is an advanced graduate-level study degree that includes a major research investigation and the writing of a thesis. Requirements for the Ph.D. include satisfactory completion of 36 credits of courses beyond the bachelor's level, original research under the supervision of a faculty member, and a thesis. A typical completion time for a Ph.D. is four to five years' work beyond the bachelor's degree level. It is normal departmental practice to register students initially for the M.A.Sc. Transfer to the Ph.D. program can take place either on completion of the M.A.Sc. or, if the student's performance is of sufficiently high quality, may be recommended by supervising faculty before completion of the M.A.Sc. An applicant holding a master's degree from another institution will have the course requirements for the Ph.D. assessed on an individual basis.

MASTER OF APPLIED SCIENCE

The Master of Applied Science (M.A.Sc.) is a graduate-level study program that includes a research investigation and the writing of a thesis. Requirements for the M.A.Sc. include satisfactory completion of 30 credits of graduate-level courses, original research under the supervision of a faculty member, and a thesis. The thesis is assigned 6 to 12 credits and is counted as part of the coursework requirement. A typical completion time for the M.A.Sc. is 24 months. Subject to satisfactory progress and acceptance by a faculty supervisor, a successful M.A.Sc. graduate may transfer to a course of studies leading to the Ph.D.

Electro-Mechanical Design Engineering: A specialization in Electro-Mechanical Design Engineering is available. The program provides

interdisciplinary education in mechanical engineering, machine design, digital and analogue instrumentation, and software engineering fields.

For information about the professional Master of Engineering (M.Eng.) program, please see the *Faculty of Applied Science*, p. 107, or visit the program website (www.mech.ubc.ca).

Contact Information

Department of Mechanical Engineering
6250 Applied Science Lane
Vancouver, BC, V6T 1Z4
Tel: 604-822-4350
Fax: 604-822-2403
Email: secgrad@mech.ubc.ca
Web: www.mech.ubc.ca
Lanna Lok, Graduate Secretary

MEDICAL GENETICS

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

C. J. Brown, M. Burgess, C. J. Eaves, L. Field, J. M. Friedman, M. R. Hayden, P. A. Hieter, W. Jefferies, D. M. Juriloff, R. J. Kay, D. L. Mager, B. C. McGillivray, W. R. McMaster, W. P. Robinson, A. M. Rose, A. D. Sadovnick, M. I. Van Allen.

ASSOCIATE PROFESSORS

L. A. Clarke, M. J. Harris, S. Jones, S. F. Langlois, M. Marra, K. M. McNagny, F. Ouellette, E. M. Simpson, W. Wasserman.

ASSISTANT PROFESSORS

L. Arbour, A. Brooks-Wilson, E. Conibear, W. Gibson, P. Hoodless, X. Jiang, S. Jones, M. Kobor, B. Leavitt, L. Lefebvre, M. Lorincz, F. Rossi, S. Townsend, M. Wilkinson.

Program Overview

The Department of Medical Genetics offers advanced study and research in a variety of areas of human and medical genetics. The Department has particular strength in human molecular genetics, genome analysis, developmental genetics, gene therapy, cytogenetics, oncogenetics, immunogenetics, genetic epidemiology, genetics of common disorders, and clinical genetics.

Research facilities are located on and off the UBC campus at various locations in Vancouver.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students entering the Ph.D. program in Medical Genetics will normally have a background in upper-level genetics, biochemistry, and statistics (biometrics) with a First class standing in their previous degree. Eligibility is determined on the basis of academic standing, research experience, and letters of recommendation. Academically acceptable applicants must also obtain the commitment of a research supervisor from the Department of Medical Genetics before receiving final acceptance from the Program and the Faculty of Graduate Studies.

Ph.D. students are required to take 12 credits of core courses and 6 credits of electives in their first year. For course details see the Medical Genetics Graduate Program (www.medgen.ubc.ca/courses/mggp/course-req.htm) and Medical Genetics course information (www.medgen.ubc.ca/courses/courses.htm).

In addition, Ph.D. students must successfully complete a comprehensive examination and their thesis.

MASTER OF SCIENCE

Students entering the M.Sc. program in Medical Genetics will normally have a background in upper-level genetics, biochemistry and statistics (biometrics) with a First class standing in their previous degree. Eligibility is determined on the basis of academic standing, research experience and letters of recommendation. Academically acceptable applicants must also obtain the commitment of a research supervisor from the Department of Medical Genetics before receiving final acceptance from the Program and the Faculty of Graduate Studies.

M.Sc. students are required to take 12 credits of core courses and 6 credits of electives in their first year. For course details see the Medical Genetics Graduate Program (www.medgen.ubc.ca/courses/mggp/course-req.htm) and Medical Genetics course information (www.medgen.ubc.ca/courses/courses.htm).

In addition, M.Sc. students must successfully complete their thesis.

Contact Information

Department of Medical Genetics
Life Sciences Centre
Room 1364-2350 Health Sciences Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-5312
Fax: 604-822-5348
Email: medgen@interchange.ubc.ca
Web: www.medgen.ubc.ca/academic.htm
Cheryl Bishop, Graduate Secretary

MICROBIOLOGY AND IMMUNOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

J. T. Beatty, L. Eltis, B. Finlay, R. E. M. R. Gold, W. Hancock, W. Jefferies, P. Johnson, J. Kronstad, W. W. Mohn, J. K. Smit, G. B. Spiegelman, C. Suttle, H. S. Teh, C. Thompson, G. Weeks.

ASSOCIATE PROFESSORS

R. Fernandez, F. Jean, M. E. Murphy.

ASSISTANT PROFESSORS

N. Abraham, E. Gaynor, S. Hallam, M. Horwitz.

Program Overview

The Department of Microbiology and Immunology offers opportunities for original research in the areas of molecular and applied microbiology,

biotechnology, cell and developmental biology, molecular biology, molecular genetics, molecular immunology, microbial pathogenicity, and virology. The Department has excellent research funding and a commitment to high quality, modern research. A list of faculty and associate members and their research interests is available from the Department.

Students must satisfy the admission requirements of the Faculty of Graduate Studies including, for international students whose first language is not English, a minimum TOEFL score of 590. International students are required to take the Graduate Record Examination (GRE). For an application to be competitive, a score in the 600 range in both the quantitative and analytical sections is recommended. The GRE is optional for North American students.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students may be accepted into the Doctor of Philosophy program based on a First-Class standing in their undergraduate degree. During their first year, they will be required to complete 18 credits of course work with a First class standing, including Molecular Microbiology Techniques (MICB 506) and a seminar (MICB 530). Students entering the Ph.D. program with an advanced degree (such as a Master of Science) will be required to take the seminar (MICB 530) during their first term in the program. Course requirements in addition to MICB 530 will be at the discretion of the thesis supervisory committee. All Ph.D. students will be required to pass a comprehensive examination on topics related to their research area of interest within 18 months of starting their program.

MASTER OF SCIENCE

Students will enrol in Molecular Microbiology Techniques (MICB 506) and a seminar (MICB 530) in addition to at least 9 credits in other courses in their first year. In addition, the student must perform research work under a research supervisor and write and defend a thesis based on this research. Master's students who have completed one year of study in the program may be eligible to transfer to a doctoral program without completing the master's degree.

Contact Information

Department of Microbiology & Immunology
Life Sciences Centre
2315 Health Sciences Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-3615
Fax: 604-822-6041
Email: grad@microbiology.ubc.ca
Web: www.microbiology.ubc.ca
Michael Hermawan, Graduate Program Coordinator

MINING ENGINEERING

Degrees Offered: Ph.D., M.A.Sc.

Members

PROFESSORS

J. A. Meech, M. Scoble, W. Ward.

ASSOCIATE PROFESSORS

S. W. Dunbar, B. Klein, R. Pakalnis, M. Veiga.

ASSISTANT PROFESSORS

R. Hall, M. Morin, M. Pawlik.

Program Overview

The graduate program in Mining Engineering offers opportunity for study in the fields of mining and mineral processing, including mine environment and coal preparation. Areas of research interest are indicated below.

- Mining. Mine economics and valuation, mine design, drilling and blasting methods, rock mechanics and slope stability, optimization and simulation of mining operations, advanced mining methods, mine services (particularly mine ventilation), and climatic control.
- Mineral processing. Unit operations, comminution, process modelling and optimization, expert systems, instrumentation and computer control, flotation, surface chemistry, fines recovery, coal recovery, treatment of fine and oxidized coal, and precious metals recovery.
- Mining Environment. Acid rock drainage, environmental protection, effluent control and treatment.

Students must satisfy the admission requirements of the Faculty of Graduate Studies including, for international students whose first language is not English, a minimum TOEFL score of 550.

Students should note that not all courses listed are offered every year.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program combines coursework with a research thesis. Students select their courses in consultation with faculty to suit their research needs. Part-time students are actively encouraged by the program and interested applicants should contact the program for further information. Students who wish to be considered for financial assistance should apply for admission as early as possible.

MASTER OF APPLIED SCIENCE

The Master of Applied Science (M.A.Sc.) program combines research and coursework and requires a total of 30 credits. A research thesis is assigned between 6 to 12 credits by the head of the program in consultation with the research supervisor.

For information about the professional Master of Engineering (M.Eng.) program, please see the *Faculty of Applied Science*, p. 107, or visit the program website (www.mining.ubc.ca).

Contact Information

Department of Mining Engineering
517-6350 Stores Road
Vancouver, BC, V6T 1Z4
Tel: 604-822-2540
Fax: 604-822-5599
Email: maria@mining.ubc.ca
Web: www.mining.ubc.ca
Maria Lui, Graduate Secretary

MODERN LANGUAGE EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

S. Carey, P. Duff.

ASSISTANT PROFESSOR

M. Bournot-Trites.

Program Overview

The graduate program in Modern Language Education (MLED) examines the social, linguistic, educational, cognitive, and political processes affecting the teaching, learning, assessment, and use of languages other than English, whether learned as a first, second/additional, or heritage language. The program Faculty have special expertise in MLED teaching methods, language assessment, bilingualism, French as a Second Language, French immersion education, multilingual literacies, Asia-Pacific languages in education, heritage language education, technology in language education, language policy, and research on classroom teaching/learning of modern languages.

Students who would like to undertake a Ph.D. specializing in Modern Language Education can do so through the program in *Language and Literacy Education*, p. 261.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the Department of Language and Literacy Education requires:

- 1) at least an 18-credit concentration in the subject area (see the website (www.lled.educ.ubc.ca) for specifics)
- 2) normally two years of formal teaching experience.

Program Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. A thesis, either 6 or 9 credits, is included.

Full-time and part-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Program Requirements: The program consists of 30 credits, of which 24 must be at the 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. Students may opt for a program consisting entirely of courses, or may elect to do 27 credits of coursework plus a graduating paper.

Full-time and part-time study options are offered.

Contact Information

Department of Language and Literacy
Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5788
Fax: 604-822-3154
Email: anne.eastham@ubc.ca
Web: www.lled.educ.ubc.ca
Anne Eastham, Graduate Programs Assistant

MUSIC

Degrees Offered: Ph.D., D.M.A., M.A., M.Mus.

Members

PROFESSORS

W. E. Benjamin, M. C. Berinbaum, G. G. Butler, S. G. Chatman, J. A. Coop, K. A. Hamel, N. J. Hermiston, J. E. Kreider, D. J. Metzger, J. Read, J. B. Roeder, R. Sharon, M. Tenzer.

ASSOCIATE PROFESSORS

R. B. Kurth, V. G. Micznik, B. Pullan, E. J. Wilson.

ASSISTANT PROFESSORS

S. Buechner, D. Chang, E. Choi, A. Dodson, A. Fisher, C. Hamm, D. Harding, N. Hesselink, R. Oostwoud, J. Wood.

Program Overview

The School of Music offers graduate programs and degrees in three broad fields of specialization: performance, composition, and music scholarship. The Master of Music (M.Mus.) is offered in composition and performance concentration in piano, organ, harpsichord, guitar, orchestral instruments, voice, choral conducting, or opera. The Doctor of Musical Arts (D.M.A.) is offered in composition and performance concentration in piano, voice, or orchestral instruments. The Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.) in Music are offered with emphases on theory, historical musicology, and ethnomusicology.

The School occupies a well-equipped building, which includes a fine recital hall (300 seats). The Chan Centre for the Performing Arts, containing the 1,400-seat Chan Shun Concert Hall, opened in March 1997. The Music Library houses the second largest collection in Canada, including over 70,000 books and scores. The School owns a growing collection of instruments, including 125 pianos, several important violins, a 64-rank organ by Casavant (1969), many historical wind and string instruments (including two harpsichords and a forte piano), and instruments representing several Asian traditions, including Javanese and Balinese gamelans and numerous Chinese and Japanese stringed and wind instruments.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program admits superior candidates for scholarly studies in musicology (historical or ethnographic studies and theoretical studies,

with individual programs subject to explicit orientation and certification in one of these two major directions). The program is designed to provide thorough training in the techniques and applications of musical research and analysis. The dissertation is expected to demonstrate a capacity for doing research that enhances or qualifies existing bodies of knowledge, or that presents important new interpretations of prevailing materials and methods.

Credit requirements for the Ph.D. are: 21 credits of coursework, comprehensive examinations, and a thesis. For language requirements, a Graduate Programs brochure is available from the School of Music.

DOCTOR OF MUSICAL ARTS

The D.M.A. program is designed for performers and composers who have already reached a high level of proficiency and artistry in their fields and who may wish to teach at the university level. This program offers an opportunity to bring creative and performance achievement to a high level while enriching individual backgrounds with cognitive studies. Students in music performance are expected to pursue supplementary individual projects in performance practice and music literature. Studies in music theory and music history are included. Graduate student composers work closely with faculty in composition and music theory, and are expected to compose major works for public performance in addition to fulfilling course requirements.

Credit requirements for the D.M.A. in composition are: 33 credits of coursework (15 of which are in the major field), a completed portfolio of works, demonstrated proficiency in one foreign language, comprehensive examinations, and a thesis comprising a major work and accompanying document. The D.M.A. in performance requires: 42 to 44 credits (of which 60% are in the major field), comprehensive examinations, and a thesis comprised of four recitals and a written document.

MASTER OF ARTS

The M.A. program, offered in the fields of historical musicology, music theory, and ethnomusicology, is designed to acquaint the student with methods of scholarly research. It provides broad general training in addition to opportunities for specialized research in particular areas of inquiry. Prescribed curricula are flexible, providing latitude to meet diverse individual needs. A thesis is required and the program is normally of two years' duration.

Credit requirements for the M.A. are: 30 to 32 credits, typically including a 6-credit thesis, and 14 to 18 credits of required courses. Proficiency in one appropriate language must be demonstrated.

MASTER OF MUSIC

The M.Mus. degree in performance and composition is offered to candidates who have achieved necessary levels of attainment and productivity at the undergraduate level, and who give reasonable promise of further significant accomplishment. This degree is often a final academic step for the musician who wishes

to enter the professional world, although it may prove to be an intermediate step for those wishing to prepare for university teaching. Performance candidates present a recital or opera performance in lieu of thesis, while the graduate composition student presents a program of original works. A two year residency is the norm.

Credit requirements for the M.Mus. are: 33 to 39 credits (including a 6-credit thesis comprised of one or more required recitals), and 18 to 25 credits of required courses (including private study).

Contact Information

School of Music
6361 Memorial Rd.
Vancouver, BC, V6T 1Z2
Tel: 604-827-5502
Fax: 604-822-4884
Email: music.advisor@ubc.ca
Web: www.music.ubc.ca
Rayne Todd, Student Advisor

MUSIC EDUCATION

Degrees Offered: M.A., M.Ed.

Members

ASSOCIATE PROFESSOR
P. Gouzouasis.

ASSISTANT PROFESSOR
S. Goble.

Program Overview

The graduate programs (M.Ed. and M.A.) in Music Education are part of the graduate offerings in the Department of Curriculum Studies. Cross-faculty involvement (e.g., with the School of Music) is actively encouraged. Specializations include conducting (choral and instrumental), pedagogy, curriculum development, distance education and distributive learning, early childhood music, cultural studies, music and media studies, evaluation and assessment, music psychology, new media and music technologies, and teacher education. Research approaches include ethnography, experimental and correlational research, historical research, narrative inquiry and other forms of arts-based educational research, and philosophical and critical analysis.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Study requirements, the program requires:

- 1) Normally, 18 credits of senior coursework or a professional concentration in the area of interest.
- 2) Normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A maximum of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A maximum of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, ten 3-credit courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

NEUROSCIENCE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

K. G. Baimbridge, A. M. J. Buchan, B. E. Cairns, J. Church, C. M. Clark, M. S. Cynader, K. Dorovini-Zis, J. T. Enns, E. Eich, B. Gorzalka, P. Graf, A. G. Hannam, M. R. Hayden, W. G. Honer, R. Lam, P. C. K. Leung, B. A. MacVicar, J. G. McLarnon, W. K. Milsom, R. S. Molday, C. C. G. Naus, J. J. Oger, J. A. Pearson, A. Phillips, J. P. J. Pinel, E. Puil, C. H. Rankin, P. B. Reiner, A. Rose, B. R. Sastry, D. Schwarz, T. Snutch, D. R. Stapells, J. Steeves, J. Stoessl, R. C. Tees, W. Tetzlaff, S. R. Vincent, Y. T. Wang, L. M. Ward, J. Weinberg, J. Werker, D. M. Wilkie, L. N. Yatham, A. Zis.

ASSOCIATE PROFESSORS

V. J. Auld, D. Doudet, R. M. Douglas, J. Eng, L. A. M. Galea, D. Giaschi, J. T. Inglis, L. F. Kastrukoff, S. J. Kehl, A. Kingstone, K. Y. N. Kwok, D. A. Mathers, J. A. Matsubara, C. McIntosh, M. J. McKeown, T. H. Murphy, T. O'Connor, J. R. O'Kusky, L. A. Raymond, R. Rensink, C. Shaw, E. M. Simpson, P. J. Soja, N. V. Swindale.

ASSISTANT PROFESSORS

J. J. S. Barton, S.R. Carlson, B. Christie, A. El-Husseini, S. Floresco, K. Haas, B. Leavitt, C. S. Lee, M. Ramer, A. J. Roskams, K. Soma, W. Song, V. Viau.

Program Overview

The Neuroscience program is administered by the Neuroscience Advisory Committee which is responsible to the Dean of the Faculty of Graduate Studies. The Neuroscience program is flexible and is intended to accommodate the diverse background of students wishing to enter it, and also takes into account the broad nature of neuroscience research. The program will accept for advanced degrees applicants with

undergraduate majors in a variety of disciplines including, but not restricted to, biology, biochemistry, computer sciences, engineering, mathematics, neurosciences, pharmacology, physics, physiology, psychology, and zoology. Applicants who are not graduates of a Canadian or American university are required to take the Graduate Records Examination (GRE). Students whose first language is not English are required to take the test of English as a foreign language (TOEFL). Graduates with a professional degree (M.D., D.M.D., D.V.M.) may also be accepted into the program. Acceptance into the program is dependent upon:

- 1) meeting the general entrance requirements of the Faculty of Graduate Studies;
- 2) acceptance by the Neuroscience Admissions Committee; and
- 3) acceptance from a faculty member willing to act as the student's supervisor in a graduate program in Neuroscience.

The student's graduate program will be decided upon by the student and the student's supervisory committee. The program aims for flexibility so that the individual needs of students with different interests in neuroscience can, as far as possible, be accommodated.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program consists of coursework usually taken in the first year, a comprehensive examination, and a research dissertation defended in a final oral examination. Courses taken at other universities or in their undergraduate program will be taken into consideration in planning the student's core course curriculum.

Prerequisites include either a master's or an honours bachelor's degree with First class standing or equivalent.

MASTER OF SCIENCE

The M.Sc. program consists of at least 18 credits of coursework usually taken in the first year (no more than 6 credits at the 300 level or above plus at least 12 credits at the 500 level) and a 12-credit research thesis for a total of 30 credits.

Prerequisites include a bachelor's degree or its academic equivalent in a related subject.

Contact Information

Graduate Program in Neuroscience
2255 Wesbrook Mall, Room 4830
Vancouver, BC, V6T 1Z3
Tel: 604-822-7375
Fax: 604-822-7981
Email: neurosci@interchange.ubc.ca
Web: www.interchange.ubc.ca/neurosci
Liz Wong, Graduate Secretary

NURSING

Degrees Offered: Ph.D., M.S.N.

Members

PROFESSORS

J. M. A. Anderson, J. L. Bottorff, E. A. Carty, J. L. Johnson, P. Ratner, S. Thorne.

ASSOCIATE PROFESSORS

W. A. Hall, A. Henderson, C. J. Jillings, G. L. Joachim, M. J. Lynam, A. Perry, E. Saewyc, C. Varcoe.

ASSISTANT PROFESSORS

L. Balneaves, G. Boschma, A. Browne, C. Canam, L. Chiu, S. Dahinten, A. L. Dewar B. Garrett, J. Oliffe, J. A. Phinney, F. Warnock, S. Wong.

Program Overview

The School of Nursing offers two graduate degrees: a Master of Science in Nursing (M.S.N.), and the Doctor of Philosophy (Ph.D.). These graduate degree programs provide advanced professional leadership, clinical scholarship, and research training beyond the baccalaureate degree in nursing.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program in Nursing is designed to prepare researchers and leaders to develop the knowledge base of nursing. The program combines core courses totalling 12 credits, support courses as specified by the supervisory committee, and a thesis. A comprehensive examination is held upon completion of all required coursework. Applicants to the program are admitted on the basis of outstanding achievement in their master's program; evidence of potential for research and scholarship; an ability to be self-directed; and articulated goals in keeping with the resources available in the program, including available faculty support and programs of research. The number of qualified applicants that can be accepted in any given year is determined by faculty resources and other factors. Applicants must at minimum meet the admission requirements of the Faculty of Graduate Studies. GRE scores are required by the School of Nursing. Canadian students must hold practising nurse registration in BC or another province. International students must meet general eligibility criteria for nurse registration in BC.

MASTER OF SCIENCE IN NURSING

The M.S.N. program is designed to prepare graduates to function as leaders in a range of roles such as education, advanced practice, policy implementation, health care management, and nursing knowledge development. The program provides a basis for leadership in professional nursing practice and also creates a foundation for doctoral studies. Within the 33-credit program, the student may do a major essay (3 credits) or a thesis (6 credits). Applicants must be registered nurses with a baccalaureate degree, normally in nursing, who meet the admission requirements of the UBC Faculty of Graduate Studies. Successful applicants will be drawn from the top-ranked

candidates who have a minimum overall average of 76% at the third- and fourth-year levels, with a First class standing (80% or above) in 12 credits or more of nursing courses in their baccalaureate program. GRE scores are required by the School of Nursing. In order to be included among the top-ranked candidates, there must be clear evidence that the applicant is competent to pursue studies in the English language. Completion of a satisfactory TOEFL (Test of English as a Foreign Language), with a minimum score of 600, may be required before any offer of admission can be made.

The School offers a Nurse Practitioner (Family) option, within the M.S.N. program, that prepares family nurse practitioners who will work in primary care settings. Graduates will be prepared to assess, diagnose and treat common and predictable conditions across the lifespan. In contrast to the general M.S.N. program, this option comprises 54 credits of coursework designed to meet the anticipated competencies associated with program approval so that graduates may sit national credentialing exams and be eligible for provincial licensure. Applicants must meet the general requirements for admission to the M.S.N. program, have completed a minimum of three years of clinical practice as a registered nurse, demonstrate clinical excellence, and provide evidence of their ability to work autonomously.

Contact Information

School of Nursing
T201–2211 Wesbrook Mall
Vancouver, BC, V6T 2B5
Tel: 604-822-7446
Fax: 604-822-7466
Email: peggy@nursing.ubc.ca
Web: www.school.nursing.ubc.ca
Peggy Faulkner, Graduate Programs Assistant

OCCUPATIONAL AND ENVIRONMENTAL HYGIENE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

M. Brauer, M. Hodgson, S. M. Kennedy, K. E. Teschke.

ASSOCIATE PROFESSOR

P. Demers.

ASSISTANT PROFESSORS

K. Bartlett, W. Chu, H. Davies.

Program Overview

The vision of the School of Occupational and Environmental Hygiene (SOEH) is a world in which risks from occupational and environmental hazards are minimized by their recognition, evaluation, and control, to the benefit of workplace and community health and well-being. The School's mission is to enhance public health and well being through minimizing risks from occupational and environmental hazards by providing an outstanding education to students and professionals, by generating new knowledge through research, and by effectively communicating this knowledge.

Students interested in research or professional careers in any aspect of workplace or community environmental exposures and their impact on human health are encouraged to apply. The School's major research themes include acoustics, noise, and vibration; exposure assessment and epidemiology; analytical methods development using immunological, biological, chemical, and microsensor methods; occupational and environmental respiratory disease; and risk assessment and translation of research to policy.

For additional information, see *the School of Occupational and Environmental Hygiene*, p. 367, or SOEH's website (www.soeh.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy is a research degree; students should enter with a strong background in their field of study. The primary goal of the Ph.D. program is to develop the occupational and environmental hygiene researchers, university teachers, and policy makers of tomorrow. Students with a master's degree in occupational or environmental sciences must complete a minimum of 9 credits of courses; those from other disciplines must complete a minimum of 18 credits of courses including 9 credits selected from a list of specified "core" courses. Specific course requirements are determined by the student's supervisory committee in consultation with the student; additional courses may be necessary in support of the proposed thesis research. As research is the cornerstone of any doctoral program, emphasis will be on courses that promote an understanding of research methodologies. In addition to standard coursework all doctoral students must participate in the School research seminars throughout their doctoral program.

MASTER OF SCIENCE

Students in the Master of Science program may choose to follow a project or thesis option. Because of the varied backgrounds of students, both options are relatively course-intensive and include specific non-credit requirements related to adult education in addition to courses.

Students in the **project option** must complete 11 mandatory courses, a 6-credit project based on a four-month co-op placement (culminating in a comprehensive technical report and presentations), and approved electives to make up a total of 45 credits of course and project work. After completion of all required components students must also pass a comprehensive examination.

The **thesis option** also comprises 45 credits of courses and research work. Students are required to complete three mandatory courses (including two research seminars), 16.5 credits of courses chosen from a list of specified "core" courses, a further 12 credits of approved electives, and complete a 12-credit research thesis (culminating in an oral examination).

Further details regarding required courses and non-credit activities are available on the SOEH website (www.soeh.ubc.ca).

Contact Information

School of Occupational and Environmental Hygiene
3rd Floor, 2206 East Mall LPC
Vancouver, BC, V6T 1Z3
Tel: 604-822-9302
Fax: 604-822-9588
Email: soeh@interchange.ubc.ca
Web: www.soeh.ubc.ca
Crissy Giesbrecht, Graduate & Academic Assistant

OCCUPATIONAL THERAPY

Degrees Offered: M.O.T.

Members

PROFESSOR

I. Dyck.

ASSOCIATE PROFESSORS

C. Backman, T. Jarus, L. Jongbloed, S. J. Stanton.

ASSISTANT PROFESSOR

W. H. Miller.

Program Overview

Occupational therapists provide specialized rehabilitation services to maintain, restore, or improve the ability of children and adults to perform the occupations of daily life, which may be impaired as a result of illness, injury, congenital or acquired disabilities, or social disadvantage. Occupational therapists focus on adapting the environment or improving the person's skills, to enhance performance in the areas of self care (eating, dressing, personal hygiene), productivity (household work, employment, school), and leisure activities, thereby improving overall health and quality of life.

The Master of Occupational Therapy degree provides the professional education necessary to obtain a licence to practice occupational therapy. It differs from the advanced or research master's degree in *Rehabilitation Sciences*, p. 277, which prepares practitioners with advanced research skills and requires completion and defense of a thesis.

Degree Requirements

MASTER OF OCCUPATIONAL THERAPY

Admission is offered on a competitive basis. The annual enrolment and class size is limited. Admission requirements include:

- Completion of a recognized baccalaureate degree in any field and the successful completion of the following prerequisites: Biological Sciences (3 credits), Social Sciences (3 credits) and Behavioural Sciences (3 credits); and
- A minimum of 70 hours of volunteer or paid work which includes direct contact involving interaction with persons with cognitive, emotional, or physical disabilities at no more than two facilities.

Primary consideration for admission is given to residents of British Columbia.

Applicants who meet the above minimum requirements are eligible for interview consider-

ation (verbal communication skill, maturity, and personal suitability). The interview will comprise a verbal interview and an examination of written English proficiency. Fulfillment of the minimum requirements, however, does not guarantee an interview. Selection of interview candidates is based on the academic standing in the senior level courses.

Contact Information

School of Rehabilitation Sciences
T325–2211 Wesbrook Mall
Vancouver, BC, V6T 2B5
Tel: 604-822-7050
Fax: 604-882-7624
Email: admissions@rehab.ubc.ca
Web: www.rehab.ubc.ca
Pary Mohamed, Admissions/Finance Clerk

OCEANOGRAPHY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

R. Andersen, N. Balmforth, R. Francois, M. Healey, W. Hsieh, G. Ingram, C. Suttle.

ASSOCIATE PROFESSORS

S. Allen, K. Orians, R. Pawlowicz.

ASSISTANT PROFESSORS

C. DiBacco, M. Maldonado, E. Pakhomov, L. Pandolfo, A. Ridwell, P. Tortell.

Program Overview

Oceanographers investigate both fundamental and applied problems relating to the physics, mathematics, biology, chemistry, and geology of the sea, often working across traditional academic disciplines. Research carried out both independently and in collaboration with federal government laboratories occurs in many different oceanographic regimes, including coastal BC fjords, the inland sea of the Strait of Georgia, open ocean regions of the Subarctic Pacific, and many other locations, including the Arctic and Antarctic Oceans. The types of problems that can be studied include fundamental questions about the flow of stratified fluids at scales ranging from tens of meters to thousands of kilometers, applied research in estuaries, coastal, and deep-ocean processes, general ocean circulation and climate change issues, marine chemistry, geochemistry, and biogeochemistry, natural product chemistry, marine viruses, fisheries oceanography, plankton ecology and physiology, and primary production of the sea. The Department is well equipped to carry out research in the field (using either its own boat or larger vessels in the oceanographic fleet), at the laboratory bench, and in the numerical heart of a computer. Most problems involve aspects of all three.

Students in Oceanography may select courses, depending on their interest, from the following areas of specialization:

- Biological oceanography
- Marine chemistry and geochemistry
- Physical oceanography and atmospheric sciences

Students are encouraged to broaden their knowledge by taking courses outside their area of specialization. Courses related to Oceanography are also offered in the Departments of Botany, Chemistry, Civil Engineering, Geography, Physics and Astronomy, and Zoology.

Oceanography students normally begin their studies in September but may sometimes arrange to start their thesis work in the summer before their first Winter Session. A student wishing to do graduate work in Oceanography should first discuss the proposed program with appropriate faculty in the Department of Earth and Ocean Sciences.

Degree Requirements

DOCTOR OF PHILOSOPHY

Applicants normally should have a master's degree in an area of science or applied science. The Ph.D. program consists of appropriate course work chosen in consultation with the candidate's committee and the preparation of a thesis based on the results of original research.

MASTER OF SCIENCE

Applicants normally should have a bachelor's degree in an area of science or applied science. The Master of Science program consists of 12 credits of thesis and 18 credits in course work, or 30 credits in coursework and an essay.

Contact Information

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC, V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Email: aallen@eos.ubc.ca
Web: www.eos.ubc.ca
Alex Allen, Graduate Secretary

ONCOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

J. Borttorff, C. Brown, R. E. Durand (Hon.), V. Duronio, A. Eaves, C. Eaves, M. Gleave, P. Hieter, R. K. Humphries, T. Keane, D. Kitts, S. Lam, V. Ling, D. Mager, M. McDonald, B. McGillivray, I. Olivotto, C. Overall, S. Pelech, M. Roberge, F. Takei, S. Thorne.

ASSOCIATE PROFESSORS

T. Chang, P. Demers, S. Dunn, J. Dutz, M. Gold, W. Jia, A. Karsan, C. Lovato, M. Marra, C. Nelson, C. Roskelley, K. Schultz, C. Scudamore, J. Shoveller, P. Sorensen, Z. Xu.

ASSISTANT PROFESSORS

A. Brooks-Wilson, K. Chi, M. Cox, J. Davison, E. Guns, P. Hoodless, S. Jones, P. Kozlowski, K. McNagny, A. Mui, C. Ong.

Program Overview

The Interdisciplinary Oncology Program offers advanced study and research in a variety of fields relating to oncology. The focus on interdisciplinarity is accomplished through a breadth of coverage in the following disciplines: molecular and cellular biology, genetics, biophysics, bioinformatics, pharmaceutical

sciences, radiological sciences, immunology, sociobehavioural studies, and epidemiology. The goal of the Program is to provide graduate students from diverse backgrounds with an education in a number of disciplines relating to oncology, and to provide opportunities for intensive training in specialized aspects of oncology through thesis research.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of 18 credits of coursework plus a research thesis. Coursework must include the core courses (ONCO 501, 502, 510) plus electives chosen by the supervisor and the student, based on the student's needs and thesis topic. While most electives should be at the 500 level or higher, a maximum of 6 credits may be at the 300 or 400 level.

MASTER OF SCIENCE

The Master of Science program requires 18 credits of courses plus a 12-credit research thesis. Coursework must include the core courses (ONCO 501, 502, 510) as well as electives chosen by the student in consultation with his/her research supervisor. Most electives should be at the 500 level or higher but up to 6 credits may be at the 300 or 400 level.

BC Cancer Research Centre

675 West 10th Ave.
Vancouver, BC, V5Z 1L3
Tel: 604-675-8030
Fax: 604-675-8049
Email: wcotting@bccancer.bc.ca
Web: www.bccrc.ca/oncologyprog.html
Wil Cottingham, Graduate Secretary

PATHOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

M. Allard, S. Aparicio, D. Brooks, A. M. Churg, N. Cimolai, P. Clement, D. Devine, J. E. Dimmick, K. Dorovini-Zis, A. Eaves, E. Evans, J. Frohlich, C. Fyfe, C. Gilks, W. J. Godolphin, S. Hiyashi, R. Hegele, J. L. Isaac-Renton, G. Krystal, V. Ling, G. Lockitch, A. B. Magil, I. Mackenzie, B. McManus, M.A. Noble, D. A. Owen, M. Petric, P. H. Pritchard, J. Rootman, W. Schreiber, P. Sorensen, F. Takei, J. L. Wright, H. Ziltener.

ASSOCIATE PROFESSORS

C. J. Carter, J. K. Chantler, C. B., A. Karsan, N. Kelly, M. Krajden, J. O'Kusky, T. Podor, D. Secombe, C. Seow, J. Tai, R. Tan, B. Verchere, D. Walker, V. White, D. Yang.

ASSISTANT PROFESSORS

B. Casey, H. Cote, J. Ford, D. Granville, J. Hill, D. Huntsman, J. Kizhakkedathu, Honglin Luo, T. Nielsen, M. O'Sullivan, C. Ong, E. Rajcan-Separovic, C. Wellington, A. Weng.

Program Overview

Experimental Pathology refers to research in any area of biomedical investigation that is relevant to human disease. Since it is necessary to understand the normal working of the

system to fully define the changes associated with disease, the areas represented at UBC cover a wide range of fields and approaches. Work at all levels of biological organization is involved, from protein to lipoprotein biochemistry and molecular biology through cell and tumour biology, animal models for studies on pulmonary and cardiovascular pathophysiology and viral and bacterial infection processes, to clinical studies on human population and the AIDS epidemic. Projects suitable for graduate research are active in all these areas; current research funding awarded to faculty within the Department of Pathology exceeds \$6 million annually.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students who apply with the equivalent of a First class honours degree may be admitted directly into the Ph.D. program. Such individuals must register for 18 credits of coursework, at least 10 of which must be graduate level courses during the first year. Doctoral students must obtain 68% to pass any course. To remain in the Ph.D. program, students must achieve a First class average with a minimum of 10 credits of First class standing in these courses. If this level is not obtained the student will be asked to complete an M.Sc. before embarking on a Ph.D. program. M.Sc. students who achieve at the academic level described above may be elevated directly into the Ph.D. program at the end of the first year if the student and supervisor agree and if such an elevation is recommended by the student's supervisory committee. Students entering with an M.Sc. are not required to complete coursework other than PATH 500A, PATH 635, and, if necessary, PATH 547, although other courses may be suggested by the supervisory committee.

All Ph.D. students must pass a comprehensive examination within the first 18 months of initial registration. The examination consists of preparation of a research proposal (written according to the regulations for an application for a grant-in-aid from the Medical Research Council of Canada) on a topic that may be related to the student's own research project but must be distinct from it. The proposal is presented and defended orally before an examination committee.

Each student must meet with his or her supervisory committee once a year and requires the committee's consent to prepare the thesis. This thesis is first presented and defended before a Departmental examination committee containing two individuals not on the supervisory committee. The process culminates in a public examination of the thesis by representatives of the student's advisory committee, two University examiners and an external examiner (whose comments are received in writing by the Examining Committee). A Ph.D. is normally completed in four to five years.

MASTER OF SCIENCE

To enter the M.Sc. program students must possess a bachelor's or M.D. degree with the academic background outlined in the Eligibility

section. The program is expected to be completed in two to three years.

18 credits of coursework (of which no more than 6 may be for undergraduate courses) plus an 18-credit thesis are required for completion. All students must register for PATH 500A: Experimental Pathology (2 credits), the seminar series PATH 535 (2 credits) and, if a similar such course has not been taken, PATH 547: Molecular Biology Laboratory (3 credits). The remaining courses are chosen by the student and supervisor, with consideration of the student's background and the research area of the thesis.

Each student must meet with his or her supervisory committee, consisting of at least three faculty members, at least once a year for a review of progress. The final examination consists of an oral presentation of the thesis and its defense before an examining committee.

Contact Information

Department of Pathology and Laboratory Medicine
F188-2211 Wesbrook Mall
Vancouver, BC, V6T 2B5
Tel: 604-827-3689
Fax: 604-822-7635
Email: pwoo@pathology.ubc.ca
Web: www.pathology.ubc.ca
Penny Woo, Program Assistant

PHARMACEUTICAL SCIENCES

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

S. Bandiera, H. M. Burt, M. H. H. Ensom, D. W. Fielding, P. J. Jewesson, M. Levine, K. MacLeod, J. McCormack, J. H. McNeill, R. E. Reid, K. W. Riggs, B. Rodrigues, P. J. Soja, K.M. Wasan.

ASSOCIATE PROFESSORS

B. Carleton, T. Chang, F. Marra.

ASSISTANT PROFESSORS

B. Cairns, A. Frankel, U. Hafeli, R. Kassam, U. Kumar, L. D. Lynd, C. A. Marra, J. Soon, J. M. Y. Wong.

Program Overview

The Faculty of Pharmaceutical Sciences offers opportunities for advanced study leading to the Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.). The Faculty ranks in the top tier of Pharmacy Faculties in Canada and provides outstanding research mentoring opportunities. The research interests of the individual members of the Department can be found in the Faculty section of the program's website (www.pharmacy.ubc.ca). The Faculty's research and clinical faculty have national and international reputations in their fields and we graduate highly qualified personnel. There is a high demand for our graduates in academic and clinical institutions, pharmaceutical and biotechnology companies, and the government.

Degree Requirements

DOCTOR OF PHILOSOPHY

Students admitted to the Ph.D. degree will normally possess a master's degree or recognized equivalent from an accredited university-level institution with the minimum academic requirements met. Transfer from the M.Sc. to the Ph.D. program is permitted under regulations set forth by the Faculty of Graduate Studies. The regulations which apply to M.Sc. students in terms of course requirements also apply to doctoral candidates who have not taken these courses must achieve an equivalent academic level during their first two years of study, as determined by the candidate's research committee. For the Ph.D. degree there is a Faculty requirement for the completion of a thesis (12 credits) and a seminar (2 credits).

For information about the professional Doctor of Pharmacy (Pharm.D.) program, please see *the Faculty of Pharmaceutical Sciences*, p. 374, or visit the program's website (www.pharmacy.ubc.ca/graduate_programs/PharmD.html).

MASTER OF SCIENCE

New graduate students holding a baccalaureate degree are generally admitted only into the M.Sc. program; however, the Faculty strongly encourages subsequent transfer into the Ph.D. program for those who wish to pursue a Ph.D. More information about transfer to the Ph.D. program can be found at the Graduate Studies website (grad.ubc.ca). A master's student must complete most of the graduate courses offered in their specific division they have chosen. If a course relevant to the student's field of research is offered by another Faculty, preference should be given for that course over a divisional course if the former is more relevant to the student's field of research. A minimum of 30 credits are required which includes 12 credits for the thesis, 2 credits for the seminar, a minimum of 10 additional credits at the 300 level or above.

Contact Information

Faculty of Pharmaceutical Sciences
2146 East Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-2390
Fax: 604-822-3035
Email: gradask@interchange.ubc.ca
Web: www.pharmacy.ubc.ca
Dr. Barb Conway,
Coordinator, Graduate Programs

PHARMACOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

S. Bhagavatula, D. V. Godin, I. Laher, J. G. McLarnon, C. C. Y. Pang, E. Puil, C. van Breemen, M. J. A. Walker, J. M. Wright.

ASSOCIATE PROFESSORS

B. Conway, D. Knight, B. A. MacLeod.

ASSISTANT PROFESSORS

C. R. Ries, S. Schwarz, X. Wang.

Program Overview

Pharmacology and Therapeutics was established in 1951. The more than 20 faculty members are devoted to research and teaching of Pharmacology and Therapeutics in the Faculty of Medicine at UBC. Courses in Pharmacology are taught in the undergraduate, medical, dental, and graduate programs.

Our program adheres to an “apprenticeship” model of graduate training, in which graduate students work in close collaboration with a faculty member who is also their graduate supervisor. The program has strengths in projects covering a wide range of scientific and clinical areas of investigation. The primary aim of our graduate training program is to provide students with the skills necessary to conduct research in Pharmacology and Therapeutics that can be published in first-rate journals. Thus, an important factor in an applicant’s admissibility is a matching of research and professional interests of the student and a faculty member within the program.

Degree Requirements

DOCTOR OF PHILOSOPHY

Applicants to the Ph.D. program must have advanced understanding in Pharmacology in addition to fulfilling the admission requirements of the Faculty of Graduate Studies. Facilities are available for original investigations in cellular, biochemical, viral, autonomic, cardiovascular, clinical, and neuropharmacology within Pharmacology and Therapeutics.

MASTER OF SCIENCE

In addition to fulfilling the admission requirements of the Faculty of Graduate Studies, acceptance to the M.Sc. program requires a B.Sc. degree in Pharmacology (or a related subject), or a Doctor of Medicine (M.D. or equivalent) degree. Students are required to take 18 credits of graduate-level courses in pharmacology and thesis-related subjects plus a 12-credit thesis.

Contact Information

Department of Anesthesiology, Pharmacology and Therapeutics
2176 Health Sciences Mall
Vancouver, BC, V6T 1Z3
Tel: 604-822-2575
Fax: 604-822-6012
Email: wynnel@interchange.ubc.ca
Web: www.pharmacology.ubc.ca
Wynne Leung, Graduate Secretary

PHILOSOPHY

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

J. Beatty, A. D. Irvine, D. Lopes, M. Matthen, A. W. Richardson, J. P. Russell, S. F. Savitt, M. Schabas.

ASSOCIATE PROFESSOR
P. Bartha.

ASSISTANT PROFESSORS

S. Anderson, S. Berryman, P. Rysiew, O. Simchen, C. Stephens.

Program Overview

The Department of Philosophy offers courses of instruction leading to both the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) in most major areas of the discipline, including epistemology, metaphysics, ethics, political and social philosophy, philosophy of art, philosophy of mind, philosophy of language, logic, philosophy of science, philosophy of biology, philosophy of mathematics, and history of philosophy.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of coursework, a comprehensive examination, and research leading to a dissertation that is defended in an oral final examination. See the graduate regulations located on the department’s website (www.philosophy.ubc.ca) for details.

Prerequisites for the Ph.D. include either an M.A. or an honours B.A. with First class standing or equivalent.

MASTER OF ARTS

There are two options for the Master of Arts:

- 1) Thesis Option. This option requires 18 credits of coursework (a maximum of 6 credits at the 300 and 400 level, and a minimum of 12 credits at the 500 level or above) and a 12-credit thesis.
- 2) Non-thesis Option. This option requires 30 credits of coursework. Of these, 6 credits may be at the 300 or 400 level, and 24 credits must be at the 500 level or above.

Prerequisites for the M.A. program include a Bachelor of Arts or Bachelor of Science with at least one term course in formal logic and sufficient upper division work in the history of philosophy, ethics and value theory, and metaphysics, epistemology, or the philosophy of science to enable the student to undertake graduate-level work in these areas.

Contact Information

Department of Philosophy
E370–1866 Main Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-3292
Fax: 604-822-8782
Email: phil.grad@interchange.ubc.ca
Web: www.philosophy.ubc.ca
Nissa Wainwright, Graduate Secretary

PHYSICAL EDUCATION

Degrees Offered: M.A., M.Ed.

Members

ASSOCIATE PROFESSOR
H. Hubball.

ASSISTANT PROFESSOR
J. Butler.

Program Overview

The graduate programs (M.Ed. and M.A.) in Physical Education (PETE) are part of the graduate offerings in the Department of Curriculum Studies. The Physical Education program

will appeal to elementary, middle, and secondary school educators with interests in: integrated and thematic approaches to curriculum and pedagogy; development and evaluation of outdoor environmental, leadership or experiential education programs; active living, health promotion and wellness; movement education concepts; teaching games for understanding; and inclusive models of education and issues of equity and social justice.

Students interested in secondary physical education, sports specific instruction, or coaching might also want to consider the graduate programs in *Human Kinetics*, p. 258., but are encouraged to inquire with the Physical Education program as well.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires:

- 1) Normally, 18 credits of senior coursework or a professional concentration in the area of interest.
- 2) Normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A maximum of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A maximum of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, ten 3-credit courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

PHYSICAL THERAPY

Degree Offered: M.P.T.

Members

PROFESSORS

E. Dean, S. R. Harris.

ASSOCIATE PROFESSORS

J. Eng, D. L. MacIntyre, W. D. Reid.

Program Overview

Physical therapists specialize in the assessment and treatment related to movement. Common movement disorders result from impairment of the neuromuscular, musculoskeletal, respiratory, or cardiovascular systems. Following assessment of their clients, physical therapists often use physical agents such as therapeutic exercise, heat, cold, and electrical stimulation to increase muscle strength and function, reduce pain, promote general health and fitness, and prevent disability. As specialists in movement dysfunction, physical therapists also provide expertise in human mobility, carefully analyzing gait patterns and prescribing treatment regimens or devices (such as braces, crutches, or wheelchairs) to enable clients to move independently through their environments.

The Master of Physical Therapy degree provides the professional education necessary to obtain a licence to practice physical therapy. It differs from the advanced or research master's degree in *Rehabilitation Sciences*, p. 277, which prepares practitioners with advanced research skills and requires completion and defense of a thesis.

Degree Requirements

MASTER OF PHYSICAL THERAPY

Admission is offered on a competitive basis. The annual enrolment and class size is limited. Admission requirements include:

- Completion of a recognized baccalaureate degree in any field and the successful completion of the following prerequisites: first-year Biology (6 credits or equivalent), first-year Physics (3 credits or equivalent), Chemistry 12 or higher, Basic Human Anatomy (3 credits or equivalent), Human Physiology (6 credits or equivalent), Psychology (3 credits or equivalent), Statistics (3 credits or equivalent); and
- A minimum of 70 hours of volunteer or paid work which includes direct contact involving interaction with persons with cognitive, emotional, or physical disabilities at no more than two facilities.

Primary consideration for admission is given to residents of British Columbia.

Applicants who meet the above minimum requirements are eligible for interview consideration (verbal communication skill, maturity and personal suitability). The interview will comprise a verbal interview and an examination of written English proficiency. Fulfillment of the minimum requirements, however, does not guarantee an interview. Selection of interview candidates is based on the academic standing in the senior level courses.

Contact Information

School of Rehabilitation Sciences
T325-2211 Wesbrook Mall
Vancouver, BC, V6T 2B5
Tel: 604-822-7050
Fax: 604-822-7624
Email: parym@interchange.ubc.ca
Web: www.rehab.ubc.ca
Pary Mohamed, Admissions/Finance Clerk

PHYSICS

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

I. Affleck, J. Aldrich, D. Bonn, J. Brewer, D. Bryman, J. Carolan, M. Choptuik, R. Durand, J. Eldridge, E. Evans, G. Fahlman, M. Halpern, W. Hardy, M. Hasinoff, J. Hepburn, P. Hickson, W. Hsieh, R. Kiehl, H. Lam, A. MacKay, W. McCutcheon, H. Richer, G. Sawatzky, G. Semenoff, P. Stamp, T. Tiedje, W. Unruh, C. Waltham, L. Whitehead, J. Young, A. Zhitnitsky.

ASSOCIATE PROFESSORS

J. Barth, A. Celler, B. Gladman, C. Hearty, G. Hoffman, J. Matthews, T. Mattison, J. McKenna, K. Schleich, D. Scott, Q. S. Xiang.

ASSISTANT PROFESSORS

M. Berciu, A. Damascelli, J. Folk, M. Franz, C. Hansen, J. Heyl, D. Jones, P. Kozlowski, A. MacFarlane, K. Madison, A. Marziali, C. Michal, S. Plotkin, M. Rozali, V. Sossi, I. Stairs, M. Van Raamsdonk, L. Van Waerbeke, H. Zeng, F. Zhou.

Program Overview

The Department of Physics and Astronomy is a broadly based department comprised of over 50 faculty members with a wide range of research interests that cover most of the key topics in contemporary physics and astronomy. These activities are supported by several computing and experimental facilities within the Department, and excellent electronics and machine shops. Much of the Department's research is enhanced by local facilities such as the TRIUMF National Laboratory, the Advanced Materials and Process Engineering Laboratory (AMPEL), and the BC Cancer Agency, UBC and Vancouver General Hospitals, in addition to many specialized research laboratories housed within the Department. There is a great deal of collaboration and overlap of interests among the various groups, and incoming graduate students are currently attracted to research opportunities in many subfields of physics:

- Applied Physics (see *Engineering Physics*, p. 247)
- Medical Physics
- Biophysics
- Nuclear and Particle Physics
- Astronomy and Astrophysics (see *Astronomy*, p. 234)
- Atomic, Molecular, and Optical Physics
- Condensed Matter Physics
- Theoretical Physics

Full details on research programs and facilities are available on the departmental website (www.physics.ubc.ca) and the AMPEL website (www.ampel.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The Department offers Ph.D. programs in Astronomy, Physics, and Engineering Physics.

Students may be admitted to the Ph.D. program after obtaining a Master of Science, or Master of Applied Science. A minimum of 12 credits in graduate level courses in any Science or Applied Science (or Medicine for Medical Physics students) departments are required for the Ph.D., with details of the course load determined in consultation with the thesis advisor and supervisory committee but must conform to the department's quantum mechanics requirements. Students who do not already have credit for the required master's degree courses for their program or the equivalent graduate level courses from another university (approved by Graduate Chair) must take these courses in the Ph.D. program. Alternatively, well-qualified students admitted to the M.Sc. program may transfer to the Ph.D. program after a year's residence at UBC if they have at least 18 credits in M.Sc. coursework with an overall average of at least 85%, clear evidence of research ability, and approval of the thesis supervisor. Direct transfer students require a further 12 credits of graduate-level coursework in any Science or Applied Science program (or Medicine for Medical Physics students) for the Ph.D.

MASTER OF SCIENCE

Master of Science programs are offered in physics and astronomy. The prerequisite for the program is a B.Sc. in physics (single or combined), astronomy, or mathematics; or a B.A.Sc. in engineering physics or electrical engineering. An overall average of 'A-' or better in third- and fourth-year courses is expected for entry into the program. The M.Sc. program requires a minimum of 30 credits with the thesis counting 12 credits. The remaining 18 credits must include at least 12 credits from graduate courses in any Science or Applied Science departments (or Medicine, for medical physics students), and may include up to 6 300- or 400-level credits in undergraduate courses. All M.Sc. students are required to satisfy the Department's quantum mechanics course requirements. Astronomy graduate students must also participate in the Astronomy Journal Club.

An accredited Master of Science program is offered with a specialization in Medical Physics. The M.Sc. (Medical Physics) specialization requires a minimum of 12 credits of thesis and 18 credits of specified courses (see the department website (www.physics.ubc.ca)). Students will also be required to accumulate a specified number of days of clinical experience and to participate in the medical physics seminar series.

Contact Information

Department of Physics and Astronomy
6224 Agricultural Road
Vancouver, BC, V6T 1Z1
Tel: 604-822-4245
Fax: 604-822-5324
Email: gradsec@physics.ubc.ca
Web: www.physics.ubc.ca
Olivia dela Cruz-Cordero, Graduate Coordinator

PHYSIOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

K. G. Baimbridge, A. M. J. Buchan, C. McIntosh, J. A. Pearson, D. Fedida.

ASSOCIATE PROFESSORS

C. Courneya, S. J. Kehl, T. J. Kieffer, Y. N. K. Kwok, D. A. Mathers, E. D. W. Moore.

ASSISTANT PROFESSOR

J. D. Johnson.

Program Overview

The Department of Cellular and Physiological Sciences at UBC offers graduate programs leading to the M.Sc. and Ph.D. degrees. Physiology is an experimental science and thus there is an emphasis in both of these programs on research work carried out under the personal supervision of one of the members of the Faculty which will culminate in the preparation and presentation of a thesis. The research interests of the individual members of the Department can be found in the Faculty section of the website (www.physiology.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

Students admitted to the Ph.D. degree will normally possess a B.Sc. degree with First class honours in physiology. Transfer from the M.Sc. to the Ph.D. program is permitted under regulations set forth by the Faculty of Graduate Studies and the regulations that apply to M.Sc. students in terms of course requirements also apply to students in the first year of the Ph.D. program. Additional coursework may be required, as arranged in consultation with the student's supervisory committee. All Ph.D. students are required to pass an oral comprehensive examination with emphasis on the area of their research activity and this examination must be satisfactorily completed at least one year before the Ph.D. thesis is presented.

MASTER OF SCIENCE

For the M.Sc. degree there is a Faculty requirement for the completion of a minimum of 30 credits, which includes a 12-credit M.Sc. thesis. This total may be increased at the discretion of the candidate's supervisory committee if the student's undergraduate background has not included an extensive exposure to physiology or a closely related discipline. Ordinarily completion of an M.Sc. degree requires 18 months to two years of work.

Contact Information

Department of Cellular and Physiological Sciences

2146 Health Sciences Mall

Vancouver, BC, V6T 1Z3

Tel: 604-822-2494

Fax: 604-822-6048

Email: alanj@interchange.ubc.ca

Web: www.physiology.ubc.ca

Alan Jay, Secretary

PLANNING

Degrees Offered: Ph.D., M.A.P., M.Sc.P.

Members

PROFESSORS

J. Berechman, P. D. Boothroyd, A. H. J. Dorcay, P. C. Gurstein, T. L. McDaniels, W. E. Rees, L. Sandercock, H. Schreier.

ASSOCIATE PROFESSORS

L. C. Angeles, S. E. Chang, L. D. Frank, T. A. Hutton, M. Leaf.

ASSISTANT PROFESSOR

M. A. Larice.

Program Overview

The School of Community and Regional Planning (SCARP) was created in 1952 and has one of the largest planning programs in Canada. The School's mission is to advance the transition to sustainability through excellence in integrated policy and planning research, professional education, and community service. SCARP emphasizes an integrated approach to planning through five concentrations or streams: urban policy and community development, international development, environmental and natural resources, urban design, and planning process and methods. The School's master's degrees are recognized by the Canadian Institute of Planners and the American Institute of Certified Planners.

SCARP's research arm, the *Centre for Human Settlements*, p. 75, is involved in a variety of planning research projects focusing on urban development issues in both North and South America and Asia. In addition, two SCARP faculty are attached to the *Westwater Research Unit*, p. 83, and four SCARP faculty are attached to the *Institute for Resources, Environment and Sustainability*, p. 82.

Full details on SCARP can be found in the chapter *The School of Community and Regional Planning*, p. 175, and on the School of Community and Regional Planning website (www.scarp.ubc.ca).

Degree Requirements

DOCTOR OF PHILOSOPHY

The School offers a Doctor of Philosophy program for advanced study and research in the areas of its competence. The Doctor of Philosophy is primarily a research degree, so that students should enter with a good background in their field of study. After two years of coursework and examinations, candidates devote their efforts toward thesis research.

Applicants for admission must have a master's degree in Planning, or its equivalent, with high academic standing. To ascertain the School's ability to fulfil potential candidates' objectives, a statement of about 1,000 words is required describing their research interests and objectives which should be submitted at least one month before the application deadline.

For more information, visit the SCARP website (www.scarp.ubc.ca). All documents and the appropriate application fee should be returned

to the Director's Office. The deadline for submitting complete applications is December 1.

MASTER OF ARTS AND MASTER OF SCIENCE IN PLANNING

The master's degree will be either a Master of Arts (Planning) or a Master of Science (Planning), whichever best describes the prerequisites offered by the candidate and the courses chosen.

The M.A.P. or M.Sc.P. degree is awarded upon satisfactory completion of a program consisting of 60 credits, including a thesis or project, over two academic years. Those students who wish to develop a strong specialization may satisfy a significant proportion (up to 12 credits) of this requirement through courses in other departments.

Full details on master's programs can be found in *the School of Community and Regional Planning*, p. 175, and on the SCARP website (www.scarp.ubc.ca).

Contact Information

The School of Community and Regional Planning

433-6333 Memorial Road

Vancouver, BC, V6T 1Z2

Tel: 604-822-3267

Fax: 604-822-3787

Email (Ph.D.): phdscarp@interchange.ubc.ca

Email (Master's): ptop@interchange.ubc.ca

Web: www.scarp.ubc.ca

TBA, Ph.D. Admissions

Patti Topoworski, Master's Admissions

PLANT SCIENCE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

C. Chanway, Q. Cronk, B. Ellis, M. Isman, P. Joliffe, J. Kronstad, J. Myers, M. K. Upadhyaya.

ASSISTANT PROFESSORS

S. Binns, E. Jovel, A. Riseman.

Program Overview

The Plant Science Graduate Program offers M.Sc. and Ph.D. degrees in fundamental and applied topics related to plant production, plant protection, biotechnology, plant physiology and biochemistry, and plant-environment interactions. Specific areas of specialization include:

- Plant-microbe interaction, bacterial and fungal diseases, plant virology, biological control of pests and diseases, insect physiology, natural insecticides, insect ecology and behaviour, and weed biology, ecology, and control;
- Seed physiology, plant nutrition, plant growth analysis, plant-plant interaction, biotic and abiotic stressor resistance, and environmental plant physiology;
- Vegetable culture, ornamental horticulture, plant breeding, and post-harvest physiology;

- Plant biochemistry, tissue culture, genetic engineering, and plant, fungal, and viral molecular genetics; and
- Rangeland ecology and wildlife habitat studies.

The program is enriched through collaboration with colleagues in Graduate Programs such as Food Science, Soil Science, Botany, Zoology, and in agencies such as Agriculture and Agri-Food Canada, and the British Columbia Ministry of Agriculture, Fisheries and Food.

Coursework selected in consultation with the student's supervisory committee includes graduate courses in plant science and from other areas relevant to each student's research.

Plant Science teaching and research facilities are located in the UBC Biotech Laboratory and in the H.R. MacMillan Building, which houses the Faculty of Land and Food Systems and the MacMillan Library, with its excellent collection of books and periodicals in agriculture and forestry. Research facilities include the UBC Botanical Garden, field Laboratory (8.1 ha land and orchards on-campus), greenhouses, controlled environment growth chambers, and modern analytical laboratories.

Degree Requirements

DOCTOR OF PHILOSOPHY

Appropriate coursework will be selected in consultation with the candidate's committee. All candidates are required to take a comprehensive examination. The major requirement for the Ph.D. is completion of a research thesis demonstrating ability to conduct significant and original scientific research.

MASTER OF SCIENCE

Completion of the M.Sc. program requires a minimum of 18 credits of coursework plus 12 credits of thesis research.

Contact Information

Faculty of Land and Food Systems
270-2357 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Email: gradapp@interchange.ubc.ca
Web: www.agsci.ubc.ca/grad/plant_sc.htm
Alina Yuhymets, Graduate Programs Manager

POLITICAL SCIENCE

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

M. Byers, M. Cameron, C. Campbell, R. K. Carty, B. L. Job, R. G. C. Johnston, S. LaSelva, P. J. Marantz, D. Mauzy, P. Quirk, P. Resnick, A. Tupper, M. D. Wallace, M. Warren.

ASSOCIATE PROFESSORS

B. Arneil, P. Dauvergne, K. Harrison, R. M. Price.

ASSISTANT PROFESSORS

G. Baier, B. Baum, K. Coleman, F. E. Cutler, A. Ellermann, K. Foster, A. Jacobs, L. Janara, C. Kam, B. Nyblade, A. O'Mahony, L. M. Sundstrom, Y. Tiberghien.

Program Overview

The Department of Political Science offers opportunities for advanced study in the major fields of political science. It is a major centre for the study of Canadian politics with a strong core of faculty actively engaged in research touching on Canadian themes. The Department is a leading centre for the study of parties and elections in Canada. It has a long tradition of the study of federalism and the normative dimensions underlying Canadian politics. Much current work focuses on issues of public policy.

The University is one of North America's leading centres for Asian studies and the Department is an important element of that research strength with faculty members specializing in the study of China, Japan, India, Korea, and Southeast Asia. Several department members are associated with the Institute of Asian Research on campus and play an active role in the editorial work of the journal *Pacific Affairs* which is housed on campus.

The Department has a distinguished history of research in international relations and in international security studies. Several faculty members are associated with UBC's Interdisciplinary Centre of International Relations (whose current Director is a member of the Department of Political Science). The Centre has been recognized for its expertise by the Department of National Defence which provides support through its Military and Strategic Studies program.

The Department also promotes research and teaching in political theory, political economy, research methodologies, and public policy. Individual faculty members' interests cover a broad spectrum of political systems (including Russia, Latin America, the United States, and Australia in addition to those noted above) and embrace a variety of methodological approaches.

The UBC Library is one of North America's major university research libraries and is a depository for UN, Canadian, and BC Government publications, and many US Government documents. The Asian Research Library is a particularly important research centre. The Department and UBC Library hold joint memberships in the Inter-University Consortium for Political Research and the International Survey Library Association. The UBC Data Library has the largest collection of machine-readable material in Canada.

Degree Requirements

DOCTOR OF PHILOSOPHY

The basic requirements are six 3-credit seminars in the first year, two comprehensive examinations (chosen from Canadian politics, comparative politics, international relations, and political theory) the second year, and a dissertation. As a general rule, the Department requires that applicants to the Ph.D. program have an undergraduate degree and a Master of Arts in Political Science. Criteria for admission include evidence of outstanding previous work, research interests compatible with those of the Department, and letters of reference indicating

a strong potential to contribute to the discipline. Admission is competitive and the Department generally admits approximately 10 students each year.

MASTER OF ARTS

This is a one-year program for full-time students. Students may also complete the degree on a part-time basis. The basic requirements include six one-term seminars and a thesis of a maximum of 100 pages that is orally defended upon completion. As a general rule, successful applicants will have minimum First class standing (80% or higher at UBC or equivalent) in each of the last two years of undergraduate study, in accordance with the criteria for graduate funding in the Faculty of Graduate Studies.

The TOEFL requirement is 580.

Contact Information

Department of Political Science
C472-1866 Main Mall, Vancouver, BC
Vancouver, BC, V6T 1Z1
Tel: 604-822-2717
Fax: 604-822-5540
Email: poligrad@politics.ubc.ca
Web: www.politics.ubc.ca

PSYCHOLOGY

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

L. Alden, S. Coren, D. G. Dutton, E. Eich, J. T. Enns, B. Gorzalka, P. Graf, A. R. Hakstian, P. L. Hewitt, C. Johnston, D. R. Lehman, W. Linden, D. L. Paulhus, J. P. J. Pinel, C. H. Rankin, M. Schaller, J. Schooler, R. C. Tees, L. J. Walker, L. M. Ward, J. Werker, D. M. Wilkie, J. C. Yuille.

ASSOCIATE PROFESSORS

A. DeLongis, L. A. M. Galea, D. Giaschi, D. G. Hall, S. Heine, A. Kingstone, T. M. MacBeth, R. Rensink, S. Woody, F. Xu.

ASSISTANT PROFESSORS

J. Biesanz, S. A. J. Birch, S. Carlson, E. Chen, B. Christie, K. Christoff, E. Dunn, S. Floresco, T. Handy, G. Miller, A. Norenzayan, K. Soma, F. P. Valle.

Program Overview

The Department of Psychology offers advanced study leading to both the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.) degrees in most major areas of the discipline, including: behavioral neuroscience, clinical psychology, cognitive science, developmental psychology, forensic psychology, personality and social psychology, and psychometrics. The clinical program is fully accredited by both the American Psychological Association and the Canadian Psychological Association. Graduate education in the department follows an apprenticeship model in which students conduct research in close collaboration with a particular faculty member. Graduate study must be on a full-time basis. Students are typically assured of financial support (in the form of fellowships, teaching assistantships, and research assistant-

ships) for two years at the master's level and four years at the doctoral level. Complete details regarding the various programs in psychology are provided on the Department website (www.psych.ubc.ca/graduate.htm).

Degree Requirements

DOCTOR OF PHILOSOPHY

Admission to the Ph.D. program requires a master's degree and evidence of research competence. Areas of specialization include behavioral neuroscience, clinical psychology, cognitive science, developmental psychology, forensic psychology, personality and social psychology, and psychometrics. Program requirements include coursework, comprehensive examinations, and a dissertation. In addition to the usual coursework and research requirements, clinical students must develop an acceptable level of clinical skill and serve a one-year internship in an approved applied setting.

MASTER OF ARTS

Admission to the M.A. program is restricted to those who intend to continue on to the Ph.D. Areas of specialization include behavioral neuroscience, clinical psychology, cognitive science, developmental psychology, forensic psychology, personality and social psychology, and psychometrics. In addition, the Department offers an M.A. specialization in Human-Computer Interaction, in collaboration with the *Media and Graphics Interdisciplinary Centre*, p. 76. Program requirements include coursework and a research thesis, and is expected to be completed within two years.

Contact Information

Department of Psychology
2136 West Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-3144
Fax: 604-822-6923
Email: gradsec@psych.ubc.ca
Web: www.psych.ubc.ca/graduate.htm
Rose Tam, Graduate Secretary

REHABILITATION SCIENCES

Degrees Offered: Ph.D., M.Sc., M.R.Sc.

Members

PROFESSORS

E. Dean, I. J. Dyck, S. R. Harris.

ASSOCIATE PROFESSORS

C. Backman, J. Eng, T. Jarus, L. Jongbloed, D. L. MacIntyre, W. D. Reid, S. J. Stanton.

ASSISTANT PROFESSOR

W. H. Miller.

Program Overview

Our research graduate programs are designed to prepare individuals to conduct research independently and in collaboration with other scientists. Students will investigate an area of research relevant to rehabilitation through critical analysis of problems related to basic sciences, clinical practice, or to development of theory.

Students will have the opportunity to study in state-of-the-art laboratories, such as the UBC

MacDonald Research Laboratory at St. Paul's Hospital, the Thoracic Outlet Syndrome Research Clinic in Kelowna, the McGregor-Hudson Physical Therapy Research Lab, the Margaret Hood Occupational Therapy Lab, the Post Polio Research Lab, the Rehabilitation Research Laboratory at GF Strong Rehab Centre, and the ICORD building.

Courses offered by our team of internationally renowned scholars and educators help students learn critical evaluation of the scientific literature relevant to rehabilitation, analysis of theoretical constructs through of quantitative and qualitative methods of inquiry, and the design, execution, and presentation of their results.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy (Ph.D.) will focus on the discipline of Rehabilitation Sciences, the study of providing treatment and education to persons with temporary or permanent disabilities to return them to maximum function, well-being, and personally-satisfying levels of independence.

A thesis-based master's degree in Rehabilitation Sciences, or other related fields of study, along with appropriate undergraduate and graduate courses, are normally required for admission.

Students must contact one or more potential faculty supervisors to discuss their research interests prior to the application deadline.

Students entering the Ph.D. program will be required to spend a minimum of two terms of uninterrupted duration (eight months) in full-time status at the University.

MASTER OF SCIENCE

The Master of Science (M.Sc.) program is designed to prepare individuals to conduct research independently and in collaboration with other scientists. Students will investigate an area of research relevant to rehabilitation through critical analysis of problems related to basic sciences, clinical practice, or to development of theory.

A bachelor's degree from a recognized university or college in a health-related discipline such as Occupational Therapy, Physical Therapy, Life Sciences, or Social Sciences is required for admission.

A minimum of 3 credits in research methodology and/or analysis is required.

Students must contact one or more potential faculty supervisors to discuss their research interests prior to the application deadline.

MASTER OF REHABILITATION SCIENCE

Our Master of Rehabilitation Science (M.R.Sc.) is a 30-credit, non-thesis, **online** master's degree. In addition to requiring the five graduate courses (15 credits) in the Graduate Certificate in Rehabilitation, learners in this advanced master's degree will also complete other courses and a major project.

This master's degree has been designed for occupational therapists, physical therapists, and other health professionals with a baccalaureate degree who have already established their

eligibility to practice in their discipline but want advanced knowledge to inform their practice.

Recommended: completion of an introductory course in Statistics.

Contact Information

School of Rehabilitation Sciences
T325-2211 Wesbrook Mall
Vancouver, BC, V6T 2B5
Tel: 604-822-7765
Fax: 604-822-7624
Email: selander@interchange.ubc.ca
Web: www.rehab.ubc.ca
Laura Selander, Executive Secretary

RELIGIOUS STUDIES

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

A. A. Barrett, S. D. Sullivan, R. Todd, E. H. Williams.

ASSOCIATE PROFESSORS

D. Arbel, P. C. Burns, R. Cousland, R. Menkis, P. G. Mosca, D. Neufeld.

ASSISTANT PROFESSORS

L. Bablitz, L. Cooper, D. Creese, R. Daum, F. De Angelis, T. Hikade, C. Johnson, C. Marshall, M. Yazigi.

Program Overview

The Religious Studies graduate program offers courses of instruction leading to both the Master of Arts (M.A.) and Doctor of Philosophy (Ph.D.). Studies leading to the M.A. degree are offered in the following areas of concentration: Biblical Studies; Christian Thought and Institutions; History of Religions; Islamic Studies; and Judaic Studies. The Ph.D. program at present provides training in Early Judaism, Christian Origins, and Religions of the Late Antique Mediterranean.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of coursework, comprehensive examinations, and research leading to a dissertation that is defended in an oral final examination.

Prerequisites for the Ph.D. include either (1) an M.A. in Religious Studies or equivalent, or (2) in exceptional cases, an honours B.A. with First class standing and clear demonstration of advanced research ability.

For details on the prerequisites and the graduate regulations (including language prerequisites and requirements), see the website (cnrs.arts.ubc.ca).

MASTER OF ARTS

There are two options for the Master of Arts:

- 1) **Non-thesis Option.** This option requires 30 credits of coursework, as well as comprehensive examination(s) and a major essay. Of the 30 credits, 6 credits may be at the 300 or 400 level, and 24 credits must be at the 500 level or above.
- 2) **Thesis Option.** This option requires 18 or 24 credits of coursework (6 credits at the

300 or 400 level, the rest at the 500 level or above) and a 12-credit or a 6-credit thesis, for a total of 30 credits.

Prerequisites for the M.A. program include a Bachelor of Arts in Religious Studies or equivalent.

For details on the language prerequisites and requirements, see the website (cnrs.arts.ubc.ca).

Contact Information

Classical, Near Eastern & Religious Studies
C260-1866 Main Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-2515
Fax: 604-822-9431
Email: cnrs@interchange.ubc.ca
Web: cnrs.arts.ubc.ca
Christine Dawson, Graduate Secretary

REPRODUCTIVE AND DEVELOPMENTAL SCIENCES

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

N. Auersperg, J. T. Emerman, G. Hammond, B. Ho Yuen, C. Y. G. Lee, P. C. K. Leung, P. F. McComb, Y. S. Moon, A. M. Perks, R. Rajamahendran, D. Rurak.

ASSOCIATE PROFESSORS

B. Gilks, R. Liston, C. MacCalman, D. Money, C. Roskelley.

ASSISTANT PROFESSORS

S. Ma, P. von Dadelszen.

Program Overview

The goal of the graduate program in Reproductive and Developmental Sciences is to provide students with a broad knowledge of mammalian reproductive and developmental biology, as well as with in-depth expertise in at least one area of research, including reproductive and molecular endocrinology, immunology of reproduction, fertilization and early embryonic development, perinatal metabolism, and fetal neonatal physiology. M.Sc. and Ph.D. programs of study are offered. Both programs involve coursework and completion of a thesis based on research carried out by the student.

Degree Requirements

DOCTOR OF PHILOSOPHY

In addition to *Admissions Requirements*, p. 217, as set by the Faculty of Graduate Studies, applicants must have:

- 1) A B.Sc. degree with First class honours in Biological Science or related field, or its academic equivalent (M.D., D.V.M., D.D.S.). **N.B.: students entering directly from bachelor's degree must, during the first year of graduate study, complete 18 credits with a First class average of which at least 10 credits must be at the 500 level or above and at least 10 credits must be of First class standing;**
- 2) A bachelor's degree with one year of study in a master's program with 18 credits of First class standing, and clear evidence of

research ability. Students in the M.Sc. program may transfer into the Ph.D. program at the end of their first year provided they meet the transfer requirements of the Faculty of Graduate Studies and the graduate program; or

- 3) A master's degree (or equivalent in Biological Science or a closely related field).

MASTER OF SCIENCE

In addition to *Admissions Requirements*, p. 218, as set by the Faculty of Graduate Studies, applicants must have a B.Sc. degree or its academic equivalent (M.D., D.V.M., or D.D.S.) with:

- 1) Honours in Biological Science (or a closely related field) with First class standing in at least 12 credits of third- and fourth-year coursework in that field; or
- 2) First class standing in at least 12 credits of coursework and at least upper Second class standing in the remaining course work at the third- and fourth-year level in the field of Biological Science or related subjects.

Contact Information

Department of Obstetrics and Gynaecology
2H30-4500 Oak St.
Vancouver, BC, V6H 3N1
Tel: 604-875-3108
Fax: 604-875-2725
Email: rnair@cw.bc.ca
Web: www.obstgyn.ca
Roshni Nair, Program Assistant

RESOURCE MANAGEMENT AND ENVIRONMENTAL STUDIES

Degrees Offered: Ph.D., M.A., M.Sc.

Members

PROFESSORS

H. Dowlatabadi, M. J. Healey, T. McDaniels, J. B. Robinson, H. E. Schreier, I. B. Vertinsky.

ASSOCIATE PROFESSORS

S. Chang, L. Frank, S. Hinch, T. Satterfield.

ASSISTANT PROFESSOR

K. Chan.

Program Overview

The Institute for Resources, Environment and Sustainability provides interdisciplinary graduate study through the Resource Management and Environmental Studies program (RMES). RMES provides a home for graduate students focusing on the integration of the biophysical (ecological) and the socio-economic and political realities of resource management within the context of a sustainable healthy environment. Students in RMES develop tailored academic programs for their graduate degrees that draw on the expertise of faculty from across the campus, as well as the private and public sectors. To enable students to develop unique graduate programs that capture the breadth of their previous educational experience and their academic and career goals, the RMES program offers either a M.A. or M.Sc. option as well as a Ph.D. Supervisors of graduate students, as well as members of the supervisory committee, are selected from across

the University representing the faculties of Arts, Science, Applied Science, Law, and Graduate Studies.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program involves intensive research resulting in an original and scholarly contribution to knowledge in the field of study. The candidate is expected to initiate and develop a research plan in consultation with their supervisory committee. The program, because of its comprehensive nature, normally requires three to four years for completion. Students admitted to the RMES program will be required to take RMES 500, RMES 501, and RMES 502, or equivalent courses as assigned by the supervisory committee, if they have not already taken courses judged by the graduate program chair as equivalent. Additional courses will be assigned by the supervisory committee and approved by the graduate program chair.

The supervisory committee and student will agree on the student's required academic program. Upon completion of the academic course requirements, and normally at least two years before the candidate is expected to complete requirements for the Ph.D., the Comprehensive Examination takes place. This examination consists of a written examination with questions submitted by the supervisory committee, followed by an oral examination. The defence of the thesis follows the guidelines and policies of the Faculty of Graduate Studies.

MASTER OF ARTS AND MASTER OF SCIENCE

The master's degree provides candidates with the opportunity to broaden their academic and research experience. The student's background, the selection of the thesis topic, the approach to research and the program electives, govern whether the M.A. or M.Sc. degree program is pursued. A research investigation producing a scholarly contribution to the particular area of study is necessary. Normally, these programs will take two years to complete, including at least one year of residence. Provision is available for students who demonstrate outstanding academic and research ability to transfer to the Ph.D. program after completion of one year's residency. Transfer is possible if the supervisory committee strongly supports the transfer and it is endorsed by the graduate program chair.

The master's degree requirement is a minimum of 36 credits, including a 12-credit thesis. Of the remaining 24 credits of coursework, at least 16 credits must be in courses numbered 500 or above. The academic program must be approved by the supervisory committee and the graduate program chair. The intent of the program is to ensure that the student research and write an integrative thesis. Upon completion of the thesis, an external examiner (on or off campus) will be appointed to the examination committee for the thesis defence.

Contact Information

Institute for Resources, Environment and Sustainability / Resource Management & Environmental Studies Program
AERL 430–2202 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-9249
Fax: 604-822-9250
Email: rmesgrad@ires.ubc.ca
Web: www.rmes.ubc.ca
Lisa Belanger, Graduate Program Coordinator

SCHOOL PSYCHOLOGY

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSOR

S. Hymel.

ASSOCIATE PROFESSORS

R. Ervin, L. Ford.

ASSISTANT PROFESSORS

W. McKee, L. Miller.

Program Overview

The School Psychology graduate program prepares students to become psychologists who work in schools, academic, research, community, and private practice settings. The primary goal of the program is to develop professional psychologists whose research, training, and practice activities increase the educational and psychological well-being of children and youth. The program follows a scientist-practitioner model, with emphasis on the integration of theory, research, and clinical skills. Training encompasses academic, social, behavioral, consultation, intervention, and prevention domains, and students receive training in the integration of assessment and intervention and in relevant professional, legal, and ethical issues. Science and professional practice are viewed as interactive and complementary, with research integrated across core psychological and educational foundations training, as well as relevant practical experiences at all levels of the program. The program places a strong emphasis on evidence-based prevention, intervention, and systems-level change. In addition, school psychology training at UBC maintains a strong appreciation for diversity, in terms of the populations served, the students admitted, the issues and elements of practice examined and trained, and the provision of skills and experiences in working with a broad range of clients, families, and settings.

Degree Requirements

DOCTOR OF PHILOSOPHY

The doctoral program in school psychology is designed to prepare psychologists who can serve as practitioners and supervisors in the field, trainers of school psychologists, researchers, and leaders in school psychology. The typical doctoral program is 45 credits, beyond completion of the UBC School Psychology M.A. or equivalent program. Any prerequisites not met prior to entry will be taken as a part of the doctoral program. With an emphasis on

leadership in facilitating systems-level change, all students take coursework in school and community systems and cross-cultural issues (9 credits). Coursework in professional practice (e.g., prevention, intervention, assessment) (6 credits) and research methodology (9 credits) is developed in consultation with a program advisory committee. Students complete a supervision practicum, a specialty practicum placement (3 credits each), a year-long doctoral research seminar (6 credits), as well as a year long pre-doctoral internship (9 credits). Students must also pass a comprehensive examination to demonstrate breadth and depth of knowledge in the field, and complete and defend a doctoral thesis.

MASTER OF ARTS

The 75-credit SCPS Master of Arts (M.A.) program requires three years of full time study, including both on-campus courses and school-based practicum/internship experiences. Students are required to complete a sequence in School Psychology Practice including coursework in professional, ethical and legal issues in school psychology (EPSE 550, 3 credits); consultation (EPSE 551, 6 credits); and cognitive (EPSE 536, 6 credits), academic (EPSE 534, 6 credits and EPSE 552, 6 credits), and social-emotional (EPSE 535, 6 credits) assessment and intervention. Coursework in Psychological Foundations including human development, history of psychology, biological bases of psychology, social psychology and psychopathology (3 credits each) is required and is designed to meet eligibility for certification and/or registry as a school psychologist. Research coursework includes: measurement (EPSE 528), statistics (EPSE 592 and EPSE 596), and a research seminar (EPSE 571) designed to facilitate the completion of the master's thesis (EPSE 599, 6 credits). A two-term integrated field practicum is completed in year two (EPSE 561, 6 credits) in addition to the intensive school-based practicum/internship in year three.

MASTER OF EDUCATION

The 66-credit SCPS Master of Education (M.Ed.) program requires three years of full time study, including both on-campus courses and school-based practicum/internship experiences. Students are required to complete a sequence in School Psychology Practice, including coursework in: professional, ethical, and legal issues in school psychology (EPSE 550, 3 credits); consultation (EPSE 551, 6 credits); and cognitive (EPSE 536, 6 credits), academic (EPSE 534, 6 credits and EPSE 552, 3 credits), and social-emotional (EPSE 535, 3 credits) assessment and intervention. Coursework in Psychological Foundations, including human development, history of psychology, biological bases of psychology, social psychology, and psychopathology (3 credits each) is required and is designed to meet eligibility for certification and/or registry as a school psychologist. Research coursework includes measurement (EPSE 528) and statistics (EPSE 592). Students complete a two semester integrated field practicum in year two (EPSE 561, 6 credits). At the end of their program, in

addition to the intensive school-based practicum/internship in year three (EPSE 598), students participate in a graduating seminar (EPSE 590) that brings together their goals and objectives as well as their accomplishments and experiences throughout the program in the development of a professional portfolio.

Contact Information

Department of Educational and Counselling Psychology, and Special Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5351
Fax: 604-822-3302
Email: ecps.gradinfo@ubc.ca
Web: www.ecps.educ.ubc.ca
Lynda McDicken, Graduate Program Assistant

SCIENCE EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

G. Erickson, J. Gaskell.

ASSOCIATE PROFESSORS

J. Mayer-Smith, K. Meyer.

ASSISTANT PROFESSORS

D. Anderson, S. Khan, S. Nashon.

Program Overview

The graduate degree programs (M.Ed. and M.A.) in Science Education are part of the graduate offerings in the Department of Curriculum Studies. Students can pursue a wide variety of research and professional interests in all areas of science education at both elementary and secondary levels. Students can also pursue studies in education within other learning contexts such as museums and community settings.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires:

- 1) normally, 18 credits of senior coursework or a professional concentration in the area of interest; and
- 2) normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A maximum of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A maximum of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, ten 3-credit

courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4717
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

SOCIAL STUDIES EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

W. Ross, P. Seixas.

ASSOCIATE PROFESSORS

W. Werner, L. Farr Darling.

ASSISTANT PROFESSORS

P. Clark, L. Loutzenheiser.

Program Overview

The graduate degree programs (M.A. and M.Ed.) in Social Studies Education are part of the graduate offerings in the Department of Curriculum Studies. Each student devises a program of relevant coursework in consultation with his or her faculty advisor. Programs of study are individually designed to match the interests and needs of the busy professional teacher, program administrator, social studies curriculum specialist, and scholar researcher.

The master's programs offer flexibility depending upon student needs and desires. Full-time or part-time studies focusing on professional development and/or research are available. Core courses focus on research methods, principles of social studies education, and curriculum studies.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Study Requirements, the program requires:

- 1) normally, 18 credits of senior coursework or a professional concentration in the area of interest; and
- 2) normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A maximum of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A maximum

of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, ten 3-credit courses) or 27 credits of coursework plus a graduating project (3 credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4717
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

SOCIAL WORK

Degree Offered: M.S.W.

Members

PROFESSORS

G. Riches, M. Russell.

ASSOCIATE PROFESSORS

E. A. Kruk, P. McNicoll, D. O'Connor, B. O'Neill, T. Stainton, R. Sullivan, F. Tester, R. W. Vedan.

ASSISTANT PROFESSORS

S. Cadell, G. Charles, P. Riaño-Alcalá, M. Wright, M. C. Yan.

Program Overview

The School of Social Work and Family Studies offers advanced studies in social work. The Master of Social Work program (M.S.W.) requires the completion of 33 credits, with a minimum of 6 credits to be completed in each of the following areas: theoretical foundations and policy, social work practice, research, and elective coursework. Students can choose between a graduating essay or a thesis. The graduating essay option is for those students intending to specialize in direct social work practice, with an emphasis on the integration of theory and practice. The graduating essay is 3 credits and a 6-credit practicum is required. Students selecting the thesis option intend to carry out an in-depth research study of an original nature. The thesis is worth 6 credits and students choosing this option are required to complete a shorter practicum worth 3 credits. The M.S.W. program specializes in advanced practice and research with individuals, families, and groups from diverse populations. Students may also take courses outside the School to a maximum of 12 credits to meet their learning objectives.

Completion of the program normally requires a minimum of 12 months of full-time studies, beginning in September. Part-time study consisting of a minimum of three years is available.

For information about doctoral study in Social Work, please see *Social Work and Family Studies*, p. 280.

Degree Requirements

MASTER OF SOCIAL WORK

General admission requirements include a Bachelor of Social Work (B.S.W.) degree or equivalent and at least 3 credits of coursework in statistics. Other factors considered are: competitive academic standing (GPA), study plan, professional social work experience, and letters of reference.

Contact Information

The School of Social Work and Family Studies
2080 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-2609
Fax: 604-822-8656
Email: socialwork.familystudies@ubc.ca
Web: www.swfs.ubc.ca
Michelle Baulch, Program Advisor; Marjorie Paukner, Admissions Secretary

SOCIAL WORK AND FAMILY STUDIES

Degree Offered: Ph.D.

Members

PROFESSORS

A. Martin-Matthews, D. Perlman, G. Riches, M. Russell, J. White.

ASSOCIATE PROFESSORS

P. Johnson, E. Kruk, P. McNicoll, O'Connor, B. O'Neill, J. Ponzetti, T. Stainton, R. Sullivan, F. Tester, R. Vedan.

ASSISTANT PROFESSORS

S. Cadell, G. Charles, S. Marshall, P. Riano-Alcala, M. Wright, M. C. Yan, C. Yodanis.

Program Overview

The Ph.D. Program in Social Work and Family Studies provides students with a background in social work, social policy, social development or family studies, an opportunity for advanced scholarship, and professional growth in the context of a research-intensive program. Specializing in either Social Work or Family Studies, students are prepared for university teaching and research (theoretical and applied), including program evaluation. The program can also provide critical components for professional practice in research, policy analysis, and human service management.

Via their program of work, students are expected to acquire a basic grounding in the core theoretical paradigms relevant to their course of study and quantitative and qualitative research methods, as well as specialized competencies in the methodological skills necessary for productive scholarship in the substantive area of their chosen research. A research-based dissertation adding to the field's knowledge base is the capstone of this program.

Following the comprehensive examination, the student will present a formal thesis proposal for approval by the candidate's committee before proceeding to the research that will culminate in a formal thesis defense. The major requirement of the Ph.D. is completion of a research

thesis reporting significant and original scientific research.

For information on master's programs, please see the listings under *Family Studies*, p. 249, and *Social Work*, p. 280.

Degree Requirements

DOCTOR OF PHILOSOPHY

A master's degree in Social Work or Family Studies, or other related fields of study, are normally required for admission. Although deficiencies can be made up, entering students are expected to have three-unit graduate level courses in statistics, quantitative methods, and qualitative methods. Students entering the Ph.D. program will be required to spend a minimum of two terms of uninterrupted duration (eight months) in full-time status at the University. Students in the program will be expected to take at least 15 units of coursework including:

- SWFS 601: Social Work and Family Studies Doctoral Seminar;
- SWFS 621: Social Theory, Ideology and Ethics;
- A three-credit substantive course selected with Advisory Committee's approval; and
- Two of the following three Courses¹:
 - (a) SWFS 623: Advanced Data Analysis in Social Work and Family Studies
 - (b) SWFS 654: Advanced Qualitative Inquiry
 - (c) EPSE 591: Theory and Practice of Program Evaluation

¹ Students may substitute one methods course with the approval of the doctoral program coordinator.

Appropriate coursework will be selected in consultation with the candidate's committee and will depend on the student's background and field of study. All students are expected to be admitted to candidacy within two years of initial registration. To do this, students must:

- 1) complete their residency and all required courses;
- 2) pass their comprehensive examinations; and
- 3) have their dissertation proposal approved.

Contact Information

The School of Social Work and Family Studies
2080 West Mall
Vancouver, BC, V6T 1Z2
Tel: 604-822-2609
Fax: 604-822-8656
Email: socialwork.familystudies@ubc.ca
Web: www.swfs.ubc.ca
Michelle Baulch, Program Advisor; Marjorie Paukner, Admissions Secretary

SOCIETY, CULTURE AND POLITICS IN EDUCATION

Degrees Offered: M.A., M.Ed.

Members

PROFESSORS

K. Adam-Moodley, D. Fisher, D. Kelly, V. Strong-Boag, C. Ungerleider.

ASSOCIATE PROFESSORS

L. Andres, J.-A. Archibald, S. Butterwick, J.-A. Dillabough, F. Echols, M. Gleason, A. Mazawi, L. Roman, A. Tom, D. Vokey, P. Walter, H. Wright.

ASSISTANT PROFESSORS

J. Chan-Tiberghien, M. Stack.

Program Overview

The goal of the Society, Culture and Politics in Education (SCPE) graduate program is to use the social sciences and humanities to address major issues affecting educational policy and practice. The program addresses social justice issues such as the unequal distribution of resources and outcomes, power relations, recognition and representation from post-colonial, feminist, anti-racist, materialist, and First Nations perspectives.

Students interested in the SCPE program have diverse academic, professional, and community backgrounds, varied research interests and represent a wide range of social justice education contexts. SCPE faculty and students are educators who bring their knowledge to current affairs, policymaking, community, classrooms, workplaces, and families. SCPE aims to develop scholars, researchers and practitioners.

Degree Requirements

MASTER OF ARTS

The M.A. is a 30-credit research-oriented program for students who wish to develop skills as researchers or who may go on to doctoral-level study. All students are required to take one course in the social context of educational policy (EDST 577), and two of three (EDST 509, 570, 597) core disciplinary courses. These core courses provide students with the disciplinary preparation necessary to pursue advanced study available in a variety of social justice electives. Students are also required to take two courses in research methods: an introductory research course and another of their choice. A master's thesis is required to complete the program.

MASTER OF EDUCATION

The M.Ed. is a designed for professionals in education whose primary focus is understanding and improving educational practice. A somewhat greater emphasis on coursework and a practice-based capstone experience or project distinguish the M.Ed. from the M.A. All students are required to take one course in the social context of educational policy (EDST 577), and two of three (EDST 509, 570, 597) core disciplinary courses. These core courses provide students with the disciplinary preparation necessary to pursue advanced study available in a variety of social justice electives. Students are also required to take two courses in research methods: an introductory research course and another of their choice. A graduating project or capstone course is required to complete the program.

Contact Information

Department of Educational Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-6647
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Web: www.edst.educ.ubc.ca/programs/SCPE.htm
Lynda McDicken, Graduate Secretary

SOCIOLOGY

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

G. Creese, D. Currie, N. Guppy, D. R. Matthews.

ASSOCIATE PROFESSORS

T. Kemple, B. Ross, D. Tindall, J. Torpey.

ASSISTANT PROFESSORS

J. Chun, S. Fuller, A. Hanser, R. Mawani, W. Roth, G. Veenstra, R. Wilkes, D. Zuberi.

Program Overview

Studies in the M.A. and Ph.D. programs in Sociology are normally available in the following core areas of study: Social and Cultural Theory and Methods; Gender, Race, Class, and Sexuality; Environment, Economy, and Development; and Politics, Law, and Social Movements.

Research facilities in Sociology include social survey and small groups laboratories. There is ready access to the Department's Graduate Computer Lab and Graduate Reading Room. Graduate students may participate in courses and services provided by Arts ISIT, the Faculty of Arts Instructional Support, and Information Technology unit. UBC is also the western regional site of the Statistics Canada Data Information Centre. Students may also participate in specialized programs and facilities provided by the Asian Studies Centre, and many other UBC centres and institutes.

For graduate programs in Anthropology, see *Anthropology*, p. 231.

Degree Requirements

DOCTOR OF PHILOSOPHY

The prerequisite for the Ph.D. program normally is a master's degree in Sociology that includes preparation in sociological theory and in research methods. The Ph.D. program includes courses, comprehensive examinations, and a dissertation.

MASTER OF ARTS

The M.A. program, available to both full-time and part-time students, requires courses that include sociological theory and research methods. A 6 or 12-credit thesis option offers a unique opportunity for variation in graduate work. Exceptional M.A. candidates may seek transfer to the Ph.D. program after the first year of graduate work has been completed.

Contact Information

Department of Anthropology and Sociology
6303 NW Marine Drive
Vancouver, BC, V6T 1Z1
Tel: 604-822-5421
Fax: 604-822-6161
Email: ansograd@interchange.ubc.ca
Web: www.anso.ubc.ca

SOFTWARE SYSTEMS

Degree Offered: M.S.S.

Members

ASSOCIATE PROFESSORS
P. Nasiopoulos, S. Vuong.

Program Overview

The Master of Software Systems program is offered by the Institute of Computing, Information and Cognitive Systems (ICICS) in collaboration with the Departments of Computer Science and Electrical and Computer Engineering. The program is designed to be of interest to graduates in the various engineering disciplines, mathematics, or the physical sciences, but other applicants with the necessary technical background or work experience may be accepted on approval by the program director and the Faculty of Graduate Studies. Students with degrees in Computer Science or Computer Engineering are not eligible to apply.

Our instructors are from various organizations: UBC faculty, Langara College, and industry. For complete information please refer to the program's website (www.icics.ubc.ca/mss).

Degree Requirements

MASTER OF SOFTWARE SYSTEMS

The Master of Software Systems is a 16-month program, composed of 30 credits taken in three terms, as well as a four-month industry internship. The program is an opportunity to expand a student's existing skills and develop them for a career in a software systems environment.

Successful applicants must hold a bachelor's degree (in subjects other than Computer Science or Computer Engineering) and must also have computer program design and data structures knowledge equivalent to that offered in CPSC 221 or CPSC 252.

Contact Information

Master of Software Systems, ICICS
289-2366 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-8807
Fax: 604-822-9013
Email: info@mss.icics.ubc.ca
Web: www.icics.ubc.ca/mss
Gail Schmidt, Program Assistant

SOIL SCIENCE

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS
A. Black, C. Chanway, S. Chieng, H. Schreier.

ASSOCIATE PROFESSORS
A. Bomke, M. Novak.

ASSISTANT PROFESSOR

M. Krzic.

Program Overview

Soil Science offers opportunities for advanced study and research leading to M.Sc. and Ph.D. degrees in the areas of soil chemistry and mineralogy, soil organic matter, soil physics, biometeorology, soil pollution, soil and water conservation, soil genesis and classification, land use and land classification, forest soils, soil fertility, soil biology, and remote sensing. Graduate training in Soil Science normally involves a combination of courses in both basic and applied sciences, with research leading to the completion of a thesis. Students are expected to publish their research results in leading refereed journals.

The program is enriched through collaboration with colleagues in other graduate programs such as Forestry, Geography, Plant Science, Institute for Resources and Environment, and Landscape Architecture, and in agencies such as Environment Canada, Canadian Forest Service, Agriculture, Agri-Food Canada, Forest Renewal BC, and various provincial government agencies.

Coursework selected in consultation with the student's supervisory committee includes graduate courses in soil science and from other areas relevant to each student's research.

Research facilities are housed both within the MacMillan Building and, on a shared basis, in other buildings on campus. Within the MacMillan Building, the research facilities include various modern analytical laboratories and other equipment for conducting biochemical and biometeorological research, and computers for conducting qualitative data analysis.

Degree Requirements

DOCTOR OF PHILOSOPHY

Appropriate coursework will be selected in consultation with the candidate's committee. All candidates are required to take a comprehensive examination. The major requirement for the Ph.D. is completion of a research thesis demonstrating ability to conduct significant and original scientific research.

MASTER OF SCIENCE

Completion of the M.Sc. program requires a minimum of 18 credits of coursework plus 12 credits of thesis research.

Contact Information

Faculty of Land and Food Systems
270-2357 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Email: gradapp@interchange.ubc.ca
Web: www.agsci.ubc.ca/grad/soil_sc.htm
Alina Yuhymets, Graduate Programs Manager

SPECIAL EDUCATION

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSORS
P. Miranda, M. Porath, L. Siegel.

ASSOCIATE PROFESSORS
D. Butler, R. Ervin, L. Ford, C. Holbrook, J. Jamieson, N. Perry, K. Schonert-Reichl.

ASSISTANT PROFESSORS

J. Lucyshyn, W. McKee.

Program Overview

The Special Education area concerns the habilitation and education of students with exceptionalities, such as students with visual impairments, physical disabilities, emotional or behavioural disorders, learning disabilities, and developmental disabilities and students who are deaf or hard of hearing. The program also includes a focus on gifted and talented students. The master's programs focus on both research and practice. Topics addressed in the master's programs include cognitive, language, and social development, learning and instructional design, and cultural and individual differences in relation to exceptional students.

UBC does not offer an undergraduate degree in special education; the undergraduate courses in special education are open to students enrolled in the regular B.Ed. program or in one of the following post-B.Ed. special education programs: (1) Diploma, (2) Master of Education (M.Ed), and (3) Master of Arts (M.A.).

Degree Requirements

DOCTOR OF PHILOSOPHY

Typically, doctoral students in Special Education enter with extensive practical experience as general or special education teachers, school administrators, speech-language pathologists, school psychologists, or related professions. Graduates are prepared to assume leadership roles in a wide variety of educational, academic, community, private practice, and research settings. The Ph.D. program of studies in special education is developed for each student to reflect program requirements as well as individual student professional and academic preparation and student career goals. Doctoral training follows the scientist-practitioner model, with preparation in both research and professional skills.

All SPED Doctoral students are required to: participate in a department-wide doctoral seminar (EPSE 601A and B) over two terms; develop competence in at least two research methodologies; complete comprehensive examinations; and complete coursework that is determined on an individual basis. All Ph.D. students are required to complete a research thesis that is defended in an oral final examination.

MASTER OF ARTS

Students completing a Master of Arts degree in Special Education can choose courses in the following concentrations:

- General Special Education

- Autism/Developmental Disabilities Concentration
- Behaviour Disorders Concentration
- Blindness and Visual Impairment Concentration
- Blindness and Visual Impairment Concentration
- High Ability Concentration
- Learning Disabilities Concentration

Most M.A. concentrations require the completion of 30 credits, including coursework (24 credits) and thesis (6 credits). The Blindness and Visual Impairment Concentration requires 54 credits (48 credits coursework, 6 credits thesis) and the Education for Deaf and Hard of Hearing Concentration, 56 credits (50 credits coursework, 6 credits thesis).

Students who intend to apply to a Ph.D. program on completion of the M.A. should include EPSE 528 and EPSE 596 in their program.

MASTER OF EDUCATION

Students completing a Master of Education degree in Special Education can choose courses in the following concentrations:

- General Special Education
- Autism/Developmental Disabilities Concentration
- Behaviour Disorders Concentration
- Blindness and Visual Impairment Concentration
- Blindness and Visual Impairment Concentration
- High Ability Concentration
- Learning Disabilities Concentration

Most concentrations require the completion of 30 credits. The Blindness and Visual Impairment Concentration requires 45 credits and the Education for Deaf and Hard of Hearing Concentration, 47 credits. Credits include the graduating seminar at the end of the student's program in which a professional portfolio is completed.

Contact Information

Department of Educational and Counselling Psychology, and Special Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5351
Fax: 604-822-3302
Email: derek.gagnier@ubc.ca
Web: www.ecps.educ.ubc.ca
Derek Gagnier, Graduate Program Assistant

STATISTICS

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

B. Brant, P.A. Gustafson, N. E. Heckman, H. S. W. Joe, A. J. Petkau, W. J. Welch, R. H. Zamar.

ASSOCIATE PROFESSORS

B. Clarke, A. Doucet, L.Wu

ASSISTANT PROFESSORS

J. Bryan, R. Gottardo, K. Murphy, M. Salibian-Barrera.

Program Overview

The program leading to the Master of Science is designed to prepare the student for employment in government and industry or to serve as preparation for students planning to undertake a program leading to the Doctor of Philosophy. The studies leading to the Ph.D. are designed to equip the student to carry out research, with a view toward a career in academia, industry, or government. Research interests of the faculty include biostatistics, environmetrics, mathematical modelling of biological systems, computational statistics, data mining, machine learning, theory of statistical inference, asymptotics, multivariate analysis, robustness, nonparametrics, design of experiments, smoothing, Bayesian methods, computational molecular biology, gene expression, and microarrays.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of course work, a comprehensive examination, and research leading to a dissertation that is defended in an oral final examination.

MASTER OF SCIENCE

There are three options for the Master of Science:

- 1) **Thesis Option.** This option requires 24 credits of coursework (6 credits at the 300 level or above and 18 credits at the 500 level or above) and a 6-credit thesis.
- 2) **Project Option.** This option requires 27 credits of coursework (6 credits at the 300 level or above and 18 credits at the 500 level or above) and a 3-credit project.
- 3) **Master's Co-operative Education.** A co-operative education option is available for graduate students in Statistics. The Program is intended to help prepare interested and qualified students for careers in statistics and involves eight months of work placement supervised by practising professionals. Faculty advisors also visit students at their place of work and provide advice on technical reports required of all students in the program.

There is **not** a citizenship status requirement.

Contact Information

Department of Statistics
333-6356 Agricultural Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-4821
Fax: 604-822-6960
Email: christin@stat.ubc.ca
Web: www.stat.ubc.ca
Christine Graham, Student Services Coordinator

SURGERY

Degree Offered: M.Sc.

Members

PROFESSORS

G. K. Blair, S. W. Chung, I. G. M. Cleator, D. Cochrane, D. J. Fairholm, R. J. Finley, M. E. Gleave, S. L. Goldenberg, Y. Hsiang, T. J. Keane, S. Lichtenstein, M. D. Morrison, W.

Nelems, I. Olivotto, A. K. Qayumi, D. W. F. Schwarz, P. Steinbok, G. L. Warnock.

ASSOCIATE PROFESSORS

J. C. Boyle, N. L. Davis, G. Fradet, C. Honey, Y. Hsiang, W. Jia, T. J. Kieffer, F. Kozak, M. Meloche, C. Nelson, P. T. Phang, R. A. Pursell, G. J. Redekop, C. H. Scudamore, A. M. Seal, R. Simons, E. Skarsgard, H. Stevens, L. Stothers, D. Taylor, J. M. H. Teichman, E. Webber.

ASSISTANT PROFESSORS

R. Abu-Laban, K. Afshar, R. Cheifetz, M. Cox, J. Davison, W. Gourlay, E. Guns, C. Haw, C. Helgason, K. Ho, J. Johnson, P. Kozlowski, M. Levings, A. MacNeily, A. Mui, C. Ong, R. Paterson, R. Sidhu, P. Skarsgard, S. Wiseman, J. Yee.

Program Overview

The Department of Surgery offers opportunities and facilities for full-time study leading to the Master of Science in Surgery. A student's program will be determined by the program director in consultation with the student's supervisor. A supervisory committee will be chosen to represent the area of specialization elected by the candidate. The Master of Science program consists of an 18-credit thesis (SURG 549) plus 12 credits of coursework to give a total of 30 credits. 12 credits of coursework must be at the 500 level, of which 8 credits should be from the Department of Surgery courses numbered 502 to 548. The candidate, with the advice of the committee, may select other approved courses in related fields. Further information may be obtained from the M.Sc. program director in the Department of Surgery.

Degree Requirements

MASTER OF SCIENCE

Applicants must satisfy the normal admission requirements of the Faculty of Graduate Studies and must be acceptable to the Department of Surgery's Graduate Studies Committee. Prerequisites for application are an M.D., M.B., D.M.D., D.V.M. or equivalent.

Contact Information

Department of Surgery
3rd Floor, 910 West 10th Ave
Vancouver, BC, V5Z 4E3
Tel: 604-875-5355
Fax: 604-875-4036
Email: jclifton@interchange.ubc.ca
Web: www.surgery.ubc.ca
Joanne Clifton, M.Sc., Research Associate

TEACHER LIBRARIANSHIP

Degrees Offered: M.A., M.Ed.

Members

PROFESSOR

R. Jobe.

ASSOCIATE PROFESSOR

M. Asselin.

Program Overview

The graduate program in Teacher Librarianship (LIBE) is part of the graduate offerings in the Department of Language and Literacy

Education. The program focuses on school library organization and management, cooperative program planning, and information literacy.

Students who would like to undertake a Ph.D. specializing in Teacher Librarianship can do so through the graduate program in *Language and Literacy Education*, p. 261.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires: 1) at least an 18-credit concentration in the subject area (see the website (www.lled.educ.ubc.ca) for specifics), and 2) normally two years of formal teaching experience.

Program Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. A thesis, either 6 or 9 credits, is included.

Full-time and part-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Program Requirements: The program consists of 30 credits of which 24 must be at the 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. Students may opt for a program consisting entirely of courses, or may elect to do 27 credits of coursework plus a graduating paper.

Full-time and part-time study options are offered.

Contact Information

Department of Language and Literacy Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-8259
Fax: 604-822-3154
Email: anne.eastham@ubc.ca
Web: www.lled.educ.ubc.ca
Anne Eastham, Graduate Programs Assistant

TEACHING ENGLISH AS A SECOND LANGUAGE

Degrees Offered: Ph.D., M.A., M.Ed.

Members

PROFESSORS

S. Carey, P. Duff, L. Gunderson, B. Norton, K. Reeder.

ASSOCIATE PROFESSORS

M. Early, L. Shi, G. Tang.

ASSISTANT PROFESSORS

S. Talmy.

Program Overview

Students who would like to undertake a Ph.D. in Teaching English as a Second Language can do so through the program in *Language and Literacy Education*, p. 261.

Teaching English as a Second Language (TESL): examines the social, linguistic, educational, cognitive, and political processes affecting the teaching, learning, assessment, and use of English as an additional language locally and globally. The program Faculty have expertise in TESL methods, applied linguistics, second language acquisition and socialization, content-based language education, pedagogical and functional grammar, second language writing, issues of language and identity, language in education, multilingual literacies, language policy, and English in immigrant and international communities. The program also jointly sponsors the UBC/Ritsumeikan Joint Academic Exchange Program.

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires: 1) at least an 18-credit concentration in the subject area (see the website (www.lled.educ.ubc.ca) for specifics), and 2) normally two years of formal teaching experience.

DEGREE REQUIREMENTS

DOCTOR OF PHILOSOPHY

Program Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. A thesis, either 6 or 9 credits, is included.

Full-time and part-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires: 1) at least an 18-credit concentration in the subject area (see the website (www.lled.educ.ubc.ca) for specifics), 2) normally two years of formal teaching experience.

Program Requirements: The program consists of 30 credits of which 24 must be at the 500 level or above. A total of 6 credits may be taken at the 300 or 400 level. Students may opt for a program consisting entirely of courses, or may elect to do 27 credits of coursework plus a graduating paper.

Full-time and part-time study options are offered.

Contact Information

Department of Language and Literacy Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5788
Fax: 604-822-5134
Email: anne.eastham@ubc.ca
Web: www.lled.educ.ubc.ca
Anne Eastham, Graduate Programs Assistant

TECHNOLOGY STUDIES EDUCATION

Degrees Offered: M.A., M.Ed.

Members

ASSOCIATE PROFESSORS

D. Krug, S. Petrina.

ASSISTANT PROFESSOR

S. Khan.

Program Overview

The graduate degree programs (M.Ed. and M.A.) in Technology Studies Education are part of the graduate offerings in the Department of Curriculum Studies. Technology Studies Education (TSED) consists of two main areas: Technology Education and Computing Studies. Graduate studies in Technology Studies are interdisciplinary and offer students a variety of research and professional development opportunities.

Students may also choose to enrol in the *M.E.T. (Master of Educational Technology) program*, p. 247, offered online through the Office of External Programs and Learning Technologies.

Degree Requirements

MASTER OF ARTS

Admission Requirements: In addition to the Faculty of Graduate Studies requirements, the program requires:

- 1) Normally, 18 credits of senior coursework or a professional concentration in the area of interest.
- 2) Normally, two years of teaching experience or other relevant professional experience.

Degree Requirements: The program consists of 30 credits. At least 15 credits must be at 500 level or above. A maximum of 6 credits may be taken at the 300 or 400 level. A thesis, normally 9 credits, is included.

Part-time and full-time study options are offered.

MASTER OF EDUCATION

Admission Requirements: Same as M.A.

Degree Requirements: The program consists of a minimum of 30 credits, of which 24 must be courses numbered at the 500 level. A maximum of 6 credits may be taken at the 300 or 400 level. Students select either a program consisting entirely of courses (for example, 10 3-credit courses) or 27 credits of coursework plus a graduating project (three credits).

Part-time and full-time study options are offered.

Contact Information

Department of Curriculum Studies
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Web: www.cust.educ.ubc.ca
Basia Zurek, Graduate Secretary

THEATRE

Degrees Offered: Ph.D., M.A., M.F.A.

Members

PROFESSORS

E. Durbach, R. Gardiner, J. Wasserman.

ASSOCIATE PROFESSORS

C. Burnett, R. Eberle, R. Fedoruk, N. Freeman, A. Green, S. Heatley, S. Malloy, G. Murphy.

ASSISTANT PROFESSORS

K. Johnston, T. Scholte.

Program Overview

The Theatre Program offers opportunities for advanced studies leading to the Doctor of Philosophy (Ph.D.) and the Master of Arts (M.A.) in dramatic literature, theatre history, and criticism. The program also offers advanced studies leading to the Master of Fine Arts (M.F.A.) in the direction of plays and in the design of scenery, costume, and lighting. In cooperation with the Creative Writing Program, Theatre offers an M.F.A. in stage playwriting (see *Creative Writing/Theatre*, p. 242).

The program has diverse offerings in both practical theatre and the academic study of dramatic literature, history, and criticism. Regular productions, directed and designed by faculty, graduate students, and guest artists, are presented in the Frederic Wood Theatre and the Telus Studio Theatre. There is opportunity for participation in all aspects of production.

Library resources are constantly expanding from the present collection of approximately 30,000 works of dramatic literature and books on theatre, and more than 70 periodicals. There are almost 500 recordings of drama in the Wilson Library.

Further information about graduate programs may be obtained from the Theatre website (www.theatre.ubc.ca/programs/programs.htm).

See also graduate programs in *Creative Writing*, p. 241, and *Film Studies*, p. 250.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. in Theatre Studies is administered by the Graduate Committee in Theatre Studies. The Program can accommodate very few students, and admission is competitive.

Applicants should be able to match their research interests to those of the Graduate Committee: Canadian Studies, Dramaturgy, Post-Colonial Theatre, and some aspects of 19th Century European and Modern British, American, and Canadian Theatre. All students in the Graduate program are expected to apply for UGF and SSHRC awards to support their studies.

For detailed information about specific application and program requirements, please visit the Ph.D. Theatre page of the Theatre website (www.theatre.ubc.ca/programs/phdcours.htm).

MASTER OF ARTS

The Master of Arts in Theatre is administered by the Graduate Committee in Theatre Studies.

The Program can accommodate very few students, and admission is competitive.

Applicants should be able to match their research interests to those of the Graduate Committee: Canadian Studies, Dramaturgy, Post-Colonial Theatre, and some aspects of 19th Century European and Modern British, American, and Canadian Theatre. All students in the Graduate program are expected to apply for UGF and SSHRC awards to support their studies.

For detailed information about specific application and program requirements please visit the M.A. Theatre page of the Theatre website (www.theatre.ubc.ca/programs/phdcours.htm).

MASTER OF FINE ARTS

The Master of Fine Arts in Design for Theatre is an intensive graduate program intended to prepare students for design in the professional theatre in Canada. The Program can accommodate very few students, and admission is competitive.

Instruction centres around a core of studio classes emphasizing development of the designers' graphic, conceptual, and research skills. In addition, M.F.A. design students may assist faculty and other practising designers on projects outside the University, design theatre productions at UBC and elsewhere, and work in film. The program generally takes two or three years to complete, and culminates in a thesis design or designs. For detailed information about specific application and program requirements please visit the M.F.A. in Design for Theatre page of the Theatre website (www.theatre.ubc.ca/programs/mfadesig.htm).

The M.F.A. Directing program is a professionally oriented intensive graduate program, intended for those who wish to extend and enhance their directing practice. The program can accommodate very few students, and admission is competitive.

Students spend a year investigating a variety of preparation and rehearsal techniques and the demands of various theatrical performance styles. In their second year they direct two full length productions, one of which is the student's thesis production. For detailed information about specific application and program requirements please visit the M.F.A. in Directing for Theatre page of the Theatre website (www.theatre.ubc.ca/programs/mfadir.htm).

Contact Information

Theatre Program
6354 Crescent Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-3880
Fax: 604-822-5985
Email: fwtheatr@interchange.ubc.ca
Web: www.theatre.ubc.ca
Karen Tong, Theatre Program Secretary and Graduate Secretary

VOCATIONAL REHABILITATION COUNSELLING

Degrees Offered: M.A.

Members

ASSOCIATE PROFESSOR

I. Schultz.

Program Overview

UBC has developed a state-of-the-art professionally-oriented graduate program in Vocational Rehabilitation Counselling which follows the scientist-practitioner training model and prepares students for independent practice in a wide spectrum of vocational rehabilitation service areas, including, but not limited to, vocational assessment, vocational individual and group intervention, adjustment and rehabilitative counselling, job development and placement, return-to-work planning, case and disability management, and research and program evaluation. A supervised clinical experience in the Vocational Rehabilitation setting as well as coursework on psychosocial and medical aspects of disability has also been built into the curriculum. The program is responsive to the needs of Canadian vocational rehabilitation professionals and provides a uniquely Canadian perspective on vocational rehabilitation counselling and the environment where it is delivered.

The curriculum has been developed in accordance with future program accreditation requirements, and prepares graduates for licensing by respective professional licensing bodies for vocational rehabilitation professionals.

The program normally admits students every three years. Please check with the program to see if applications are being accepted for the upcoming academic year.

Degree Requirements

MASTER OF ARTS

Admission Requirements: The applicant must have an undergraduate degree, preferably with a concentration in related areas such as psychology, occupational therapy, social work, special education human resources management, or nursing and a standing acceptable to the Faculty of Graduate Studies. The applicant will normally be required to have work experience, either paid or volunteer. Letters of reference attesting to the applicant's personal suitability for the field will be required.

Program Requirements: The program is broad and covers topics of relevance to the professional vocational rehabilitation counsellor such as vocational assessment of persons with disabilities, job placement, disability case management, counselling theory, and medical aspects of disability.

The program is offered on a part-time basis, to accommodate students currently working in the field, with classes arranged for late afternoon (4:30 pm to 7:00 pm) and additional spring and summer offerings.

Contact Information

Department of Educational and Counselling
Psychology, and Special Education
2125 Main Mall
Vancouver, BC, V6Z 1T4
Tel: 604-822-6371
Fax: 604-822-3302
Email: karen.yan@ubc.ca
Web: www.ecps.educ.ubc.ca/grad_programs/
vrc.html
Karen Yan, Graduate Program Assistant

WOMEN'S STUDIES AND GENDER RELATIONS

Degrees Offered: Ph.D., M.A.

Members

PROFESSORS

S. Boyd, T. Cheek, A. Condon, G. Creese, M. Fee, S. Grace, S. Gunew, R. Irwin, D. Kelly, B. Long, D. Newell, G. Pratt, J. Prior, W. Pue, V. Raoul, V. Strong-Boag, L. Weir.

ASSOCIATE PROFESSORS

L. Angeles, D. Arbel, M. Bryson, R. Buchanan, S. Butterwick, G. Chapman, M. Chapman, P. Dalziel, R. De Grandis, J. Dixon, N. Frelick, W. Frisby, P. Gurstein, T. Hellwig, A. Henderson, T. Kemple, C. Leggo, S. Orbaugh, L. Roman, B. Ross, S. Taubeneck, A. Tom, B. Wilson.

ASSISTANT PROFESSORS

S. Anderson, A. Bloch, J. Chan-Tiberghien, M. Gleason, L. Hurd Clarke, P. Kershaw, J. Menon, N. Nisbet, M. Stack, J. Sundberg, S. Thobani, P. Walter.

Program Overview

Women's Studies is an exciting interdisciplinary field of study that also draws upon several traditional disciplines. It has its own texts, journals and methodology. In many disciplines some of the most innovative, scholarly work in theory and research is being done by Women's Studies specialists, and the interdisciplinary nature of Women's Studies scholarship is an important feature of its success and promise. The Women's Studies program at UBC strives to offer courses in an open and mutually supportive atmosphere. The Centre has approximately 50 well-qualified faculty associates from many departments and programs. They include expertise in Gender and Development, Lesbian and Gay Studies, Gender and Cultural Studies (including Asia), Women in Canadian History and Literature (in English and French), issues related to Women's Health, and Feminist Legal Studies. The program aims to maintain flexibility to accommodate the needs of individual students.

To be eligible for consideration applicants must fulfil all the general requirements for admission to the Faculty of Graduate Studies (e.g. TOEFL score). In addition, they must also:

- 1) Demonstrate adequate preparation in feminist theory and methodology, or be willing to take extra courses, as required, to gain such preparation; and
- 2) Submit a writing sample (such as an essay) demonstrating excellent research potential, and a statement explaining why s/he

wishes to undertake doctoral or M.A. work in Women's Studies. The student may describe relevant non-academic experience, and explain any discrepancies in the academic record. This statement should also specify the areas of most interest to the applicant, to enable us to ascertain the likelihood of an appropriate research supervisor being available for the thesis.

Students are selected by an Advisory Committee representing a range of relevant research areas, which assesses the availability of appropriate courses and faculty to provide supervision.

Degree Requirements

DOCTOR OF PHILOSOPHY

The Ph.D. program allows qualified students to undertake doctoral work in the field of Women's Studies and Gender Relations. Students who did not do their M.A. at the Centre must complete WMST 500 in year one, plus a minimum of 9 additional credits of graduate-level coursework, to be approved by a supervisory committee. Additional coursework may be required. Qualifying examinations may take a variety of forms, also to be approved by the committee, and must normally be completed by the end of the second year in the program. All Ph.D. students are required to complete a research thesis that is defended in an oral final examination.

MASTER OF ARTS

The Master of Arts (M.A.) in Women's Studies and Gender Relations allows qualified students to undertake graduate work in the field. Issues related to women, gender analysis, or related topics will be presented in feminist frameworks. The 30-credit M.A. is available on a full-time or part-time basis. There are two options: with thesis or without thesis. Non-thesis students complete a shorter extended essay or research project.

Students complete 30 credits of coursework, including required core courses in methodology and theory and interact with visiting scholars at the Centre through a year-long seminar. There is considerable flexibility in the selection of other courses. Options may include a practicum or internship in the local community or abroad.

Contact Information

Centre for Women's and Gender Studies
1896 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-9171
Fax: 604-822-9169
Email: wmst1@interchange.ubc.ca
Web: www.wmst.ubc.ca
Wynn Archibald, Graduate Secretary

ZOOLOGY

Degrees Offered: Ph.D., M.Sc.

Members

PROFESSORS

M. Adamson, J. D. Berger, R. W. Blake, H. W. Brock, A.P. Farrell, J. M. Gosline, T. A. Grigliatti, D. R. Jones, W. Maddison, W. K. Milsom, D. G. Moerman, J. Myers, D. Pauly, A. Pitcher,

D. Schluter, R. Shadwick, A. R. E. Sinclair, J. N. M. Smith, T. P. Snutch, J. D. Steeves, W. Tetzlaff, C. J. Walters.

ASSOCIATE PROFESSORS

V. Auld, L. Aviles, M. Doebeli, L. Matsuuchi, S. P. Otto, N. Pante, R. J. Redfield, A. J. Roskams, E. B. Taylor, M. Whitlock.

ASSISTANT PROFESSORS

N. Abraham, C. Brauner, D. Irwin, B. Leander, M. Ramer, J. Richards, P. Schulte, J. Shurin, D. Srivastava, M. Velland.

Program Overview

Zoology encompasses over 50 principal investigators. Research interests of faculty members can be divided into several broad categories with substantial overlap of interest and collaboration among these arbitrary groups. The program vigorously promotes integrative research in biology and actively participates in several interdisciplinary programs, including the graduate programs in genetics, neuroscience, applied mathematics, and resource management.

Zoology offers a wide variety of research programs leading to the Master of Science and Doctor of Philosophy in the following areas: Cell and Developmental Biology, Community and Population Ecology, Comparative Physiology and Biochemistry, Neurobiology, and Evolutionary Biology.

In addition Zoology is actively involved in several interdisciplinary programs of instruction and research including:

- Fisheries Centre
- Centre for Biodiversity Research
- Centre for Applied Conservation Research (CACR), Faculty of Forestry
- Genetics Program
- ICORD (International Collaboration on Repair Discoveries)
- Institute of Applied Mathematics
- BC Cancer Research Centre

Degree Requirements

DOCTOR OF PHILOSOPHY

Original research supervised by a faculty member constitutes the major component of work toward the Ph.D. degree. Most Ph.D. students are not required to complete coursework unless it is recommended by the thesis committee, or as a condition of admission. All Ph.D. students are required to present a research proposal and pass a comprehensive examination on their research area within 18 months of registering in the Program. The comprehensive exam is an oral examination (typically with five or six examiners) intended to assess the student's breadth of knowledge in the general subject area(s) of the proposed research (i.e., it is not a defense of the written proposal).

MASTER OF SCIENCE

The M.Sc. degree requires a combination of coursework and research for a total of 30 credits. Effective September 2004, 12 credits of courses are required with the remaining 18

credits being thesis research. Single courses typically range from 3 to 6 credits each. Students have considerable flexibility in their choice of courses including graduate and senior undergraduate courses in Zoology, Botany, Microbiology, Genetics, Forestry, Conservation, and Earth and Oceans Sciences, as well as several other departments. Students may also design their own courses in the form of “Directed Studies” supervised by a faculty member.

M.Sc. students are also required to conduct research towards their degrees. Although research conceived independently of the student’s supervisor is encouraged, the minimum requirement for the M.Sc. degree is to successfully complete directed research. The M.Sc. is a two-year program, but due to the nature of the research undertaken many students take longer. Students who originally register in the M.Sc. program may switch to the Ph.D. program after 12 to 18 months, on the advice of their research committee. Switching to the Ph.D. program is only possible if the student has completed 18 credits of coursework in the first 18 months of their program with a First class standing. Such transfers must then comply with the Faculty of Graduate Studies regulations.

Contact Information

Department of Zoology, Graduate Program
6270 University Boulevard
Vancouver, BC, V6T 1Z4
Tel: 604-822-5807
Fax: 604-822-2416
Email: gradsec@zoology.ubc.ca
Web: www.zoology.ubc.ca
Allison Barnes, Graduate Secretary

DEGREE PROGRAMS ADMINISTERED BY DISCIPLINARY FACULTIES

Select graduate programs are administered directly by their disciplinary faculties and should be contacted directly for information regarding admission, fees, and program requirements. Please read below for the programs that apply.

APPLIED SCIENCE

See *Master of Engineering*, p. 107, under the Faculty of Applied Science section for information regarding the Master of Engineering (M.Eng.) programs available.

COMMERCE AND BUSINESS ADMINISTRATION

See *Professional Master’s Degrees*, p. 170, under the Faculty of Commerce and Business Administration (Sauder School of Business) section for information regarding Master of Business Administration (M.B.A.), Master of Management (M.M.) and joint M.B.A. programs.

LAND AND FOOD SYSTEMS

See *Integrated Studies in Land and Food Systems*, p. 260 in this chapter, for information on the Masters and Ph.D programs.

PHARMACEUTICAL SCIENCES

See *Graduate Programs*, p. 374, under Faculty of Pharmaceutical Sciences for information on the Doctor of Pharmacy (Pharm.D.) program.

ACADEMIC RESOURCES

EDUCATION: OFFICE OF GRADUATE PROGRAMS AND RESEARCH

The Office of Graduate Programs and Research in the Faculty of Education supports students in each of the 32 graduate programs in education. General information on graduate programs in education may be obtained through the office.

Graduate degree programs in Education are offered in the following areas:

- *Adult Education*, p. 229
- *Adult Learning and Global Change*, p. 229
- *Art Education*, p. 232
- *Counselling Psychology*, p. 241
- *Curriculum Studies*, p. 242
- *Curriculum Studies and Educational Administration and Leadership*, p. 243
- *Development, Learning and Culture*, p. 244
- *Early Childhood Education*, p. 244
- *Education, Curriculum and Instruction*, p. 245
- *Educational Administration*, p. 245
- *Educational Leadership and Policy*, p. 246
- *Educational Studies*, p. 246
- *Educational Technology*, p. 247
- *Higher Education*, p. 256
- *Home Economics Education*, p. 257
- *Human Kinetics*, p. 258
- *Language and Literacy Education*, p. 261
- *Literacy Education*, p. 263
- *Mathematics Education*, p. 265
- *Measurement Evaluation and Research Methodology*, p. 265
- *Modern Language Education*, p. 267
- *Music Education*, p. 268
- *Physical Education*, p. 273
- *School Psychology*, p. 279
- *Science Education*, p. 279
- *Social Studies Education*, p. 280
- *Society, Culture and Politics in Education*, p. 281
- *Special Education*, p. 282
- *Teacher Librarianship*, p. 283
- *Teaching English as a Second Language*, p. 284
- *Technology Studies Education*, p. 284
- *Vocational Rehabilitation Counselling*, p. 285

Prospective applicants are also encouraged to visit the Education Graduate Programs website (www.educ.ubc.ca/ogpr/graduate_programs).

Contact Information

Office of Graduate Programs and Research
Faculty of Education
2601–2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5512
Fax: 604-822-8971
Email: ogpr@interchange.ubc.ca

MASTER’S CO-OPERATIVE EDUCATION OPTIONS

Master of Arts Co-operative Education Option

Students admitted to the Master of Arts program in a department with a co-operative education option may apply for admission to the Arts Co-operative Education Program. The Program helps prepare interested and qualified students for professional careers in government, the non-profit sector, and industry with at least four months of work placement supervised by practising professionals. Faculty advisors also visit students at their place of work, where feasible, and provide advice on work term projects required of all students in the program.

Students who have been admitted into the Master of Arts program in a department with the co-op option must apply to the Arts Co-op Office early in their first term at UBC. Selection of students will be based on academic performance and general suitability to the work environment as determined by resumé and interview. The total enrolment will be subject to the availability of appropriate work placements and faculty advisors. The work placements are arranged by mutual agreement between students and employing organizations. Co-op courses are taken in addition to the courses needed to meet normal academic requirements. These courses do not count for credit toward the degree, but their completion will be noted on a student’s academic record.

CONTACT INFORMATION Arts Co-op Program

Buch. C369–1866 Main Mall
The University of British Columbia
Vancouver, BC, V6T 1Z1
Fax: 604-822-1529
Web: co-op.arts.ubc.ca

Master of Science Co-operative Education Option

Co-operative education integrates academic study with related and supervised work experience in co-operating employer organizations.

Students admitted to the Master of Science program in Statistics may apply for admission to a co-operative education option that may be course-, project-, or thesis-based. The program helps prepare interested and qualified students for professional careers in government and industry with eight months of work placement supervised by practising professionals. Faculty advisors also visit students at their place of

work where feasible and provide advice on technical reports required of all students in the program.

Students who have been admitted into the Master of Science program in Statistics and who are seeking admission to the co-op option must apply to the Science Co-op Office before December 1 in their first term at UBC. Selection of students will be based on academic performance and general suitability to the work environment as determined by resumé and interview. The total enrolment will be subject to the availability of appropriate work placements and faculty advisors. The work placements are arranged by mutual agreement between students and employing organizations. Participating students register for STAT 598 (in the summer term following their first two terms at UBC) and STAT 599 (in Term 1 of their second year at UBC) in addition to the courses needed to meet normal academic requirements. Satisfactory completion of these courses, which do not carry academic credit, will be noted on a student's academic record. Students choosing the M.Sc. thesis option will require an additional term (their second summer term at UBC) to complete their degree requirements.

For more information on the co-operative education option, contact the Department of Statistics (see address below) or the Co-operative Education Program Office, Room 170, Chemistry/Physics Building 6221 University Blvd, Vancouver, BC, V6T 1Z1; Fax: 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

CONTACT INFORMATION
Student Services, Department of Statistics
333-6356 Agricultural Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-4821
Fax: 604-822-6960
Email: christin@stat.ubc.ca
Web: www.stat.ubc.ca
Ms. Christine Graham, Graduate Secretary

RESIDENTIAL COLLEGES

GREEN COLLEGE

K. Benson (History), Principal

Green College is a centre for advanced interdisciplinary scholarship at the University of British Columbia. It is home to a community of scholars who blend social and intellectual life through living together, academic programs, dining, and cultural events. The programming includes the Green College Speaker Series, monthly interdisciplinary group lecture series, the Cecil and Ida Green Visiting Professorships, and a members' speakers series. Most activities occur before and after dinner, and they attract people from all parts of the campus and from the wider community to share in intellectual discussion. All advertised events are open to the public. Members of the public are also invited to dine through the purchase of a dinner ticket from the Green College Office.

The College provides accommodation for 84 graduate students and 16 post-doctoral

researchers and visiting faculty on a unique site at the north end of the UBC campus, overlooking the Strait of Georgia and surrounding mountains. Graduate students are chosen on the basis of academic standing, commitment to participation in the life of the College, and the need to achieve a mix of students that reflects the general graduate student population. They are permitted to live in Green College for a minimum term of four months and a maximum term of three years. All residents are required to participate in College dining. Non-resident members are also selected from UBC faculty. The criteria for selection are the same as that for resident members.

In addition to living accommodation, the College has meeting rooms, dining and social facilities, a reading room, and administrative offices. There is also a guest house on site, with accommodations available to book for anyone attending UBC on academic business. The focal point of the College is Graham House, which has been restored to its original (1915) form and which contains the dining hall and reading room.

Contact Information

Tel: 604-822-8660
Web: www.greencollege.ubc.ca

ST. JOHN'S COLLEGE

Timothy Brook, Principal

St. John's College is a graduate residential College of the University of British Columbia that fosters international study and research on issues of global scope. Founded in 1997, the College serves as an intellectual and social centre for graduate students, post-doctoral fellows, visiting scholars, and for other members of the University who share the scholarly objectives of advanced international study and academic excellence. Members of this community—graduate students from Canada and other countries who are registered in different departments at UBC—enrich their academic programs and learn from each other in a collegial setting. Graduate student members of the College are eligible for consideration for St. John's College fellowships.

Student residential facilities include 136 studio residence units, eight accessible units, 11 one-bedroom units for couples, and four residential rooms for post-doctoral fellows and visiting scholars. Only St. John's College members are eligible to reside at the College. Students are selected for membership by means of a competitive process; applications are reviewed by a selection committee comprised of distinguished international scholars and current residents of the College. Selection criteria include high academic standing, good communication skills, experience and/or interest in international/global issues, willingness to participate in the St. John's College community, community service, extracurricular activities, and demonstrated leadership.

Residents are expected to take an active role in the social and academic aspects of College life, including participation in various programs and

attendance at functions and lectures sponsored by or linked with the College. In order to foster interaction and fellowship within the College community, participation in the College's meal plan, which includes five dinners and five breakfasts each week, is a requirement for all residents and guests.

The College has a number of well-appointed guest rooms for short-term academic visitors to the University; guests are encouraged to participate in the College community during their stay.

Contact Information

Tel: 604-822-8788
Web: www.stjohns.ubc.ca

REGISTRATION 2005/2006

Program	Degree	Total	Program	Degree	Total
Adult Education	M.A.	20	Counselling Psychology	M.A.	64
	M.Ed.	47		M.Ed.	78
Adult Learning and Global Change	M.Ed.	33		Ph.D.	37
Agricultural Economics	M.Sc.	10	Creative Writing	M.F.A.	75
Anatomy and Cell Biology	M.Sc.	10	Creative Writing/Film	M.F.A.	0
	Ph.D.	9	Creative Writing/Theatre	M.F.A.	1
Ancient Culture, Religion and Ethnicity	M.A.	8	Curriculum Studies	M.A.	12
Animal Science	M.Sc.	23		M.Ed.	88
	Ph.D.	15		Ph.D.	58
Anthropology	M.A.	25	Curriculum Studies and Educational Administration and Leadership	M.Ed.	3
	Ph.D.	23	Dental Science	M.Sc.	13
Architecture	M.Arch.	144		M.Sc./P.D.T.	7
	M.A.S.A.	19		Ph.D.	17
Archival Studies	M.A.S.	29	Development, Learning and Culture	M.A.	10
Archival Studies and Library Information Systems	M.A.S.L.I.S.	26		M.Ed.	1
Art Education	M.A.	4		Ph.D.	21
	M.Ed.	5	Early Childhood Education	M.A.	1
Art History (CCST)	M.A.	9		M.Ed.	21
Asia Pacific Policy Studies	M.A.P.P.S.	23	Economics	M.A.	47
	M.A.P.P.S./LL.B.	7		Ph.D.	74
	M.A.P.P.S./M.B.A.	0	Education, Curriculum and Instruction	M.A.	7
Asian Studies	M.A.	14		M.Ed.	81
	Ph.D.	32		Ph.D.	31
Astronomy	M.Sc.	3	Educational Administration	M.A.	2
	Ph.D.	9		M.Ed.	94
Atmospheric Science	M.Sc.	5	Educational Leadership and Policy	Ed.D.	40
	Ph.D.	12	Educational Psychology	M.Ed.	1
Audiology and Speech Sciences	M.Sc.	56	Educational Studies	M.A.	8
	Ph.D.	6		M.Ed.	3
Biochemistry and Molecular Biology	M.Sc.	12		Ph.D.	63
	Ph.D.	41	Educational Technology	M.E.T.	161
Botany	M.Sc.	16	Electrical and Computer Engineering	M.A.Sc.	150
	Ph.D.	48		Ph.D.	161
Business Administration	M.Sc.B.	31	Engineering Physics	M.A.Sc.	5
	Ph.D.	72	English	M.A.	45
Chemical and Biological Engineering	M.Sc.	1		Ph.D.	54
	M.A.Sc.	33	European Studies	M.A.	29
	Ph.D.	75	Experimental Medicine	M.Sc.	62
Chemistry	M.Sc.	37		Ph.D.	72
	Ph.D.	144	Family Studies	M.A.	15
Children's Literature	M.A.	22	Film Studies	M.A.	6
Civil Engineering	M.A.Sc.	71		M.F.A.	9
	Ph.D.	94	Fine Arts	M.A.	20
Classical Archaeology	M.A.	15		M.F.A.	19
Classics	M.A.	3		Ph.D.	22
	Ph.D.	8	Food Science	M.Sc.	14
Comparative Literature	M.A.	2		Ph.D.	12
	Ph.D.	13	Forestry	M.A.Sc.	13
Computer Science	M.Sc.	153		M.F.	2
	Ph.D.	78		M.Sc.	103
				Ph.D.	125
			French	M.A.	16
				Ph.D.	7
			Genetic Counselling	M.Sc.	12
			Genetics	M.Sc.	32
				Ph.D.	58
			Geography	M.A.	20
				M.Sc.	18
				Ph.D.	61
			Geological Engineering	M.A.Sc.	5
				M.Eng.	0
				Ph.D.	4
			Geological Science	M.Sc.	43
				Ph.D.	34
			Geophysics	M.A.Sc.	2
				M.Sc.	6
				Ph.D.	16
			Germanic Studies	M.A.	5
				Ph.D.	6
			Health Administration	M.H.A.	60
			Health Care and Epidemiology	M.Sc.	20
				Ph.D.	42
			Health Science	M.H.Sc.	37
			Higher Education	M.A.	10
				M.Ed.	13
			Hispanic Studies	M.A.	6
				Ph.D.	7
			History	M.A.	23
				Ph.D.	23
			History of Education	M.A.	4
				M.Ed.	0
			Home Economics Education	M.Ed.	3
			Human Kinetics	M.A.	20
				M.H.K.	13
				M.Sc.	28
				Ph.D.	29
			Human Nutrition	M.Sc.	19
				Ph.D.	9
			Integrated Studies in Land and Food Systems	M.Sc.	3
				Ph.D.	4
			Interdisciplinary Studies	M.A.	6
				M.Sc.	3
				Ph.D.	55
			Journalism	M.J.	53
			Landscape Architecture	M.A.S.L.A.	6
				M.L.A.	64
			Language and Literacy Education	Ph.D.	42
			Law	LL.M.	35
				M.Jur.	0
				Ph.D.	40
			Library and Information Studies	M.L.I.S.	152
			Library, Archival and Information Studies	Ph.D.	14
			Linguistics	M.A.	5
				Ph.D.	33
			Literacy Education	M.A.	10
				M.Ed.	27

Program	Degree	Total
M.D./Ph.D. (Combined Program)	M.D./Ph.D.	14
Materials Engineering	M.A.Sc.	34
	M.Sc.	2
	Ph.D.	39
Mathematics	M.Sc.	32
	Ph.D.	59
Mathematics Education	M.A.	3
	M.Ed.	12
Measurement Evaluation and Research Methodology	M.A.	5
	M.Ed.	2
	Ph.D.	14
Mechanical Engineering	M.A.Sc.	80
	Ph.D.	71
Medical Genetics	M.Sc.	22
	Ph.D.	34
Microbiology and Immunology	M.Sc.	26
	Ph.D.	62
Mining Engineering	M.A.Sc.	33
	Ph.D.	31
Modern Language Education	M.A.	3
	M.Ed.	7
Music	D.M.A.	46
	M.A.	12
	M.Mus.	64
	Ph.D.	11
Music Education	M.A.	6
	M.Ed.	15
Neuroscience	M.Sc.	39
	Ph.D.	76
Nursing	M.S.N.	250
	Ph.D.	26
Occupational and Environmental Hygiene	M.Sc.	20
	Ph.D.	6
Occupational Therapy	M.O.T.	76
Oceanography	M.Sc.	11
	Ph.D.	17
Oncology	M.Sc.	3
	Ph.D.	4
Pathology	M.Sc.	41
	Ph.D.	61
Pharmaceutical Sciences	M.Sc.	11
	Ph.D.	27
Pharmacology	M.Sc.	10
	Ph.D.	16
Philosophy	M.A.	13
	Ph.D.	23
Philosophy of Education	M.A.	2
	M.Ed.	1
Physical Education	M.A.	0
	M.Ed.	1
Physical Therapy	M.P.T.	79
Physics	M.Sc.	72
	Ph.D.	69

Program	Degree	Total
Physiology	M.Sc.	11
	Ph.D.	11
Planning	M.A.P.	82
	M.Sc.P.	23
	Ph.D.	18
Plant Science	M.Sc.	20
	Ph.D.	16
Political Science	M.A.	51
	Ph.D.	40
Psychology	M.A.	31
	Ph.D.	65
Rehabilitation Sciences	M.Sc.	19
	M.R.S.C.	22
	Ph.D.	8
Religious Studies	M.A.	6
	Ph.D.	2
Reproductive and Developmental Sciences	M.Sc.	7
	Ph.D.	16
Resource Management and Environmental Studies	M.A.	12
	M.Sc.	27
	Ph.D.	71
School Psychology	M.A.	21
	M.Ed.	3
	Ph.D.	14
Science Education	M.A.	6
	M.Ed.	9
Social Studies Education	M.A.	5
	M.Ed.	4
Social Work	M.S.W.	102
Social Work and Family Studies	Ph.D.	8
Society, Culture and Politics in Education	M.A.	11
	M.Ed.	11
Sociology	M.A.	22
	Ph.D.	27
Sociology of Education	M.A.	10
	M.Ed.	3
Software Systems	M.S.S.	44
Soil Science	M.Sc.	9
	Ph.D.	6
Special Education	M.A.	18
	M.Ed.	52
	Ph.D.	15
Statistics	M.Sc.	9
	Ph.D.	23
Surgery	M.Sc.	8
Teacher Librarianship	M.A.	1
	M.Ed.	8
Teaching English as a Second Language	M.A.	3
	M.Ed.	20
	Ph.D.	1
Technology Studies Education	M.A.	6
	M.Ed.	6

Program	Degree	Total
Theatre	M.A.	5
	M.F.A.	8
	Ph.D.	2
Vocational Rehabilitation Counselling	M.A.	2
Women's and Gender Studies	M.A.	10
	Ph.D.	18
Zoology	M.Sc.	62
	Ph.D.	66
<i>Total as of February 1, 2006</i>		7824

ACADEMIC STAFF

DEAN'S OFFICE

Frieda Granot; Lynn Alden; Kersti Krug; Ann Rose; Douw Steyn; James Thompson.

MEMBERS

Individuals eligible for membership in the Faculty of Graduate Studies must be tenured or tenure track (including grant tenured or grant tenured track) faculty members holding the title of Assistant Professors, Associate Professor, or Professor in an academic unit authorized to offer graduate programs. Members of the Faculty of Graduate Studies may be sole supervisors of graduate students, chair examining committees, and vote at the Faculty of Graduate Studies general meetings.

Members of the Faculty of Graduate Studies are listed under the *Degree Programs*, p. 229, with which they are associated.

11 The College of Health Disciplines

Principal's Office

Dr. John H. V. Gilbert, Principal
400–2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-5571
Fax: 604-822-2495

Health Disciplines Website
(www.health-disciplines.ubc.ca)

The College is an affiliation of seven Faculties that fosters, enhances, and sustains a culture of interprofessional and interdisciplinary education for future health and human service practitioners through innovative student learning, collaborative research, and best practices. The affiliated Faculties are Applied Science, Arts, Dentistry, Education, Land and Food Systems, Medicine, and Pharmaceutical Sciences. Each of these Faculties either represents a health discipline, or is academic home to one (or more) of the health service School(s) or Department(s). The term “health” in the title for the College is situated in the broad definition of the World Health Organization’s Thirteenth World Health Assembly in 1977, to be inclusive of all health and human service programs.

The College recognizes the desirability of a common set of pedagogic approaches to interprofessional health education, the need to rationalize approaches to practice education, the goal of common policy approaches in UBC’s relations with government, and the contribution of the College’s Institutes, Centres, Divisions, and ancillary units to the University’s health and human service programs.

The College provides an academic home for a range of interprofessional activities both within and outside of the University, activities in which any one faculty could not engage alone. Through the programs of the affiliated faculties, the College addresses the need to prepare students who are graduating from health and human service programs, with the knowledge, skills, and attitudes central to interprofessional practice. These include, for example, an understanding of the role of professional associations in interprofessional practice through competencies, accreditation, and (where appropriate) licensure; addressing issues of pre- and post-licensure education, regardless of degree objective; using interprofessional curricula to guide health human resource planning; accessing and building on the interests of the health and

human service industries in the interprofessional practice education of students; and conducting research into tools for development and evaluation of interprofessional education, health policy, and health human resource planning.

The Council of the College of Health Disciplines is chaired by the Principal and consists of the Deans, Directors, and Heads of faculties, schools, and programs that offer health and human service degrees. Committee members participate in the planning of programs and the administrative structures in the health and human service programs at UBC.

The College of Health Disciplines is administratively responsible for all shared facilities in the Instructional Resources Centre. The College includes four divisions: Practice Education, Interprofessional Education, Health Care Communication, and Interprofessional Activities/Communication. It also includes two Centres and one Institute: the Centre for Health Services and Policy Research, the Centre for International Health, and the Institute for Aboriginal Health. The College also sponsors the Health Sciences Students’ Association and the Global Outreach Students’ Association. It is also responsible for one ancillary unit, the Media Group.

DIVISION OF HEALTH CARE COMMUNICATION

William Godolphin, (Ph.D.), Co-Director
Angela Towle, (Ph.D.), Co-Director

The aim of the Division is to improve client involvement in health care decision-making through collaborative research and program development. Research is conducted with both patients/clients and health professionals, in the community and within academe, and is targeted at understanding the drivers and barriers that influence client-professional communications and consequent health outcomes. The objective is to use research findings to develop projects to effect changes in the areas of professional practice, curriculum of health and human service programs, and patient/client communication and advocacy.

Contact Information:

400–2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-8002
Fax: 604-822-2495
Web: www.health-disciplines.ubc.ca

DIVISION OF INTERPROFESSIONAL EDUCATION

Lesley Bainbridge, M.Ed., BSR(PT),
Associate Principal, Interprofessional Education

The Division of Interprofessional Education assists with the coordination and development of projects generated by the Interprofessional Education Committee, which represents all of the health and human service programs. The mandate of the committee is to develop ways and means of integrating the teaching of health and human service subject matter where such integration appears appropriate, to develop recommendations regarding interprofessional teaching programs including format and methods, and to conduct periodic surveys of students and faculty on the form and content of interprofessional learning initiatives.

Contact Information:

400–2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-2611
Fax: 604-822-2495
Web: www.health-disciplines.ubc.ca

DIVISION OF RESEARCH AND EVALUATION

Grant Charles, B.S.W. (W.Ont.), M.S.W. (Calg.),
Ph.D. (Vic.B.C.), Associate Principal

The mandate of the Division is to foster and maintain a program of research in interprofessional education for patient-centred collaborative practice, in partnership with other units within the College.

Contact Information:

400–2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-5571
Fax: 604-822-2495
Web: www.health-disciplines.ubc.ca

INSTITUTE FOR ABORIGINAL HEALTH

Eduardo Jovel, Ph.D., Director

The Institute for Aboriginal Health assists UBC health and human service faculties, schools, and departments and other post-secondary institutions with program development concerning Aboriginal health issues. The Institute aims to develop capacity with Aboriginal communities and further assist health education, training, and Aboriginal health research, while respecting traditional knowledge.

The Institute also works to: increase the number of Aboriginal health care professionals; improve Aboriginal access to health and human service programs at UBC; provide support to Aboriginal students enrolled in health and human service programs; assist in identifying health care issues; assist in developing programs relevant to Aboriginal health care needs; and encourage interest in health and human service careers at the secondary school level.

Contact Information:
403-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-2115
Fax: 604-822-2495
Web: www.health-disciplines.ubc.ca/iah

CENTRE FOR INTERNATIONAL HEALTH

Jerry Speigel, Ph.D., Director

The UBC Centre for International Health has been established to conduct research into issues of global health and to coordinate and facilitate overseas initiatives in the general areas of health and development. There is representation on its governing body from affiliated faculties and from the undergraduate body, Global Outreach Students' Organization (GOSA). Interested students are strongly encouraged to join GOSA.

Contact Information:
400-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-1398
Fax: 604-822-2495
Web: www.health-disciplines.ubc.ca

CENTRE FOR HEALTH SERVICES AND POLICY RESEARCH

Charlyn Black, M.D., Sc.D., Director

The UBC Centre for Health Services and Policy Research (CHSPR) advances scientific enquiry into population health and into ways in which health services can best be organized, funded, and delivered. Our researchers and staff carry out a diverse program of research and development designed to deliver data, tools, and analysis useful in understanding and renewing health care, and in improving the health of Canadians.

While CHSPR does not offer courses, it does host and mentor graduate students and post-doctoral fellows. CHSPR provides an environ-

ment and resources to support student thesis work, and serves as a potential site for research placements, residency training, co-op placements, and summer employment. The Centre's four-month health policy internship program gives exceptional students the opportunity to conduct their own research. CHSPR hosts a minimum of one intern a year.

CHSPR promotes an interdisciplinary, collaborative approach to research, recognizing that problems in applied health services and population health increasingly transcend traditional academic boundaries. CHSPR is home to faculty members with expertise in health economics, health services research, and health policy analysis.

Much of CHSPR's research is made possible through the BC Linked Health Database, one of the world's largest collections of health services utilization and population health data. Over the past 20 years, CHSPR has built unique core competencies in linking, extracting, and securing data in the BCLHD, giving the research community access to vital longitudinal information on the entire population of British Columbia.

Contact Information:
429-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-4969
Fax: 604-822-5690
Web: www.chspr.ubc.ca

THE MEDIA GROUP

Tony Voon, Director

The Media Group is a service unit dedicated to educational media and audio/visual services. It has two major functions. First, it administers the Woodward Instructional Resources Centre classrooms and provides audio-visual support to UBC faculty who use the facilities for teaching purposes. Second, it provides a wide variety of services, developing and producing instructional media programs on a fee-for-service basis in support of teaching, research and public affairs for the health sciences faculties, the University community, UBC-affiliated teaching hospitals and outside non-profit groups. These services include general and biomedical photography, medical, technical and general illustration, graphic design, media supplies and equipment sales, video production and computer imaging and printing.

Contact Information:
Room B32, Woodward Instructional Resources Centre
2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-5561
Fax: 604-822-2004
Email: mediagr@interchange.ubc.ca
Web: www.mediagroup.ubc.ca

GLOBAL OUTREACH STUDENTS' ASSOCIATION

The Global Outreach Students' Association (GOSA) provides students from multidisciplinary backgrounds with an opportunity to learn more about international health. It offers a monthly seminar series on international health, which gives students an opportunity to meet people who have had personal experiences working and volunteering overseas. GOSA also offers students opportunities for hands-on involvement in health projects locally and in Guatemala.

Contact Information:
400-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-0249
Fax: 604-822-2495

HEALTH SCIENCES STUDENT'S ASSOCIATION

The Health Sciences Student's Association (HSSA) is an organization that promotes the interaction of the College's Affiliated Faculties on an academic and social basis. The aim of the HSSA is to increase awareness among students about the role of each health care provider on a clinical team. This is accomplished through its High School Outreach Program, which brings students from health and human service programs together to make presentations to high school students about the wide array of professional choices available to them at UBC. The HSSA also hosts informal activities for students from the health and human service programs. The executive body of the HSSA is comprised of dedicated and enthusiastic students who are departmental representatives or individuals who share the same goal as the HSSA.

Contact Information:
G29-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-8085
Fax: 604-822-2495

COURSES OF INSTRUCTION

Under the auspices of the Council, the College of Health Disciplines is responsible for the administration of Interprofessional courses (IHHS), which are recommended as electives to students in Audiology and Speech Sciences; Counselling Psychology; Dentistry and Dental Hygiene; Food, Nutrition and Health; Human Kinetics; Medicine; Nursing; Occupational Therapy; Pharmaceutical Sciences; Physical Therapy; and Social Work and Family Studies.

- | | | |
|----|----------|--|
| 1. | IHHS 200 | Understanding the Social Determinants of the Health of Populations |
| 2. | IHHS 300 | Working in International Health |
| 3. | IHHS 301 | First Nations Health & the Traditional Role of Plants |
| 4. | IHHS 400 | Health Care Team Development |
| 5. | IHHS 401 | Health Care Ethics |

6.	IHHS 402	HIV/AIDS Prevention and Care
7.	IHHS 403	Interdisciplinary Practice with Children & Families
8.	IHHS 404	First Nations Health: Historical & Contemporary Issues
9.	IHHS 405	Palliative Care
10.	IHHS 406	Aging from an Interdisciplinary Perspective
11.	IHHS 407	Disability and Justice

AFFILIATED FACULTIES

ACADEMIC STAFF FROM AFFILIATED FACULTIES

William Booth, B.A. (Notre Dame), M.Sc. (Imp. Coll., Lond.); Susan Cadell, B.A. (Wat.), M.S.W., Ph.D. (W.Laur.); Barbara Casson, B.S.W. (Br.Col.), M.S.W. (N.Y.); Marcia Choi, B.A., M.Sc. (Br.Col.); Jack daSilva, B.Sc. (Br.Col.), ACPR; Shafiq Dharamsi, B.A., B.Ed. (York), B.S.D.H. (Med. Coll. Georgia), M.Sc., Ph.D. (Br.Col.); Martha Donnelly, B.Sc., M.D. (W.Ont., C.C.E.P.E.R.C.P.); Charles James Frankish, M.A., Ph.D. (Br.Col.); Jacqueline Fraser, M.B., B.Ch., B.A.O. (Belf.); Romayne Gallagher, B.Sc., M.D. (Br.Col.); Judith Globerman, B.S.W. (Manit.), M.H.Sc. (McM.), M.Sc., Ph.D. (Tor.); Irene Goldstone, R.N. (Royal Victoria Hospital, Montreal) B.N. (McG.), M.Sc. (Br.Col.); Diana Johansen, B.Sc. (Br.Col.); Eduardo Jovel, B.Sc. (Calif. State Polytechnic), M.Sc. (Br.Col.), Ph.D. (Br.Col.); Glenda MacDonald, B.S.P. (Sask.), Pharm.D. (Mass Coll. of Pharm/AHS); Michael MacEntee, L.D.S. (R.C.S.I.), Dipl.Prosth. (S.Carolina), Ph.D. (Dub.), F.R.C.P.(C); Steve Mathias, B.Sc., M.D. (Br.Col.) – on leave 2005-06; Heather McAlpine, B.S.N. (Br.Col.), M.Sc. (N) (Edin.), Ph.D. (Murdoch), R.N.; Judith Mosoff, B.A. (Tor.), M.A. (York), LL.B., LL.M. (Br.Col.); Deborah O'Connor, B.S.W. (Windsor), M.S.W. (Tor.), D.S.W. (W.Laur.); John Olliffe, M.Ed. (Vic. Aust.), Ph.D.(c), (Deakin), R.N. – on leave 2005-06; Aleck Ostry, B.Sc., M.Sc. (Br.Col.); Jeremy Penner, B.Sc., M.D. (McM.), C.C.F.P.; Jo Ann Perry, B.S. (Adelphi, N.Y.), M.S.N. (Br.Col.), Ph.D. (Wash.); Mary Petty, B.A., M.S.W. (Dal.), Ph.D. (Penn.); Pat Porterfield, B.Sc. (Alta.), M.S.N. (Br.Col.), R.N., Clinical Nursing Specialist, Palliative Care, V.H.H.S.C.; Barbara Purves, B.A. (S.Fraser), M.Sc. (Br.Col.); John Russell, B.A. (Qu.), M.A. (Edin.), Ph.D. (Cantab.); Michael Seear, B.Sc. (Lond.), M.B., Ch.B. (Rhodesia), F.R.C.P.C. (T); Joanie Sims-Gould, B.Sc./B.A. (McM.), M.S.W. (Lakehead), Ph.D. Candidate (Br.Col.); Tim Stainton, B.Sc. (W.Ont.), M.S.W. (Tor.), Ph.D. (Lond.); David Wensley, M.B., B.S. (Lond.), FRCPC, M.R.C.P. (U.K.).

COUNCIL OF THE COLLEGE OF HEALTH DISCIPLINES

College of Health Disciplines	Principal, Dr. John H.V. Gilbert (Chair); Associate Principal, Lesley Bainbridge; Associate Principal, Grant Charles
Faculty of Applied Science: School of Nursing	Dr. Sally Thorne, Director; Ms. Cathryn Jackson
Clinical Psychology	Dr. Amy Janeck
Faculty of Arts: School of Social Work and Family Studies	Prof. Graham Riches, Director
Faculty of Dentistry: Dental Hygiene	Ms. Bonnie Craig, Director
Faculty of Education: School of Human Kinetics	Dr. Bob Sparks, Director
Faculty of Land and Food Systems: Food, Nutrition and Health	Dr. Tim Durance
Faculty of Medicine	Dr. Carl Whiteside
Midwifery Program (Medicine)	Prof. Elaine Carty, Director
Medical Laboratory Sciences (Medicine)	Dr. Carol Park
School of Audiology and Speech Sciences (Medicine)	Dr. David Stapells
School of Rehabilitation Sciences, PT (Medicine)	Ms. Sue Murphy, Interim Head
School of Rehabilitation Sciences, OT (Medicine)	Melinda Suto, Interim Head
Faculty of Pharmaceutical Sciences	Dean Robert Sindelar, Dr. David Fielding, Dr. James McCormack
Interprofessional Education, Evaluation and Research	Ms. Lesley Bainbridge, College of Health Disciplines
Practice Education	Dr. Grant Charles (Social Work)
Health Sciences Students' Association	Mr. Shiu-Kay Hung; Ms. Tawny Hung, Co-Presidents
UBC Library	Ms. Lea Starr
Curriculum Studies	Dr. Anna Kindler
Student Senate Representatives	Mr. Tommy Gerschman; Mr. Jasdeep Jawanda
School of Education & Counselling Psychology & Special Education	Dr. Beth Haverkamp

INTERPROFESSIONAL EDUCATION, RESEARCH AND EVALUATION

Dr. Marla Arvay, Faculty of Education, ECPS; Ms. Lesley Bainbridge, College of Health Disciplines; Dr. Susan Barr, Faculty of Land and Food Systems; Ms. Cindy Bruce, School of Audiology & Speech Sciences; Ms. Bonnie Craig, Faculty of Dentistry, Dental Hygiene; Ms. Maureen Dunn, College of Health Disciplines; Dr. Peter Granger, Faculty of Medicine, Family Practice; Dr. James McCormack, (Chair), Faculty of Land and Food Systems; Dr. Ryna Levy Milne, Faculty of Land and Food Systems; Ms. JoAnn Perry, School of Nursing; Mr. Ajay Puri, Pharmacoeconomics Program, Centre for Health Evaluation and Outcome Sciences and Canadian HIV Trials, St. Paul's Hospital; Ms. Barbara Purves, School of Audiology & Speech Sciences; Dr. Dan Rurak, Faculty of Medicine; Dr. Ravi Shah, Faculty of Dentistry; Ms. Leslie Soon, College of Health Disciplines; Ms. Elsie Tan, School of Nursing; Dr. Karol Traviss, Faculty of Land and Food Systems; Dr. Margaret Wright, School of Social Work & Family Studies.

PRACTICE EDUCATION

Ms. Lesley Bainbridge, College of Health Disciplines; Prof. Elaine Carty, Faculty of Medicine, Midwifery; Dr. Grant Charles, School of Social Work & Family Studies; Ms. Donna Drynan, School of Rehabilitation Sciences (OT); Ms. Debbie Erikson, Social Work and Family Studies; Dr. Rosemin Kassam, (Chair) Faculty of Pharmaceutical Sciences; Dr. Ryna Levy Milne, Faculty of Land and Food Systems; Ms. Pat Lieblch, School of Rehabilitation Sciences (PT); Ms. Dyane Lynch, College of Health Disciplines; Ms. Elizabeth MacLeod, School of Audiology & Speech Sciences; Ms. Paula Tognazzini, School of Nursing; Dr. Karol Traviss, Faculty of Land and Food Systems.

2006-07

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A SCHOOL WITHIN THE FACULTY OF EDUCATION

Director's Office

Robert E. C. Sparks, Director
Romeo Chua, Associate Director,
Undergraduate Affairs
Ian M. Franks, Associate Director, Graduate
Affairs and Research,
War Memorial Gymnasium
6081 University Boulevard
Vancouver, BC V6T 1Z1
Telephone: 604-822-3838
Fax: 604-822-6842

Human Kinetics Website
(www.hkin.educ.ubc.ca)

The School of Human Kinetics offers undergraduate programs leading to the degree of Bachelor of Human Kinetics. Graduate programs leading to the Doctor of Philosophy, Master of Arts, Master of Science, and Master of Human Kinetics are also available. For details of these programs see *Human Kinetics*, p. 258, in the Faculty of Graduate Studies section. Provision can be made for completion of degree studies on a part-time basis or on a combination of full and part-time study.

BACHELOR OF HUMAN KINETICS

The Bachelor of Human Kinetics program prepares students for academic specializations and career opportunities in kinesiology and health science, physical and health education, and interdisciplinary studies related to Human Kinetics.

PROGRAM CHANGES

The Bachelor of Human Kinetics has recently been revised. The following special conditions apply to all B.H.K. students.

- 1) Students entering first year of the B.H.K. program in September, 2004 or later must follow the program requirements in the current edition of the Calendar.
- 2) Students who entered the B.H.K. program prior to September, 2004 must follow the program requirements in the 2003/2004 Calendar. For further information see the Human Kinetics website (www.hkin.educ.ubc.ca/School/ugrad/ugradmain.htm). Information is also available through the Undergraduate Advising Centre, War Memorial Gymnasium.

- 3) Transfer students who started their post-secondary studies in September, 2004 or later must meet the B.H.K. program requirements in the current edition of the Calendar.
- 4) Transfer students who started their post-secondary studies prior to September, 2004 must follow the B.H.K. program requirements in the 2003/2004 Calendar. A grace period of three years will be provided. All transfer students entering the B.H.K. after September, 2007 will need to meet the requirements of the current edition of the Calendar. For further information see the Human Kinetics website (www.hkin.educ.ubc.ca/School/ugrad/ugradmain.htm). Information is also available through the Undergraduate Advising Centre, War Memorial Gymnasium.

ACADEMIC ADVISING

Students are responsible for the completeness and accuracy of their registration as it relates to the regulations of the B.H.K. program. Academic advising is available by drop-in or email. Contact the Undergraduate Advising Centre in the War Memorial Gym, Room 202, 6081 University Boulevard, Vancouver, BC, V6T 1Z1; telephone 604-822-4512; email (hkin.advising@interchange.ubc.ca).

ADMISSION

Due to limited resources, the School has been authorized to restrict enrolment. Achievement of the minimum requirements for admission does not guarantee acceptance. Students applying to enter the School must make formal application to Enrolment Services no later than February 28 with a documentation deadline of June 30.

Transfer Students

Students who are accepted on transfer from other institutions must normally complete all remaining courses toward the Bachelor of Human Kinetics at UBC. A maximum of 60 transfer credits will normally be granted. The University will not grant a degree for studies that represent less than the equivalent of two regular Winter Sessions (60 credits).

In general, transfer credit is limited to the initial two years of a degree program. Credit at a more senior level may be possible if prior written per-

mission has been granted by the School's Undergraduate Advising Centre. A student wishing to take courses at another institution and transfer the credit toward a Bachelor of Human Kinetics degree must first obtain a Letter of Permission from the School's Undergraduate Advising Centre. It is the student's responsibility to forward an official transcript to Enrolment Services, Admissions.

Registration and Program Approval

Students are reminded of the University rule regarding program responsibility. Students are responsible for the completeness and accuracy of their registration as it is related to the regulations of the program of study in which they are enrolled. The following is a summary of the registration procedures for all Human Kinetics students.

- 1) Students should make all course changes through the online Student Service Centre (SSC) (www.students.ubc.ca/ssc) whenever possible. Human Kinetics students must register into the appropriate waiting list section on the SSC for HKIN courses that are full.
- 2) See *Change of Registration*, p. 49, for regulations regarding adding and dropping courses.
- 3) Human Kinetics students are required to attend and confirm their registration in classes during the first week of each term. Students who do not attend the initial classes may be removed from the course.
- 4) Students are required to register in a minimum of nine Human Kinetics credits during each Winter Session.
- 5) In their third year, all students are required to choose a stream of study through the Student Service Centre (SSC).
- 6) Before registering in any course through Distance Education, Human Kinetics students must consult the School's Undergraduate Advising Centre.

Limitation of Enrolment

Enrolment may be limited in certain Human Kinetics courses when the demand is greater than available resources. See *Space in Courses*, p. 45.

ACADEMIC REGULATIONS

Students in all years are normally subject to general academic regulations in addition to others identified by the School.

Graduation Standing

The categories of degree are Class 1 (80–100%), Class 2 (65–79%), and Pass (50–64%), calculated on the best 60 credits of 300/400-level work.

Withdrawal

A student who withdraws from the University must seek permission from the School's Undergraduate Advising Centre.

Probation

Probationary status will be assigned to a student:

- 1) who is readmitted to the School after having been required to withdraw, or
- 2) who passes the Winter Session, but fails in more than six credits of work or fails to achieve an overall average of 55% on all courses attempted.

The following regulations apply to students on probation:

- 1) Deficient program courses must be repeated during the year of probation;
- 2) Year status will be that of the majority of the credits being taken;
- 3) Program must be approved by an advisor after registration;
- 4) Students who do not pass the deficient courses within the probationary academic year will have their academic records reviewed and may be asked to withdraw from the School until the course deficiencies are completed.

Supplemental Examinations

Supplemental examinations are not granted for Human Kinetics courses.

Unsatisfactory Standing

Fail standing in a session will be assigned if a student does not meet one of the following conditions:

- 1) passes in all credits attempted; or
- 2) if taking more than 12 credits, passes in at least three-fifths of them and obtains an overall average of at least 60% in three-fifths of the credits taken; or
- 3) if taking 12 or fewer credits, passes in at least one-half of them.

At any level of study, a student who is assigned fail standing will be required to discontinue studies at the University for at least a year. A student who fails at the first- or second-year level will not normally be permitted to re-enrol to repeat that level of work, but if that level is completed successfully elsewhere, consideration will then be given to the student's readmission to the University. A student who fails for a second time, either in a repeating year or in a later year, will be required to withdraw from the University. After an absence of at least one full Winter Session (September through April), a

student who has been required to withdraw may apply for readmission. Applications for readmission should be submitted to Enrolment Services. No student required to withdraw has an automatic right to readmission.

DEGREE REQUIREMENTS

To qualify for the Bachelor of Human Kinetics, students must:

- 1) satisfy all the BHK program requirements by completing studies whether at UBC or elsewhere;
- 2) satisfy at least 50% of the credits for the BHK program while registered in the program¹; and
- 3) complete a minimum of 30 upper-level (300/400) credits in HKIN;
- 4) complete 48 upper-division UBC credits; and
- 5) complete 120 credits

¹ Courses taken while studying at another institution on a Senate-approved exchange program satisfy this requirement.

and successfully complete the following credits:

- ENGL 112 (3)
- Human Kinetics Core: HKIN 103 (3), 151 (3), 161 (3), 190 (3), 191 (3), 230 (3), 231 (3), 261 (3), 275 (3), 284 (3)
- Stream courses (see notes 1 to 3 below)
- Electives

In the third year of study, students must select one of three streams: Kinesiology and Health Science, Physical and Health Education, Interdisciplinary Studies. Students may change their stream of study after consulting with the School's Undergraduate Advising Centre. The following notes apply to the three streams of study:

- 1) All Bachelor of Human Kinetics students must take ENGL 112 and 30 credits of Human Kinetics core, and must satisfy the course requirements of the stream they select, as follows:
- 2) Stream Requirements – those courses that are required by the stream of study.
- 3) Human Kinetics Electives – HKIN courses that the student may elect to take. See the School's Undergraduate Advising Centre for suggested specific electives.
- 4) Non-Human Kinetics Electives – courses taken outside of Human Kinetics that the student may elect to take. See the School's Undergraduate Advising Centre for suggested specific electives.
- 5) HKIN 355/455 (Field Experience) – prerequisite information for each HKIN 355/455 section may be obtained at the School's Undergraduate Advising Centre.
- 6) Initial and Continuing Education Program – requirements for the Faculty of Education initial and continuing education programs in Physical Education are listed in *The Faculty of Education*, p. 189.

English Requirement

Satisfactory completion of the Language Proficiency Index (LPI) examination is prereq-

uisite to all first-year English courses at UBC (see *Language Proficiency Index Requirement for First-Year English*, p. 120). All Bachelor of Human Kinetics students must take ENGL 112.

Part-Time Study

As there are only a small number of courses offered in the evenings and during Summer Session, students will experience difficulty in completing a Bachelor of Human Kinetics on a part-time basis. Students interested in part-time study should discuss their proposed studies with the advisor.

Prerequisites

Human Kinetics courses at the 100-level are generally considered prerequisite to 200-level courses, and 200-level courses are generally prerequisite to 300- and 400-level courses. 300- and 400-level courses may be taken in any sequence unless otherwise specified. Many Human Kinetics courses have specific course prerequisites. Students who do not have proper prerequisites for a course may have their registration cancelled automatically. Course prerequisites apply to both part-time and full-time students.

Non-Human Kinetics Electives

Many 300/400-level courses require 100/200-level prerequisites, therefore all non-HKIN electives should be selected carefully.

Interprofessional Electives

The *College of Health Disciplines*, p. 291, is responsible for the administration of interprofessional courses (IHHS), which are recommended as non-HKIN electives to students in Human Kinetics.

For more information see Courses (www.students.ubc.ca/calendar/courses.cfm), IHHS, or visit the website (www.health-disciplines.ubc.ca).

Overloading

A student must apply in writing to the School's Undergraduate Advising Centre for permission to register in more than 33 credits of work in a Winter Session or 12 credits of work in a Summer Session.

KINESIOLOGY AND HEALTH SCIENCE

For students who are interested in the broad areas of human movement sciences, health, and fitness, and who want future certification as Kinesiologists.

KINESIOLOGY AND HEALTH SCIENCE

First Year

ENGL 112	3
HKIN 103	3
HKIN 151	3
HKIN 161	3
HKIN 190	3
HKIN 191	3
Electives ^{1,2}	12
Total Credits	30

Second Year	
HKIN 230	3
HKIN 231	3
HKIN 261	3
HKIN 275	3
HKIN 284	3
Electives ^{1,2}	15
Total Credits	30

Third Year	
HKIN 303	3
HKIN 330	3
HKIN 351	3
HKIN 371	3
HKIN 373	3
HKIN 375	3
Electives ^{2,3,4,5}	12
Total Credits	30

Fourth Year	
Electives ^{2,3,4,5}	30
Total Credits	30

- In order to obtain third year standing in Kinesiology and Health Science, students must complete 12 credits of first year Science in their first two years in at least three of the following four areas: Biology, Chemistry, Mathematics, and Physics.
- Students planning to apply to professional health science programs such as Physiotherapy (www.rehab.ubc.ca) and Medicine (www.admissions.med.ubc.ca) are strongly encouraged to determine the necessary undergraduate requirements that are available in other faculties such as Science and Arts.
- Students in the Kinesiology and Health Science stream must, as a minimum, complete an additional 18 credits of Science in years 3 and 4, of which at least 12 credits must be at the 300/400 level.
- All students must complete 30 credits of HKIN courses at the 300/400 level.
- All students must complete 48 credits at the 300/400-level.

PHYSICAL AND HEALTH EDUCATION

For students who are interested in teaching and instructing sports, physical activity, and active health in public and private agencies. The stream meets admission requirements for the Teacher Education Program in the Faculty of Education (See note 1 below).

PHYSICAL AND HEALTH EDUCATION

First Year	
ENGL 112	3
HKIN 103	3
HKIN 115	6
HKIN 151	3
HKIN 161	3
HKIN 190	3
HKIN 191	3
Electives ^{1,2}	6
Total Credits	30

Second Year	
HKIN 215	6
HKIN 230	3

Second Year (Continued)	
HKIN 231	3
HKIN 261	3
HKIN 275	3
HKIN 284	3
Electives ^{1,2}	9
Total Credits	30

Third Year	
HKIN 355	3
HKIN 362	3
HKIN 369	3
HKIN 371	3
Electives ^{1,2,3,4}	18
Total Credits	30

Fourth Year	
HKIN 400	3
HKIN 415	3
One of HKIN 303, 464, 469	3
Electives ^{1,2,3,4}	21
Total Credits	30

- Students planning to enter the Teacher Education Program in the Faculty of Education need to review the detailed admission requirements at www.educ.ubc.ca/teacher_ed/bachelor.html. Students planning to apply for the secondary option must prepare a second teaching field.
- Students in the Physical and Health Education stream must complete a minimum of 18 credits of non-HKIN electives, of which at least 12 credits must be at the 300/400 level.
- All students must complete 30 credits of HKIN at the 300/400 level.
- All students must complete 48 credits at the 300/400-level.

HUMAN KINETICS INTERDISCIPLINARY STUDIES

For students who are interested in a general liberal arts and science foundation in Human Kinetics.

HUMAN KINETICS INTERDISCIPLINARY STUDIES

First Year	
ENGL 112	3
HKIN 103	3
HKIN 151	3
HKIN 161	3
HKIN 190	3
HKIN 191	3
Electives ^{1,2}	12
Total Credits	30

Second Year	
HKIN 230	3
HKIN 231	3
HKIN 261	3
HKIN 275	3
HKIN 284	3
Electives ^{1,2}	15
Total Credits	30

Third Year	
Electives ^{1,2,3,4}	30
Total Credits	30

Fourth Year	
Electives ^{1,2,3,4}	30
Total Credits	30

- Students planning to apply to professional programs are strongly encouraged to determine the necessary undergraduate requirements that are available in other faculties such as Science and Arts.
- Students in the Human Kinetics Interdisciplinary Studies stream must complete a minimum of 18 credits of non-HKIN electives, of which at least 12 credits must be at the 300/400 level.
- All students must complete 30 credits of HKIN at the 300/400 level.
- All students must complete 48 credits at the 300/400-level.

MINOR PROGRAMS

Students who wish to focus their non-Human Kinetics electives may, with the approval in writing of the School of Human Kinetics Advisor, undertake an optional Minor program in conjunction with the Bachelor of Human Kinetics degree. All courses in the Minor must be taken outside of the School of Human Kinetics. There are four types of Minors available.

Minor in Arts

An acceptable program must comprise courses in the Faculty of Arts that are for credit towards a Bachelor of Arts and consists of 18 upper-level credits in a single subject field or specialization. Students should design a coherent, academically sound course of studies for their program Minor, which must be approved in writing by the School of Human Kinetics Advisor at the beginning of third year. All courses must be acceptable for a Bachelor of Arts Major in the proposed subject area or field, but a student is not bound by the other requirements that the Faculty of Arts sets for a Major or Minor in the field.

Note: Students who pursue a Minor in Arts should be aware of the prerequisites for many of the upper-level courses in Arts.

Note: Students who wish to pursue further studies in the Faculty of Education should be aware that courses which are acceptable for an Arts Minor may not necessarily meet the requirements for a teaching concentration in the Faculty of Education. Students planning to enter the Teacher Education Program in the Faculty of Education need to review the detailed admission requirements at www.educ.ubc.ca/teacher_ed/bachelor.html. Students planning to apply for the secondary option must prepare a second teaching field.

Upon successful completion of the Minor program, the notation, "Minor in Arts" will be denoted on the student's transcript.

Minor in Commerce

Students wanting a foundation in business management are encouraged to consider the "Minor in Commerce." Enrolment in this program is limited to students eligible for third-year standing with a cumulative average of at least 68% in the previous two years. Enrolment in this program is strictly limited. Application forms may be obtained from the Advising

Centre. Completed applications must be returned no later than May 15. Upon successful completion of this program, the notation Minor in Commerce will be placed on the student's transcript. The program will consist of COMM 329 (3), COMM 457 (3), COMM 465 (3), COMM 473 (3), COMM 493 (3); and one of COMM 398 (3) or COMM 458. Admission to the program requires completion of ECON 101 (3), ECON 102 (3); and one of MATH 100 (3), 102 (3), 104 (3), 120 (3), 180 (4), or 184 (4).

Minor in Nutritional Science

Students wanting a foundation in nutrition are encouraged to consider the Minor in Nutritional Science. Students must be eligible for third-year standing with a cumulative average of at least 68% in the previous two years, and must have completed FNH 250. Enrolment in this program is strictly limited. Application forms may be obtained from the Advising Centre. Completed applications must be returned no later than May 15. Upon successful completion of this program, the notation Minor in Nutritional Science will be placed on the student's transcript. The program will consist of FNH 350, 351; and 12 credits from FNH 301, 355, 370, 371, 402, 451, 470, 473, and 490.

Note: Students who pursue a Minor in Nutritional Science should be aware of the prerequisites for many of the upper-level courses in Food, Nutrition, and Health. Students may encounter difficulty fitting the FNH courses into their program timetable; careful planning is essential.

Note: Students who wish to pursue further studies in the Faculty of Education should be aware that courses which are acceptable for a Nutritional Science Minor may not necessarily meet the requirements for a teaching concentration in the Faculty of Education. Students planning to enter the Teacher Education Program in the Faculty of Education need to review the detailed admission requirements at www.educ.ubc.ca/teacher_ed/bachelor.html. Students planning to apply for the secondary option must prepare a second teaching field.

Minor in Science

An acceptable program must comprise courses recognized in the Faculty of Science that are for credit towards a Bachelor of Science degree and consist of at least 18 credits numbered 300 or higher in a single subject field or specialization, together with all necessary prerequisites. Students should design a coherent and academically sound course of studies for their proposed minor, which must be approved by the Human Kinetics Advisor in writing at the beginning of third year. All courses must be acceptable for a Science Major in the proposed subject area or field.

Note: Students who wish to pursue a Minor in Science should be aware of the prerequisites of many of the upper-level courses in Science.

Note: Students who wish to pursue studies in the Faculty of Education should be aware that

courses which are acceptable for a Minor in Science may not necessarily meet the requirements for a teaching concentration in the Faculty of Education. Students planning to enter the Teacher Education Program in the Faculty of Education need to review the detailed admission requirements at www.educ.ubc.ca/teacher_ed/bachelor.html. Students planning to apply for the secondary option must prepare a second teaching field.

Upon successful completion of the Minor program, the notation, "Minor in [subject]" will be denoted on the student's transcript. Space in many Science courses is limited. Admission to a Science Minor does not guarantee access to courses agreed upon for the minor.

ACADEMIC STAFF

Professors

Peter R. E. Crocker, B.A., M.Sc. (S.Fraser), Ph.D. (Alta.); **Ian Michael Franks**, B.Ed. (McG.), M.Sc., Ph.D. (Alta.); **J. Timothy Inglis**, B.Sc. (Wat.), B.Sc.P.T. (W.Ont.), M.Sc. (Wat.), Ph.D. (Qu.); **Donald C. McKenzie**, B.Sc. (Guelph), M.P.E., M.D. (Br.Col.), Ph.D. (Ohio); **Edward C. Rhodes**, B.Ed. (Alta.), M.Sc., Ph.D. (Oregon); **David J. Sanderson**, B.Sc., M.Sc. (S.Fraser), Ph.D. (Penn.); **Jack E. Taunton**, B.Sc., M.Sc. (S.Fraser), M.D. (Br.Col.); **Patricia A. Vertinsky**, B.A. (Birm.), M.Sc. (U.C.L.A.), Ed.D. (Br.Col.).

Associate Professors

Romeo C. Chua, B.Sc. (S.Fraser), M.Sc. (McM.), Ph.D. (S.Fraser); **Wendy Frisby**, B.P.E. (Alta.), M.H.K. (Windsor), Ph.D. (Wat.); **Richard E. Mosher**, B.P.E. (Br.Col.), M.P.E. (Oregon), Ph.D. (Mich. State); **A. William Sheel**, B.P.E. (New Br.), M.Sc., Ph.D. (Br.Col.); **Robert E. C. Sparks**, B.A. (Wesl.), M.S. (Mass.), Ph.D. (Mass.); **Brian Wilson**, B.P.E. (McM.), M.A. (Br.Col.), Ph.D. (McM.).

Assistant Professors

Mark Beauchamp, B.A. (Exe.), M.A. (Qu.), Ph.D. (Birm.); **Shannon S. D. Bredin**, B.Ed., B.P.E., M.Sc. (Alta.), Ph.D. (Br.Col.); **Mark G. Carpenter**, B.Sc., M.Sc., Ph.D. (Wat.); **Nicola J. Hodges**, B.Sc. (Herts.), M.Sc. (McM.), Ph.D. (Br.Col.); **Laura Hurd Clarke**, B.A. (Qu.), M.S.W. (Laurier), Ph.D. (McM.); **Karim Khan**, M.B.B.S. (Melb.), B.Med.Sc., Ph.D. (Melb.); **Tania Lam**, B.Sc.P.T. (Qu.), Ph.D. (Alta.); **James L. Rupert**, B.Sc. (Guelph), M.Sc. (Tor.), Ph.D. (Br.Col.); **Darren E. R. Warburton**, B.A. (York), M.Sc. (York), PhD (Alta.).

Senior Instructors

Barry Legh, B.Ed. (Br.Col.), M.P.E. (Wash.); **Gail E. Wilson**, B.P.H.E. (Tor.), M.P.E. (Br.Col.).

13 The School of Journalism

A SCHOOL WITHIN THE FACULTY OF ARTS WITH DEGREE PROGRAMS OFFERED THROUGH THE FACULTY OF GRADUATE STUDIES

Director's Office

Donna Logan, Director
6388 Crescent Road
Vancouver, BC V6T 1Z2
Tel: 604-822-6688
Fax: 604-822-6707

Journalism Website (www.journalism.ubc.ca)

The mission of The School of Journalism is to achieve the highest professional standards in journalism through instruction in journalistic practice and the scholarly understanding of journalism, critical thinking, and teaching of ethical responsibility. The School of Journalism is part of the Faculty of Arts, but is governed by the admissions and curriculum requirements of the Faculty of Graduate Studies. It offers a two-year *Master of Journalism (M.J.)*, p. 259.

The School opened in 1998 and is housed in a new building with seminar and work rooms, and faculty and administration offices arranged around a state-of-the-art newsroom. Its construction was made possible by an endowment from the Sing Tao Foundation.

MASTER OF JOURNALISM

By combining advanced journalism practice and theory with academic studies at the graduate level, the program will not only enhance advanced journalism, but also improve the information base and scholarly preparation of students for journalistic writing in their specialty subject areas. The program will serve the profession of journalism and bring developments in many areas of academic investigation to a wider reading public. Workshops, seminars, tutorials, conferences, and publications will deal with reportage as well as major issues, theories, and developments in the field of journalism. Emphases are on the writing of journalism, the historic evolution of journalism as a profession, ethics and journalism, journalism and the legal system, and the role and character of journalism in a changing society.

ADMISSION

Candidates for admission to the Master of Journalism program must possess a four-year honours baccalaureate degree in a discipline or interdisciplinary area regarded as appropriate by the Admissions Committee for the program. Only applicants with superior performance at the baccalaureate level and appropriate journal-

ism knowledge and experience will be admitted. Applicants will be required to indicate their intended academic specialty at the time they apply. Because the number of applicants greatly exceeds the number of places available, a record that satisfies basic entrance requirements does not guarantee admission to the program. Registration in graduate seminars in the academic specialty will be subject to the approval of the Director.

Applicants with journalism experience will submit an extensive sample of their professional work; those without such experience will be selected on the basis of a manuscript of original writing that meets the standards of the peer group selected for entry into the program. The admissions panel will assess the applicant's potential for satisfactory performance in the program and for potential creative and constructive contribution to the profession.

All applicants must meet the admission requirements of the Faculty of Graduate Studies. International applicants will require a score of 600 or more on the Test of English as a Foreign Language (TOEFL).

The deadline for submission is January 15 for entry in September of the following academic year. For students wishing to apply for graduate awards and fellowships, the deadline is December 1 of the previous year.

ACADEMIC REGULATIONS

Students will be required to spend two Winter Sessions (i.e., eight months from September to April) on campus as full-time students. In exceptional circumstances, the School and the program will accommodate the needs of working journalists and others who may find it difficult to take more than eight or 12 months away from regular employment.

For more information, please contact:
School of Journalism
The University of British Columbia
Sing Tao Building
6388 Crescent Road
Vancouver, BC V6T 1Z2
Tel: 604-822-6688
Fax: 604-822-6707
Email: journal@interchange.ubc.ca
Web: www.journalism.ubc.ca
Webzine: *The Thunderbird* (www.journalism.ubc.ca/thunderbird.html)

DEGREE REQUIREMENTS

The program is designed for both persons with extensive journalistic experience, and for those who do not have such experience but who demonstrate superior writing and research ability on par with the peer group.

Because students' backgrounds vary, the number of credits required for the Master of Journalism degree will be determined in consultation with the Director. The number of credits will never be less than 36, and must include a Thesis Project (JRNL 549A) and courses from each of the five core areas:

- Newsroom Practice (JRNL 503C, 505C, 510)
- Media Studies (JRNL 523, 525, 533D, 535)
- Directed Studies (JRNL 539D, 539E, 539G, 539I, and 539J)
- Research and Writing (JRNL 503F, 505A)
- Academic Studies outside Journalism

At least 12 graduate credits must be in Academic Studies outside Journalism. At least 24 credits must be in the other four core areas and the thesis project. The majority of M.J. Candidates will usually complete 42 credits for the degree. Master of Journalism coursework and an approved number of credits for a M.J. degree must be determined in consultation with the Director.

ACADEMIC STAFF

Director and Professor
Donna Logan.

Associate Professor
Stephen J.A. Ward.

Assistant Professor
Mary Lynn Young.

Sessional Instructor
Claude Adams; David Beers; Mark Schneider.

Adjunct Professor
Kirk LaPointe.

Visiting Professor
Peter C. Newman.

Lecturers
CanWest Global Visiting Professor; Other Lecturers, TBA.

2006-07

14 The Faculty of Land and Food Systems

FORMERLY THE FACULTY OF AGRICULTURAL SCIENCES

Dean's Office

M. B. Isman, Dean *pro tem*

D. M. Shackleton, Associate Dean, Academic

M. K. Upadhaya, Associate Dean, Graduate Studies

H. J. J. van Vuuren, Associate Dean, Research

248–2357 Main Mall

Vancouver, BC V6T 1Z4

Telephone: 604-822-1219

Fax: 604-822-6394

Land and Food Systems Website

(www.agsci.ubc.ca)

The Faculty of Land and Food Systems (formerly known as the Faculty of Agricultural Sciences) offers programs leading to the Bachelor of Science in Agroecology, the Bachelor of Science in Food, Nutrition, and Health, the Bachelor of Science in Global Resource Systems, the Master of Science, and the Doctor of Philosophy.

The Faculty of Land and Food Systems emphasizes an education in an active, student-centred learning environment across the continuum of issues and problems around land, food, and community. The programs and their specializations prepare students for careers in supporting a healthy planet through ecosystem, community, and human health. The programs range from those emphasizing the basic and agricultural sciences to those responding to related issues in the social sciences.

ADMISSION

Application for admission to the Faculty of Land and Food Systems must be made through Enrolment Services. Procedures, policies, and admission requirements for the University of British Columbia and the Faculty of Land and Food Systems are specified in the chapter *Admissions*, p. 13, in this Calendar. Approved examinable Grade 11 and 12 courses are also listed there. Students may find it to their advantage to present credit for as many of Biology 12, Chemistry 12, and Physics 12 as possible.

Students admitted to the Faculty of Land and Food Systems by transfer from other post-secondary institutions must have met the *English requirement*, p. 302, of the Faculty or be eligible to enrol in first-year English at the time of admission.

Advising Office

The Land and Food Systems Academic Advising Office (Student Services) is located in Room 270, MacMillan Building, 2357 Main Mall. Office hours are 8:30 am to 4:00 pm, Monday to Friday. The office can be reached by telephone at 604-822-2620 or by email at agsci@interchange.ubc.ca.

REGISTRATION AND PROGRAM APPROVAL

FIRST-YEAR STUDENTS

First-year students are not required to select a program concentration or major until the end of second year; students must be careful, however, to select courses appropriate for the degree program in which they have been accepted. Students planning to apply to second-year admission degree programs are still required to follow the course requirement for the program to which they were originally admitted. Students not meeting the minimum academic standing required for compulsory courses in a given program may be required to withdraw from that program.

ACADEMIC REGULATIONS

ATTENDANCE, EXAMINATION, AND ADVANCEMENT

The following regulations apply:

- 1) Regular attendance is expected of students in all their classes. Students who neglect their academic work and assignments may be excluded from the final examination. Students who are unavoidably absent because of illness or disability should report to their instructors on return to lecture or laboratory class.
- 2) Students who are absent from December or April examinations because of illness must submit a certificate obtained from a physician to the Student Health Service as soon as possible. If injury or illness did not cause the absence, an explanation of the circumstances should be written to the Associate Dean Academic. Applications for special consideration on account of illness or domestic affliction must be submitted in writing to the Associate Dean Academic as

soon as possible after the close of the examination period.

- 3) Formal written examinations are required at the end of all courses terminating in December or April and also in December for courses continuing all year. The formal written examination may be replaced by alternative examination procedures only upon approval of the program advisor and with permission of the Associate Dean Academic. Passing the final examination may not be sufficient to pass a particular course, but in some courses it may be a requirement. Students may be denied a passing grade for unsatisfactory work during the session or if their essays, reports, or examinations are notably deficient in English. Also, in any course which involves both laboratory work and written examinations, students must complete and pass both parts to pass the course. Any student whose academic record, as determined by tests and examinations of Term 1, is unsatisfactory may be required to withdraw from the Faculty at any time. See *Grading Practices*, p. 47.
- 4) Students will be classified or promoted according to the following criteria:
 - to second-year level: successful completion of 24 or more credits of prescribed courses of first year.
 - to third-year level: successful completion of 54 or more credits, and all the required courses of first year. Students who do not meet this requirement will not normally be permitted to enrol in third-year or higher level courses in the Faculty.
 - to fourth-year level: successful completion of a total of 89 or more credits, including completion of all required second-year courses.
- 5) A student who fails a year will be required to withdraw from the University for a period of at least one academic year after which time an appeal for permission to re-enrol will be considered. Before applying for permission to re-enrol, a first- or second-year student who fails a year is required to register in a full program (30 credits) at a community college. This program should include those courses

failed at UBC, and must be completed with a least a 'C' (60%) average, with no failed courses, and the courses must be applicable to our programs. A student who fails a year but passes some courses will receive credit for the courses passed upon re-statement in the Faculty. Fail standing will be assigned in a session when a student:

- has taken a study program of 15 credits or more and passed in less than 60% of it; or
 - has taken 15 credits or more and has a sessional average of less than 55%; or
 - has taken a study program of fewer than 15 credits and passed in less than 50% of it; or
 - has taken less than 15 credits and has a sessional average of less than 50%.
- 6) Only one probationary year is allowed in a student's program. Probationary status will be assigned to a student:
- who is re-admitted to the Faculty after having been required to withdraw; or
 - who passes the Winter Session, but fails in more than 6 credits of work or fails to achieve an overall average of 60% on all courses attempted.
- 7) In the Winter Session, the total of all courses taken may not exceed 38 credits except with approval of the Associate Dean Academic.
- 8) Students are not permitted to take courses for academic credit at other post-secondary institutions concurrently with their program in the Faculty.
- 9) A student who decides to withdraw from the University should refer to the chapter *Academic Regulations*, p. 47, in this Calendar. See *Withdrawal*, p. 50.

ENGLISH REQUIREMENT

To qualify for the Bachelor of Science Agroecology or the Bachelor of Science in Food, Nutrition, and Health, students must complete at least 3 credits of first-year English. Although English 112 is highly recommended, qualified students are encouraged to consider English 120 and/or 121.

Satisfactory completion of the Language Proficiency Index (LPI) examination is prerequisite to all first-year English courses at UBC. See *Language Proficiency Index Requirement for First-Year English*, p. 120. Students who have not achieved an LPI score of 5 or 6 by the time they have completed 30 credits will normally be required to withdraw from the Faculty of Land and Food Systems.

Students who have not completed at least 3 credits of first-year English by the time they have completed 54 credits will normally be required to withdraw from the Faculty of Land and Food Systems.

Student performance on written work in all courses in the Faculty of Land and Food Systems may be evaluated in part on grammar and syntax.

DEAN'S HONOUR LIST

Students with a standing of 'A-' or better in the previous Winter Session will receive the notation "Dean's Honour List" on their records. A program of at least 30 approved credits must have been completed during the session to receive this designation.

HONOURS STANDING

On graduation, honours standing will be granted to those students who have averaged 'A-' or higher in the best 62 credits of courses, which are selected by the program concentration, and which meet the requirements of third and fourth years.

PART-TIME STUDENTS

Students wishing to take less than a full course load should consult the appropriate program advisor or the Office of the Associate Dean Academic before registering. Some evening classes are available.

BACHELOR OF SCIENCE IN AGROECOLOGY

Agroecology is the science of applying ecological concepts and principles to the design and management of sustainable agroecosystems. This discipline brings together the elements of agricultural sciences, ecology, and environmental thought and is influenced by the experiences of people who manage land and water to produce food and other products. The Agroecology program is committed to provide an agricultural education that integrates disciplinary knowledge within a framework of ecological principles. It provides students with the flexibility to tailor their learning experiences to prepare for a wide range of careers with varying specializations, including animal studies, pre-veterinary medicine, horticulture, soils and environment, resource economics, and sustainable agriculture.

ADVISING OFFICE

See *Advising Office*, p. 301, under the Faculty of Land and Food Systems, Admission.

ADMISSION

Students should refer to the chapter *Admissions*, p. 13, in this Calendar. Students may gain admission directly from secondary school or transfer from a recognized university or college with a minimum of 24 credits, or as mature students.

For admission to the Bachelor of Science in Agroecology program, students from Grade 12 British Columbia schools must meet the general University admission requirements and must have completed English 11 and 12; Social Studies 11; an approved language 11; Mathematics 11 and 12; at least two of Biology 11, Chemistry 11, and Physics 11; one of Chemistry 12, Physics 12, Biology 12, Geology 12; a course chosen from among the approved examinable Grade 12 courses.

DEGREE REQUIREMENTS

A minimum of 121 credits is required for the B.Sc. Agroecology Program. All students are required to take the following common core of 64 credits of course work. The remaining credits depend on the program specialization chosen by the student. In their third and fourth years, students must complete at least 12 credits of Agroecology (AGRO) courses numbered 300 or above, in addition to AGRO core courses.

B.SC. AGROECOLOGY

First Year	
AGSC 100	1
ENGL 112	3
BIOL 112/121	6
BIOL 140	1
CHEM 121/123 (111/113) ¹	8
MATH 102/103 or equivalent ²	6
Physics first year ^{3,4}	3
Elective ⁴	3
Total Credits	31
Second Year	
AGSC 250	6
AGRO 260	6
ECON 101 or 102 ⁵	3
Concentration requirements and electives ^{3,5,6}	15
Total Credits	30
Third Year	
AGSC 350	6
AGRO 360	3
AGRO 361	3
Concentration requirements and electives ^{3,6}	18
Total Credits	30
Fourth Year	
AGSC 450	3
AGRO 460	3
AGRO 461	3
Concentration requirements and electives ^{3,6}	21
Total Credits	30
<i>Overall four-year total</i>	<i>121</i>

¹ CHEM 111 is not for students with Chemistry 12

² Students who have not completed Calculus 12 should take MATH 180 or 184, plus either MATH 103 or 105, to fulfill their first-year Math requirement.

³ Pre-veterinary students are required to take PHYS 101 and 102 or PHYS 121 and 122, and MICB 202. In third and fourth years, pre-veterinary students follow an Animal Studies program.

⁴ Students in Resource Economics concentration take ECON 101 and ECON 102.

⁵ Students in Resource Economics concentration take ECON 301 and ECON 302.

⁶ Students in Agroecology may take the general program or pursue areas of special interest in one of four concentrations. The selection of all electives must be made in consultation with a Program Advisor.

Animal Studies

In second year, students are required to take BIOL 200 and 201, CHEM 205, 233, and 235. In third and fourth year, students are required to take AGRO 311, 312, FNH 350, 452, 453.

Horticulture

In second year, students are required to take BIOL 200 and 201, CHEM 205, 233, and 235. In third and fourth year, AGRO 322, 420, 421, and 423 are required, and one of AGRO 326, 327, 328.

Resource Economics

In second year, students are required to take ECON 301 and 302, and one of FRE 302, 306, or 340. In third and fourth year, students are required to take ECON 371 and 472, FRE 302, and 374, and one of 306 or 340.

Soils and Environment

In second year, students are required to take EOSC 120 or 121, CHEM 205, PHYS 102 or 122. In third and fourth year, students are required to take AGRO 401, 402, and 403.

Pre-Veterinary Program

The Western College of Veterinary Medicine (W.C.V.M.) was established at the University of Saskatchewan to serve the four western provinces. A pre-veterinary program is required in preparation for admission to the four-year veterinary program at the W.C.V.M., and may be completed at UBC in the Faculty of Land and Food Systems.

The course requirements for admission to W.C.V.M. are 6 credits each of English, Biology, Biochemistry, Chemistry, Physics, and Mathematics; 3 credits each of Genetics, Organic Chemistry, and introductory Microbiology; and additional electives to complete 60 credits.

Applicants without significant animal and veterinary experience are rarely successful in being admitted to W.C.V.M. For information and program approval, contact the Academic Advising Office.

BACHELOR OF SCIENCE IN FOOD, NUTRITION, AND HEALTH

Food security and its impact on health is the focus of the academic theme in Food, Nutrition, and Health. New knowledge and advances in science and technology are integrated with socio-economic, cultural, ethical, and legal considerations in the provision of a safe, nutritious, and sustainable food supply. Our programs are designed to provide students with a broad education in food science and nutrition, as well as an academic background to pursue careers as professional dietitians, nutritionists, food scientists, and food market analysts. Research and teaching span the continuum from the production and processing of food to its marketing, consumption, and impact on public health and community.

ADVISING OFFICE

See *Academic Advising Office*, p. 301, under Faculty of Land and Food Systems, Admission.

ADMISSION

Students should refer to *Admissions*, p. 13, in this Calendar. Students may gain admission directly from secondary school or transfer from a recognized university or college with a minimum of 24 credits, or as mature students.

For admission to the Bachelor of Science in Food, Nutrition, and Health, students from Grade 12 British Columbia schools must meet the general University admission requirements and must have completed English 11 and 12; Social Studies 11; an approved language 11; Principles of Mathematics 11 and 12; at least two of Biology 11, Chemistry 11, and Physics 11; one of Chemistry 12, Physics 12, Biology 12, Geology 12; a course chosen from among the approved examinable Grade 12 courses.

Admission to the majors in *Dietetics*, p. 303, *Food Market Analysis*, p. 304, and the *Food and Nutritional Sciences Double Major*, p. 305, is restricted. See those sections for details.

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 301, as listed under Faculty of Land and Food Systems.

DEGREE REQUIREMENTS AND MINORS

Candidates for the B.Sc. (FNH) degree must complete the requirements as spelled out for each major.

Minor in Human Kinetics

Students who wish to focus their non-FNH electives can undertake an optional minor program in conjunction with the Bachelor of Science (Food, Nutrition, and Health) degree.

Enrolment in the Human Kinetics Minor program is limited to students eligible for third-year standing and who will be enrolling in PHYL 301 (6) in third year. Due to space limitations in the Human Kinetics program, admission to the minor is competitive and will be based on a cumulative grade-point average of 54 credits of required first- and second-year courses for the Bachelor of Science (Food, Nutrition, and Health) degree. The minimum cumulative average is 68%; however, meeting the stated minimum average does not guarantee admission into this minor.

Detailed admissions requirements and application procedures are provided at www.landfood.ubc.ca. Completed applications must be returned no later than May 15.

The Human Kinetics Minor program will consist of 18 credits selected from the following: HKIN 303, 353, 361, 363, 364, 370, 461, 463, 464, 469, 471. Note that PHYL 301 will be accepted as an equivalent pre/co-requisite of HKIN 290/291.

Notes:

- 1) Students who wish to pursue a Minor in Human Kinetics should be aware of the 300-level prerequisites for 400-level

Human Kinetics courses. However, 100- and 200- level prerequisites for HKIN courses may be waived for students taking the minor. Space in many Human Kinetics courses is limited. Admission to a Human Kinetics Minor does not guarantee access to courses agreed upon for the minor. Upon successful completion of this minor program, the notation "Minor in Human Kinetics" will be placed on the student's transcript.

- 2) Students who wish to pursue studies in the Faculty of Education should be aware that courses which are acceptable for a Human Kinetics Minor might not necessarily meet the requirements for a teaching concentration in the Faculty of Education. Students planning to enter the Teacher Education Program in the Faculty of Education need to review the detailed admission requirements at www.educ.ubc.ca/teacher_ed/bachelor.html. Students planning to apply for the secondary option must prepare a second teaching field.

Interprofessional Electives

Under the auspices of the Council, the College of Health Disciplines is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Food, Nutrition, and Health. For more information see Courses (www.students.ubc.ca/calendar/courses.cfm), IHHS, or visit the College of Health Disciplines website (www.health-disciplines.ubc.ca).

DIETETICS MAJOR

The Dietetics Major specializes in the biological sciences. The Dietetics program differs from the Nutritional Sciences program in that it involves greater attention to patient care, administration, and the role of diet in the prevention, etiology, and treatment of disease.

The Dietetics Major is designed to provide academic background and professional practice (dietetic internship) preparation for students interested in pursuing careers as professional dietitians or nutritionists. Program graduates will be eligible to write the registration examination to qualify for membership in the College of Dietitians of BC and/or Dietitians of Canada.

Admission

Admission to the Dietetics Major will normally be to third year and will be based on three components:

- 1) Academic Performance (60% of Admission Score)

Admission to the Dietetics Major is limited to students who will have completed a minimum of 54 credits of university or college coursework by April 30 of the year in which they are applying for admission. This must include the following prerequisites: English (3 credits); BIOL 112, 121, 140, 200 and 201; CHEM 111/113 or 121/123, and 205/233 or 203/204; AGSC 250¹; FNH 200¹ and 250; Social Science¹ (6 credits; e.g., PSYC 100, SOCI 100) or

equivalent. All of these prerequisites can be met by following years one and two of the Nutritional Sciences Major or Food Sciences Major in Food, Nutrition, and Health.

¹ Note that up to 9 credits of AGSC 250, FNH 200, and Social Science (6) can be deferred until a student has been accepted into the Dietetics Major, as long as 54 credits of university or college course work including all other prerequisite courses have been completed. Admission is based on a minimum academic standing of 70% calculated on the basis of 12 credits of second-year Biology and Chemistry and the best 24 credits of the remaining prerequisite courses.

2) Test of Critical Thinking, Reading, and Writing (20% of Admission Score)

Candidates write a formal academic essay, of at least 300 words, in response to a proposition drawn from a short reading. The topic of the essay is not directly related to dietetics. Applicants are required to attain a minimum level of achievement on the test to gain consideration in the final selections (regardless of the performance in other criteria). This test can be written at UBC or at another institution if the applicant can arrange for it to be proctored. An administrative fee will be assessed; contact the Faculty of Land and Food Systems for details.

Essays will be assessed on four main criteria:

- the precision and relevance of the response to the topic,
- the clarity and depth of thought about the topic expressed in the response,
- the coherence and development of the argument, and
- the command of expression, grammar, and punctuation demonstrated in the response.

Each essay is assessed anonymously and independently by two reviewers. The review process is completed over a short time, therefore it is not possible to re-evaluate essays.

This is not the type of test that applicants can study for. However, activities or courses that promote development of reading, writing, and critical thinking skills may assist applicants to perform well on this test.

3) Personal Profile (20% of Admission Score)

At the time of writing the test of critical thinking, reading, and writing, candidates will also complete a Personal Profile. This has two components:

- a brief (maximum two page) chronological resumé, which candidates can prepare in advance and bring along to the testing session; and
- a short set of questions that will allow candidates to explain why they have chosen to pursue a career in dietetics, their understanding of the role of the dietitian, and why they think their background and skills are appropriate for the profession. The specific questions may

vary from year to year. Candidates who have researched the profession and/or have volunteer or work experience in nutrition/dietetics will be better able to answer the questions.

APPLICATION FEE

The application form must be accompanied by an application processing fee. The fee for all applicants is CAD\$50.00.

INTEGRATED INTERNSHIP

ADMINISTRATION FEE

An administration fee of CAD \$1,500.00 per year will be applied to students in the Dietetics major.

DIETETICS MAJOR

Note: the following program will be implemented incrementally beginning September 2004. Students in the Dietetics Major prior to this will follow the program to which they were admitted.

Third Year

AGSC 350	6
BIOC 302	3
FNH 340	3
FNH 341	3
FNH 350	3
FNH 370	2
FNH 371	3
FNH 380	1
PHYL 301	6
Total Credits	30

Fourth Year

AGSC 450	3
COMM 329	3
FNH 351	3
FNH 440	3
FNH 470	4
FNH 473	3
FNH 475	3
FNH 480 ¹	9
Unrestricted Electives	9
Total Credits	40

Fifth Year

FNH 481 ²	30
FNH 482 ³	9
Total Credits	39

Overall five-year total credits 163

¹ FNH 480 (Professional Dietetic Practice 2) The current plan is to offer this course in May-June each year, with 16 hours/week in the classroom. Planning for this course is still in progress and this schedule may change.

² FNH 481 involves 30 weeks of full-time fieldwork placement (September through April).

³ FNH 482 (Professional Dietetic Practice 4) involves eight full-time weeks of senior fieldwork placement between May and August.

FOOD MARKET ANALYSIS MAJOR

Students enrolled in the Food Market Analysis Major will focus on the core of the Food Science Major and on a core of Economics, Commerce, and Food Resource Economics courses. This will prepare graduates for

employment in the food industry with special interest in market analysis aspects. Students wishing to concentrate on certain areas or who are interested in pursuing graduate studies should consult the program advisor.

FOOD MARKET ANALYSIS MAJOR

First Year

AGSC 100	1
ENGL 112	3
BIOL 112/121	6
BIOL 140	1
CHEM 121/123 (111/113) ¹	8
MATH 102/103 or equivalent ²	6
ECON 101/102	6
Total Credits	31

Second Year

AGSC 250	6
BIOL 200	3
CHEM 233	3
FNH 200	3
FNH 250	3
FRE 295 or ECON 301	3
FRE 306	3
Unrestricted Elective ³	6
Total Credits	30

Third Year

AGSC 350	6
FNH electives ⁴	6
One of FRE 374 or ECON 371	3
One of FRE 302, FRE 340, FRE 385, or ECON 325 ⁵	3
Economics or Commerce Electives ⁶	6
Unrestricted Electives	6
Total Credits	30

Fourth Year

AGSC 450	3
FNH 403	3
FNH Electives ⁴	6
One of FRE 420 or FRE 475	3
Concentration Electives ^{7,8}	9
Economics or Commerce Elective ⁸	3
Unrestricted Elective	3
Total Credits	30

Overall 4 year total credits 121

¹ CHEM 111 is not for students with Chemistry 12.

² Students who have not completed Calculus 12 should take MATH 180 or 184, plus either MATH 103 or 105, to fulfill their first-year Math requirement.

³ Students should review prerequisites for third-year FNH courses listed in footnote 2 (e.g., PHYS 101 or 102 for FNH 300). One of MATH 200, 217, or 226 is recommended for students contemplating graduate studies or with a special interest in quantitative/empirical analysis.

⁴ Select from: FNH 300, FNH 301, FNH 302, FNH 309, FNH 313, FNH 330, FNH 340, FNH 342, FNH 355, FNH 401, FNH 402.

⁵ Students contemplating graduate studies or with a special interest in quantitative/empirical analysis must select ECON 325.

⁶ Students contemplating graduate studies or with a special interest in quantitative/empirical analysis must select ECON 326.

⁷ Select from: FRE 302, FRE 340, FRE 374, FRE 385, FRE 420, FRE 475.

⁸ Students contemplating graduate studies or with a special interest in quantitative/empirical analysis must take FRE 385 and FRE 475. Also recommended are a second-year calculus course (e.g., MATH 200, 217, or 226) and ECON 420.

FOOD AND NUTRITIONAL SCIENCES DOUBLE MAJOR

Students in the Food and Nutritional Sciences Double Major will focus on the core sections of Food Science and Nutritional Sciences. The double major is based on the chemical, physical, and biological sciences and will prepare graduates for employment in the various facets of the food and nutrition sectors. Students wishing to specialize in or concentrate on certain areas should consult the program advisor.

Admission

The first two years of the Food and Nutritional Sciences Double Major are comprised of the standard cores of the FNH program. Students may apply to the Food and Nutritional Sciences Double Major after completing at least 21 credits of the listed first-year courses (or their equivalent), including courses in each of Biology, Chemistry, Physics, English, and Math. Admission to the double major is limited to students who have achieved an academic standing of at least 70% calculated on the best 21 credits of required courses taken in the previous year.

FOOD AND NUTRITIONAL SCIENCES DOUBLE MAJOR

First Year

AGSC 100	1
ENGL 112	3
BIOL 112/121	6
BIOL 140	1
CHEM 121/123 (111,113) ¹	8
MATH 102/103 or equivalent ²	6
ECON 101/102	6
Total Credits	31

Second Year

AGSC 250	6
FNH 200	3
FNH 250	3
CHEM 205/233	6
CHEM 235	1
BIOL 200/201 ¹	6
MICB 202	3
PHYS 101 or 121	3
Total Credits	31

Third Year

AGSC 350	6
BIOC 302 ³	3
FNH 300	3
FNH 301	3
FNH 302	3
FNH 309	3
FNH 313	3
MICB 353	1

Third Year (Continued)

FNH 325	3
FNH 326	3
Total Credits	31

Fourth Year

AGSC 450	3
FNH 350	3
FNH 351	3
FNH 401	3
FNH 425	6
PHYL 301 or equivalent	6
Unrestricted Electives	6
Total Credits	30

Fifth Year

FNH 403	3
FNH 451	3
FNH 450	3
Nutrition Electives ⁴	6
Total Credits	15

Overall five-year total credits 138

¹ CHEM 111 is not for students with Chemistry 12.

² Students who have not completed Calculus 12 should take MATH 103 or 105 to fulfill their first-year Math requirement.

³ Students may take BIOC 300 in lieu of BIOL 201/ BIOC 302.

⁴ Select at least 6 credits from the following list of courses: FNH 370, 371, 452, 453, 454, 475, 490, 497, 498, 499.

FOOD SCIENCE MAJOR

Food Science is a discipline encompassing food chemistry, food microbiology, physical, sensory, and nutritional properties of food, and food process science with respect to the manufacture, preservation, quality assurance, and development of food products.

Students wishing to specialize in or concentrate on certain areas should consult the program advisor.

Admission

Entry into the Food Science Major is at the beginning of either second or third year. Admission GPA is calculated on the grades from the best 21 credits of required courses in the most recently completed year of full-time study (either first or second year). A minimum competitive average of 70% is required for entry into the Food Science Major due to space restrictions.

Students who fail to meet the entrance requirements after first year can apply again after second year. Students interested in Food Science who fail to meet the entrance requirements after second year would be eligible to complete the FNH general major, or select another program if appropriate. A student may be permitted to enter the Food Science Major after completing third year if they have taken a full course load in their current program and obtained an average of 75% or higher for required courses, and providing room is available in the major.

Students who are admitted to the Food Science Major will be required to maintain at least a 70% average in required courses in each year to remain in the program.

FOOD SCIENCE MAJOR

First Year

AGSC 100	1
ENGL 112	3
BIOL 112/121	6
BIOL 140	1
CHEM 121/123 (111/113) ¹	8
MATH 102/103 or equivalent ²	6
ECON 101	3
PHYS 101 or equivalent	3
Total Credits	31

Second Year

AGSC 250	6
FNH 200	3
FNH 250	3
CHEM 205/233	6
CHEM 235	1
BIOL 200/201 ³	6
ECON 102	3
STATS 200 or FRST 231	3
Total Credits	31

Third Year

AGSC 350	6
BIOC 302 ³	3
FNH 300	3
FNH 301	3
FNH 302	3
FNH 309	3
MICB 202	3
MICB 353	1
FNH 325	3
FNH 326	3
Total Credits	31

Fourth Year

AGSC 450	3
FNH 313	3
FNH 401	3
FNH 403	3
FNH 425 or FNH 497 or FNH 499	6
Restricted Electives ⁴	6
Unrestricted Electives	6
Total Credits	30

Overall four-year total credits 123

¹ CHEM 111 is not for students with Chemistry 12.

² Students who have not completed Calculus 12 should take MATH 180 or 184 plus either MATH 103 or 105 to fulfill their first year Math requirement.

³ Students may take BIOC 300 in lieu of BIOL 201/ BIOC 302.

⁴ To be selected in consultation with a program advisor. May include courses in FNH, AGRO, AGSC, FRE, COMM, ECON, BIOC, PHARM, immunology, physiology, molecular biology, genetics, etc. (for a list of suggested courses see www.land-food.ubc.ca).

FOOD, NUTRITION, AND HEALTH MAJOR

The Food, Nutrition, and Health (FNH) Major offers flexibility so that students can tailor the program to reflect their own interests in food, nutrition, and health without the specialization depth afforded by the other majors. With suitable course selections, students may be prepared to enter the Home Economics Teacher Education Program at UBC once they have completed this major, a program that prepares graduates for employment opportunities in secondary schools as Home Economics teachers.

First Year	
AGSC 100	1
ENGL 112	3
BIOL 112/121	6
BIOL 140	1
CHEM 121/123 (111/113) ¹	8
MATH 102/103 or equivalent ²	6
Non-science Electives ³	6
Total Credits	31

Second Year	
AGSC 250	6
FNH 200	3
FNH 250	3
CHEM 233	3
CHEM 235	1
BIOL 200	3
FRST 231 or STAT 200	3
Restricted Electives ⁴	9
Total Credits	31

Third Year	
AGSC 350	6
FNH/FRE/FMST courses	12
Restricted Electives ⁴	9
Unrestricted Electives	3
Total Credits	30

Fourth Year	
AGSC 450	3
FNH/FRE/FMST Courses	12
Restricted Electives ⁴	9
Unrestricted Electives	6
Total Credits	30

Overall four-year total credits 122

¹ CHEM 111 is not for students with Chemistry 12.

² Students who have not completed Calculus 12 should take MATH 180 or 184, plus either MATH 103 or 105, to fulfill their first year Math requirement.

³ Students wishing to take FRE courses should select ECON 101 and 102 as their non-science electives. Students considering a transfer to another FNH program should take the required non-science electives for that program.

⁴ To be selected in consultation with a program advisor. May include courses in AGRO, AGSC, BIOC, COMM, ECON, FMST, FNH, FRE, PHARM, immunology, physiology, molecular biology, genetics, etc. (for a list of suggested courses see www.land-food.ubc.ca).

NUTRITIONAL SCIENCES MAJOR

The Nutritional Sciences Major provides a basic education in life sciences. The program in nutritional sciences is specifically intended for those students interested in basic human and animal nutritional sciences, who desire preparation for graduate study and research in nutrition, and for students who plan to proceed to an area of agricultural or health sciences in which a background in nutrition would be of value. Graduates of the Nutritional Sciences Major will most often pursue advanced degrees leading to positions in university teaching, research, nutrition services, or international food and nutrition organizations.

NUTRITIONAL SCIENCES MAJOR	
First Year	
AGSC 100	1
ENGL 112	3
BIOL 112 ¹	3
BIOL 121	3
BIOL 140	1
CHEM 121/123 (111/113) ¹	8
MATH 102 or equivalent ²	3
MATH 103	3
ECON 101	3
Non-Science Elective	3
Total Credits	31

Second Year	
AGSC 250	6
FNH 200	3
FNH 250	3
CHEM 233	3
CHEM 235	1
CHEM 205	3
BIOL 200	3
BIOL 201 ³	3
MICB 202	3
PHYS 101 or 121	3
Total Credits	31

Third Year	
AGSC 350	6
BIOC 302 ³	3
PHYL 301 or equivalent ⁴	6
FNH 350	3
FNH 351	3
Unrestricted Electives	6
Restricted Electives ⁵	3
Total Credits	30

Fourth Year	
AGSC 450	3
FNH 450	3
FNH 451	3
Nutrition Specialization Electives ⁶	9
Unrestricted Electives	9
Restricted Electives ⁵	3
Total Credits	30

Overall four-year total credits	
	122

¹ CHEM 111 is not for students with Chemistry 12.

² Students who have not completed Calculus 12 should take MATH 180 or 184 to fulfill their first year Math requirement.

³ Alternate BIOC 300 for BIOL 201/BIOC 302.

⁴ Alternate AGRO 311 and 312 or BIOL 353 or BIOL 355.

⁵ Restricted elective in consultation with an advisor (at least 6 credits of upper-level courses in Food, Nutrition, and Health (except FNH 330, 340, 341, 342, and 440), Agroecology, Food and Resources Economics, immunology, biochemistry, pharmacy, molecular biology, genetics, or other disciplines).

⁶ Nutrition specialization electives (at least 9 credits from FNH 301, 370, 371, 452, 453, 454, 470, 473, 475, 490*, 497*, 498, 499. Students must consult with an advisor).

BACHELOR OF SCIENCE IN GLOBAL RESOURCE SYSTEMS

The Bachelor of Science in Global Resource Systems program recognizes that resource problems are complex and require solutions that are global and interdisciplinary in scope, and draw on a range of skills. It offers a comprehensive and flexible undergraduate degree program in which students are given the opportunity to customize their degree by selecting both a resource area and region of the world to focus their studies.

Students are eligible to apply to the Bachelor of Science in Global Resource Systems undergraduate program after completing first-year Agricultural Sciences, Arts, or Sciences. They can begin the program at the beginning of second year or third year. In third and fourth years, students pursue a double major, a resource specialization, and a regional specialization.

For the resource specialization, students focus on one discipline or choose courses from different disciplines that relate to a resource theme. Options include, but are not limited to: aquaculture, environment, food and resource economics, First Nations resource systems, horticulture, human ecology, international development, and sustainable agriculture.

For the regional specialization, students choose Africa, Asia Pacific, Europe, or the Americas. Within the regional specialization, the program requires a relevant language other than English, a relevant international experience, and relevant course work. The international experience requirement is met through a period of learning in the region via academic exchange, field study, or work-based learning (internships).

ADVISING OFFICE

See *Academic Advising Office*, p. 301, as listed under the Faculty of Land and Food Systems, Admission.

ADMISSION

Students can apply to the GRS program after completing 24 credits of first-year university-level courses. To be considered, students are required to have a minimum academic standing of at least 70% (or 2.80 on a 4-point scale). Achievement of this minimum, however, does not guarantee admission. Admission is limited by the Faculty's capability to accommodate

students in this global program. Admission is based on grades, preparation, experiences, and commitment to a global education. When applying to GRS, students must submit a letter of intent (500 words or less) conforming to guidelines specified on the GRS website (www.landfood.ubc.ca/programs/grs_ug.htm). The letter of intent is to be submitted to Enrolment Services at the time of application.

Students are advised to complete first-year requirements as listed in *Degree Requirements*, p. 307, for the Bachelor of Science in Global Resource Systems.

Transfer from the Environmental Studies Diploma, Langara College

Students who successfully complete the Environmental Studies Diploma program at Langara College, and gain admission to the Faculty of Land and Food Systems and the Global Resource Systems (GRS) undergraduate program, will receive transfer credit for 60 credits into the GRS program if they have:

- 1) satisfied first-year requirements of the GRS program in Biology, Chemistry, Economics, English, and Mathematics;
- 2) completed UBC course AGSC 250 or equivalent; and
- 3) completed 6 credits of language relevant to the regional specialization.

They will be able to finish the GRS program with the further 62 credits required.

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 301, as listed under the Faculty of Land and Food Systems.

DEGREE REQUIREMENTS

To qualify for the Bachelor of Science in Global Resource Systems, students must complete at least 3 credits of first-year English. Although English 112 is highly recommended, qualified students are encouraged to consider English 120 and/or 121.

Satisfactory completion of the Language Proficiency Index (LPI) examination is prerequisite to all first-year English courses at UBC. See *Language Proficiency Index Requirement for First-Year English*, p. 120. Students who have not achieved an LPI score of 5 or 6 by the time they have completed 30 credits will normally be required to withdraw from the Faculty of Land and Food Systems.

Student performance on written work in all courses in the Faculty of Land and Food Systems may be evaluated in part on grammar and syntax.

Students who have not completed at least 3 credits of first-year English will not normally be permitted to enrol in third-year or higher-level courses in the Faculty.

BACHELOR OF SCIENCE IN GLOBAL RESOURCE SYSTEMS

First Year	
AGSC 100	1
BIOL 111/112/115 or 121	3
CHEM 121 (111) ¹	4

First Year (Continued)	
ECON 101	3
ENGL 100-level ²	3
Language ³	6
MATH 100, 102, 104, 180, or 184 ⁴	3-4
Program Electives ⁵	9/8
Total Credits	32

Second Year	
AGSC 250	6
GRS 290 ⁶	1/2
Language ³	6
Program Electives ⁷	11/10
Unrestricted Electives	6
Total Credits	30

Third and Fourth Years	
AGSC 350	6
AGSC 450	3
Field Experience ⁸	3
GRS 390 ⁹	1-2
GRS 490	2
Resource Specialization Electives ¹⁰	21
Regional Specialization ¹¹	
Anthropology and Culture	3
Economics and Commerce	3
Geography, History, and Political Science	3
Regional Specialization Electives	9
International Experience ¹²	0
Program Electives ⁷	3/2
Unrestricted Electives	3
Total Credits	60
Overall four-year total	122

¹ CHEM 111 is not for students with Chemistry 12.

² ENGL 112 is recommended.

³ Students who pass an oral proficiency test for a language relevant to their regional specialization are exempt, and must choose 6 credits of program electives approved by a program advisor.

⁴ Students who have not completed Calculus 12 should take MATH 180 or 184 to fulfill their first-year Math requirement.

⁵ Courses that provide a foundation for the resource specialization. Science-based resource specializations require BIOL 121 and 140 and CHEM 113 or 123. Economics-based resource specializations require ECON 102. Must be approved by a program advisor.

⁶ At least 1 credit is required.

⁷ Courses that provide further foundation for the resource specialization. Typically in Agricultural Sciences, Biology, Chemistry, or Economics. Must be approved by a program advisor.

⁸ Met by a field studies course that is pre-approved by a program advisor.

⁹ At least 1 credit is required.

¹⁰ 300- or 400-level courses from one resource discipline or from several disciplines that relate to a resource theme. Must be approved by a program advisor.

¹¹ Africa, Asia Pacific, Europe, or the Americas. The regional specialization requires 18 credits that are relevant to the region. These can include social sciences, humanities, language courses, and experiential learning. At least 3 credits must relate to each of these areas: anthropology and culture, economics and commerce, and geography, history, and political science. Must be approved by a program advisor.

¹² Met by learning in the region of specialization for at least one term, or three-month period. Options include participation in UBC's Go Global Student Mobility Programs or work-based learning (internships). Must be pre-approved by a program advisor.

CANADIAN EXCHANGE PROGRAMS

Formal exchange programs facilitate the exchange of students with other universities in Canada and abroad. These exchanges allow students to experience a different cultural and academic life, and receive credit for courses successfully completed. Undergraduate students are eligible to spend third year on exchange. Graduate students can transfer up to 12 credits toward their UBC degree. Interested students should see *Go Global (Exchange Programs)*, p. 443, for further information.

Opportunities for students exist at McGill University, University of Alberta, and Université Laval. These universities participate with UBC in the Canada Exchange Scholars Program (CANEX). Opportunities also exist at University of Guelph, which has an exchange agreement with the Faculty.

EXCHANGES ABROAD

Go Global: Student Mobility Programs offers eligible students the opportunity to spend one or two semesters at a variety of partner universities throughout the world, including the University of the Philippines Los Banos, University of Melbourne and Queensland University (Australia), Lincoln University (New Zealand), University of California, and Oregon State University. Additional opportunities for graduate student exchange are available in Malaysia, Indonesia, Philippines, and Thailand through UBC's membership in the Southeast Asian University Consortium for Graduate Education in Agriculture and Natural Resources.

BC INSTITUTE OF AGROLOGISTS

Agrology is the profession of applying science and scientific principles to the business and art of agriculture. In British Columbia, agrology is recognized by the provincial statute of 1948, the Agrologists Act, under which the British Columbia Institute of Agrologists (BCIA) (www.bcica.com) is incorporated.

A graduate of the Faculty holding a Bachelor of Science in Agroecology, Bachelor of Science in Food, Nutrition, and Health, or a Bachelor of Science in Global Resource Systems meets the educational requirements for membership in the BC Institute of Agrologists.

A graduate who plans to practise as an agrolgist in the province of British Columbia is expected to register as a member of the BCIA. Applications should be forwarded to the Registrar, BCIA.

DR. AND MRS. A.S. DEKABAN FOUNDATION

A foundation was established by Dr. and Mrs. A. S. Dekaban primarily to permit graduate students from the Polish agricultural universities to study in the Faculty of Land and Food Systems. Polish students may spend up to six months in the Faculty, undertaking research related to their study program in their home institution. The students are selected by the Polish agricultural universities. The foundation also supports occasional short-term visits by members of the Faculty Land and Food Systems to Polish agricultural universities and visits by scientists from the Polish agricultural universities to the Faculty.

ACADEMIC STAFF

AGROECOLOGY

Professors

T. A. Black, B.Sc. (Br.Col.), M.Sc., Ph.D. (Wis.); C. P. Chanway, B.Sc. (Winn.), B.S.Ag. (Manit.), M.Sc., Ph.D. (Br.Col.); K. M. Cheng, B.S. (Tenn. Tech.), M.S. (S. Ill.), Ph.D. (Minn.); S. Chieng, B.Sc. (Nat. Taiwan), M.Sc., Ph.D. (McG.); Q. Cronk, B.A., Ph.D. (Camb.); B. E. Ellis, B.Sc. (New Br.), Ph.D. (Br.Col.); A. Farrell, B.Sc. (Bath), Ph.D. (Br. Col.); D. G. Fraser, B.A. (Tor.), Ph.D. (Glas.); M. B. Isman, B.Sc., M.Sc. (Br.Col.), Ph.D. (Calif.); P. A. Jolliffe, B.Sc. (Qu.), Ph.D. (Br.Col.); R. S. McKinley, B.Sc. (Guelph), M.Sc. (York), Ph.D. (Wat.); J. H. Myers, B.Sc. (Chatham Coll.), M.Sc. (Tufts), Ph.D. (Indiana); R. Rajamahendran, B.V.Sc. (Ceyl.), M.Sc., Ph.D. (McG.); H. E. Schreier, B.A. (Colorado), M.Sc. (Sheff.), Ph.D. (Br.Col.); D. M. Shackleton, B.Sc. (Leic.), M.Sc. (W.Ont.), Ph.D. (Calg.); T. P. Sullivan, B.Sc., M.Sc., Ph.D. (Br.Col.); M. K. Upadhyaya, B.Sc. (Ag.) (J. Nehru Agric.), M.Sc. (I.A.R.I.), M.A. (Princ.), Ph.D. (Mich.), P.Ag., C.P.H., C.P.Ag., F.W.S.S.A.; D. M. Weary, B.Sc., M.Sc. (McG.), Ph.D. (Oxf.).

Professors Emeriti

T. M. Ballard, B.S.F., M.F., Ph.D. (Wash.); V. C. Brink, B.A., M.Sc. (Br.Col.), Ph.D. (Wisc.); G. W. Eaton, B.S.A. (Tor.), Ph.D. (Ohio); F. B. Holl, B.Sc., M.Sc. (Manit.), Ph.D. (Cantab.), P.Ag.; L. M. Lavkulich, B.Sc., M.Sc. (Alta.), Ph.D. (C'nell.); J. Leichter, B.S. (Cracow Coll., Poland), M.S., Ph.D. (Calif., Berkley); L. E. Lowe, B.A., M.A. (Oxf.), M.Sc., Ph.D. (McG.); B. March, B.A., M.S.A. (Br.Col.); B. D. Owen, M.Sc. (Alta), Ph.D. (Sask.), P.Ag.; V. C. Runeckles, B.Sc. (Lond.), A.R.C.S. (Imp. Coll.), Ph.D. (Lond.), D.I.C. (Imp. Coll.); M. Shaw, M.Sc., Ph.D., D.Sc. (McG.), F.A.P.S., F.R.S.C.; I. E. P. Taylor, B.Sc., Ph.D. (Liv.).

Associate Professors

A. A. Bomke, B.S., M.S. (S. Ill.), Ph.D. (Ill.); M. D. Novak, B.Eng. (McG.), M.Sc. (W.Ont.), Ph.D. (Br.Col.).

Associate Professors Emeriti

R. J. Copeman, B.Sc. (McG.), Ph.D. (Wis.); J. De Vries, B.A., M.A., Ph.D. (Br.Col.); R. C. Fitzsimmons, B.Sc. (Wash.), M.Sc., Ph.D. (Minn.); G. Kennedy, B.A. (Br.Col.), M.Sc. (Minn.), Ph.D. (Purdue); R. G.

Peterson, B.Sc. (Wyo.), M.Sc., Ph.D. (Ill.); M. D. Pitt, B.Sc., M.S., Ph.D. (Calif.), P.Ag.; R. M. Tait, B.Sc. (Durham), Ph.D. (N'cle, U.K.).

Assistant Professors

K. Adams, B.A. (Earlham Coll.), M.Sc. (Miami), Ph.D. (Indiana); K. Baylis, B.A. (Windsor), M.Sc. (Sask.), Ph.D. (Calif., Berkeley); S. Binns, B.Sc. (Guelph), Ph.D. (Ott.); S. Graham, B.Sc. (St. Andrews, Scot.), M.Sc., Ph.D. (Tor.); S. Gulati, M.S., Ph.D. (Maryland); M. Krzic, B.Agron., M.S. (Belgrade), Ph.D. (B.Col.); A. Riseman, B.Sc., M.Sc., Ph.D. (Penn. State); M. von Keyserlingk, B.Sc. (Br.Col.), M.Sc. (Alta.), Ph.D. (Br.Col.).

Adjunct Professors

C. P. Bennett, B.Sc. (Salford), M.Sc. (Exe.); S. M. Berch, B.Sc., M.Sc. (Wat.), Ph.D. (Laval); M. Curran, B.Sc. (Vic.B.C.), M.Sc., Ph.D. (Br.Col.); A. B. de Passillé, M.Sc., Ph.D. (McG.); D. L. Ehret, B.Sc. (Alta.), M.Sc. (Ill.), Ph.D. (Br.Col.); J. E. Elliott, M.Sc. (Ott.), Ph.D. (Br.Col.); D. Henderson, B.Sc. (Trent), M.Sc. (Manit.), Ph.D. (Br.Col.); D. A. Higgs, B.Sc. (Vic.B.C.), B.Sc., Ph.D. (Manit.); J. A. Love, B.V.M.S. (Glas.), M.R.C.V.S. (U.K.), Ph.D. (Tor.); D. M. Rochan, B.A., M.S., Ph.D. (Wayne State); J. Rushen, B.S., Ph.D. (Q'ld.); D. A. Theilmann, B.Sc., M.Sc. (Qu.), Ph.D. (Texas A & M).

Senior Instructor

A. Rojas, B.Sc. (Chile), M.A., Ph.D. (York, Canada).

Lecturer from Other Department

A. P. Wharton, B.Sc. (N.Wales).

FOOD, NUTRITION, AND HEALTH

Professors

S. I. Barr, B.H.E. (Br.Col.), Ph.D. (Minn.); T. D. Durance, B.S. (Wat.), B.Sc. (Guel.), M.Sc., Ph.D. (Br.Col.); D. D. Kitts, B.Sc., M.Sc., Ph.D. (Br.Col.); E. Li-Chan, B.Sc. (Br.Col.), M.Sc. (Alta.), Ph.D. (Br.Col.); J. R. Thompson, B.Sc., M.Sc. (Br.Col.), Ph.D. (Calif., Davis), P.Ag.; H. J. J. Van Vuuren, B.Sc., M.Sc. (Stell.), Ph.D. (Ghent); J. A. Vercammen, B.Sc., M.Sc. (Sask.), Ph.D. (Calif., Berkeley).

Professors Emeriti

R. M. Beames, M.Agr.Sc. (Q'ld.), Ph.D. (McG.), P.Ag.; I. D. Desai, B.Sc., M.Sc. (Gujarat), Ph.D. (Calif., Davis); B. E. March, B.A., M.S.A., D.Sc. (Honoris causa) (Br.Col.), F.A.I.C., F.R.S.C., F.P.S.A., P.Ag.; W. D. Powrie, M.A. (Tor.), Ph.D. (Mass.), F.I.F.T., F.C.I.C., F.C.I.S.T.; J. F. Richards, M.Sc. (Manit.), Ph.D. (Minn.), F.C.I.F.S.T., P.Ag.

Honorary Professors

R. Blair, B.Sc. (Glas.), Ph.D. (Aberd.), D.Sc. (Sask.), P.Ag.; S. Nakai, B.Sc., Ph.D. (Tokyo), F.C.I.F.S.T.

Associate Professors

R. R. Barichello, B.Sc. (Agr.) (Br.Col.), A.M., Ph.D. (Chic.); G. E. Chapman, B.Sc., H.Ec. (Sask.), M.Sc., Ph.D. (Tor.); S. Samuels, B.A.Sc., B.Sc. (Tor.), M.Sc. (Guel.), Ph.D. (Alta.); C. H. Scaman, B.Sc., M.Sc. (Br.Col.), Ph.D. (Alta.); B. J. Skura, B.Sc., M.Sc. (Alta.), Ph.D. (Br.Col.); Z. Xu, B.Sc. (Jiangxi), M.Sc., Ph.D. (Guelph).

Associate Professor Emeritus

J. Vanderstoep, B.S.A., M.S.A., Ph.D. (Br.Col.).

Assistant Professors

T. Beatty, B.A. (Laval), M.Sc. (Montr.), Ph.D. (Calif., Berkeley); K. M. Keiver, B.Sc. (Br.Col.), M.Sc., Ph.D. (Guelph); S. T. Lund, B.S. (Mich.), M.S. (Minn.), Ph.D.

(Minn.); V. Measday, B.Sc. (Mich.), M.S., Ph.D. (Minn.).

Adjunct Professors

K. Beauchemin, B.Sc. (McG.), M.Sc. (Laval), Ph.D. (Guelph); S. Bittman, B.Sc., M.Sc. (McG.), Ph.D. (Sask.); P. A. Bowen, B.Sc. (Agr.) (Br.Col.), M.Sc. (Br.Col.), Ph.D. (Calif., Davis); M. Cliff, B.Sc. (Br.Col.), M.Sc. (Calif., Davis), Ph.D. (Missouri); G. Mazza, Ph.D. (Alta.), F.C.I.F.S.T.; B. D. Oomah, M.Sc. (Timiryazev Acad. Agric. Moscow, FSU), Ph.D. (Manit.); G. M. M. Sandberg, M.Sc., Ph.D. (Br.Col.); G. C. Van Kooten, B.Sc., M.A. (Alta), Ph.D. (Oregon); D. Veira, B.Sc. (Guelph), M.Sc. (Aberd.), Ph.D. (Guelph); J. Zawistowski, M.Sc. (Warsaw), Ph.D. (Manit.).

Instructor

K. Traviss, B.Sc., M.Sc. (Br.Col.).

Lecturer from Other Department

S. M. Innis, Pediatrics.

15 The Faculty of Law

Dean's Office

M. A. Bobinski, Dean

R. M. Elliot, Associate Dean, Administration and Finance

W. W. Pue, Associate Dean, Graduate Studies and Research

J. Sarra, Associate Dean, Strategic Initiatives and Development

C. F. L. Young, Associate Dean, Academic Affairs

1822 East Mall

Vancouver, BC V6T 1Z1

Telephone: 604-822-3151

Fax: 604-822-8108

Law Website (www.law.ubc.ca)

The Faculty of Law offers programs of study leading to the degrees of Bachelor of Laws and Master of Laws. For information concerning the Master of Laws, Doctor of Philosophy, and Master of Jurisprudence (Common Law) see *Law*, p. 261, in the Graduate Studies Programs section. For information on the combined Bachelor of Laws and Master of Business Administration, see *LL.B./M.B.A. Combined Program*, p. 171. For information on our combined Bachelor of Laws and Master of Asian Pacific Policy Studies, see *M.A.P.P.S./LL.B. Combined Program*, p. 312.

UBC's Law Faculty opened in 1945 under the inspiring leadership of George Curtis, who launched Canada's first modern law school with a small budget, two army huts, and no library. Yet Dean Curtis had a vision. He recruited a diverse faculty offering students multiple perspectives on the theory and practice of law. Under his outstanding leadership, UBC Law grew into one of Canada's foremost law schools.

Our faculty members' research projects inspire their teaching and give our students an opportunity to work on projects at the cutting edge of the law. Our faculty are also committed to ensuring that their research efforts make a difference, whether by changing the course of academic debate or offering real-life solutions to war-torn countries.

BACHELOR OF LAWS

The Bachelor of Laws degree is granted on the successful completion of a three-year course and prepares students for admission to the practice of law (subject to further requirements which are set out below) and for business and

public service. The number of students entering the practice of law in Canada has increased in the last few years and a degree in law is no guarantee of a position in either the necessary year of articles (described below) or in the practice of law. Enrolment in the first year of legal studies at the Faculty of Law is approximately 198 full-time equivalent students.

ADMISSION

Regular Applicants

To be eligible for selection, an applicant must have:

- 1) obtained an undergraduate degree in an approved course of studies from a degree granting university; or
- 2) successfully completed the first three years (minimum 90 credits) or more of an approved course of studies leading to an undergraduate degree at the University of British Columbia or completed the equivalent at a degree granting university; or
- 3) successfully completed the first two years of studies leading to an undergraduate degree at the University of British Columbia or other degree granting university, and be currently enrolled in the third year of the degree program. (An offer of admission will be conditional on successful completion of the third year by June 30 with a minimum of 90 credits at the University of British Columbia, or the equivalent at a degree granting university, and maintenance of the academic average obtained in the first two years of studies); and
- 4) obtained an overall standing of no less than 65%.

Applicants should regard their satisfaction of the entrance requirements as meaning only that they are eligible for selection. Because of the competition for admission to the Bachelor of Laws program a regular applicant must have an undergraduate academic average substantially higher than the minimum (65%) in order to have a reasonable chance of admission. The median applicant accepted for 2004/2005 had an academic average of approximately 82% with an LSAT score of 163 (90th percentile). The academic average and LSAT score are used in a formula to determine an index number by which applicants are ranked. The academic

average and LSAT score are weighted approximately equally. In calculating the academic average, only those years of undergraduate study making up the first undergraduate degree that are complete at the time of deadline for application are considered, except for Item 3 above, where the applicant must maintain the overall standing of the first two years of studies. Generally, no greater weight is attached to one series of academic courses or disciplines than to another. Performance courses are counted towards the required minimum 90 credits but the grades earned in such courses are not usually counted in computing the academic average. Graduate degrees are not taken into account, except within the discretionary category discussed below.

A personal statement is required in all categories. Regular applicants may request that special circumstances be considered in determining their academic average. The special factors or circumstances (such as medical or other emergency matters) must be documented fully. If a regular applicant requests the Committee to consider making an adjustment to the academic average (not including certain courses or a year), the facts must be verified and supported by appropriate documentation. If the special circumstances are medical then a doctor's letter is required. Not all special circumstances can be considered in the regular category. Certain factors such as financial hardship, learning disabilities or other disadvantages, or ethnic background, can only be considered in the discretionary category.

Regular applicants will be advised in writing as soon as possible whether their application has been accepted or rejected for admission purposes. Applicants who have not received a letter will be on the wait list until a decision can be made.

Discretionary Applicants

A limited number of positions in first-year law are available for discretionary applicants. Because of special factors in life, an applicant may not satisfy one or more of the requirements for regular applicants, but may have other relevant achievements and experience. The Admissions Committee has the discretion to respond to this type of situation by taking into account factors such as disability or special needs, financial disadvantage, age (generally

over 30 years old), membership in a historically disadvantaged group and any other factors that the applicant wishes the Admissions Committee to consider. These factors will be considered in the context of the applicant's other achievements and work experience, including volunteer work for community or charitable organizations.

Discretionary applicants are required to have completed the first two years of an approved course of studies leading to an undergraduate degree at an approved college or university. A personal statement, LSAT score, and two letters of reference are required, and where appropriate, documentation such as medical reports should be submitted. Each application is considered individually on its merits. Decisions in this category are usually made in mid-June.

Normal policy is to require discretionary applicants to have completed the first two years of studies leading to an undergraduate degree at a degree granting university.

Discretionary applicants must submit a biographical resume detailing the special factors, including their achievements and work experience, that they wish the Admissions Committee to consider. Each application is considered individually on its merits. It is important that applicants send detailed accounts of their circumstances, including their involvement in community or charitable organizations. In this category it is also important that applicants submit documentation (e.g., medical reports, if applicable or letters of reference) in order for the Admissions Committee to evaluate their files. Incomplete applications cannot be evaluated and it is the responsibility of applicants to ensure their applications are complete. Decisions in this category are made in June.

First Nations Applicants

Applicants with First Nations ancestry may apply in the regular category or in the First Nations category. First Nations applicants should contact the Coordinator of First Nations Legal Studies, Gloria Cardinal (cardinal@law.ubc.ca), as early as possible to discuss their application.

The Faculty considers the applicant's involvement with a commitment to First Nations communities and organizations, and the applicant's intention to use his or her legal training to advance First Nation's concerns and interests. Applicants are required to establish their First Nations ancestry by enclosing a copy of their status card. If unable to provide a status card, applicants must provide a chart tracing their line of ancestry. In addition, a personal statement is required, two letters of recommendation, LSAT score and two official transcripts.

Other Categories for Admission (other than to first year)

Each year there are many requests for admission to the upper years. Only a few applicants, however, can be accommodated.

Degree Categories

Applicants who have either started their LL.B. degree or who have graduated from a foreign law school can apply under either the Transfer or Advanced Standing categories. Applicants who apply under either of these categories must successfully complete two years of legal studies at UBC Law to receive a degree from UBC.

- 1) **Transfer.** Students at other Canadian common law schools who have completed their first year of legal studies may apply for transfer to UBC Law. The Admissions Committee gives preference to applicants who:
 - (a) would have been admitted to the first year of legal studies at UBC Law at the time of being admitted to their present institution;
 - (b) have achieved satisfactory academic performance in their legal studies at their current institution; and
 - (c) have compelling reasons for transferring to UBC Law, which include compassionate grounds in which the applicant has no control over the circumstances.
 - (d) Applicants must submit a copy of their LSAT score, official undergraduate and law transcripts as well as two letters of reference with their application.
- 2) **Advanced Standing.** Graduates of foreign law schools and Quebec civil law schools and students who are currently registered in non-Canadian common law schools may apply to complete two years of legal studies at UBC Law to obtain an LL.B. Applicants must submit a copy of their LSAT score, official undergraduate and law transcripts, a personal statement explaining the reasons for the request, and two letters of reference.

Non-Degree Categories

Please note that applicants admitted in either of the following categories are not eligible to receive an LL.B. from UBC Faculty of Law.

- **Visiting (Letter of Permission).** Students enrolled in an LL.B. program at an approved law school may request permission from their current school to attend one year or one term of either the second or third-year program at UBC Law on a letter of permission basis. Students must obtain a letter of permission from the Associate Dean of their current law school, a copy of their LSAT score (if applicable), compelling reasons for their request, official undergraduate and law transcripts, as well as two letters of reference. Criteria for selection are the same as for transfer requests (see above). Visiting status will be granted to successful applicants for a maximum of one year.
- **Unclassified.** Applicants who have law degrees or their equivalents from foreign jurisdictions and who wish to undertake legal studies at UBC Law in order to satisfy the certification requirements of the National Committee on Accreditation may

apply for unclassified status. An applicant requesting unclassified status must submit a personal statement, a copy of their LSAT score if taken, two official transcripts, a letter from the National Committee on Accreditation and two letters of reference. There must be clear evidence that the student is competent to pursue studies in the English language. If you do not have a law degree from a University taught in the English language, an official TOEFL and TWE score from the testing agency is required. These test scores must be from tests taken within the 24 months leading up to the date of application. The minimum TOEFL and TWE scores for admission are 600 and 5.5 respectively (250 and 5.5 under the computerized version). A minimum score does not necessarily guarantee admission. The TOEFL Head Office must send the score directly to the LL.B. Admissions Office of the Faculty of Law. For more information about the TOEFL and TWE please see the TOEFL website (www.toefl.org). Applicants must have their transcripts evaluated by: The National Committee on Accreditation, Faculty of Law, Common law Section, University of Ottawa, 57 Louis Pasteur, Ottawa, Ontario, K1N 6N5. Tel: 613-562-5704, fax: 613-562-5722, email: [Fran Russo \(frusso@uottawa.ca\)](mailto:FranRusso@uottawa.ca), Administrator. You may also visit their website (www.flsc.ca).

Canadian Civil Law Programs

Graduates from a civil law program at a Canadian law school may:

- apply to the National Committee on Accreditation and apply for unclassified status at UBC Law; or
- apply for Advanced Standing (see above).

Students currently enrolled in a civil law program at a Canadian law school are not eligible to transfer to the UBC Law. They may, however, request visiting (letter of permission) status at UBC Law if permitted to do so by their current law school. Visiting status will be granted for a maximum of one year only.

APPLICATION

All applicants for admission must submit the following documents by the deadlines set out below:

- completed application form
- transcripts
- an LSAT score
- an application fee, and
- other documentation where necessary

Regular, Discretionary, and First Nations Applicants

The application form, application fee, and all supporting documents must be submitted on or before February 1. Forms must be postmarked on or before February 1. Final official transcripts (see below) must be submitted on or before June 30.

Transfer, Letter of Permission, Advanced Standing, and National Committee

The application form, current transcripts, other documents, and application fee must be submitted on or before May 31. Final official transcripts (see below) must be submitted on or before May 31.

Application Forms

Application forms are available from the Admissions Office of the Faculty of Law 604-822-6303 or online on the Faculty website (www.law.ubc.ca/prospective/lb/apply.html). The Faculty will mail forms on request but will not fax or courier them to applicants.

Transcripts

The academic average (GPA) is calculated on all the academic years of study leading to the applicant's first undergraduate degree. A cumulative record will not be accepted. Separate transcripts must be sent from each institution attended. An official transcript is one sent directly to the Faculty by the issuing institution. A final official transcript is a transcript sent directly to the Faculty by the issuing institution on the completion of the current academic year. Applicants who have attended institutions, such as some English universities, which do not issue transcripts should contact the Admissions Office for instructions.

Applicants still taking courses leading to an undergraduate degree should arrange for one current official transcript to be sent immediately to expedite the processing of their applications and for two final official transcripts to be sent by the June 30 deadline. Applicants still in the process of completing the minimum 90 credits will receive an offer conditional on maintenance of the GPA achieved on the first 60 credits.

It is not necessary to send UBC transcripts as they are available to the Faculty.

Law School Admissions Test (LSAT)

All applicants, except Letter of Permission applicants, attending non-North American law schools, are required to submit a valid LSAT score. Applicants may take the test more than once, and the highest score will be used. Scores are valid for five years and must be valid as of September. The Admissions Office can access LSAT scores directly from Law Services if the applicant's registration is current.

The latest writing of the LSAT which will be accepted for admission for September is the February writing.

The LSAT Information Book (Canadian Service) may be picked up at UBC Law, the Welcome Centre in Brock Hall at UBC Point Grey Campus, or can be accessed online (www.lsac.org). An applicant wishing to apply to American schools must use the American registration material which is obtainable only from Law Services. Students may also access the LSAT Registration Guide (www.lsac.org) online.

Application Fee

An application processing fee of CAD\$80.00 must accompany the application form.

Personal Statement

All applicants must submit a personal statement of no more than 750 words. The personal statement is an applicant's opportunity to outline those features of the application that distinguish the candidate. The personal statement is also an opportunity for a candidate to highlight his or her non-academic contributions as well as any circumstances that may have contributed to or detracted from the applicant's academic and non-academic success.

Other Documents

Other documents include letters of reference, medical certificates, special circumstances letters, or National Committee on Accreditation letters, where relevant.

Interviews are not part of the admissions procedure but the Director of Admissions, Elaine Borthwick, or one of her assistants, are available to answer any questions in person, or by telephone (604-822-6303), letter, fax (604-822-8108), or email (borthwick@law.ubc.ca). Applicants wishing to meet with her or one of her assistants should make an appointment.

Language Proficiency

Applicants who do not have adequate command of the English language will not be admitted. Applicants may be required to take a test to demonstrate adequate facility with the English language.

Admission Offers

Application processing begins in October. Offers are made to Regular applicants as early as December. The Admissions Committee begins considering applications in all other categories in April. Offers to First Nations applicants are usually made in mid April, to discretionary applicants in June, and final decisions to all other applicants in July.

Deposit

Canadian citizens, permanent residents or landed immigrants who accept the offer of a place at UBC Law must make a deposit of \$300.00 towards tuition at the time of acceptance. All other applicants must make a deposit of \$500.00 towards tuition at the time of acceptance. The deposit will be refunded in full to any applicant who notifies UBC Law in writing (by post or email) on or before April 15 of their intention to withdraw their acceptance. On acceptance, all applicants must also submit two recent passport-size photographs, approximately 1.25" x 1.75".

Appeals

An applicant who is denied admission may request the Admissions Committee to reconsider its decision but only on the ground that the applicant has material information that was not reasonably available to the applicant at the time the Admissions Committee's initial

decision was made. Such new information must be set out in the request for reconsideration. The Committee will then determine whether the information is indeed new material. At this time the Admissions Committee will consider whether to alter its initial decision based upon the new material and the availability of space within the law school class at the time when the reconsideration decision is rendered. The Admissions Committee must receive the request for reconsideration within 30 calendar days of the applicant's initial letter and decision from the Law Admissions Office.

ACADEMIC REGULATIONS

Examinations

Courses will be evaluated by final examination in December or April, unless an additional or alternative method of evaluation is deemed appropriate. In certain circumstances, as set out below, a student is entitled to a re-evaluation in a particular course after the regular evaluations for the year are completed.

The minimum passing grade in an individual course is 50%. In order to pass the year, a student must obtain a passing grade in every compulsory course taken in the year and a weighted average over all courses taken in the year of not less than 55%.

A student is entitled to a re-evaluation in a course under the following circumstances:

- 1) If as a result of the regular evaluations a student has failed one or two, but not more than two, courses (whether compulsory or not) and achieved a weighted average of at least 55% in the courses that were passed, the student is entitled to a re-evaluation in the courses that were failed.
- 2) If as a result of the regular evaluations a student has passed every course but has achieved a weighted average of less than 55% over all courses taken in the year, the student is entitled to a re-evaluation in the two courses in which the lowest grades were received. If the grade received on the re-evaluation is sufficient, the final grade for a course in which the student is re-evaluated will be raised to 50% or whatever higher grade is necessary to yield a weighted average of 55% over all courses taken in the year, otherwise, the original grade will stand.

Grades Results

Grades are available to students online at the Student Service Centre website (www.students.ubc.ca/ssc). Official results for the session are available in mid- to late-May. Official transcripts are obtained through Enrolment Services and may be ordered on the Student Service Centre website (www.students.ubc.ca/ssc).

DEGREE REQUIREMENTS

Regular Program

The Bachelor of Laws program requires a student to acquire a minimum of 92 credits in three Winter Sessions in the Faculty of Law. First year consists of compulsory courses totalling 35 credits. The second and third years (or upper years) consist of two Winter Sessions in each of which a minimum of 28 and a maximum of 34 credits shall be taken. Each session consists of two consecutive terms in each of which a minimum of 12 and a maximum of 18 credits shall be taken.

In the upper years students must take four compulsory courses, one from each of the following lists:

- 1) Public Regulation: LAW 200 Aboriginal Peoples and Canadian Law, LAW 210 Administrative Law, LAW 220 Taxation I.
- 2) Private Regulation: LAW 230 Corporations 1, LAW 240 Family Law, LAW 250 Trusts.
- 3) Procedure: LAW 260 Advanced Criminal Procedure, LAW 270 Civil Procedure, LAW 280 Evidence.
- 4) Law and Society Studies. The contents of this list are determined based on available course offerings in a given year.

A student may not enrol in a course for which another subject is a prerequisite unless the required course was taken and passed earlier. In special circumstances the Associate Dean, Academic Affairs, in consultation with the Faculty member teaching the subject, may waive this stipulation.

A student must undertake, in either second or third year, at least one independent research project and submit a substantial paper (or series of papers) embodying the results of this research. This obligation usually will be satisfied within the seminar program but students may fulfil this obligation by completing a project, for at least four credits, under LAW 493, 494, 495, or 496 (Directed Research).

A student must complete, in either second or third year, one course designated as fulfilling the legal research requirement. This requirement will be met by completing LAW 430, 438, 484, 486, 488, 491, or another course approved for this purpose by the Associate Dean.

Transitional Provisions: Students who commenced their LL.B. prior to Winter Session 2006 and students who will complete their LL.B. in 2007 will continue to follow the former compulsory requirements A and B as set out below.

A. The following upper-year courses are compulsory:

- LAW 345 (Canadian Federalism);
- LAW 346 (Canadian Charter of Rights and Freedoms); and
- LAW 470 (Evidence).

B. A student must undertake, in either second or third year, at least one independent research project and submit a substantial paper (or series

of papers) embodying the results of this research. This obligation usually will be satisfied within the seminar program but students may fulfil this obligation by completing a project, for at least four credits, under LAW 493, 494, 495, or 496 (Directed Research).

Part-Time LL.B. Program

Students may, in their second and third years (which may include the summer sessions between first year, second year, and third year), take work in other departments and schools of the University for credit in the Faculty of Law. Such work may be credited for not more than six credits toward the second or third year credit requirements, but shall not reduce the hours or credits in the winter sessions below the minimum requirement of 28 credits. Each student must receive advance permission to register in such courses from the Associate Dean, Academic Affairs, who will base their judgement on the relevance of the proposed course or seminar to the study of law or to a career in law and of the appropriateness of the proposed course or seminar in the light of the student's course of study in the Faculty of Law.

The part-time program enables students to take a reduced course load. In first year, the student may opt for a part-time course load that ranges from 15 to 26 credits instead of the 35-credit full-time course load. In the upper years, a part-time student may select a course load ranging from 14 to 27 credits. To be eligible for the part-time program, a student must demonstrate special needs. A maximum of ten students per year (30 students in total) will be admitted on this basis. Students admitted in the categories of the National Committee, Advanced Standing, Transfer, or Visiting (Letter of Permission) are ineligible for this program.

Ordinarily students on this program must complete not less than 50% of the normal course load for full-time students in each academic year. In first year, 50% of the normal course load is 16 credits. In the upper years, 50% of the normal course load is 14 to 17 credits. However, in order to facilitate access to funding programs, housing, or to complete the LL.B. program sooner, students may at their option take from 60% to 80% of the normal full-time number of credits per Winter Session. Part-time students are ineligible for scholarships that are based on ranking in the year or class. However, part-time students are eligible for course prizes and other scholarships.

At the commencement of the first or second term of the Winter Session, students in the program may transfer to full-time status with the approval of the Associate Dean, Academic Affairs. Similarly, a full-time student in good standing may, for compelling reasons, transfer to the part-time program provided the maximum number of part-time students will not be exceeded, and subject to the approval of the Associate Dean, Academic Affairs.

Part-time students will make a transition to the new curriculum requirements through consultation with the Associate Dean.

COMBINED BACHELOR OF LAWS AND MASTER OF BUSINESS ADMINISTRATION

For details on this program see the *Faculty of Commerce and Business Administration*, p. 171.

COMBINED MASTER OF ASIA PACIFIC POLICY STUDIES WITH BACHELOR OF LAWS

This degree program permits students to obtain the degrees of M.A. in Asia Pacific Policy Studies (M.A.P.P.S.) and LL.B. through combined enrolment in the Faculty of Law and the Institute of Asian Research.

ADMISSION

Students wishing to pursue the combined M.A.P.P.S./LL.B. degree program must be admitted separately to the Faculty of Law for the LL.B. degree and the Institute of Asian Research for the M.A.P.P.S. degree. In their application submissions to the Faculty of Law and the Institute of Asian Research, students must indicate in writing their desire to enrol in the combined program and the desired area of specialization within the M.A.P.P.S. program. Enrolment in the combined degree program requires the consent of the Dean of the Faculty of Law and the Director of the Institute of Asian Research.

COMBINED DEGREE PROGRAM COMMITTEE

The Combined Degree Program Committee has a Faculty of Law representative designated by the Dean of Law and an Institute of Asian Research representative designated by the Institute Director. The Combined Degree Program Committee is responsible for overseeing admissions, coordinating student supervision, and providing program approval. The Graduate Program Advisor from the Institute of Asian Research serves as Graduate Program Advisor for the combined degree program.

REQUIREMENTS

Students are required to complete all course requirements for graduation in each of the LL.B. and M.A.P.P.S. programs, subject to the following adjustments:

- 1) Students enrolled in the combined degree program who complete the M.A.P.P.S. Core Course (IAR 500) required for the M.A.P.P.S. degree will receive six credits toward completion of their LL.B. degree, which will be counted as the maximum six credits of non-Law courses permitted under the LL.B. course requirements.
- 2) Students enrolled in the combined degree program who complete six credits of Faculty of Law course work acceptable to their respective LL.B. and M.A.P.P.S. program supervisors will receive credit for

these courses toward both the LL.B. and M.A.P.P.S. degrees.

- 3) Law course electives select from: LAW 337, LAW 338, LAW 342, LAW 432, LAW 322, LAW 319, LAW 305, LAW 307, LAW 391.

MODULE CURRICULUM SCHEDULE

Normally the curriculum schedule is as follows:

Curriculum Schedule	Credits
Year One (September – April)	
Students complete required first-year LL.B. curriculum	35
Year Two (September – April)	
Students complete M.A.P.P.S. Core Course (IAR 500)	6
Students complete required upper-year courses for LL.B.	12 – 18
Students begin completion of elective requirements for M.A.P.P.S. and LL.B.	6 (M.A.P.P.S.) / up to 8 (LL.B.)
Year Two (April – September)	
Students complete thesis or practicum requirements for M.A.P.P.S.	12
Year Three (September – April)	
Students complete remaining elective course requirements for M.A.P.P.S. and LL.B.	6 (M.A.P.P.S.) / 28 (LL.B.)
Total Credits	Maximum 119 (30 M.A.P.P.S. / up to 89 LL.B.)

Transitional Provisions: Students who have completed the first year compulsory law curriculum prior to Winter Session 2006 will follow the former requirements for upper year progression. These are described in detail under LL.B. requirements, transitional provisions.

DEGREE CONFERRAL

The M.A.P.P.S. and LL.B. will be conferred at the completion of the combined program after all requirements for both degrees have been met. Students who choose to receive either the M.A.P.P.S. or the LL.B. prior to completion of the combined program may apply for one of the degrees provided all requirements for that degree have been satisfied. Students selecting this option must simultaneously withdraw from the combined program.

CONTACT INFORMATION

Faculty of Law
1822 East Mall
Vancouver, BC V6T 1Z1
Web: www.law.ubc.ca
Ms. Susan Morin, Director,
Student Academic Services
Tel: 604-822-6731
Fax: 604-822-4781
Email: morin@law.ubc.ca
and Ms. Joanne Chung, Graduate
Program Administrator
Tel: 604-822-6449
Fax: 604-822-8108
Email: graduates@law.ubc.ca

EXCHANGE PROGRAMS

Students may earn credits towards their Bachelor of Laws studying abroad in an

exchange program. Education Abroad Programs are institution to institution reciprocal agreements approved by Senate. Students selected for such programs remain registered at UBC, pay tuition and student fees only to UBC, and remain eligible for UBC awards and financial assistance. In recent years, UBC law students have participated in exchanges with Hastings College of the Law (San Francisco); University of Melbourne (Australia); University of New South Wales (Sydney, Australia); University of Copenhagen (Denmark); Glasgow University (Scotland); Sophia University (Tokyo); and Université Jean-Moulin-Lyon 3 (Lyon, France). The Faculty also encourages participation in the Civil Law/Common Law Exchange Program sponsored by the Department of Justice.

LAW SOCIETY OF BRITISH COLUMBIA

The possession of a Bachelor of Laws does not in itself confer the right to practise law in British Columbia. Admission to the Bar of the Province of British Columbia is governed by the Legal Profession Act and the regulations of the Law Society of British Columbia (www.lawsociety.bc.ca). An applicant for admission to the Bar must comply with the requirements of the Law Society as to academic standing, professional training, and ethical standards. These requirements presently include an Admission Program of approximately one year, during which the applicant must serve as an articulated student with a practising member of the Bar and complete a training course and qualifying examinations. Information may be obtained from the Secretary of the Law Society of British Columbia, 845 Cambie Street, Vancouver, BC, V6B 4Z9.

Applicants who intend to practise law in other jurisdictions must obtain information concerning the requirements for entry to the profession, from the governing body of the legal profession in those jurisdictions.

Possession of a criminal record may prevent admission to the Bar. Applicants must consult the appropriate Law Society.

AWARDS AND FINANCIAL ASSISTANCE

Through the generosity of donors such as the Law Foundation of British Columbia, the Faculty is able to award a number of entrance scholarships and awards. Law Foundation Entrance Scholarships are awarded on the basis of academic merit. Law Foundation Entrance Awards are awarded on the basis of need but also with a view to ensuring that the student population continues to diversify. Thus special consideration will be given to applicants who belong to groups which are under-represented in the law school and in the legal profession.

Information about financial aid and a list of other entrance awards, including government student loans, UBC bursaries, and scholarships, can be found at the Student Financial Assis-

tance & Awards website (www.students.ubc.ca/finance). Please refer to this website for application deadline dates. An application should be made even if admission to the Faculty has not yet been granted.

UBC LAW REVIEW

In 1949 the students of the Faculty of Law commenced publication of *Legal Notes*, which was an annual volume containing articles and comments written both by students and by outside contributors. By 1959 the publication had increased both in size and in the number of subscribers to the point where the editors felt that the name should be changed to *The University of British Columbia Law Review*. It is a refereed journal, now published twice yearly. Students are responsible for the soliciting and editing of the material, and for the advertising and sales which make the Law Review self-sufficient. Members of the Faculty give advice and assistance to the Editorial Board of the *Law Review* (www.ubclawreview.org), but the chief responsibility is that of the Board.

CANADIAN JOURNAL OF FAMILY LAW

The *Canadian Journal of Family Law* is published at the UBC Faculty of Law. It is a refereed publication issued semi-annually. Submissions made to the *Journal* are reviewed by qualified external readers, and the format includes articles, commentaries, and book reviews. In the past the *Journal's* subject matter has included writings on topics such as child welfare, evidentiary issues, child abuse, young offenders, and other topics impacting on the family unit.

The *Journal* (faculty.law.ubc.ca/cdnjfl) was started in 1978 and was published under the auspices of the Osgoode Hall Law School in Ontario. In 1982–83 its publication base was moved to the UBC Faculty of Law. It is the only student-run academic journal exclusively dedicated to the study, analysis, and articulation of the increasingly important field of family law.

ACADEMIC STAFF

Professors Emeriti

J. Atrens, B.A. (Sask.) (Oxf.), LL.B. (Sask.), M.A., B.C.L. (Oxf.); W. W. Black, B.A. (Stan.), J.D. (Harv.); C. Bourne, B.A. (Tor.), LL.B. (Cantab), S.J.D. (Harv.); P. T. Burns, Q.C., LL.B., LL.M. (Otago); R. D. Diebolt, Q.C., B.A., LL.B. (Br.Col.), LL.M. (Lond.); D. J. Egleston, B.A., LL.B. (Sask.); R. T. Franson, B.E.P. (Cornell), J.D. (Calif., L.A.); M. A. Hickling, LL.B., Ph.D., LL.D. (Lond.); J. Hogarth, LL.B. (Br.Col.), Dip. Crim., Ph.D. (Cantab.); L. G. Jahnke, LL.B. (Sask.), LL.M. (Lond.); M.L.T. MacCrimmon, B.Sc. (Calif., L.A.), LL.B. (Br.Col.), Dip.Law (Oxf.); D. MacDougall, LL.B. (Melb.), J.D. (Chic.); J. MacIntyre, B.Comm. (Br.Col.), LL.B. (Br.Col.); B. McClean, B.A. (Belf.), LL. B. (Belf.); R. S. Reid, C.D., B.A., M.A. (R.M.C.), LL.B. (Br.Col.); D. E. Sanders, B.A., LL.B. (Alta.), LL.M. (Calif., Berkeley); B. V. Slutsky, B.A., LL.B. (Br.Col.), Ph.D. (Lond.); J. C. Smith, B.A., LL.B. (Br.Col.), LL.M. (Yale); E. C. E. Todd, LL.B., LL.M., LL.D. (Manc.).

Professors

J. C. Bakan, B.A. (S.Fraser; Oxf.), LL.B. (Dal.), LL.M. (Harv.); J. Blom, Q.C., B.A., LL.B. (Br.Col.), B.C.L. (Oxf.), LL.M. (Harv.); M. A. Bobinski, B.A., J.D. (S.U.N.Y./Buffalo), LL.M. (Harv.); S. B. Boyd, B.A. (Bishop's), LL.B. (McG.), LL.M. (Lond.); C. Boyle, LL.B. (Belf.), LL.M. (Qu.); R. M. Elliot, B.Sc. (Hons.), LL.B. (Br.Col.), LL.M. (Lond.); K. B. Farquhar, LL.B., LL.M. (Well.), LL.M. (Mich.); I. Grant, B.A. (Tor.), LL.B. (Dal.), LL.M. (Yale); M. A. Jackson, Q.C., LL.B. (Lond.), LL.M. (Yale); M. LeBaron, B.A. (Chapman), Droit Civil Scholarship Programme (Sher.), M.A. (S. Fraser), LL.B. (Br.Col.); B.W. MacDougall, LL.B. (Melb.), J.D. (Chic.); S. Matsui, LL.B. (Kyoto), LL.M. (Kyoto), J.S.D. (Stan.), LL.D. (Kyoto); R. K. Paterson, LL.B. (Well.), J.S.M. (Stan.); D. J. Pavlich, B.A., LL.B. (Witw.), LL.M. (Yale); P. B. Potter, B.A., M.A. (George Wash.), J.D., Ph.D. (Wash.); I. W. Puc, B.A., B.A. (Oxf.), LL.M. (Alta.); D. Jur. (York); A. F. Sheppard, B.A., LL.B. (Br.Col.), LL.M. (Lond.); J. M. P. Weiler, B.A. (Hons.) (Tor.), LL.B. (Osgoode), LL.M. (Calif., Berkeley); C. F. L. Young, LL.B. (Lond.), LL.M. (Br.Col.).

Associate Professors

J. Benedet, LL.B. (Br.Col.), LL.M., S.J.D. (Mich.); R. Buchanan, A.B. (Prin.), LL.B. (Vic.B.C.), LL.M. (Wis.), S.J.D. (Wis.); G. Christie, LL.B. (Vic.B.C.), Ph.D. (Calif., Santa Barbara); C. Dauvergne, B.A. (Car.), M.A. (Car.), LL.B. (Br.Col.), Ph.D. (A.N.U.); R. Davis, LL.B. (Tor.); E. R. Edinger, B.A., LL.B. (Br.Col.), B.C.L. (Oxf.); S. Hsu, B.S., J.D. (Col.), M.S., Ph.D. (Calif., Davis); K. Mickelson, A.B. (Duke), LL.B. (Br.Col.), LL.M. (Col.); J. Mosoff, B.A. (Tor.), M.A. (York), LL.B., LL.M. (Br.Col.); J. Sarra, B.A., M.A., LL.B., LL.M., S.J.D. (Tor.); I. Townsend-Gault, LL.B. (Dundee); S. M. Wexler, A.B. (Col.), LL.B., LL.M. (N.Y.); M. Young, B.A. (Br.Col.), LL.B., M.A. (Tor.), M.A. (Calif., Berkeley).

Assistant Professors

N. Affolder, LL.B. (Alta.), B.C.L., D.Phil. (Oxf.); T. U. Baik, LL.B. (S.N.U.), LL.M., J.S.D. (Notre D.); L. Biukovic, B.A. (Yugoslavia), LL.B. (Belgrade), LL.M. (Ceu-Hungary), LL.M. (Br.Col.), Ph.D. (Br.Col.); K. Brooks, B.A. (Tor.), LL.B. (Br.Col.), LL.M. (Osgoode); C. Ford, LL.B. (Vic.B.C.), LL.M. (Col.); D. Harris, B.A. (Br.Col.), LL.B. (Tor.), LL.M. (Br.Col.), Ph.D. (Osgoode) (forthcoming); J. McCue, B.A. (Car.), LL.B. (Ott.), LL.M. (Br.Col.); A. Rochette, LL.B., B.C.L. (McG.), LL.M. (Br.Col.); M. Sundara-Rajan, B.A. (Hons.) (McG./Paris), LL.B. (Osgoode), LL.M. (Br.Col.), D.Phil. (Oxf.).

Instructor

S. Sutherland, B.A. (Br.Col.), M.A. (Lond.), LL.B. (Br.Col.), LL.M. (Osgoode).

Others

M. D. Copithorne, B.A., LL.B., LL.D. (Br.Col.); E. Cunliffe, B.C. (Melbourne), LL.B. (Melb.), LL.M. (Br.Col.); M. Hall, B.A. (Hons.) (Br.Col.), LL.B. (Qu.), LL.M. (Br.Col.); N. Harris, B.A. (Simon.F.), LL.B. (Br.Col.); F. Kelly, B.A. (Melb.), LL.B. (Melb.), LL.M. (Br.Col.); E. Lee, LL.B.; R. K. Paisley, B.Sc. (Br.Col.), M.Sc. (Wash.), J.D. (Pepperdine), LL.M. (Lond.); P. Ramsay, Q.C., B.Com, LL.B., LL.M. (Br.Col.); R. Taylor, LL.B. (Br.Col.); M. Warren, B.A. (W.Ont.), LL.B. (Hons.) (E. Anglia), LL.M. (E. Anglia).

Adjunct Professors

M. Ainslie, B.A. (Trin.W.), LL.B. (Br.Col.); J. R. Aldridge, B.A. (Brock), LL.B. (Osgoode), LL.M. (Br.Col.); H. C. Alvarez, B.A. (Br.Col.), LL.B. (Ott.); R. Anderson, B.A. (Tor.), LL.B. (Qu.); T. Bailey, B.Sc., LL.B. (Br.Col.); R. Bandstra, LL.B.; G. Barriere, B.A. (Trent), LL.B. (Br.Col.); K. Bayne, LL.B. (Br.Col.), LL.M. (Col.); C. Bell, LL.B.; D. R. Bennett, B. Comm.,

LL.B. (Br.Col.); J. Blackhawk, LL.B. (Br.Col.); N. Cameron, B.F.A. (Br. Col.), LL.B. (Br. Col.); C. Cattell, B.A. Hons. (Vic.B.C.), LL.B. (Vic.B.C.); K. Cavalier, B.A. (Br.Col.), M.A. (Car.), Ph.D. (N.Western), LL.B. (Br.Col.), LL.M. (Br.Col.); M. Childs, B.A. (Car.), LL.B. (Br.Col.), BCL (Oxf.); D. Christian, B.A. (S.Fraser), LL.B. (Br.Col.); T. Cicchetti, LL.B.; D. Connolly, LL.B. (Vic.B.C.), Ph.D. (Vic.B.C.); D. Creer, LL.B. (Tor.); T. Dion, B.A. (Alta), LL.B. (Br.Col.); J. Festinger, LL.B. (McG.), B.C.L. (McG.); S. D. Frankel, Q.C., B.Sc., LL.B. (Br.Col.); C. Gallant, LL.B.; S. Gamache, LL.B.; C. Giaschi, M.B.A. (York), LL.B. (Osgoode), B.A. Hons (Tor.); J. Goulden, B.Comm. (Calg.), LL.B. (Br.Col.); K. Gounden, LL.B.; J. Gratl, B.A. Phil. (Wat.), M.A. Phil. (Wat.), LL.B. (Tor.); B. M. Green, B.Sc. (Prin.), M.A. (W.Ont.), LL.B. (Osgoode); K. Grieve, B.A. (S.Fraser), LL.B. (Br.Col.); A. Gunn, B.A. (Br.Col.), LL.B. (Tor.), LL.M. (Camb.); D. Hanna, B.A. (S.Fraser), LL.B. (Br.Col.); T. Hawkins, B.A. (S.Fraser), LL.B. (Sask.); I. Hayward, B.A. (Hons.), (Qu.; St. And.), LL.B. (Qu.); R. Holloway, B.A., LL.B. (Br.Col.); A. Hudson, B.A., LL.B. (Br.Col.); J. Jeske, B.Ed. (Alta), LL.B. (Osgoode); D. Jordan, Q.C., B.A., LL.M. (Man.), LL.M. (Br.Col.); W. Kaplan, B.A., LL.B. (Br.Col.), LL.M. (Harv.); K. Keilty, B.A. (Br.Col.), LL.B. (Br.Col.); J. Kleefeld, B.A. (Wat.), LL.B. (Br.Col.), LL.M. (Osgoode); M. J. Korenberg, B.A. (Car.), LL.B. (York); E. Kroft, LL.B. (York), LL.M. (Br.Col.); R. Kyle, LL.M. (Br.Col.), LL.B. (W.Ont.); T. Laliberte, Q.C., B.A., LL.B. (Br.Col.); G. Lang, B.A. (S.Fraser), LL.B. (Br.Col.); R. Lesperance, LL.B.; T. Levy, B.A. (W.Ont.), LL.B. (Osgoode); D. Little, B.Comm. (Br.Col.), LL.B. (Tor.); T. Lo, B.Sc. (Hons.), LL.B. (Br.Col.); L. Lothian, B.A. (Winn.), LL.B. (Manit.), LL.M. (Br.Col.); L. Lyster, B.A. (Vic.B.C.), LL.B. (Br.Col.); A. MacInnis, B.Comm. (Hons.) (Br.Col.), LL.B. (Br.Col.); G. Mancell, B.S.F. (Br.Col.), LL.B. (Vic.B.C.); M. Mangan, LL.B.; A. McEachern, LL.B.; H. J. McGivern, LL.B. (Br.Col.); P. McGivern, B.Com., LL.B. (Br.Col.); D. McGruder, B.A., B.Sc. (Concordia), LL.B. (Tor.); R. Millen, B.A. (Hons.) (Bishop's), LL.B. (Vic.B.C.); M. Mollard, B.Comm. (Br.Col.), LL.B. (McG.); A. Nathanson, LL.B.; J. Nitikman, B.Sc. (Br.Col.), LL.B. (Manit.), LL.M. (N.Y.); P. O'Callaghan, B.Comm. (Br.Col.), LL.B. (Br.Col.); T. Patch, LL.B.; R. Peck, LL.B.; G. Pun, LL.B. (Br.Col.); J. Read, B.A. (Qu.), LL.B. (Qu.); B. Rebane, B.A. (Br.Col.), LL.B. (Alta.); D. W. Roberts, Q.C., B.A., LL.B. (Br.Col.), LL.M. (Harv.); C. Robinson, B.Sc., M.Sc., LL.B. (Calg.); S. Ross, J.D. (Calif., Berkeley), Prof. (Ill.); J. Rush, LL.B.; R. Samtani, B.A. (S.Fraser), LL.B. (Br.Col.); T. Saunders, B.A. (Trin.Coll.Tor.), LL.B. (Tor.); J. Schmidt, LL.B. (Br. Col.); N. Sharma, LL.B.; P. Sheen, B.Comm. (Manit.), LL.B. (Tor.); J. Shewfelt, LL.B.; J. Singleton, B.A. (Alta.), LL.B. (Alta.), LL.M. (Lond.); E. Skinner, LL.B.; B. Smith, B.A. (Vic.B.C.), LL.B. (Br.Col.); A. Soroka, B.A. (Col.), LL.B. (Virg.), M.L.S. (Col.); D. M. D. Stewart, LL.B. (Qu.); T. Sum, LL.B.; J. Sutherland, LL.B.; P. Taberner, LL.B.; G. Umbach, B.A. (Wat.), LL.B. (Br.Col.); M. Vonn, LL.B. (Br.Col.); J. B. Waatainen, B.A. (Hons.), M.A., LL.B. (Br.Col.); P. Walker, LL.M. (Br.Col.), LL.B. (Qu.); J. Webster, LL.B. (Br.Col.), Trial Advocacy; W. Westeringh, B.A., LL.B. (Br.Col.); M. Ming-Jen Yang, B.Sc. (Qu.), LL.B. (McG.); R. E. Young, B.A., M.A., LL.B. (Br.Col.); D. W. Yule, B.A. (Br.Col.), LL.B. (Qu.); J. Ziskrout, B.A., LL.B. (Br.Col.); A. Zwack, B.A. (Hons.) (Calg.), LL.B. (Hons.) (Br.Col.), LL.M. (Harv.).

Librarian

S. Wilkins, B.A., M.L.S., LL.B. (Alta.).

16 The School of Library, Archival and Information Studies

A SCHOOL WITHIN THE FACULTY OF ARTS WITH DEGREE PROGRAMS OFFERED THROUGH THE FACULTY OF GRADUATE STUDIES

Director's Office

Edie Rasmussen, Director
301 – 6190 Agronomy Road
Vancouver, BC V6T 1Z3
Telephone: 604-822-2404
Fax: 604-822-6006

Library and Archival Studies Website
(www.slais.ubc.ca)

The School of Library, Archival and Information Studies offers programs leading to the Doctor of Philosophy, the Master of Library and Information Studies, the Master of Archival Studies, and the Certificate of Advanced Study. The School also offers the Joint Master of Archival Studies/Master of Library and Information Studies Degree Program and, with the participation of the Departments of English, Language and Literacy Education, and Theatre, Film and Creative Writing, the multi-disciplinary Master of Arts in Children's Literature. The mission of the School is to prepare professionals to exercise leadership in planning, implementing and promoting the preservation, organization, and effective use of recorded information and ideas.

The School opened in 1961 as a one-year post-graduate Bachelor of Library Science program. It has grown to include four master's programs and an enrolment of over 250 students. Academic governance of its programs rests with the Faculty of Graduate Studies, but the School remains within the administrative jurisdiction of the Faculty of Arts. Graduates of the School work in institutional libraries and archives, for employers in the private sector, and as self-employed intermediaries between stored information and its seekers.

MASTER OF LIBRARY AND INFORMATION STUDIES

This program prepares graduates for a wide variety of information-based careers in the profit and not-for-profit sectors where the option of salaried or free-lance contract employment is often available. In all employment opportunities, graduates are expected to understand and appreciate the application of computer technology to information management, the information-seeking behaviours of various user groups, and the policies that affect the free flow of information.

Typical jobs held by recent graduates include: knowledge manager for a large corporation, organizing and facilitating information access and dissemination; children's librarian in a public library, providing special programming and reference services; web master for an e-commerce company, designing, maintaining, and analyzing use of a corporate website; and research analyst for an international investment company.

The program in Library and Information Studies has been recognized by the Canadian and American Library Associations since 1962 as fully meeting their standards for the accreditation of graduate education for the library and information professions.

ADMISSION

Prospective applicants may address enquiries and applications for admission to the Admissions Secretary, School of Library, Archival and Information Studies. Specify the Master of Library and Information Studies program. Admission application dates are as follows:

For September admission:

- Domestic students: February 1
- International students: February 1

For January admission:

- Domestic/International students: May 1

The School accepts only students whose personal and academic qualifications appear to make them suitable for successful practice in library, archival, and information professions.

The Program has a limited enrolment. The number of qualified applicants exceeds the number of available places. In recent years, therefore, those accepted have shown academic ability above the minimum required standard specified below.

For admission to the Program, a candidate must:

- 1) possess a four-year bachelor's degree (or its equivalent) from a recognized university in a discipline acceptable to the Admissions Committee for the program;
- 2) have achieved a minimum overall average in the 'B+' range (76% at UBC) in third- and fourth-year level courses of a bachelor's degree; and

- 3) show promise of superior professional performance as attested by letters of reference and the SLAIS questionnaire.

Applicants to the Program from international institutions will be considered on a case by case basis for eligibility. An applicant possessing a bachelor's degree or its academic equivalent who does not meet the requirements of point two above should contact the School's Student Services Coordinator for information regarding possible qualifying course work.

Undergraduate Preparation

A broad educational background is expected of the information professional. In the undergraduate years prospective applicants should select elective courses that will give some acquaintance with the humanities, sciences, and social sciences. In general, it is desirable to have a wide range of reading and recreational interests.

A librarian, archivist, or other information professional must often interpret documents, and/or data in searching systems, in more than one language. The study of major languages other than English at the undergraduate level is therefore recommended as preparation. Efficient use of computers is essential in the information professions today; it is expected that students come into the School with basic computer competence.

Language Requirement

Applicants from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission. The School of Library, Archival and Information Studies requires a score of at least 250 on the computer-based TOEFL, minimum score of 600 on the paper-based TOEFL, or a score of at least 100 on the new internet-based TOEFL introduced in September 2005.

ACADEMIC REGULATIONS

The general academic regulations of the University and of the Faculty of Graduate Studies apply. The following regulations are specific to the School:

- 1) A student may continue in the Program if an overall average of 70% is obtained in the Core courses, and if no individual course is failed (grade below 60%). A student who fails to meet either of these

two requirements must withdraw from the Program.

- 2) A student must maintain an overall average of 70% throughout the Program. A student who fails to meet this requirement will be required to withdraw from the program.
- 3) A student must obtain at least 60% in any course to pass that course. However, only six credits graded under 70% can be credited toward the degree.
- 4) If a student fails a non-Core course in the M.L.I.S. Program, the student may repeat that course if the School so recommends and the Dean approves. A course in which a grade of less than 70% was obtained may be repeated for a higher standing if recommended by the School.
- 5) Field trips are integral parts of both programs; satisfactory participation in them is required of all students.
- 6) A one-time Student Activity Fee will be charged at the start of the program for materials and services provided by the School. The fee is subject to change.
- 7) Written work may be refused a passing mark if it is, in the opinion of the faculty, deficient in English.
- 8) The School reserves the right to require a student to withdraw from the Program if considered to be unsuited to proceed with the study or practice of the library or archival profession.

Methods of Instruction

The School employs a wide variety of instructional methods including lectures, laboratories, discussions, seminars, directed study, colloquia, field trips, and field work. Each student has an individual faculty advisor available for consultation and specific assistance.

Field Trips

Field trips are arranged throughout the school session. For the most part these are visits of observation of a few hours in libraries or archives in the Vancouver area, but day-long or even two-day trips may be required. The student is responsible for most expenses incurred in conjunction with such field trips and with off-campus activities in the practicum/internship/professional experience courses.

Attendance

Regular attendance is expected. A student who cannot attend a class, field trip, etc., should notify the Director's Office or the instructor concerned by telephone or email, preferably in advance if the absence is foreseen.

Part-Time Work

The School's programs are time-consuming, particularly during the first term of familiarization with new vocabulary, concepts, and professional issues. Most students find it unwise to consider more than four to six hours per week of outside work during the first term. Inquiries for part-time work at the University should be directed to *Career Services*, p. 59, in Brock Hall.

Admission to Courses

A student not registered in one of the School's programs who wishes to enrol in or audit any of its courses should apply to the SLAIS Graduate Advisor.

DEGREE REQUIREMENTS

The Master of Library and Information Studies is awarded on completion of 48 credits of work approved by the School and the non-credit practicum (LIBR 595).

The required courses are LIBR 500, 510, 540, 560 (the "Core"), 570, and 590. Students taking the program on a part-time basis are required to take LIBR 500 and/or 560 in their first term. All other LIBR courses require LIBR 500 and 560 as pre- or corequisites. Three or more of the Core courses are prerequisites to most advanced courses, because the Core introduces the knowledge that should be common to all librarians.

With the approval of the advisor, a student may apply to the program up to 12 credits for courses other than those designated 'LIBR' at this university, whether taken at UBC or another institution.

A student who enters the program having previously begun work toward, or obtained, a recognized professional qualification in library and information studies as specified under *Admission*, p. 315, may be exempted from some or all of the required courses. Students who wish to request these exemptions must do so prior to registering in the Program. Such requests should be addressed to the School's graduate advisor, and should enumerate the courses for which exemption is sought as well as a detailed rationale, including previous courses taken and work history, for the exemption. The request will be adjudicated by the School's Graduate Advisor and, if approved, a recommendation for exemptions will go forward to the Faculty of Graduate Studies. There will be no reduction in the total credit requirement to complete the degree.

Practicum

The required non-credit LIBR 595: Practicum, provides directed experience in an information-based organization. It normally takes place following completion of the Core courses plus 12 additional credits, and is arranged by the School after consultation with the student.

Co-operative Work Program

M.L.I.S., M.A.S. and Joint students who have completed 24 credits of course work by their first Co-op work term are eligible to apply to the School's co-op work program. Applications are submitted in October for the work period that begins in May of the following year. Depending on their individual needs, students may elect to take a term of work lasting either four months (January to April, May to August, or September to December), or eight months (January to August, May to December, or September to April), or do two consecutive four-month terms. Students are paid for their work according to industry standards, which will vary depending on the type of library or

information agency. Students do not receive academic credit for their work term, but participation in the co-op is noted on transcripts.

Thesis

A student with research interests should elect to write a thesis. Consultation on this with the School's advisor should begin by the end of the term in which 24 credits have been completed.

First Nations Concentration

The First Nations curriculum concentration in either the M.L.I.S. or M.A.S. program offers students the opportunity to complete courses selected for their relevance to the First Nations librarian or archivist. In addition to the required courses of the chosen program (M.L.I.S. or M.A.S.), a student enrolled in the concentration must also take courses in fundamentals of the School's other program, and elective courses offered by the School and other departments. All elective courses must be chosen for their particular application to First Nations studies. Satisfactory completion of the concentration will be noted on the student's transcript.

Advanced Standing

A student who has completed part of this Master of Library and Information Studies program and subsequently takes courses in an accredited program in the field at another institution may apply to have some credit for those courses applied to this degree provided such courses can be equated with those in this program that the student has not already taken. Students who have completed a 30-credit post-baccalaureate diploma in teacher-librarianship within the past five years may apply for up to 6 credits of advanced standing. Address application for such transfer of credit to the Director.

MASTER OF ARCHIVAL STUDIES

Archives preserve the records created by public and private bodies and individuals in the normal course of their activities and make those records available for a broad range of societal purposes including scholarly research. As such, archives are an important agency of many modern administrations (such as governments, businesses, churches, and universities) and are vital institutions in the preservation of society's documentary heritage. The role of the archivist is to plan and implement programs to appraise, acquire, preserve, and make available records of enduring value to society.

The archivist's work involves promoting and administering the systematic management of records throughout their life cycle, acquiring a broad range of materials of all media, and applying automation to problems of retrieving information from archives – all within a legal and regulatory context. Thus, while maintaining close links with the study of history, professional archival studies also have interdisciplinary links with administrative studies, legal studies, media and communication studies, and library and information studies.

The curriculum accords with the guidelines for archival education published by the Association of Canadian Archivists and the Society of American Archivists.

ADMISSION

Prospective applicants may address enquiries and applications for admission to the Admissions Secretary, School of Library, Archival and Information Studies. Specify the Master of Archival Studies program. The deadline for applications for the session beginning the following September are:

- Domestic students: February 1
- International students: February 1

The School accepts only students whose personal and academic qualifications appear to make them suitable for successful practice in the library and archival professions.

The Program has a limited enrolment. The number of qualified applicants exceeds the number of available places. In recent years, therefore, those accepted have shown academic ability above the minimum required standard specified below.

For admission to the Program, a candidate must:

- 1) possess a four-year bachelor's degree (or its equivalent) from a recognized university in a relevant discipline or in an area which is regarded as appropriate by the Admissions Committee for the program;
- 2) have achieved a minimum overall average in the B+ range (76% at UBC) in third- and fourth-year level courses of a bachelor's degree; and
- 3) show promise of superior professional performance as attested by letters of reference and the SLAIS questionnaire.

Applicants to the Program from international institutions will be considered on a case by case basis for eligibility. An applicant possessing a bachelor's degree or its academic equivalent who does not meet the requirements of point two above should contact the School's Student Services Coordinator for information regarding possible qualifying course work.

Undergraduate Preparation

An undergraduate student considering working in the field of archives should consult the School about useful preparatory courses. An interview may be arranged at any time.

A broad cultural background is expected of the working archivist. The prospective student should therefore endeavour to become acquainted with the humanities, social sciences, and sciences during undergraduate studies. Because of the close link between archives and historical studies of all kinds, particular attention should be paid to studies in history and allied disciplines that take an historical perspective such as anthropology, economics, geography, and sociology. The study of Canadian history is extremely useful preparation for a number of the required courses of the program; successful completion of at least 12 credits in

Canadian history at the undergraduate level is desirable.

The librarian, archivist, or other information professional must often interpret documents, and/or data in searching systems, in more than one language. The study of major languages other than English at the undergraduate level is therefore strongly recommended. Efficient use of computers is essential in the information professions today; it is expected that students come into the School with basic computer competence.

Language Requirement

Applicants from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission. The School of Library, Archival, and Information Studies requires a score of at least 250 on the computer-based TOEFL, minimum Score of 600 on the paper-based TOEFL or a score of at least 100 on the new internet-based TOEFL, introduced in September 2005.

ACADEMIC REGULATIONS

The general academic regulations of the University and of the Faculty of Graduate Studies apply. The following regulations are specific to the School:

- 1) A student may continue in the Master of Archival Studies program if an overall average of 70% is obtained in the required ARST courses of the first term of the first year, and if no individual course among them is failed (grade below 60%). A student who fails to meet either of these two requirements must withdraw from the program.
- 2) A student must maintain an overall average of 70% throughout either the Program. A student who fails to meet this requirement will be required to withdraw from the program.
- 3) A student must obtain at least 60% in any course to pass that course. However, only six credits graded under 70% can be credited toward the degree.
- 4) If a student fails a non-core course in the Program, the student may repeat that course if the School so recommends and the Dean approves. A course in which a grade of less than 70% was obtained may be repeated for a higher standing if recommended by the School.
- 5) Field trips are integral parts of both programs; satisfactory participation in them is required of all students.
- 6) A one-time Student Activity Fee will be charged at the start of the program for materials and services provided by the School. The fee is subject to change.
- 7) Written work may be refused a passing mark if it is, in the opinion of the faculty, deficient in English.
- 8) The School reserves the right to require a student to withdraw from the Program if considered to be unsuited to proceed with

the study or practice of the library or archival profession.

Methods of Instruction

The School employs a wide variety of instructional methods including lectures, laboratories, discussions, seminars, directed study, colloquia, field trips, and field work. Each student has an individual faculty advisor available for consultation and specific assistance.

Field Trips

Field trips are arranged throughout the session. For the most part these are visits of observation of a few hours in libraries or archives in the Vancouver area, but day-long or even two-day trips may be required. The student is responsible for most expenses incurred in conjunction with such field trips and with off-campus activities in the practicum/internship/professional experience courses.

Attendance

Regular attendance is expected. A student who cannot attend a class, field trip, etc., should notify the Director's Office or the instructor concerned by telephone or email, preferably in advance if the absence is foreseen.

Part-Time Work

The School's programs are time-consuming, particularly during the first term of familiarization with new vocabulary, concepts, and professional issues. Most students find it unwise to consider more than four to six hours per week of outside work during the first term. Inquiries for part-time work at the University should be directed to *Career Services*, p. 59, in Brock Hall.

Admission to Courses

A student not registered in one of the School's programs who wishes to enrol in or audit any of its courses should apply to the Director.

DEGREE REQUIREMENTS

The Master of Archival Studies is awarded on the completion of 48 credits of work. In the first year of the program, beginning in Term one of a Winter Session, the student must take six required courses comprising 18 credits (ARST 510, 515, 516, 520, 530, and 593B). The remainder of the program consists of six credits of required courses (ARST 540 and 587) and 24 credits of elective courses or 18 credits of electives and a 6-credit thesis.

With the approval of the student's advisor, a student may apply to the program up to 12 credits for courses other than those designated ARST at this university, whether taken at UBC or at another institution.

Internship

Some extended field experience in an archival repository is highly desirable for a student who has had limited prior contact with the work of the practising archivist. It is usual to undertake this during the summer between the two years of course work. The decision to elect ARST 595: Internship must be confirmed with the

faculty/school advisor by the end of the second week of classes in the second term of studies so that arrangements may be made.

Co-operative Work Program

M.L.I.S., M.A.S. and Joint students who have completed 24 credits of course work are eligible to apply to the School's co-op work program. Applications are submitted in October for the work period that begins in January of the following year. Applications are submitted in January for the work period that begins in May. Depending on their individual needs, students may elect to take a term of work lasting either four months (January to April, May to August, or September to December), or eight months (January to August, May to December, or September to April), or do two consecutive four-month terms. Students are paid for their work according to industry standards, which will vary depending on the type of library or information agency. Students do not receive academic credit for their work term, but participation in the co-op is noted on transcripts.

Thesis

A student with research interests should elect to write a thesis. Consultation on this with the School's advisor should begin by the end of the term in which 24 credits have been completed.

First Nations Concentration

The First Nations curriculum concentration in either the M.L.I.S. or M.A.S. program offers students the opportunity to complete courses selected for their relevance to the First Nations librarian or archivist. In addition to the required courses of the chosen program (M.L.I.S. or M.A.S.), a student enrolled in the concentration must also take courses in fundamentals of the School's other program, and elective courses offered by the School and other departments. All elective courses must be chosen for their particular application to First Nations studies. Satisfactory completion of the concentration will be noted on the student's transcript.

JOINT M.A.S./M.L.I.S

The Joint Degree Program allows students to earn both a Master of Archival Studies and a Master of Library and Information Studies within a reasonable period of time (generally between three and five years). Students considering this option should carefully read the descriptions, including the sections regarding undergraduate preparation for each of the two individual degrees. Students who wish to complete the Joint Degree Program should indicate this as early as possible, preferably on their application submitted to the School prior to admission, or following admission by speaking to a faculty advisor.

ADMISSION

See information under *Master of Library and Information Studies*, p. 315, or *Master of Archival Studies*, p. 317, degree programs.

Language Requirement

See information under *Master of Library and Information Studies*, p. 315, or *Master of Archival Studies*, p. 317, degree programs.

Supervision

Candidates meeting the admission standards above will register in the School of Library, Archival and Information Studies and will be assigned an advisor from each of the two degree programs.

DEGREE REQUIREMENTS

The two master's degrees, M.A.S. and M.L.I.S., are awarded on the completion of 81 credits of work approved by the School plus required non-credit studies such as the practicum in the M.L.I.S. program. Students must complete the following:

- 1) the required courses in the M.L.I.S. program: LIBR 500, 510, 540, 560, 570, 590, and two three-credit LIBR elective courses (21 credits);
- 2) the required courses in the M.A.S. program: ARST 510, 515, 516, 520, 530, 540, and 587 (21 credits);
- 3) either LIBR 500 or ARST 593B (3 credits);
- 4) 15 credits in the M.L.I.S. program;
- 5) 15 credits in the M.A.S. program; and
- 6) 6 additional credits in either program.

Students in the two degrees should not take courses outside those offered in the M.A.S. and M.L.I.S. programs.

Practicum/Internship

A required non-credit practicum provides direct library experience under actual library operating conditions. In addition, some field experience in an archival repository is highly desirable for a student who has had limited prior contact with the work of the practicing archivist. These two work experiences will be scheduled in consultation with the student's advisors.

Co-operative Work Program

Students who have completed 24 credits of course work are eligible to apply to the School's co-op work program. Applications are submitted in September, and the work period begins in May of the following year. Depending on their needs, students may elect to take a term of work lasting either four months (May – August) or eight months (May – December), or do two consecutive four-month terms (May – August and September – December). Students are paid for their work according to industry standards. Students do not receive academic credit for their work, but participation in the co-op work program is noted on transcripts.

Thesis

A student with research interests may elect to write a thesis in one of the two fields, but not both. Consultation with the appropriate faculty advisor should begin before the student has completed one-half of the required courses.

MASTER OF ARTS IN CHILDREN'S LITERATURE

The School, with the participation of the departments of English, Language & Literacy Education, and Theatre, Film, and Creative Writing, offers a multi-disciplinary Master of Arts program in Children's Literature. The Program provides specialized education for graduate students in the study of children's literature using a multi-disciplinary approach. The Program provides each student with the opportunity to study the creative writing and publishing of this literature, examine models of sharing its rich heritage with the young, and also facilitate the literary, social, historic, and psychological analyses of children's literature as literature. This multi-disciplinary approach will expose students to many schools of literary criticism, educational theory, and professional and creative practice. It will acquaint students with the broad literary canon of children's literature across a spectrum of languages and cultures and with a variety of critical perspectives and professional application.

An undergraduate student considering working in the field of children's literature should consult the School about useful preparatory classes. An interview may be arranged at any time.

A broad cultural background is expected of M.A. candidates. Prospective students should select courses that will give some acquaintance with the humanities and social sciences during undergraduate studies. Particular attention should be paid in undergraduate or graduate studies to courses in children's literature, English, writing for children, child psychology, and the history of childhood.

ADMISSION

For admission to the M.A. program, a candidate must:

- 1) possess a four-year bachelor's degree (or its equivalent) from a recognized university in a relevant discipline or in an area which is regarded as appropriate by the Admissions Committee for the program;
- 2) have achieved a minimum overall average in the 'B+' range (76% at UBC) in third- and fourth-year level courses of a bachelor's degree; and
- 3) show promise of success or superior accomplishment in one or more aspects of children's literature as attested by letters of reference and a personal letter of intent.

An applicant possessing a bachelor's degree or its academic equivalent who does not meet the requirements of point 2 above should contact the School's Admissions Coordinator for information regarding possible qualifying work.

DEGREE REQUIREMENTS

The Master of Arts in Children's Literature is awarded on the completion of 30 credits of work, including 24 credits of course work and a 6-credit thesis. The course work will be selected in consultation with the supervisory committee to support the multi-disciplinary

nature of the program. 6 credits of course work may be taken at the 300 or 400 level; the remainder must be at the 500 level and above.

Of the 24 credits of course work, 9 are required including at least 6 at the 500 level:

- 3 credits (Historical Overview) from the following: LIBR 522A, LIBR 522B, ENGL 468, LLED 441;
- 3 credits (Contemporary Children's/Young Adult Literature) from the following: LLED 442, LLED 449, LIBR 522A, LIBR 522B, LIBR 524, LLED 540, LLED 541;
- 3 credits (Research Methodology) from the following: EDUC 500, LIBR 590.

The remaining 15 credits of courses may be chosen from the wide range of offerings available in the Departments of English, French, Language and Literacy Education, Theatre, Film, and Creative Writing, and the School of Library, Archival, and Information Studies; from relevant courses, with the Chair's approval, offered elsewhere at UBC; and from approved courses offered by other institutions.

A maximum of 12 credits earned in courses germane to children's literature, no more than five years prior to entry into the program may be transferred from another institution or another program at UBC. Transfer credit will not be accepted for a course that has been applied to another degree. The degree may be taken on a full-time or part-time basis. Students may begin the program in either term of Winter or Summer Session. The application dates are:

For September admission:

- Domestic students: February 1
- International students: February 1

Thesis

The supervisory committee will advise on, monitor, and evaluate the 6-credit thesis.

DOCTOR OF PHILOSOPHY IN LIBRARY, ARCHIVAL AND INFORMATION STUDIES

INTRODUCTION

The School of Library, Archival and Information Studies offers a program leading to the Doctor of Philosophy. The Ph.D. program is designed to provide advanced research training for outstanding students who have already obtained a Master of Archival Studies (M.A.S.) degree or a Master of Library and Information Studies (M.L.I.S.).

ADMISSION

Admission to the doctoral program requires an M.A.S., an M.L.I.S., or equivalent from a recognized institution indicating a superior level of academic performance in a field of specialization that will support the applicant's Ph.D. research. Students must satisfy the admission requirements of the Faculty of Graduate Studies, and be approved by the School's Doctoral Admissions Committee.

Admission decisions are based on the degree to which the applicant's intended area of research matches faculty expertise, and the suitability of the applicant for advanced graduate work as attested by letters of reference, prior academic performance, record of publications, and work in the field of library, archival, and information studies.

PROGRAM REQUIREMENTS

The Doctor of Philosophy in Library, Archival and Information Studies builds on the successful interdisciplinarity established at the master's level. There is one Ph.D. degree program, but students may specialize by taking a theoretical/research foundations course in either Library/Information Studies or Archival Studies.

The program consists of:

- ARST/LIBR 600;
- ARST/LIBR 620;
- ARST/LIBR 621;
- ARST 610;
- LIBR 610;
- additional coursework as recommended by the research supervisor and/or doctoral committee;
- a comprehensive examination (written and oral components) at an appropriate time as judged by the student's doctoral committee, not before the end of the first year; but before the end of the third year; and
- research leading to a written dissertation (ARST/LIBR 699) that is defended in an oral examination.

CERTIFICATE OF ADVANCED STUDY

Work in information-based organization is changing more quickly than ever before, due to the pervasive influence of electronic information-processing technologies. The Certificate of Advanced Study, which may be undertaken by librarians or archivists, allows the working information professional who already holds a post-graduate degree to engage in concentrated further study in their field. The Certificate program allows the candidate, with advice from faculty members, to build a unique program of course work and independent investigation designed to further their own interests.

PREPARATION

A candidate with experience as a librarian or information specialist must possess a master's degree in library and information studies earned in a program accredited by the American Library Association, or a program of equivalent stature outside North America. A candidate with archival experience must possess a master's degree in archival studies.

Efficient use of computers is essential in the information professions today; it is expected that students come into the program with facility in using computer software including Microsoft Windows.

ADMISSION

Prospective applicants will select an advisor from among the School's full-time faculty members. The applicant and advisor, following consultation with instructors within the School, will design a proposed program of study suitable for the applicant. The proposed program will include a list of courses that the applicant proposes to take, a timetable indicating the applicant's ability and willingness to complete the program within five years, and a one-page description of the extended written work that the applicant proposes to complete as a thesis, research project, or directed study. The proposed program of study, approved both by the applicant and the advisor, must be submitted to the Admissions Committee with the application form.

The program may begin in Term 1 or Term 2 of Winter Session or in Term 1 of Summer Session.

The deadline for application is the first of the month at least two months prior to the proposed start of the certificate program, i.e., July 1, November 1, or March 1.

Language Requirement

Applicants from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission. The School of Library, Archival and Information Studies requires a score of at least 250 on the Test of English as a Foreign Language (TOEFL). This is equivalent to 600 on the older version of the test.

ACADEMIC REGULATIONS

The general academic regulations of the University apply. The following regulations are specific to the Certificate program:

- 1) A student may continue in the Certificate program if an overall average of 70% is maintained through the program.
- 2) A student must obtain at least 60% in any course to pass that course. However, only six credits graded under 70% can be credited toward the Certificate.
- 3) Written work may be refused a passing mark if it is, in the opinion of faculty, deficient in English.
- 4) The School reserves the right to require a student to withdraw from the Certificate program if considered to be unsuited to proceed with the study or practice of the library or archival profession.

CERTIFICATE REQUIREMENTS

A student must complete 24 credits of work approved by the School, concentrating on one or, at most, two aspects of either Library and Information Studies or Archival Studies.

The program of study may consist entirely of course work, or course work and a thesis. Where course work alone is selected, one course must be a directed research project or a directed study.

All requirements must be completed within five years of initial registration.

McBryde, B.A. (Leth.), M.L.S. (Br.Col.); Janet Turner, B.A.A. (Ryerson), M.A.S. (Br.Col.).

TUITION FEE

The tuition fee for all candidates will be equivalent to the cost of a master's degree for Canadian citizens and permanent residents (landed immigrants).

STUDENT AWARDS

The School nominates students with high academic averages (usually A or A+) for Graduate Entrance Scholarships for full-time study. These are normally valued at \$4,000.00 per year. The School nominates students with exceptional academic records for University Graduate Fellowships each October. All full-time continuing students are considered and application procedures are distributed to students who may be eligible. The fellowship would apply to the student's second year of study. The Faculty of Graduate Studies (grad.ubc.ca) administers the competition. In 2004–2005, full, non-renewable and one-year fellowships were valued at \$16,000.00 per year and partial fellowships at \$8,000.00.

ACADEMIC STAFF

Professors

Luciana Duranti, Dott. Lett., M.A.S., M.A. (Rome), Chair, Archival Studies Program; Edie M. Rasmussen, B.Sc. (Br.Col.), M.Sc. (McM.), M.L.S. (W.Ont.), Ph.D. (Sheff.).

Associate Professors

Ann Curry, B.A., B.L.S. (Alta.), M.L.S. (Br.Col.), Ph.D. (Sheff.), Chair, Doctoral Studies Program; Terence M. Eastwood, B.A., M.A. (Alta.), Dip.Ed. (Vic. B.C.); Heather MacNeil, B.A. (Guelph), M.A. (S.Fraser), M.A.S., Ph.D. (Br.Col.); Judith M. Saltman, B.A., B.L.S. (Br.Col.), M.A. (Simmons), Chair, Children's Literature Program; Martin Dowding, B.A. (Trent), M.L.S. (Tor.), M.A. (York), Ph.D. (Tor.); Richard Kopak, B.A. (Alta.), M.L.S., Ph.D. (Tor.); Francesca Marini, B.A. (Bologna), M.A. (Modena), Ph.D. (Calif., L.A.); Joseph Tennis, B.A. (Lawrence), M.L.S. (Indiana), Ph.D. (Wash.).

Senior Instructors

Mary Sue Stephenson, B.A. (Texas), M.L.S., Ph.D. (N.Texas), Chair, Library and Information Studies Program and Coordinator, Information Technology Services.

Sessional Lecturers

Beth Barlow, B.Sc., B.L.S. (Alta.); Sue Bigelow, B.Sc., M.A.C. (Qu.); Alexandra Bradley, B.Ed. (Br.Col.), B.L.S. (Alta.); Dovelie Buie, B.A., M.A.S. (Br.Col.); Jane Cobb, B.A. (Vic.B.C.), M.L.S. (Br.Col.); Beth Davies, LL.B. (Leic.), M.L.I.S. (Br.Col.); Margaret De Vries, B.A., B.Ed., M.A. (Br.Col.); Carol Elder, B.A., M.L.S. (Alta.); Ian Forsyth, B.A. (McG.), M.A. (W.Laur.); Shirley Giggey, B.A. (Car.), M.L.S. (Br.Col.); Dean Giustini, B.A. (Br.Col.), M.L.S. (Tor.); Teresa Gleave, B.A. (Alta.), M.L.I.S. (Dal.); Heather Gordon, B.A. (Calg.), M.A.S. (Br.Col.); Peter Gourlay, B.A. (McG.), M.L.S. (Br.Col.); Lisa Gysel, B.A. (Trin. W.), M.L.I.S. (Br.Col.); Melanie Houlden, B.A., M.L.S. (Br.Col.); Mary Luebbe, B.A. (Lewis and Clark Coll., Portland), M.Libr. (Wash.); Debbie Millward, B.A. (Car.), M.L.S. (Br.Col.); Simon Neame, B.A. (Vic., B.C.), M.L.I.S. (Br.Col.); Greg Rowell, ; Allison Taylor

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Dean's Office

G. Stuart, Dean

J. Bates, Senior Associate Dean, Education

L. Charvat, Associate Dean, Equity

A. Buchan, Senior Associate Dean, Research

B. Fleming, Associate Dean, Student Affairs

K. Ho, Associate Dean and Director of

Continuing Medical Education

A. Towle, Associate Dean, M.D. Undergraduate Curriculum

K. Sivertz, Associate Dean, Postgraduate Education

K. Rungta, Associate Dean, Postgraduate Education

V. Frinton, Associate Dean, Admissions

O. Casiro, Associate Dean, Island Medical Program

D. Snadden, Associate Dean, Northern Medical Program

2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Telephone: 604-822-2421
Fax: 604-822-6061

Medicine Website (www.med.ubc.ca)

The Faculty of Medicine offers undergraduate programs of study leading to the Doctor of Medicine and Bachelor of Medical Laboratory Science. At the postgraduate level, the Faculty offers Postgraduate (Residency) Training programs. Together with the Faculty of Science and the Faculty of Graduate Studies, the Faculty of Medicine offers combined programs leading to the Doctor of Medicine and Bachelor of Science, and *Doctor of Medicine and Doctor of Philosophy*, p. 263.

The School of Rehabilitation Sciences is a part of the Faculty of Medicine that offers training in physical and occupational therapy. The School of Audiology and Speech Sciences is also a part of the Faculty and provides instruction in speech pathology. See *The School of Audiology and Speech Sciences*, p. 161, and *The School of Rehabilitation Sciences*, p. 377, for more information.

DOCTOR OF MEDICINE

The Faculty of Medicine offers a program leading to the Doctor of Medicine. The program requires a preparatory program plus four years of study in Medicine. A physician's education can be broadly divided into four phases:

- pre-medical preparation, which can be completed in a variety of faculties or programs;
- medical school training (four years);
- residency training (two to six years); and
- continuing education.

ADMISSION

Selection of a Program of Pre-Medical Studies

Students planning to apply for admission to the Doctor of Medicine program should select courses that conform with the requirements of a bachelor's degree of their choice. **No particular degree program is considered ideal** as preparation for the study and practice of medicine. A variety of pre-medical academic backgrounds is considered desirable.

Students who have completed programs that include all the prerequisites and who then enrol in unclassified non-degree programs for the sole purpose of improving their academic qualifications for admission are advised that only a small proportion of such candidates ultimately gain admission.

Prerequisites

Candidates for admission must have completed a minimum of three full years of university-level study (90 credits). OAC courses are not considered to be at the university level. The following university-level prerequisite courses (or their equivalent) must be completed by April 30 of the year for which admission is sought.

The following prerequisite courses are required for entry into the Doctor of Medicine program. UBC courses are listed; the equivalents from any recognized post-secondary institution will be accepted. Applicants are strongly encouraged to consult the Faculty of Medicine Admissions website (www.admissions.med.ubc.ca) for more details.

- 1) English, 6 credits. (Any two of ENGL 110, 111, 112, 120, 121. ENGL 112 is recommended.)
- 2) Biology, minimum 6 credits. BIOL 111, 121 and 140L. If taken prior to September 2000, please consult the Faculty website.
- 3) Inorganic Chemistry, minimum 6 credits. CHEM 121 and 123 or CHEM 111 and 113.

- 4) Organic Chemistry, 6 credits. CHEM 203 and 204 OR CHEM 205, 233 and 235.
- 5) Biochemistry, 6 credits. BIOC 300 or 303 preferred. BIOL 201 and BIOC 302 for UBC students only.

Students completing Science One at UBC meet the first-year Biology and Chemistry requirements. Courses in behavioural sciences, biometrics and statistics, and physics are recommended, but not required.

Medical College Admission Test

All applicants must take the Medical College Admissions Test (MCAT) and request that their results be released to UBC. Information and online registration are available at www.aamc.org/students/mcat.

Please note: UBC is not a part of the American Medical College Application Service (AMCAS). You must therefore specify that you would like us to receive your results by providing the UBC code (260). This can only be done **after** your results have been sent to you using MCAT's online "THx system." Applicants are strongly encouraged to use the menu option on the THx System called "Review the status of my THx requests" to confirm that results have been successfully released to UBC.

We do not require applicants to attain a minimum MCAT score to be considered for admission. However, we suggest that applicants review the profile of students admitted. Please refer to the Faculty of Medicine Admissions website (www.admissions.med.ubc.ca/admissions/index.jsp).

Test results from the five years prior to the application deadline are considered valid. The admissions website provides exact dates of valid MCATs. If you have written more than one MCAT, the MCAT with the best overall total score will be used. It is the applicant's responsibility to ensure that all results are released and received by the Admissions Office.

MCAT test scores must be released by the application deadline. Applicants writing the August MCAT exam immediately prior to application are advised they will not receive test results until after the application deadline.

Arrangements to take the Medical College Admission Test may be made with post-secondary institution counselling departments. University bookstores often sell publications related to

the MCAT. Alternatively, applicants may contact the Association of American Medical Colleges, Membership and Publication Orders, 2450 N Street N.W., Washington, DC, 20037-1126, USA; telephone 202-828-0416; www.aamc.org.

Required Academic Standards

Applications for admission will be considered from candidates who have completed all prerequisite courses prior to April 30 of the year for which admission is sought, have taken the MCAT, and who have attained a minimum overall academic average of 70% (GPA of 2.8) based on all university-level courses attempted. Official transcripts showing proof of registration for courses to be completed by April 30 of the year for which admission is sought must be received by the application deadline.

Applicants who have completed university-level courses ten years or more before the date of application may apply in writing to have these grades excluded from the calculation of the overall average. In this case, applicants must have completed 90 credits within the ten years prior to the date of application. If grades on coursework are waived, all coursework of that year and prior would be excluded from consideration (e.g., prerequisite courses taken during the excluded period will not be considered).

Persons who have been required to withdraw from another medical school for academic reasons are not eligible to apply.

Selection Process

The entering class for September 2007 is limited to 224 full-time students. The number of qualified applicants significantly exceeds the number of available positions. Therefore, not every qualified applicant will be offered admission. Admission is based on a selection process which strives to enrol the most highly qualified applicants who will be evaluated on the following criteria:

- 1) Academic criteria at the time of application, including:
 - (a) overall academic record, based on the average of all university-level courses attempted. Consideration is given to performance in courses at senior undergraduate and graduate levels, and to trends in grades from year to year;
 - (b) most recent 60 credits average;
 - (c) prerequisite average, based on the average of the prerequisites at the time of application; and
 - (d) MCAT scores.
- 2) Non-academic criteria, including motivation, maturity, integrity, emotional stability, realistic self-appraisal, social concern and responsibility, reliability, creativity, scientific and intellectual curiosity, attitude toward continuing learning, problem solving and decision-making aptitude, ability to communicate verbally and in writing, leadership potential, capacity to understand and co-operate with others, concern for human welfare, and demonstrated high level of performance in any

aspect of human endeavour. Evaluation of these non-academic criteria is based on:

- (a) a non-academic autobiographical essay submitted by the applicant;
- (b) additional essay by Aboriginal (First Nations, Metis, or Inuit) candidate, if applicable;
- (c) a list of extracurricular activities prepared by the applicant;
- (d) a report of non-academic experiences and rural interest statement;
- (e) three references, when requested;
- (f) panel interview; and
- (g) rural/remote suitability.

The interview is a critical component of the admission process. Applicants selected for an interview will be contacted by the admissions office and will also be asked to submit their reference letters. The interview dates will likely be scheduled for February/March 2006.

The selection of candidates for admission to the UBC Faculty of Medicine undergraduate distributed program is governed by guidelines established by the Senate of UBC, and is the responsibility of the Faculty of Medicine Admissions Selection Committee and the Associate Dean, Admissions. The selection process reflects the values of the UBC Faculty of Medicine and all university partners in the UBC Faculty of Medicine undergraduate distributed program. The process is designed to choose well-rounded students who meet the goals of the expanded, distributed program; who can be expected to perform well in the rigorous curriculum and problem-based learning format; and who can balance and enrich their academic experience with strong non-academic skills and interests. Similarly, selection processes of other Canadian medical schools reflect their own individual values, and are designed to select candidates who would most likely be successful in their respective programs.

The UBC Faculty of Medicine's Associate Dean of Equity oversees the selection process to ensure that all applicants are given careful consideration without regard to age, gender, race, religion, marital or economic status. The selection of candidates is made by consensus of the Admissions Selection Committee. The Admissions Selection Committee reviews and discusses all interviewed applicants. At present, admission is limited to Canadian citizens and permanent residents of Canada. Preference is given to residents of British Columbia. A maximum of ten positions may be made available to out-of-province applicants in the medical program each year. In completing the online application, candidates will provide information to help determine their suitability for education in the North. This information is used in the overall admissions process. With other non-academic criteria, references, interview scores and academic criteria, this information aids the Northern Medical Program (NMP) Admissions Subcommittee in recommending admission of students felt to be appropriate for having their M.D. Undergraduate education at the NMP.

The applicant will have the opportunity to indicate their site preferences at the time of interview. Members of the Admissions Selection Committee are not aware of an applicant's site preference during the selection discussions. Following an admissions decision, applicants offered admission are allocated to sites based on their preferences. The site choice of the accepted student is given priority, unless the available positions at that site have been filled, in which case he/she would be wait-listed for their preferred site (or sites, should the student be offered his/her third choice).

UBC Faculty of Medicine Undergraduate Distributed Program

The UBC Faculty of Medicine offers a distributed program involving 224 students at geographically separated campuses. Twenty-four students will be in the Northern Medical Program located at the University of Northern British Columbia and another 24 will be in the Island Medical Program located at the University of Victoria. The remaining 176 students will be located at UBC.

Application Procedure

Applicants are strongly encouraged to apply using the Faculty of Medicine's Online Admissions System. Applications will be available from June to October 2004 and can be found at the Medicine Admissions website (www.admissions.med.ubc.ca). All inquiries should be addressed to Admissions, Faculty of Medicine, Dean's Office. Supporting documentation must be received by the Admissions office by the application deadline. Final post-secondary transcripts for students currently enrolled in a program of studies must be received by June 15 of the year for which admission is sought.

All residents of British Columbia are required to pay an application fee of CAD\$105.00; out-of-province applicants are required to pay CAD\$155.00. An additional evaluation fee of CAD\$30.00 is required if transcripts are from an institution outside of BC. Applications with incomplete documentation or without the correct fee will not be eligible. Fees are non-refundable and are not applicable to tuition.

UBC Faculty of Medicine will interview a subset of approximately 600 applicants based on results of file reviews of academic and non-academic evaluations. On receipt of an invitation, the applicant will be requested to provide their referees with the reference forms which will be available electronically. The completed reference letters must be received by the Admissions office by the date posted on the website. Each qualified applicant will participate in one interview, in Vancouver, which is typically scheduled in March. A three-member panel consisting of an academic, a clinician and a community person, representing diverse geographic areas of BC will conduct the interview. After the interview, and after receiving further information about the three sites, applicants will determine where they would prefer to study. This information will be confidential until after admis-

sions decisions are made. Please refer to the Faculty website (www.med.ubc.ca).

Notification to successful applicants will be issued by the end of May. Successful applicants are offered a position in the Faculty of Medicine, UBC.

Aboriginal Applicants

The UBC Faculty of Medicine welcomes applications from qualified Aboriginal applicants. The Aboriginal admission process of the Faculty of Medicine has a target of 5% of the annual complement of funded seats in the first year M.D. Undergraduate Program. Aboriginal applicants can apply either to the regular stream of admission or to the Aboriginal admission process. Applicants who self-identify as Aboriginal will be considered under the Aboriginal admission process as well as under the regular admission process. If you wish to apply as an Aboriginal applicant, you will be required to write an additional essay that will be reviewed by the Aboriginal Admissions Subcommittee. Based on your completed application, you may be offered an interview with the Aboriginal Interviewing Panel. Please contact the Aboriginal Programs Coordinator in the Faculty of Medicine at 604-822-3236 or email james.andrew@ubc.ca for further information.

Post-Acceptance Requirements

Upon receipt of an official letter of offer, each successful applicant must send a deposit of CAD\$300.00 payable to the University of British Columbia, by the date specified therein. The deposit is non-refundable but will be applied to tuition fees if the student attends the Doctor of Medicine program in the academic session specified.

Upon acceptance, each applicant must submit to the Student Health Service evidence of immunizations (Tetanus/Diphtheria-Toxoid, Polio, MMR) and a negative TB skin test (if the skin test is positive, a chest x-ray is required).

Undergraduate medical students without immunity to Hepatitis B are at risk for infection. Students who are Hepatitis B antigen positive may pose a risk of passing infection to others. All students are strongly encouraged to know their serological status for Hepatitis B prior to applying to the undergraduate program of the Faculty of Medicine. Students are advised that undergraduate medical students who test positive for Hepatitis B antigen may face certain restrictions in the course of their medical training and may be constrained in their ability to practice.

All undergraduate medical students admitted to the Faculty of Medicine at UBC will have their vaccination records reviewed to determine their risk for communicable diseases. Undergraduate medical students who have not been vaccinated against Hepatitis B will be required to complete a vaccination series, unless they demonstrate they are Hepatitis B surface antigen positive. Sero-conversion will be tested in all medical students either upon entry if they have received

prior vaccination, or upon completion of a vaccination series.

Undergraduate medical students who continue to fail to sero-convert will be tested for the presence of Hepatitis B antigen by the Student Health Service. Students who demonstrate Hepatitis B infectivity may be required to complete a modified course of training and may pursue their studies only as long as their continued involvement does not pose a health or safety hazard to themselves or others and as long as they are able to meet the core requirements for a medical degree at UBC.

The Faculty of Medicine will make every reasonable effort to ensure that a modified course of training will meet professional licensing requirements. Licensing requirements and decisions are within the sole jurisdiction of the College of Physicians and Surgeons of BC. The Faculty of Medicine cannot guarantee that a modified course of training which will lead to the granting of an M.D. degree will be accepted or recognized by this or any other licensing body.

Counselling resources are available to any undergraduate medical student identified as Hepatitis B positive.

Applicants with Disabilities

Applicants to the Faculty of Medicine with disabilities will be considered in accordance with UBC's policy on Academic Accommodation for Students with Disabilities. This policy does not eliminate the need for evaluation or the need to meet essential learning outcomes. Students seeking academic accommodation due to disability must:

- Provide the necessary documentation to the Disability Resource Centre (the University does not provide or assume the cost of diagnostic services), and
- Bring the request for academic accommodation or for changes in accommodation needs to the attention of the appropriate personnel in a timely manner in order to allow for arrangement of accommodations.

Students with disabilities are encouraged to pursue their studies as long as their continued involvement does not pose a health or safety hazard to themselves or others, and as long as they are able to meet the core requirements for a medical degree. The Faculty of Medicine will make every reasonable effort to ensure that any modified course of training will meet professional licensing requirements. However, licensing requirements and decisions are within the sole jurisdiction of the College of Physicians and Surgeons of British Columbia. We cannot guarantee that a modified course of training, which leads to the granting of an M.D. degree, will be accepted or recognized by this or any other licensing body. Similarly, access to the full-range of post-graduate training may be limited for students with disabilities.

For more information please contact the UBC Disability Resource Centre at 604-822-5844 or visit the website (www.students.ubc.ca/access).

Reapplications

Unsuccessful applicants may reapply in subsequent years without prejudice. Candidates who are repeatedly unsuccessful are encouraged to explore other career options. Applications are made available again the following June.

Admission of Students by Transfer

Transfer students may be accepted to the third year of the Doctor of Medicine program only if vacancies exist in that class. Transfers are generally not possible in any other year.

In order to be eligible, students requesting transfer must be in good standing in a Canadian or US medical school accredited by the Committee on Accreditation of Canadian Medical Schools and the Liaison Committee on Medical Education.

The application deadline for transfer students is January 31. Applicants must submit an outline of their University curriculum, application fees (see above), a letter indicating their reasons for wishing to transfer, and a letter from the dean (or designate) of the medical school which they currently attend. Interviews may be required.

Requests for partial year transfers will not be considered.

Applications from Current Graduate Students

Admission of graduate students into the Faculty of Medicine will be made through the existing selection procedures as outlined above. Such students must complete all portions of the program in which they are registered, including the submission of their thesis for examination, by July 1 prior to admission to the Faculty of Medicine. Deferrals will NOT be granted to allow an applicant to complete their graduate programs.

Deferred Entry

Requests for deferred entry will be considered only from students who have completed a first degree, and then only in exceptional circumstances.

Note: Deferral requests must be made at the time of application.

Registration

The academic year of the Faculty of Medicine normally begins late in August for first, second and third years. The academic term for fourth year begins early in September.

Students in each year of the medical program will be notified of registration procedures.

No student will be allowed to register after the first day of instruction in the term, nor will they be admitted to any class after its first session, except by permission of the Dean.

ACADEMIC REGULATIONS

Attendance

Regular attendance is expected of students in all their classes (including lectures, laboratories, tutorials, seminars, etc.). Students who are

unavoidably absent because of illness or disability must report to the Dean's Office.

A student planning to be absent from classes for any reason must obtain prior permission from the Dean's Office.

All students registered in the distributed program at geographically separated campuses will be subject to the same academic regulations.

Examinations

Examinations in the Faculty of Medicine may be held at various times throughout the year. These examinations are obligatory for all students.

Should a student be unavoidably absent from a sessional or final examination because of illness or other reason, the Dean's Office must be notified of the facts in the case before the end of the period during which the examination is scheduled. Failure to observe this rule may result in a failure being recorded in the course.

When a sessional or final examination has been missed through illness or some other justifiable cause, application for deferred examination or special consideration must be made in writing to the Dean not later than 48 hours after the close of the examination period. If the absence was for reasons of health, a physician's certificate indicating the nature and duration of the illness must be submitted to the Dean's Office.

A student may be denied the privilege of writing a sessional examination in any subject because of unsatisfactory work or attendance, and in this case will be considered to have failed the course.

In any course which involves several components (for example tutorial performance, laboratory work and written examinations), a student is required to achieve satisfactory standing in all parts of the course. If the course is repeated, no exemption will ordinarily be granted from the work in any part.

Term essays and examination papers may be refused a passing mark if they are illegible or noticeably defective in English.

The passing mark in the Faculty of Medicine is 60%.

All results of final examinations will be passed upon by a promotions committee. Final examination results will be released by Enrolment Services.

Subjects of the Final Examinations

FIRST YEAR

Three longitudinal courses: Clinical Skills; Doctor, Patient and Society; Family Practice Continuum.

Six sequential courses:

- Orientation
- Principles of Human Biology
- Host Defences and Infection; Cardiovascular; Pulmonary; Fluids, Electrolytes, Renal and GU.

SECOND YEAR

Three longitudinal courses: Clinical Skills; Doctor, Patient and Society; Family Practice Continuum.

Seven sequential courses: Musculoskeletal and Locomotor; Blood and Lymphatics; Gastrointestinal; Endocrine and Metabolism; Integument; Brain and Behaviour; Reproduction; Growth and Development.

THIRD YEAR

Promotion of students from third to fourth year will be based on successful completion of written examinations, oral examinations, clinical performance evaluations for each clinical clerkship, and the interdepartmental OSCE Examination.

The subjects in which students will be assessed in third year will be Anaesthesia; Dermatology; Emergency Medicine; Family Practice; Medicine; Obstetrics and Gynaecology; Ophthalmology; Orthopaedics; Pediatrics; Psychiatry; and Surgery.

FOURTH YEAR

Successful completion of eight weeks of selectives and eight weeks of electives. In term one, based on clinical performance evaluations and case reports.

In term two, the subjects in which students will be assessed are Evidence Based Medicine, Pharmacology and Therapeutics, Health Care and Epidemiology, Doctor Patient Relationships, Palliative Care and Cross Cultural Health Care Ethics and the Law.

Medical Council of Canada Examinations

All persons writing the Medical Council of Canada examinations are required to submit a separate examination fee to that body. This fee is set by the Council and is payable to The Registrar, Medical Council of Canada.

Grading Practices

In the Faculty of Medicine, individual courses in the Doctor of Medicine undergraduate program are graded on an Honours (H), Pass (P), Fail (F) system. The Faculty defines Fail as below 60% and a Pass as 60% or greater, but below Honours. An Honours grade is assigned by individual course directors and approved by the promotions committee.

Advancement

The Faculty will determine the student's fitness for promotion at the end of each session.

A student whose academic standing is unsatisfactory may be required either to withdraw from the Faculty or to repeat all or part of the academic work for the year.

If the progress of a student has been unsatisfactory in any given term, the Faculty may permit a supplemental examination in the course(s) failed, provided that attendance has been satisfactory and no more than two courses have been failed. The supplemental examination program is offered to students who have failed one or more core components within a course (e.g., in-class assessment or the comprehensive examination). A course failure is formally and permanently noted on the student's transcript. The course director(s) or block chair(s) concerned will direct such work as will be necessary to

prepare for the supplemental examination. It is the responsibility of the student to consult the course director(s) concerned about such arrangements. If the student satisfies the requirements of the course(s) concerned and passes each supplemental examination with a mark of at least 65%, he/she will be promoted. If the student does not pass the supplemental examination program, he/she may be required to withdraw from the program or to repeat a portion or the entire work of the year.

Although satisfactory academic performance is prerequisite to advancement it is not the sole criterion in the consideration of the suitability of a student for promotion or graduation. The Faculty reserves the right to require a student to withdraw from the Faculty if considered to be unsuited to proceed with the study or practice of medicine.

Graduation Requirements

A candidate for the Doctor of Medicine must be at least 21 years of age; have fulfilled all the requirements for entrance to the Faculty of Medicine and have attended the four full years of instruction which comprise the medical course. No one will be admitted to candidacy for the Doctor of Medicine who has not been in attendance for the final two years in the Faculty of Medicine at the University of British Columbia.

Each candidate for graduation must have passed all the required examinations in the subjects comprising the medical course, and have received acceptable ratings in certain courses for which satisfactory completion is required but specific marks are not assigned.

The Faculty will recommend to Senate the granting of the Doctor of Medicine to a student who has completed satisfactorily the academic requirements.

Each candidate for the Doctor of Medicine must make formal application, on a form obtainable at Enrolment Services.

DEGREE REQUIREMENTS

The medical course extends through four academic sessions. All students in the distributed program will follow the same course of studies at the geographically separated campuses. All students will be based in Vancouver for the first half of first year, after which students in the Northern Medical Program and Island Medical Program will move to the distant campuses to continue their studies.

The first half of the first year begins with a one-week orientation in which students are introduced to the problem-based learning (PBL) method, receive instruction in medical informatics and are oriented to the profession of medicine and the components of the curriculum. Following the orientation phase, Principles of Human Biology continues for 14 weeks. This course has the PBL tutorial as its primary teaching methodology with supporting lectures and labs. The underlying purpose of this course is to provide an introduction to the core concepts, basic principles and the language of medicine. This will then enable students to participate

effectively in the next component, the Foundations of Medicine. Basic science material is taught in the context of clinical cases and the material learned is interdisciplinary and integrated. The courses in this segment are Host Defences and Infection, Cardiovascular, Pulmonary, and Fluids, Electrolytes, Renal and GU. Clinical Skills I allows students to acquire effective communication skills and to learn how to conduct an interview of a patient. History taking and physical examination skills are learned in relation to the body systems covered in the Foundations of Medicine courses. Family Practice Continuum exposes students to patients and physicians in a medical office setting where they learn and practice clinical skills. This is supplemented by small-group tutorials. The Doctor, Patient and Society course focuses on the scientific basis for the humanities and deals with issues of population health, health care systems, ethics and the doctor-patient relationship.

In the second year of the curriculum, students continue with the Foundations of Medicine component. The courses in this year are Musculoskeletal and Locomotor, Blood and Lymphatics, Gastrointestinal, Endocrine and Metabolism, Integument, Brain and Behaviour, Reproduction and Growth and Development. Clinical Skills II, Doctor, Patient and Society and Family Practice Continuum also run as continuums through the second year in conjunction with the Foundations of Medicine blocks.

The third year is a clerkship and consists of 12 months of clinical studies. The first four months of the final year will consist of advanced electives and selectives. The remainder of the program consists of a classroom-based course, Effective Skills for Medical Practice.

During the program, protected time for independent study has been set aside to allow and encourage students to take responsibility for their own progress in meeting the broad objectives for the undergraduate medical course.

The first two years of the program are given mainly at the university campuses of UBC, UVIC and UNBC. Clinical instruction is given in affiliated teaching hospitals and community resources throughout the province.

Expenses

Equipment, instruments and supplies will be required throughout the four-year program. It is recommended that no purchases be made until details concerning the necessary equipment are provided at the beginning of classes by the courses concerned.

Textbooks

Information regarding textbooks will be given before the start of each course. Not less than CAD\$500 per year should be available for purchasing textbooks and expendable supplies.

Courses Leading to the Doctor of Medicine

Departmental and interdepartmental courses offered by the Faculty of Medicine are listed in detail in Courses (www.students.ubc.ca/calendar/courses.cfm).

The subjects in which instruction is given in the four academic sessions leading to the Doctor of Medicine are as follows:

FIRST YEAR

Three longitudinal courses: Clinical Skills; Doctor, Patient and Society; Family Practice Continuum.

Six sequential courses:

- Orientation
- Principles of Human Biology
- Host Defences and Infection; Cardiovascular; Pulmonary; Fluids, Electrolytes, Renal and GU.

SECOND YEAR

Three longitudinal courses: Clinical Skills; Doctor, Patient and Society; Family Practice Continuum.

Seven sequential courses: Musculoskeletal and Locomotor; Blood and Lymphatics; Gastrointestinal; Endocrine and Metabolism; Integument; Brain and Behaviour; Reproduction; Growth and Development.

THIRD YEAR

Rural Family Practice.

Clinical Clerkships: Medicine; Obstetrics and Gynaecology; Ophthalmology; Pediatrics; Psychiatry; Surgery (including sub-specialties); Anaesthesia; Emergency Medicine; Dermatology; Orthopaedics.

FOURTH YEAR

Sixteen weeks of advanced electives and selectives in clinical subjects.

Effective Skills for Medical Practice course, comprising: weekly themes; pharmacology and therapeutics; healthcare and epidemiology; doctor-patient relationships; ethics and law; palliative care.

ELECTIVES

Information concerning elective offerings may be obtained from the Dean's Office, Undergraduate Education. In addition to formal courses offered by the Faculty of Medicine elective programs arranged by the student may be permissible in individual cases, subject to approval by the Faculty.

INTERPROFESSIONAL ELECTIVES

Under the auspices of the Council, the *College of Health Disciplines*, p. 291, is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Medicine. For more information see Courses (www.students.ubc.ca/calendar/courses.cfm), IHHS, or visit the website at www.health-disciplines.ubc.ca.

DOCTOR OF PHILOSOPHY AND DOCTOR OF MEDICINE

The M.D./Ph.D. program is a combined program jointly offered by the Faculty of Medicine and the *Faculty of Graduate Studies*, p. 263. Its purpose is to provide selected and highly qualified students the opportunity to combine their medical school experience with intensive scientific training in pursuing a career as clinician-scientists. The program is designed such that students can receive a Doctor of Medicine and a Doctor of Philosophy after seven years of study. The program is built upon the regular Doctor of Medicine curriculum, but is further "customized" to meet the unique career goals of individual students based on their background, previous research experience, and their chosen medical field of expertise. Graduates of the M.D./Ph.D. program are trained as competent physicians as well as skilled scientists who can sustain a successful and competitive clinical investigative career.

In order to be eligible for admission, students must have completed a Bachelor of Science with first-class standing (or equivalent), and have fulfilled all the requirements of acceptance into the Doctor of Medicine program, as well as the doctoral requirements of the Faculty of Graduate Studies. The Medical College Admission Test (MCAT) is required, but the Graduate Records Examination (GRE) is optional.

Applications to the M.D./Ph.D. program should be submitted to the M.D./Ph.D. Program Office: Room D25, Heather Pavilion, Vancouver Hospital Campus, 2733 Heather Street, Vancouver, BC, V5Z 3J5.

The applications to the M.D. Program should be sent to the Dean's Office, Faculty of Medicine.

Potential candidates must be selected by the M.D. Admissions Selection Committee prior to being accepted to the M.D./Ph.D. program.

For further information, please contact Dr. Anthony Chow, Program Director, at 604-875-5063. See www.med.ubc.ca/mdphd for more information.

BACHELOR OF MEDICAL LABORATORY SCIENCE

Medical Laboratory Science is the study of the scientific principles underlying the disciplines practised in diagnostic and medical research laboratories (Clinical Chemistry, Cytology, Cytogenetics, Haematology, Histology, Histochemistry, Microbiology, Microscopy, Molecular Biology, Immunopathology, Toxicology).

To earn a Bachelor of Medical Laboratory Science students must complete a two-year general program. Emphasis is on data analysis and an understanding of the underlying principles of the sub-disciplines of Medical Laboratory Science. The aim is to produce a "generalist" medical laboratory scientist, an individual who can adapt to and understand the changes that are

occurring and will continue to occur in the medical laboratory.

Students are amply trained to pursue careers in teaching, administration, research and development, and industry. Students will also have fulfilled virtually all of the prerequisites for application to medical, dental or graduate school.

APPLICATION AND REGISTRATION

Enquiries should be addressed to the B.M.L.Sc. Program Assistant, Department of Pathology and Laboratory Medicine, The University of British Columbia, GF227-2211 Wesbrook Mall, Vancouver, BC, V6T 2B5; telephone 604-822-7108, fax 604-822-7635. More information is available from the Pathology website (www.pathology.ubc.ca).

ADMISSION

Application for admission to the B.M.L.Sc. program must be made through the Department of Pathology and Laboratory Medicine. Procedures, policies and admission requirements to the University of British Columbia are specified in *Admissions*, p. 13. Applicants for admission must meet the requirements of either Set A or B (not both).

Set A, RT Route

Applicants must have the following:

- 1) Completion of the RT (general) diploma of the Canadian Society of Medical Laboratory Science (CSMLS) or an equivalent diploma; plus,
- 2) Completion of CHEM 231 and 232 (Organic Chemistry, three credits each); plus,
- 3) CHEM 205 and 211 (Physical Chemistry and Analytical Chemistry, 3 credits each).

Set B, Science Route

Science undergraduates and graduates must complete the following UBC courses (or their equivalents) prior to entry to the B.M.L.Sc. program:

FIRST YEAR

- Chemistry (CHEM 121 and 123 or 111 and 113)
- Biology (BIOL 112, 121 and 140)
- English – 6 credits first-year level
- Mathematics – 6 credits first-year level
- Physics – 6 credits first-year level

Plus the following Second-year level courses:

- Cell Biology (BIOL 200)
- Biochemistry (BIOL 201)
- Physical Chemistry (CHEM 205 or 201)
- Analytical Chemistry (CHEM 211)
- Organic Chemistry (CHEM 123, 233 and 235 or 231 and 232 or 203 and 204)
- Medical Microbiology and Immunology (MICB 202)
- Arts Elective – 6 credits, any year level

Students applying for admission directly from secondary schools are not eligible for admission to the B.M.L.Sc. program. Secondary school

students should first apply through the Faculty of Science, completing the requirements in Set B, then apply to the B.M.L.Sc. program during their second year of studies.

International applicants

International applicants must meet the language requirements specified under *English Language Admission Standard*, p. 15, and must have a Grade Point Average of 3.0. Students should note that application fees and tuition fees for International students are significantly higher than those listed for domestic students.

REGISTRATION AND PROGRAM APPROVAL

The following is only a summary of the registration procedures for B.M.L.Sc. students. Complete information may be obtained from the Student Service Centre (www.students.ubc.ca/ssc) or the material mailed to the students with their Letter of Acceptance (new students) or Statement of Grades (returning students).

Students accepted into the B.M.L.Sc. program are expected to follow a strict program of study. Changes to the required program must be requested in writing to the program coordinator anytime prior to the commencement of classes or up to two weeks after the commencement of classes. Students who change their program of study without the written permission of the program coordinator shall suffer the consequences of rescheduling, timetable changes and cancelled courses which in subsequent years may result in lengthening the time to complete the program.

After two weeks of lectures, students are not permitted to change the program for which they are registered except in special circumstances and with the permission of the program coordinator.

After the close of registration, all changes in course registration must be made by students at the B.M.L.Sc. Office. Program changes must be approved by the program coordinator. These changes are processed by the B.M.L.Sc. Office. Students may not take courses for which they have not registered, and may be considered as having failed in all courses dropped without permission.

ADVISING

The B.M.L.Sc. Program Assistant is available to assist undergraduate students in their general academic planning, in interpreting faculty regulations and course requirements, and in resolving academic problems which may arise. The Program Assistant is located in Room G227-2211, Wesbrook Mall. Advising is done on a “first-come first-served” basis.

ACADEMIC REGULATIONS

Examinations

Formal written examinations are required at the end of all courses terminating in December or in April, and also in December for courses continuing all year. Some courses also hold

midterm examinations in October and February. The formal written examination may be replaced by alternative examination procedures only at the discretion of the program coordinator.

Except in cases of medical, emotional or other reasons deemed acceptable by the program coordinator, missed exams will result in a grade of zero. If you are unable to write an exam due to illness, you must inform the Program Assistant **before the exam**. A doctor's letter must be received by the program coordinator within 48 hours of the missed examination. If you are unable to write an exam for a reason other than illness, contact the Program Assistant on the day of the exam and provide a written explanation to the program coordinator within 48 hours.

Missed exams will be made up at the discretion of the program coordinator and course coordinators. Missed final exams may have to be written during the supplemental examination period.

A passing grade is 50% or higher; Second class is 65% to 79%; First class is 80% to 100%.

Supplemental Examinations

Supplementals are not a right but a **privilege** granted by the program coordinator after consideration of a student's complete academic standing. A student who has written final examinations but failed a course or courses may be granted permission to write supplementals in courses for which supplemental examinations are provided. Supplemental exams are given in late July or early August. To be eligible to write a supplemental exam, the student must have:

- 1) Passed the laboratory work, written the final examination and obtained at least 40% standing in the course in which the supplemental is granted;
- 2) In all but the final (graduating) year a candidate who has been granted a supplemental may write it only once. A student who fails a supplemental examination must repeat the course. However, in the graduating year a supplemental examination may be written twice with permission of the program coordinator.

Regular attendance is expected of students in all their classes, including lectures, laboratories, tutorials, and seminars. Students who neglect their academic work and assignments may, on the recommendation of the head of the department, be excluded by the Dean from the final examinations.

In general students who pass a course can use it as a prerequisite for a subsequent course in that subject. However, departments do have the right to bar entrance to their third-year courses to students who obtain only a minimum passing grade in their second-year prerequisite course or courses.

No failed course may be repeated more than once without special permission of the Dean. This does not apply to courses in first-year English, which may be repeated twice.

Limitation of Enrolment

Enrolment in the B.M.L.Sc. program is limited to a maximum of 24 new students each academic year.

Transfer Credit

Students may not receive transfer credit for courses completed at other institutions where those courses were used to obtain a degree. All courses submitted for transfer credit are subject to the approval of Enrolment Services.

Student Academic Performance

Fail standing in session will be assigned unless a student meets the following conditions:

- passes in all credits attempted;
- if taking more than 12 credits, passes in at least three-fifths of them and obtains an overall average of at least 60% in three-fifths of the credits taken;
- if taking 12 or fewer credits, passes in at least one-half of them.

DEGREE REQUIREMENTS

BACHELOR OF MEDICAL LABORATORY SCIENCE

Third Year

CHEM 205 and 211 ¹ (or PATH 300 ²)	7 (6)
CHEM 311	4
PATH 301	4
PATH 303	4
PATH 304	4
PATH 305	4
PATH 306	2
PATH 327	6
PATH 375	3
Total Credits	38 (37)

Fourth Year³

BIOL 300 or HCEP 400	3
PATH 402	4
PATH 404	6
PATH 405	2
PATH 406	6
PATH 407	4
PATH 408	3
PATH 415	2
Arts electives or first year English ⁴	6
Total Credits	36

¹ RT holders only.

² Science students only.

³ An optional elective, PATH 438 (2–6) is available to students in fourth year.

⁴ Whichever is required, may be completed in third year.

English Requirement

To qualify for the Bachelor of Medical Laboratory Science, students must satisfy the English requirement of the University of British Columbia. To do this students must obtain credit for two of ENGL 110, 111, 112, 120 and 121, or their equivalents if taken at another institution. ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Satisfactory completion of the Language Proficiency Index (LPI)

Examination is prerequisite to all first-year English courses at UBC. For further information see *Language Proficiency Index Requirement for First-Year English*, p. 120.

All students admitted to the B.M.L.Sc. program must take immediate steps to satisfy the English requirement.

Arts Requirement

Students must complete 12 credits of Arts courses, consisting of 6 credits of first-year English and 6 additional credits in Arts courses.

BACHELOR OF MIDWIFERY

Director's Office
Elaine Carty, Director
Deborah Stiles, Program Administrator
B54, 2194 Health Sciences Mall
Woodward Instructional Resources Centre
Vancouver, BC V6T 1Z3
Telephone: 604-822-0771
Midwifery Website (www.midwifery.ubc.ca)

The Midwifery Program prepares students to provide primary care for women and their families through pregnancy and up to the third month after birth. Midwives, although independent practitioners, work as part of the health care team. The four-year program combines broad-based knowledge and understanding in the humanities, and the social and bio-medical sciences.

ACADEMIC ADVISING

Advising sessions are offered to students entering first year before their registration access date.

ADMISSION

All inquiries relating to admission to first year of the Midwifery Program should be addressed to Enrolment Services.

The last day of submission of applications for admission from secondary school to the Bachelor of Midwifery for the Winter Session beginning the following September is January 19, with supplementary documents (see *Other Requirements*, p. 327) to be at the Midwifery Program office by January 19.

Applicants who are not already University of British Columbia students must apply to both the Bachelor of Midwifery Program and the University. Official transcripts are to be in Enrolment Services with the University application as soon as possible after the application deadline. The final day for acceptance of transcripts is June 30.

The Midwifery Program has a limited enrolment. Since the number of qualified applicants is expected to exceed the number of places available, fulfilment of the following requirements is not a guarantee of admission. The Faculty reserves the right of selection of all students for admission to the program.

Admission to the four-year Bachelor of Midwifery will be offered to those students who not only demonstrate academic potential but also

demonstrate the qualities, potential and motivation for competencies to practise as a midwife in BC. Candidates may be invited for an interview at the discretion of the Admissions Committee.

Applicants should review the *English Language Admission Standard*, p. 15, as outlined in the "Admissions" chapter of the Calendar.

Application for admission must be made through Enrolment Services. Procedures, policies and admission requirements to the University of British Columbia are specified in *Admissions*, p. 13. Due to enrolment limitations, not every qualified applicant will be offered admission. Admission is based on a selection process which strives to enrol the most highly qualified applicants. British Columbia Secondary School graduation must include the following courses: Biology 12, English 12, Chemistry 11, Mathematics 11 and 2 additional approved examinable grade 12 courses. If an applicant has a minimum of 24 transferable post-secondary credits, these credits are used as the basis of admission.

Due to enrolment limitations, the academic standing required for admission may be higher than the above average and is subject to change each academic year. Fulfilment of the above requirement does not guarantee admission.

The University will consider granting transfer credit for all transferable post secondary courses completed. The number of credits that can be applied to the Midwifery degree will be determined by the Program in accordance with University regulations about transfer credits.

Other Requirements

Applicants for admission must submit the following additional supplemental admission requirements to the Midwifery Program by January 19:

- Two letters of reference (form provided in the application package). It is recommended that one referee be a teacher, instructor, employer or supervisor;
- A current resumé (form provided in the application package);
- A written personal statement about the applicant's reasons for requesting admission to the Midwifery Program and understanding of the profession of midwifery (format provided in the application package);
- Transcripts from all academic institutions attended, including interim transcripts if applicable;
- Supplemental application form and processing fee. A processing fee of CAD\$107.50 must accompany the supplemental application admissions forms that are returned to the Midwifery Program. This fee is non-refundable and should be made payable to the University of British Columbia, Division of Midwifery. Applications will not be processed unless the fee is received.

Incomplete applications and late applications will not be considered.

Readmission

The Faculty reserves the right to readmit students and to stipulate conditions attached to readmission. Application for readmission to the Program will be reviewed on an individual basis.

ACADEMIC REGULATIONS

The minimum passing grade in each midwifery course is 60%. In clinical midwifery courses the student is required to have successfully completed clinical practice before being allowed to write the final exam.

Although satisfactory academic performance is prerequisite to advancement, it is not the sole criterion in the consideration of the suitability of a student for promotion or graduation. The Faculty reserves the right to require a student to withdraw from the program if considered to be unsuitable to proceed with the study or practice of midwifery.

A student whose academic standing is unsatisfactory may be required either to withdraw from the program or to repeat all or part of the academic work of the year.

DEGREE REQUIREMENTS

English Requirement

To qualify for the Bachelor of Midwifery, all students must have a minimum of three credits in first-year English (completion of 16 Foundation credits in year one satisfies the English Requirement). Completion of the Language Proficiency Index (LPI) examination is prerequisite to all first-year English courses at UBC. (See *Language Proficiency Index Requirement for First Year English*, p. 120).

MIDWIFERY EDUCATION PROGRAM: CURRICULUM OVERVIEW

Year 1

BIOL 153 (Anatomy and Physiology)	7
FDNS 101 (Routes to the 21st Century)	8
FDNS 102 (Knowledge Bases)	8
FDNS 103 (Approaches to Social Understanding)	8
Midwifery mentorship program	non-credit
Total Credits	31

Year 2

MIDW 200 (Birth and its Meaning)	3
MIDW 205 (Theory and Practice)	12
MIDW 210 (Critical Appraisal)	3
MIDW 215 (Ethics Module)	1
MICB 153	3
PHAR 240	3
Electives	6
Total Credits	31

Year 3

MIDW 300 (Theory and Practice)	15
MIDW 305 (Theory and Practice)	12
MIDW 310 (Professional Issues)	3
MIDW 315 (Theory and Practice)	15
Total Credits	45

Year 4

MIDW 400 (Theory and Practice)	15
MIDW 410 (Graduating Essay) ¹	3
MIDW 405 (Clerkship) ²	12
Total Credits	30
Total Program Credits	137

¹ To be taken in Term 1, Year 4.

² To be taken in Term 2, Year 4.

Costs Other than Sessional Fee

There are additional expenses for travel and clinical practice. Students should be prepared for clinical practice outside the Vancouver area and should therefore include travel and living costs for these experiences in estimating total expenses. Information regarding these additional costs is available on the Midwifery website (www.midwifery.ubc.ca).

COLLEGE OF MIDWIVES OF BRITISH COLUMBIA

Students who successfully complete the Bachelor of Midwifery and who are recommended by the Director of the program to the College of Midwives of British Columbia will be admitted to the College Register. Information about the College of Midwives of British Columbia can be obtained from their website. See College of Midwives (www.cmbc.bc.ca). Student registration with the College of Midwives will be required.

POSTGRADUATE EDUCATION

The Faculty of Medicine is prepared to assist and advise students in applying for postgraduate education positions. The Office of the Associate Dean, Undergraduate Education, should be consulted early in the final year for information on the application process.

Placement or assignment of postgraduate positions is not a function of the Faculty of Medicine. The Canadian Resident Matching Service in Ottawa performs this service for all applicants to PGY-1 positions.

CANADIAN RESIDENT MATCHING SERVICE

All accredited postgraduate training in Canada is university integrated. Students do not apply to hospital programs but rather to university programs.

The Canadian Resident Matching Service (CaRMS) is a non-profit corporation that works in close co-operation with the Association of Canadian Medical Colleges. Since its establishment in 1970 it has matched every graduating class. CaRMS uses a computer program that quickly computes the traditional selection process for postgraduate training by matching students and programs with their highest possible choices. It guarantees the process to be fair and unbiased.

The CaRMS brochure and relevant documents for participation in the matching program are available on CaRMS website (www.carms.ca).

Further information is available from the CaRMS office, 2283 St. Laurent Blvd., Suite 110, Ottawa, Ontario, K1P 3H7.

RESIDENT EDUCATION

Specialty training at the University of British Columbia is now offered in one of two streams, namely Family Medicine or a Royal College specialty program. Recruitment is now directly from medical school to these programs. All training must be taken in institutions approved by the Royal College of Physicians and Surgeons of Canada or the College of Family Physicians of Canada. All programs are totally integrated and directed by the Faculty of Medicine. All residents are appointed by the British Columbia Interns and Residents Paying Agency and the University of British Columbia. All residents are required to register as postgraduate residents of the University in order to receive accreditation for their training. Postgraduate courses are offered by individual departments or divisions of the Faculty of Medicine in 59 medical, surgical and laboratory specialties. These courses conform to the specialty training requirements of the Royal College of Physicians and Surgeons of Canada and the College of Family Physicians of Canada and are numbered 700 or higher.

Applications for resident staff appointments should be made to the Program Director of the appropriate division or department of the University. Further information can be found on the Postgraduate Education website (www.med.ubc.ca/postgrad).

DIVISION OF CONTINUING MEDICAL EDUCATION

A Division of Continuing Medical Education has been established within the Dean's Office. Its purposes are to initiate and support programs in continuing medical education for physicians in practice, to initiate and support health sciences inter-professional programs of continuing education, to initiate and support efforts designed to define needs in continuing medical education, to initiate and support programs of evaluation in continuing medical education, to initiate and support experiments in new methods of learning in undergraduate and continuing medical education, and to improve methods of information dispersal in continuing medical education leading to improved patient care.

POSTGRADUATE (RESIDENCY) TRAINING PROGRAMS

Postgraduate courses are offered by individual departments or divisions of the Faculty of Medicine, to graduates of Canadian medical schools. These courses satisfy the specialty training requirements of the Royal College of Physicians and Surgeons of Canada and the College of Family Physicians of Canada and are approved as a prerequisite for the examinations in each specialty. All residents must register as postgraduate residents of the University.

The Royal College of Physicians and Surgeons of Canada requires a minimum of four to six

years of specialty training dependent on the individual specialty. A broad-based clinical PGY1 year is a mandatory component of many specialty programs but is not a requirement for entrance into such programs as pediatrics, internal medicine and the primary surgical specialties. The University of British Columbia is committed to community-based, integrated, Family Medicine and Royal College specialist training. Candidates must expect to perform a significant amount of their training in a rural setting. A number of local, regional and more remote smaller community hospitals have been successfully integrated into such programs as family medicine, pediatrics, psychiatry, obstetrics and gynecology, ophthalmology and general surgery. Ongoing assessments are made through each of the training years and, on satisfactory completion of the program, candidates may apply to sit the certification examination of the Royal College of Physicians and Surgeons of Canada.

Candidates are eligible to sit the certification examinations of the College of Family Physicians of Canada upon completion of the two-year Family Practice program.

Supervision of each training program is the responsibility of the University department or division concerned. Selection of candidates for each program is at the discretion of the resident training program of each department to whom application should be made.

The training programs run throughout the calendar year, commencing July 1. A variety of service rounds, conferences and seminars, small group tutorials, and divisional sessions having a bearing on patient care, but within which a teaching component is clearly defined, are offered.

ANESTHESIA

(Anesthesia is part of the Department of Anesthesiology, Pharmacology and Therapeutics). The postgraduate program in anesthesiology, which is fully approved for Fellowship in the Royal College of Physicians and Surgeons of Canada, provides rotations in Clinical Anesthesia, Internal Medicine, and Basic Science or Clinical Research.

The clinical rotations of the five-year program involve a wide experience of general anesthetic practice, including the sub-specialties of pediatric, obstetric, neuro, cardiac and thoracic anesthesia, as well as experience in acute and chronic pain services. The resident is introduced to clinical responsibility in a graded manner, with the objective of becoming a consultant in anesthesia in its broadest sense. An active academic core of Junior (second-year resident) and Senior (final two years) Tutorials, Seminars, Clinical Anesthesia and Intensive Care Unit Rounds, Clinical Workshops, and Journal Clubs are held weekly throughout the academic year. See Courses (www.students.ubc.ca/calendar/courses.cfm) for details. Clinical and academic evaluations are conducted on a day-to-day basis, as well as with formal written and oral examinations held twice annually. The year of Internal Medicine emphasizes cardiovascular, respiratory, nephrology and hematology, as

well as rotations through intensive care units (adult, pediatric, and neonatal).

The fifth and final year may involve a third year of clinical anesthesia specialty rotations, or a research and teaching fellowship in Physiology and Pharmacology, or a clinical research fellowship in Anesthesia at one of the several University-affiliated teaching hospitals.

COMMUNITY MEDICINE

Postgraduate training in Community Medicine consists of five years in an accredited community medicine training program. One year consists of basic clinical training. The second year is an academic year in the Department of Health Care and Epidemiology, where the resident becomes familiar with the sciences basic to Community Medicine, such as epidemiology, biostatistics, community health, and occupational and environmental hygiene. The resident may use this year as partial fulfillment of a Master of Health Sciences or a Master of Science. Two years consist of increasing responsibility in the areas of public health practice, clinical epidemiology, occupational health, basic research, or health planning. Research is encouraged as a component of the program. Rotations are in health units of the Ministry of Health, or in industry in BC. Rounds and seminars are held each Friday on campus. Resident attendance at the academic day is required. The final year is tailored to the resident's specific interests.

The program is part of the matching process, nevertheless applications from practitioners are encouraged.

FAMILY PRACTICE

The Family Practice Residency is a two-year program in which the resident is given progressively increasing responsibility in patient care and management. Within the Family Practice Units and in community practices, residents are involved directly with ambulatory patients to whom they relate as family physicians and provide primary care on an episodic, continuing and preventative basis under the supervision of Department of Family Practice physicians. In addition, residents receive training in various hospitals in medicine, surgery, pediatrics, obstetrics and gynaecology, emergency, psychiatry, geriatrics and musculoskeletal medicine. Formal rounds, seminars, tutorials, daily chart rounds and journal clubs round out the resident's training in areas particularly pertinent to Family Practice. Training occurs primarily at six different sites: Chilliwack, City (in Vancouver), Northern Rural, Prince George Rural, St. Paul's and Victoria. A two-year program in First Nations Health with an optional third year is also offered. An additional one-year training program of enhanced vocational skills is offered in emergency medicine, surgical skills and anesthesia and shorter training periods are offered in maternal health, psychiatry, addiction medicine and women's medicine, geriatrics and palliative care, and other areas of interest to practicing physicians.

INTERNAL MEDICINE

The training program includes ward work and case conferences on general medical and subspecialty ward services supervised by members of the Faculty. The residents are given progressive responsibility for patient care on medical wards. Investigation and management of disease in ambulatory patients is provided under the direction of faculty members in the General Internal Medicine and medical specialties.

The Department of Medicine utilizes the following facilities: the Vancouver Hospital and Health Sciences Centre (VGH site and UBC site), St. Paul's Hospital, BC Cancer Agency, G. F. Strong Rehabilitation Centre, and the Mary Pack Arthritis Centre. Several Community Care Medicine electives are offered at a variety of non-tertiary care centres throughout British Columbia.

In the Department of Medicine and its subspecialties, courses will be given as indicated in Courses (www.students.ubc.ca/calendar/courses.cfm). At present the following have training programs in addition to the courses listed: Cardiology, Critical Care Medicine, Dermatology, Endocrinology, Gastroenterology, General Internal Medicine, Geriatric Medicine, Haematology, Infectious Disease, Medical Oncology, Nephrology, Neurology, Physical Medicine and Rehabilitation Medicine, Respiratory Medicine, and Rheumatology.

The objectives of this program are to provide up to four years training in medicine for graduate physicians interested in a career in medicine in a community hospital or in an academic centre.

The core training program will consist of graduated experience in the clinical teaching units at the Vancouver Hospital and Health Sciences Centre (both sites), St. Paul's Hospital and Children's Hospital. Rotations are offered in all of the subspecialty training programs.

MEDICAL GENETICS

The Department of Medical Genetics (www.medgen.ubc.ca) offers a fully integrated five-year program leading to certification and fellowship in the Royal College of Physicians and Surgeons of Canada in the specialty of Medical Genetics. This program integrates basic and clinical genetics. Residents complete course work within the Medical Genetics graduate program (see Medical Genetics). Core clinical experience includes rotations in Pediatrics, Internal Medicine, and Obstetrics and Gynaecology. There are laboratory rotations in molecular genetics, cytogenetics, embryopathology and biochemical genetics and a scholarly research project (clinical or laboratory). Core and advanced training in clinical genetics in the Provincial Medical Genetics Program involves exposure to a wide variety of prenatal, pediatric and adult patients referred from throughout the province.

The hospitals and laboratories affiliated with the program include Children's and Women's Health Centre of British Columbia, Vancouver

General Hospital and Health Sciences Centre (12th and Oak and UBC Pavilions), St. Paul's and Royal Columbian Hospitals.

CONTACT INFORMATION

For more information on the Medical Genetics Residency Training Program (www.medgen.ubc.ca/programs/training.htm), please contact the Medical Genetics Residency Program Secretary, Cheryl Slevin, by email (cslevin@cw.bc.ca), or by phone at 604-875-3486.

MEDICAL MICROBIOLOGY

The purpose of this approved residency program is to educate physicians to a level of competence that will enable them to direct the microbiology services in any hospital or other health care facility. Emphasis is placed on the appropriate delivery of diagnostic tests, infection control and consultation services to clinical colleagues who look after patients with infection. It is a five-year program comprising a basic clinical year, two core years of medical microbiology, one year in an elective program approved by the director, and one year of approved clinical training in internal medicine or pediatrics including infectious diseases. The residency is one of five streams in the Department of Pathology and Laboratory Medicine (www.pathology.ubc.ca) and offers opportunities for interactions in the sub-disciplines and specialties within anatomic, general, and neuropathology, and in medical biochemistry. Emphasis is placed on classical microbiological diagnostic strategies and molecular technologies.

OBSTETRICS AND GYNAECOLOGY

A balanced program of academic and practical clinical experience. The academic program consists mainly of weekly specialty rounds in the areas of gynaecology, gynaecologic oncology, high-risk pregnancy and fetal monitoring. Current cases and unusual clinical problems, together with their pathophysiology and management are discussed. A weekly afternoon seminar is held in which topics are assigned and prepared by residents and attending staff. Selected papers from the current literature are presented and critically discussed by the residents and the attending staff. Clinical experience is provided under supervision in the ambulatory care clinics with graduated responsibility being provided in the performance of operating and case room procedures.

OPHTHALMOLOGY AND VISUAL SCIENCES

The Department of Ophthalmology and Visual Sciences offers practical experience in examination, investigation and management of patients in the neuro-ophthalmology, retina, cornea, glaucoma, refraction and contact lens, ophthalmoplastics, genetic and low vision clinics under supervision in addition to general ophthalmology and pediatric ocular motility clinics throughout the week. Instruction and assistance is given in the practical performance of major and minor ophthalmic surgical procedures. The management of patients with emphasis on

solving diagnostic problems and performance of medical and surgical therapy is undertaken on both an in-patient and out-patient basis with follow-up clinics.

ORTHOPAEDICS

The Department of Orthopaedics offers a fully integrated five-year program leading to Certification by, and Fellowship of, the Royal College of Surgeons of Canada in the specialty of Orthopaedics. The program includes core experience in the principles of surgery (general, plastic, intensive care, vascular and orthopaedics), as well as core and advanced training in the areas of general orthopaedics, adult reconstruction, musculoskeletal oncology, trauma, sports related and arthroscopy, hand and microvascular, and pediatric orthopaedics (including trauma). Additionally, protected time in basic research (such as biology or bioengineering) is encouraged.

The hospitals affiliated with the program include the Vancouver Hospital and Health Sciences Centre (12th and Oak and UBC Pavilions), the British Columbia's Children's, St. Paul's, Burnaby General, the Royal Columbian and Prince George Regional Hospitals.

PATHOLOGY

Approved training is available in all sub-specialties of laboratory medicine designed to fulfil the requirements of general or specialized pathology postgraduate programs. Residents will normally rotate through the major university teaching hospitals and are expected to accept increasing responsibilities as they progress. Weekly educational seminars within and between departments include active resident participation. Reviews of interesting cases are also a standard experience. Opportunities are available to gain skills and understanding on biotechnological and molecular applications in diagnoses, bioethics as pertinent to laboratory medicine, and laboratory information management and administration. Residents' progress through the training program is regularly assessed.

PEDIATRICS

Education in pediatrics is a graduated experience using in-patient, ambulatory and community resources. Clinical, technical and communication skills are emphasized throughout. Supervisory, research and consultative skills are also taught and are given greater emphasis in the later years. The pediatric resident has access both to general pediatric patients and a wide variety of sub-specialty patients providing a broad experience during training. Rounds occur daily and an Academic Half Day assures the residents freedom to attend interactive didactic sessions in basic and clinical science, clinical skills, bioethics and research methodology.

PSYCHIATRY

The Royal College of Physicians and Surgeons of Canada is responsible for setting the requirements of all medical postgraduate training in

Canada. The Psychiatry Residency Program at the University of British Columbia operates under the Royal College guidelines.

There are 40 psychiatry residency positions. The academic year runs from July 1 to June 30. The program is now a five-year program for applicants applying directly from a Canadian medical school through the Canadian Resident Matching Service, following successful completion of a four-year undergraduate program in medicine.

Clinical training takes place on hospital in-patient wards, at out-patient units, at community mental health centres and subspecialty clinics. Mandatory rotations include: general hospital in-patient/OPD, child, chronic care, emergency, consultation-liaison, geriatric and community psychiatry. There is provision for 12 months of elective time.

Research is encouraged at each level of the resident's training. One day per week is dedicated to academic seminars on the UBC campus.

The philosophy of our program is to train psychiatrists in the broad aspects of the bio-psycho-social model of medicine and psychiatry.

RADIATION ONCOLOGY (BRITISH COLUMBIA CANCER AGENCY)

PGY-1

This year encompasses several facets of clinical medicine using a standard rotating format. The purpose of this period of training is to introduce and expose the trainee to independent responsibility for decisions involving clinical judgment skills, the further development of an effective and mature physician patient relationship, and the achievement of competence in primary technical skills across a broad range of medical practice. This is essentially a rotating internship and would precede subsequent specific training in radiation oncology.

PGY-2 to 5

One year, which includes six months of approved resident training in internal medicine and three months of training in Medical Oncology. During the training in Radiation Oncology, an additional six months may be approved by the Program Director for training in clinical, basic science or research training relevant to the objectives of the specialty, and acceptable to the Director of the Residency program and to the Royal College.

Three years of radiation oncology (36 months): BC Cancer Agency, Vancouver Clinic, and one to two months mandatory rotations in one of other 3 centers in Cancer Centers in BC (Surrey (two months), Kelowna (one month) or Victoria (one month)).

- site-specific rotations (eight weeks long: head and neck, gynecological oncology, lymphoma, breast, etc.)
- weekly academic half day: didactic instruction in radiobiology, pathology, physics, radiology, principles and practice of

oncology and radiation oncology treatment planning

- annual formal practice radiotherapy planning examinations
- support for annual attendance at North-western Radiobiology Course (Seattle, Edmonton, Vancouver)
- presentation at national and international meetings encouraged
- mid-rotation feedback sessions and end of rotation oral assessments
- fall and spring exams for senior residents

Core Academic Activities Clinical Oncology

- ACU
- Bedside and individual tutorials Treatment Planning occur both in the context of:
- Individual rotations
- Treatment planning drills Radiobiology
- introductory didactic lecture series
- tutorials
- seminar series Physics
- weekly tutorials for PGY-2 and PGY-3
- seminars/problem-based series Pathology
- case-based teaching with clinical and pathological input Radiology
- introduction to normal and abnormal radiological anatomy Other Programs
- Facilitate General Surgery, Respiriology, Otolaryngology, Medical Oncology, Pediatric/Hematology/Oncology/OBGyn and other programs.

Research

Residents are encouraged to do their research throughout their Residency Training Program. Every year we have a Residents' Day Award, where all the residents present their annual research projects. Every second year, there is a grant writing competition (Peter Poon Award). Residents are encouraged to present their research projects at national and international meetings. Residents in good academic standing, with Program Director approval, may seek Radiation Oncology electives in other centres in Canada, the US or overseas. A six month block in research is available as well, and is again at the discretion of the Program Director. The BC Cancer Research Centre and the Genome Sequence Centre have tight collaboration with the Radiation Oncology Department and the entire BC Cancer Agency. Research activities are encouraged and supported by the Program Director, Department Head and Radiation Oncology staff.

RADIOLOGY

The postgraduate program in Radiology is a five-year program fully approved for certification and fellowship in the Royal College of Physicians and Surgeons of Canada. The second year provides core training in physics, chest radiology, gastrointestinal radiology, genitourinary radiology, musculoskeletal radiology, neuroradiology, computed tomography and ultrasound. During the third year the resident consolidates skills in film interpretation

and the basic procedures by functioning as a general radiologist under appropriate supervision. A three-month block of pediatric radiology is also included. During the third and fourth years, rotations are provided in nuclear medicine, angiography, oncologic radiology, mammography and magnetic resonance imaging. Assuming that the Royal College requirements are satisfied, the last two years provide opportunities for the resident to develop special expertise in any of the subspecialty areas or to develop a research project. Residents are on-call to read emergency films and perform emergency imaging studies.

The academic program consists of daily rounds, weekly Grand Rounds and resident seminars during the academic year, a two-year rotating series of core seminars, and a series of five or six lectures by internationally known visiting professors. Residents in their second and fourth years are expected to complete a research project, and residents in their third year are expected to present a Grand Round. Residents also participate in the annual international radiology conference at Whistler, BC. Extensive teaching in non-interpretive skills, including physics, ethics, biostatistics, study design and quality assurance is also offered. All residents attend the six-week Armed Forces Institute of Pathology (AFIP) course in Washington, DC, at the department's expense.

SURGERY

The Department of Surgery postgraduate program for resident training has approved specialty programs in cardiac surgery, emergency medicine, general surgery, neurosurgery, otorhinolaryngology, plastic surgery, pediatric general surgery, radiation oncology, thoracic surgery, urology, and vascular surgery. PGY1 positions are available in emergency medicine, general surgery, neurosurgery, otorhinolaryngology, plastic surgery, and urology. Advanced placement positions are filled following completion of general surgical training in pediatric general surgery, thoracic surgery, and vascular surgery. Entry into all PGY-1 positions is governed by the Canadian Resident Matching Service (CaRMS) Program. Detailed descriptions for PGY-1 positions are available on the CaRMS website (www.carms.ca).

A list of the program directors for each of the specialties follows: Dr. S. Karim, Cardiac Surgery; Dr. B. Chung, Emergency Medicine; Dr. E. M. Webber, General Surgery; Dr. G.J. Redekop, Neurosurgery; Dr. P. Moxham, Otorhinolaryngology; Dr. P. Lennox, Plastic Surgery; Dr. G. Blair, Pediatric General Surgery; Dr. M. Keyes, Radiation Oncology; Dr. K. G. Evans, Thoracic Surgery; Dr. A MacNeily, Urology; and Dr. J. Chen, Vascular Surgery.

Further information on surgical programs in the affiliated hospitals (Vancouver Hospital and Health Sciences Centre, St. Paul's Hospital, Royal Columbian Hospital, and BC Children's Hospital) is available on the Department of Surgery website (www.surgery.ubc.ca) and on

the Postgraduate Education website (www.med.ubc.ca/postgrad/).

Entry into specialty training into each of these programs is via a two-year core surgery program which is under the direction of Dr. E. M. Webber, Director, Postgraduate Education, Department of Surgery. The core program in Surgery incorporates clinical rotations as mandated by the Royal College of Physicians and Surgeons of Canada (RCPSC) training requirements in each entry-level discipline together with didactic sessions on a weekly basis covering the Principles of Surgery curriculum and leading to eligibility for the Principles of Surgery examination of the RCPSC.

LICENCE TO PRACTICE MEDICINE

The possession of the Doctor of Medicine does not, in itself, confer the right to practice medicine in any province in Canada. Each province has a college of physicians and surgeons, as mentioned previously, and these colleges have the final authority to grant a licence to practice medicine within their jurisdictions. The possession of the Licentiate of the Medical Council of Canada (www.mcc.ca) (L.M.C.C.) is one of the major requirements of the provincial colleges of physicians and surgeons for registration.

To be eligible for licensure in BC, graduates will be required to have completed at least two years of postgraduate training with at least eight weeks in each of Medicine, Surgery, Obstetrics and Gynaecology, Pediatrics, and four weeks in each of Emergency and Family Medicine and Psychiatry, in addition to being a Licentiate of the Medical Council of Canada.

Applicants with Certification by the College of Family Physicians of Canada or the Royal College of Physicians and Surgeons of Canada and being Licentiates of the Medical Council of Canada will also qualify for licences to practice.

MEDICAL COUNCIL OF CANADA QUALIFYING EXAMINATION

Application forms and information kits regarding the examination are available online at www.mcc.ca or through the Dean's Office at the Vancouver Hospital and Health Sciences Centre.

Information on licensing to practice medicine in Canada must be obtained by the appropriate licensing body in the province where the student is intending to practice. In BC please refer to the College of Physicians and Surgeons of BC (www.cpsbc.ca).

ACADEMIC STAFF

DIVISION OF CONTINUING MEDICAL EDUCATION

Kendall Ho, Associate Dean and Director.

Division of History of Medicine

PROFESSOR EMERITUS AND LECTURER
John M. Norris, B.A., M.A. (Br.Col.), Ph.D. (Northwestern).

HONORARY LECTURERS

Charles E. Slonecker, D.D.S., Ph.D. (Wash.); Robert Todd, B.A. (Lond.), A.M., Ph.D. (Prin.).

DEPARTMENT OF ANESTHESIA

C.B. Warriner, Head

Honorary Professors

N. Donen, M.B.Ch.B. (Cape T.), FRCP; P.G. Duncan, M.D. (Manit.), FRCP; J.A. Pacey, M.D. (Br.Col.), FRCS; D.J. Stewart, M.B.B.S. (Lond.), FRCP.

Professor

C.B. Warriner, M.D. (Br.Col.), FRCP.

Associate Professor

B.A. MacLeod, B.Sc., M.D. (Br.Col.), FRCP.

Assistant Professors

J.M. Ansermino, M.B.B.Ch. (Johannesburg), F.F.A. (S. Africa), M.Med. (Anesth.), M.M.Inf. (Lond.), FRCP; P.T.L. Choi, B.Sc., M.D. (Br.Col.), M.Sc. (McM.), FRCP; C.R. Ries, M.D. (W.Ont.), Ph.D. (Br.Col.), FRCP; S.K. W. Schwarz, M.D., Dr. med (Gottingen), Ph.D. (Br.Col.), FRCP.

Clinical Professors

D.M. Ansley, M.D. (Sask.), FRCP; D. Blackstock, M.B.Ch.B., B.A.O. (Belf.), FRCP; C.P. Cole, B.Sc., M.D. (Br.Col.), FRCP; M.J. Douglas, M.D. (Sask.), FRCP; A. Enright, M.D., FRCP; E.A. Gofton, B.A., M.B.Ch.B., B.A.O. (Dub.), FRCP; R.P. Grant, B.Sc., M.D. (Br.Col.), FRCP; J.A. Harper, M.D. (Br.Col.), FRCP; A.P. Kliffer, M.D. (Br.Col.), FRCP; R.N. Merchant, M.D. (Br.Col.), FRCP; J.P. O'Connor, B.Sc. (New Br.), M.D. (Dal.), FRCP; D.G. Parsons, M.D. (Br.Col.), FRCP; H. Vaghadia, B.Sc.M.B., B.S. (Lond.), FRCP; S.A. White, M.B.Ch.B. (Belf.), FRCP; D.H.W. Wong, M.B.B.S. (H.K.), FRCP.

Clinical Associate Professors

S.B.C. Baker, M.B.Ch.B. (N.Z.), FRCP; J.L. Berezowskyj, B.Sc., M.D., C.M. (McG.), FRCP; J.P. Blachut, B.Sc., M.D. (Tor.), FRCP; A.J. Boulton, M.B.Ch.B. (Manc.), FRCP; J.B. Bowering, B.Sc., M.D. (Br.Col.), FRCP; I.A. Brodtkin, M.D. (W.Ont.), FRCP; P.A. Burgi, M.B.Ch. (Witw.), FRCP; J.F. Dolman, B.Sc., M.D. (Br.Col.), FRCP; S.M. Ferreira, B.Sc., M.B.B.S. (Lond.), FFA.RCS (Lond.), FRCP; N.R. Froese, M.D. (Manit.), FRCP; C.L. Henderson, M.D. (W.Ont.), FRCP; A.A.S. Kamani, M.D. (Manit.), FRCP; P.C. Kapnoudhis, M.B.Ch.B. (Cape T.), FRCP; R. Klein, M.B.Ch.B. (S.Africa), FRCP; R.J. Lee, LRCP, MRCS, FRCP; D.N. Malm, M.D. (Br.Col.), FRCP; I.L. Martin, B.Sc. (Dal.), M.D. (Nfld.), FRCP; K.V. Mayson, B.Sc., M.D. (Br.Col.), FRCP; W.N. McDonald, B.Sc., M.D. (Br.Col.), FRCP; P.B. McGinn, B.Sc., M.D. (Br.Col.), FRCP; K.R. Mills, B.Sc. (Bishop's), M.D., C.M. (McG.), FRCP; C.J. Montgomery, M.D. (Tor.), FRCP; R.L.D. Moore, B.Sc., M.D. (Alta.), FRCP; G.A.R. O'Connor, M.B.Ch.B. (Sheff.), FRCP; P.J. Osborne, B.Sc., M.D. (Br.Col.), FRCP; M.S. Page, B.Sc., M.D. (Br.Col.), FRCP; E.A. Peter, B.Sc.N. (Lake.), M.D. (McM.), FRCP; R.L. Preston, B.Sc., M.D. (Ott.),

FRCP; J.E. Ramsden, M.D. (W.Ont.), FRCP; T.E. Randall, B.Sc., M.D. (Br.Col.), FRCP; E.J. Reimer, M.D. (Manit.), FRCP; B.A. Saunders, B.Sc., M.D. (Alta.), FRCP; P.J. Scoates, B.Sc., M.D. (Br.Col.), FRCP; M.F. Smith, M.B.Ch.B. (Edin.), M.D. (Tor.), FRCP; H.M.-H. Sung, B.Sc., M.D. (Br.Col.), FRCP; J.E. Swenerton, B.A., M.D. (Br.Col.), FRCP; M. Thölin, B.D. (Sweden), FRCP; G.E. Townsend, M.D. (Ott.), FRCP; H.S. Umedaly, M.D. (Br.Col.), FRCP; T.S. Waters, M.D. (Br.Col.), FRCP; C.L. Wong, M.D. (Br.Col.), FRCP; P.Y.H. Yu, M.D. (Br.Col.), FRCP.

Clinical Assistant Professors

W.E. Abbott, B.Sc. (W.Ont.), M.D. (McM.), FRCP; J.H. Anderson, B.Sc., M.D. (Alta.), FRCP; C.L.-S. Au, M.D. (Ott.), FRCP; P.F. Baker, B.Sc., M.D. (Br.Col.), FRCP; D.Y.J. Banno, B.Sc. (Br.Col.), M.D. (Br.Col.), FRCP; G. Bergman, B.Sc., M.D. (Br.Col.), FRCP; B.F. Bitter-Suermann, B.A., B.Sc., M.D. (Halifax), FRCP; G. Boisvenu, M.D. (Ont.), FRCP; S.E. Bright, M.D. (W.Ont.), FRCP; D.E. Burrill, B.Sc., M.D. (Br.Col.), FRCP; F. Bylsma, B.Sc., Ph.D., M.D. (Br.Col.), FRCP; M. Bylsma-Howell, B.A., M.A. (Sask.), M.D. (Br.Col.), FRCP; D.W. Carrie, M.D. (W.Ont.), FRCP; F.L. Chow, M.D. (Sask.), FRCP; L. Dallen, M.D. (Br.Col.), FRCP; G. Del Vicario, B.Sc., M.D. (Br.Col.), FRCP; J.A. Dowd, M.D. (Qu.), FRCP; A.A.D. Doyle, B.Sc., M.D. (McG.), FRCP; B.G. Fitzmaurice, M.D. (Sask.), FRCP; E.F. Foulkes, B.Sc., M.D. (Br.Col.), FRCP; M.R. Foulkes, M.D. (Br.Col.), FRCP; D.J. Giannoulis, B.Sc., M.D. (Alta.), FRCP; D.M. Giffin, M.D. (Manit.), FRCP; M.Z. Gorchynski, B.Sc., M.D. (Manit.), FRCP; D.H. Graham, B.Sc., M.D., C.M. (McG.), FRCP; V.B. Gunka, M.D. (Czech Rep.), FRCP; A.A.D. Hamilton, M.B.Ch.B. (Manch.), FRCP; S.W. Herd, M.D. (W.Ont.), FRCP; T.J. Herrmann, M.B.Ch.B. (S.Africa), FRCP; P.L. Johnson, B.Sc., M.D. (Br.Col.), FRCP; M. Klas, M.D. (Nfld.), FRCP; N.S. Kronitz, B.A. (Israel), M.A. (Tor.), M.D. (McM.), FRCP; M.J. Lampa, M.D. (Br.Col.), FRCP; D.E. Lea, B.Sc., M.D. (Ott.), FRCP; L.W. Lee, M.D. (Tor.), FRCP; P. Low Ah Kee, M.B.Ch.B. (Cape T.), FRCP; D.J. MacLennan, M.D. (Br.Col.), FRCP; W. MacLeod, M.B.Ch.B. (Cape T.), FRCP; D.S. Malherbe, M.B.Ch.B. (S.Africa), M.Med. (S.Africa), FCA (S.A.), FRCP; K.O. McDonald, M.D. (Br.Col.), FRCP; R.A.B. McTaggart, B.Sc., M.D. (Alta.), FRCP; A. Meikle, B.Sc., M.D. (Qu.), FRCP; M.J. Mitchell, M.D. (Br.Col.), FRCP; M.D. Moul, M.D. (Br.Col.), FRCP; M. D. Negraeff, M.D. (Sask.), FRCP; K.H. Nickel, M.D. (Sask.), FRCP; R.J. Pantel, B.Sc., M.D. (Alta.), FRCP; W.G. Phillips, M.D. (Kingston), FRCP; B. Prasloski, B.Sc., M.D. (Br.Col.), FRCP; R. Purdy, B.Sc., M.Sc., D.V.M. (Sask.), M.D. (Br.Col.), FRCP; C.C. Reichert, B.Sc. (Phar.), M.D. (Br.Col.), FRCP; J.E. Renwick, B.A., M.D. (Br.Col.) FRCP; A.D. Robinson, M.D., B.Ch., B.A.O. (Belf.), FRCP, F.F.A. (Lond.); W.M. Robinson, M.D. (Br.Col.), FRCP; L.I. Rupesinghe, B.Sc., B.Med.Sci., M.D. (Nfld.), FRCP; T.S. Ruta, M.D. (Manit.), FRCP; A.N. Sawka, B.Sc., M.D. (Manit.), FRCP; L.D. Scheepers, B.Sc., M.B.Ch. (Johannesburg), FRCP; D. Sirounis, B.Sc., M.D. (Sask.), FRCP; R.B.P. Stasiuk, B.Sc., M.D. (Manit.), M.S. (Minn.), FRCP; C.A. Stephenson, M.B.B.S. (Newcast-Upon-Tyne), FRCP; M. Van der Wal, M.B.Ch.B. (Cape T.), FRCP; D. Vretenar, M.D. (Alta.), FRCP; T. Weideman, M.B.Ch.B. (S.Africa), FRCP; B.K. Werry, M.D. (Qu.), FRCP; G.G. Wood, M.D. (Qu.), FRCP; I.D. Woodhouse, B.Sc., M.D. (Halifax), FRCP.

Clinical Instructors

H. Ahmadi, M.D. (Br.Col.), FRCP; J.G. Aschah, B.A., M.D. (W.Ont.), FRCP; K.M. Bailey, B.Sc., M.D. (Br.Col.), FRCP; M.I. Barker, B.Sc., M.D. (Dal.), FRCP; A.C. Berkman, M.B.Ch.B. (S.Africa), FRCP; E.C. Bishop, M.B.Ch.B. (Cape T.), FANZCA; C.I.

Boldt, M.D. (Sask.), FRCP; M.A. Breden, B.Sc. (Br.Col.), M.D. (W.Ont.), FRCP; R.G. Carruthers, B.Sc., M.D. (Qu.), FRCP; R.P. Castner, B.Sc., M.Sc., M.D. (Tor.), FRCP; T.C.K. Chan, M.D. (H.K.), FRCP; I.D. Courtime, M.D. (Br.Col.), FRCP; W.J. Davis, M.B.Ch.B. (Witw.), FRCP; P.N. Draper, B.Sc., M.D. (Calg.), FRCP; L. Duggan, B.Sc., M.D. (Ott.), FRCP; I. Dumitru, B.Sc., M.Sc. (Tor.), M.D. (McM.), FRCP; E.H. Effa, M.D. (Br.Col.), FRCP; N. Fenje, M.D. (Tor.), FRCP; C.A. Flynn, B.Sc., M.D. (Br.Col.), FRCP; P.V. Georgyev, M.D. (Bulgaria), FRCP; C. Ho, M.D. (Br.Col.), FRCP; R.W. Hoskin, M.Sc. (Physiol.), M.D. (Alta.), FRCP; G.D. Isaac, B.Sc., M.D. (Dal.), FRCP; R.N. Kahwaji, M.D. (Brussels), FRCP; A.D. Kim, B.Sc., M.D. (Br.Col.), FRCP; A.M. Kinahan, M.D. (Manit.), FRCP; M. Kinahan, M.D. (Br.Col.), FRCP; R.N. Kraima, B.Sc., M.D. (Br.Col.); P.A. Lavin, B.Sc., M.Sc. (Br.Col.), M.D. (Br.Col.), FRCP; M. Law, M.D. (Br.Col.), FRCP; S. L. Leacock, M.D. (Alta.), FRCP; P.H. Lennox, M.B., B.A.O., B.Ch. (Ireland), FCARCSI (Ireland); G. K. H. Lim, B.Sc., M.D. (Br.Col.), FRCP; J. Looser, M.Sc. (Tor.), M.D. (Tor.), FRCP; G. Moll, M.B.Ch.B. (Cape T.), MRCPC; P. Money, B.Sc., M.D. (Br.Col.), FRCP; T. P. Murphy, B.Sc., M.D. (Br.Col.), FRCP; M. Murray, M.D. (Ott.), FRCP; R.S. Neilson, B.Sc., M.D. (Br.Col.), FRCP; R. Orfaly, D.C.S., M.D.C.M. (McG.), FRCP; J.A. Osborn, B.Sc., M.D. (Br.Col.), Ph.D. (Br.Col.), FRCP; C.L. Pattee, M.D. (Qu.), FRCP; L.D. Porayko, M.D. (Br.Col.), FRCP; J.S. Prentice, M.D. (Br.Col.), FRCP; L. Quon, B.Sc., M.D. (Br.Col.), FRCP; C.B. Rankin, M.B.Ch.B. (U.K.), FRCP; R.M. Ree, B.Sc., M.D. (Br.Col.), FRCP; T. Relf, M.D. (Alta.), FRCP; J.E. Riendl, B.Sc., M.D. (Calg.), FRCP; C.E.B. Roston, M.D. (Br.Col.), FRCP; J. Schmid, M.D. (Br.Col.), FRCP; M.E. Seltenrich, B.Sc., M.D. (Calg.), FRCP; P. Serowka, B.Sc., M.D. (McM.), FRCP; D. M. Setton, B.Sc., M.D. (Br.Col.), FRCP; J.T.A. Shandro, M.D. (Alta.), FRCP; L.A.W. Shaw, B.Sc., M.D. (Br.Col.), FRCP; F.J. Smit, M.B.Ch.B. (Stellenbosch), M.Med. [Anes] (Stellenbosch); K. Stevenson, M.B.Ch.B. (S. Africa), FRCP; P.A. Swart, M.B.Ch.B. (S.Africa), FRCP; D.L. Twist, B.Sc., M.D. (Sask.), FRCP; E.L. Valimohamed, M.D. (Br.Col.), FRCP; W. van den Heever, M.B.Ch.B. (S.Africa), M.Med. (S.Africa); L. Vonguyen, B.Sc., M.D. (W.Ont.), FRCP; J. A. Webster, M.D. (Qu.), FRCP; S.J. Willms, M.D. (Tor.), FRCP; J.A. Wollach, M.B.Ch.B. (Cape T.), FRCP.

Adjunct Professor

M. Huzmezan, Ph.D., P.Eng.

Jean Templeton Hugill Chair

B.A. MacLeod, B.Sc., M.D. (Br.Col.), FRCP; Centre for Analgesia and Anesthesia, Pharmacology and Therapeutics.

Associate Members

J. Church, B.Sc., M.B., Ch.B. (Brist.), Ph.D. (Lond.), FRCA, Cellular & Physiological Sciences; E. Eich, B.A. (Maryland), Ph.D. (Tor.), Psychology; D.V. Godin, B.Sc., Ph.D. (Ott.), Pharmacology and Therapeutics; M. Lepawsky, B.A. (Lawrence), M.D. (Chic.), C.C.F.P., Family Practice; J.A. McEwen, B.A.Sc., Ph.D. (Br.Col.), P.Eng., Electrical and Computer Engineering; B.C. McGillivray, B.Sc. (Br.Col.), M.D. (Alta.), FRCP, F.C.C.M.G., Medical Genetics; J.G. McLarnon, B.Sc., M.Sc. (Alta.), Ph.D. (Br.Col.), Pharmacology and Therapeutics; E.A. Puil, B.Sc. (Br.Col.), M.Sc., Ph.D. (Alta.), Pharmacology and Therapeutics; J. Y. Tsang, B.Sc. (McG.), M.D. (Tor.), FRCP, Medicine; M. J. A. Walker, B.Sc., Ph.D. (Lond.), Pharmacology and Therapeutics.

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Richard Barton, B.Sc., Ph.D. (Br.Col.); Bruce E. Tiberis, B.A. (Arkansas), Ph.D. (Br.Col.); Everard Trip, B.Sc. (N'cle.), Ph.D. (Alta.).

Instructor

Robert Maurus, B.Sc. (Guelph), Ph.D. (Br.Col.); Arina Omer, B.Sc. (Romania), M.Sc. (France), Ph.D. (Br.Col.); Warren Williams, B.Sc. (Cariboo), Ph.D. (Br.Col.).

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Research Associates

Hilary J. Anderson, B.Sc. (Sus.), Ph.D. (Leic.); Anjuman Begum, Ph.D. (Syd.); Maria Buxade, Ph.D. (Barcelona); Jerzy E. Kulpa, M.Sc., Ph.D. (Wroclaw); Gregory Lee, B.Sc. (Calif.), Ph.D. (Washington); Chunmin Li, B.Sc. (Sichuan), M.Sc. (Sichuan), Ph.D. (Osaka); Barry Liboiron, B.Sc. (Guelph), Ph.D. (Br.Col.); Margarita Malakhova, B.Sc., Ph.D. (Moscow); Marcia Mauk, A.B. (Ripon), Ph.D. (Med. Coll. of Wisc.); Norbert Maurer, M.Sc., Ph.D. (Graz); Gunnar Olovsson, M.Sc., Ph.D. (Uppsala); Xuemin Wang, Ph.D. (Brist.); Yanni Wang, Ph.D. (Sun Yat-sen); Kim Wong, B.Sc., M.Sc. (Malaya), Ph.D. (Br.Col.).

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Affiliate Professor

Bruce J. Crawford, B.Sc. (Vic.B.C.), M.D. (Br.Col.), Ph.D. (Wash.).

Associate Professors

Eric A. Accili, B.Sc., M.Sc., Ph.D. (Br.Col.); Carol-Ann M. Courneya, B.Sc. (Guelph), M.Sc. (W.Ont.), Ph.D. (Br.Col.); Norman W. Kasting, B.Sc. (Yale), Ph.D. (Calg.); Steven J. Kehl, B.Sc., M.Sc. (Ont.), Ph.D. (Br.Col.); Timothy J. Kieffer, B.Sc., Ph.D. (Br.Col.); Yin Nam Kwok, B.Sc. (Drake), Ph.D. (McG.); David A. Mathers, B.Sc. (Edin.), Ph.D. (Nott.); Edwin D. W. Moore, B.Sc., M.Sc. (Tor.), Ph.D. (Minn.); Timothy O'Connor, B.Sc., Ph.D. (Tor.); Calvin D. Roskelley, B.Sc. (Vic.B.C.), Ph.D. (Br.Col.); T. Michael Underhill, B.Sc., Ph.D. (W.Ont.).

Affiliate Associate Professors

Richard A. Lazenby, B.Sc., M.A. (S.Fraser), Ph.D. (McM.).

Assistant Professors

Douglas Allan, B.Sc. (Hon.), M.Sc. (Aberd.), Ph.D. (Alta.); Shernaz X. Bamji, B.Sc., M.Sc. (Tor.), Ph.D. (McG.); Kurt Haas, B.Sc. (Cornell), Ph.D. (Albert Einstein Coll. of Med.); James D. Johnson, B.Sc., Ph.D. (Alta.); Christopher Loewen, B.Sc., Ph.D. (Br.Col.); Hakima Moukhes, B.Sc. (Morocco), Ph.D. (Universite d'Aix, MarseilleII); Victor Viau, B.Sc. (Concordia), M.Sc., Ph.D. (McG.).

Clinical Assistant Professor

Harvey I. Halperin, B.Sc., M.D. (McG.).

Affiliate Assistant Professors

Catherine Gaul, B.Ed. (New Br), M.Sc. (S.Fraser), Ph.D. (Vic.B.C.); Kuo-Hsing Kuo, M.D., M.Sc. (Taiwan), Ph.D. (Br.Col.); Geoffrey W. Payne, B.Sc., M.Sc., Ph.D. (Mem., Nfld).

Instructors

Majid Doroudi, B.Sc., M.Sc., Ph.D. (Tehran); Pawel M. Kindler, B.Sc., Ph.D., (Ill.); Claudia Krebs, M.D., Ph.D. (Cologne, Germany); Barry Mason, B.Sc., Ph.D. (S.Fraser); Salma Osborne, B.Sc., M.Sc., Ph.D. (Br.Col.); Karen Pinder, B.Sc. (Guelph), Ph.D. (Cape T.).

Associate Members

Eugene C. Cameron, Medicine; Kevan Jacobson, Pediatrics; Joanne A. Matsubara, Ophthalmology; Tim Murphy, Psychiatry; Conrad Park, Pathology and Laboratory Medicine; Colin Price, Oral Medical and Surgical Sciences; Catherine Rankin, Psychology; Lynn Raymond, Psychiatry; Joy Richman, Oral Health Sciences; Chun Y. Seow, Pathology and Laboratory Medicine; Christopher Shaw, Ophthalmology; John D. Steeves, Zoology; David Sweet, Oral Medical and Surgical Sciences; Bruce Verchere, Pathology and Laboratory Medicine; Yu Tian Wang, Department of Medicine, Brain Research Centre.

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Lecturer

Majid Alimohammadi, B.Sc., M.Sc., Ph.D. (Tehran).

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Assistant Professors

Martha Donnelly, B.Sc., M.D. (W.Ont.), C.C.F.P., F.R.C.P.; Garry D. Grams, B.A., M.S.W. (Br.Col.), Ph.D. (Tor.); G.P. Human, M.B., Ch.B. (Stell.), A.C.L.S., L.M.C.C.; Eileen K. McNally Hutton, B.N.Sc. (Qu.), M.Sc.N., Ph.D. (Tor.); Karim Khan, B.Med.Sc., MBBS, Ph.D. (Melb.), FACSP; Christie Newton, B.Sc. (Qu.), M.D. (Qu.), L.M.C.C., C.C.F.P.; Roy J. Oakey, M.B., Ch.B. (Birm.); Ian Scott, B.Sc. (S.Fraser), M.Sc., M.D. (McM.), DOHS, C.C.F.P., FRCTC.

Instructors

Kim Campbell, B.Sc.N. (Alta.), R.M. (Alta.).

Clinical Professors

Ronald T. Abrahams, B.Sc. (McG.), M.D. (Qu.), C.C.F.P.; Robert A. Bluman, B.Sc., M.D. (Br.Col.), C.C.F.P.; Gordon Dickson, B.Sc., M.D. (Br.Col.); Duncan J. Etches, B.Sc., M.D. (Br.Col.), C.C.F.P.; Jeremy Etherington, B.A.Sc. (Leth.), M.D. (Calg.), C.C.F.P. (E.M.); Romayne Gallagher, B.Sc., M.D. (Br.Col.); Gary Gibson, M.D., C.C.F.P., F.C.F.P.; Susan Harris, M.D. (McM.), C.C.F.P.; Bent Hougesen, M.D., M.Sc. (Tor.), M.P.H., (Tulane), F.R.C.P.C., C.C.F.P.; Peter Kirk, M.D. (Scot.), C.C.F.P.; Eva Knell, B.Sc., M.D. (Br.Col.), C.C.F.P.; Donald R. Lloyd-Smith, B.A. (Qu.), M.D., C.M. (McG.); Peter J. Newbery, B.A. (Tor.), M.D. (McM.), C.C.F.P.; John P. Sloan, B.A., B.Sc., M.Sc., M.D. (Br.Col.), C.C.F.P.; Dale Stogryn, M.D. (Alta.), L.M.C.C., C.C.F.P.; Ellen R. Wiebe, M.D. (Br.Col.); J. Galt Wilson, M.D. (Br.Col.), C.C.F.P.; James Wilson, B.Sc., M.D. (Br.Col.), C.C.F.P.

Clinical Associate Professors

Granger R. Avery, M.B., B.S. (Lond.); Tom Bailey, B.Sc., M.D., (Br.Col.), C.C.F.P.; Hector Baillie, B.Sc. (Hon.), M.Sc., M.B., Ch.B. (Glas.); Niloofar Baria, B.Sc., M.D. (Br.Col.), C.C.F.P.; Daniel Beegan, B.Sc., M.D. (Br.Col.), C.C.F.P.; Dara Behrooz, MBBS (Lond.), C.C.F.P.; Jonathan Berkowitz, B.Sc., M.Sc. (Alta.), Ph.D. (Tor.); Peter W. Boronowski, B.Sc., M.D. (Br.Col.), C.C.F.P.; Howard Bright, B.Ed. (S.Fraser), M.D. (Br.Col.), C.C.F.P.; David R. Brook, M.D. (Sask.), C.C.F.P.; D. Alister Browne, B.A., M.A., Ph.D. (Br.Col.); Karen Buhler, B.Sc., M.D. (Br.Col.), C.C.F.P.; Alexander Burak, B.Sc., M.D. (Br.Col.), C.C.F.P.; Claire Cameron, B.Sc., M.D. (Br.Col.); Alfred T. Chan, B.Sc., M.D. (Br.Col.), C.C.F.P.; Trevor Corneil, B.A., M.D. (Qu.), C.C.F.P.; Richard Crow, M.Sc., M.D. (Br.Col.), C.C.F.P.; Alice M. Cumming, B.Sc., M.D. (W.Ont.), C.C.F.P.; George L. Deagle,

M.D., M.Cl.Sc. (W.Ont.), C.C.F.P., F.C.F.P.; Bernhard K. Dobovcnik, B.Sc., M.D. (Br.Col.), C.C.F.P.; Marjorie A. Docherty, M.B.Ch.B. (Aberd.); Mary J. Donlevy, B.S.N. (Alta.), M.D. (Calg.), C.C.F.P.; Helen S. Dougan, B.Sc., M.D. (Br.Col.), C.C.F.P.; G. Michael Downing, M.D. (W.Ont.); John Edworthy, B.Sc., M.D. (Br.Col.), C.C.F.P.; Jonathan P. H. Fine, M.B., B.S. (Lond.); Joseph Finkler, B.Sc., M.Sc., M.D., C.C.F.P. (EM); Michael Fitzmaurice, M.D. (Ott.), C.C.F.P.; Bradley Fritz, B.Sc., M.D. (Br.Col.), C.C.F.P.; Monte M. H. Glanzberg, B.Sc., M.D. (Br.Col.), C.C.F.P.; Peter Granger, M.D. (Tor.); Ian D. Gummeson, B.Sc. (Br.Col.), M.D. (Calg.), C.C.F.P.; Darlene Hammell, B.Sc., M.D. (Tor.); J. Kent Harris, B.Sc., M.D. (Alta.); Keith R. Hatlelid, B.Sc. (Calg.), M.D. (Br.Col.), C.C.F.P. (C); John R. Havens, M.D. (W.Ont.), C.C.F.P.; Sylvia L. Henderson, B.Sc. (Vic.B.C.), M.D. (Br.Col.), C.C.F.P.; Allen B. Hignell, M.D. (Br.Col.), C.C.F.P.; Kirk G. Hollohan, B.M.Sc., M.D. (Nfld.), C.C.F.P.; Frank Hou, B.Sc., Ph.D., M.D. (Br.Col.); William Irvine, M.D. (Br.Col.), C.C.F.P.; Joanne Irwin, B.Sc., M.Sc., M.D. (Qu.), C.C.F.P.; David V. Kason, B.Sc., M.D. (Br.Col.), C.C.F.P.; Jill Kernahan, M.D. (Manit.), C.C.F.P.; Colleen Kirkham, M.D. (Qu.); Gary Knoll, M.D. (Sask.); Peter Lake, M.D. (Calg.), C.C.F.P.; Eugene Leduc, M.D. (Br.Col.), C.C.F.P.; Neil G. Leslie, B.M.Sc., M.D. (Alta.), C.C.F.P.; Nirvair K. Levitt, B.Sc., M.B., Ch.B. (Zambia), C.C.F.P.; Bin K. Lim, B.Sc., M.D., C.M. (McG.), C.C.F.P.; Rhonda S. Low, B.Sc., M.D. (Br.Col.), C.C.F.P.; Donald C. MacDonald, B.Sc., M.D. (Tor.); Arthur J. Macgregor, M.D. (Br.Col.), C.C.F.P.; David W. MacKenzie, B.Sc. (Dal.), M.D. (Nfld.), C.C.F.P.; John W. Mackie, B.Sc., M.Sc. (Mich.), M.D. (Br.Col.), C.C.F.P.; Michael F. Madsen, M.B., B.S. (Lond.), C.C.F.P.; Walter J. Mail, M.D. (Tor.), C.C.F.P.; Michael Makin, M.B., Ch.B. (Cape T.); Rosemary Malleson, M.B., B.S. (Lond.); A. E. Manji, M.B., Ch.B. (Sheff.), C.C.F.P.; Ranbir Mann, B.Sc., M.D. (Manit.); Julian J. Marsden, B.Sc., M.D. (Qu.), C.C.F.P. (Em); Ruth Martin, M.D. (Br.Col.), C.C.F.P.; Garey Mazowita, M.D. (Manit.), C.C.F.P.; Gerald P. McFetridge, B.Sc., M.D. (Br.Col.), P.d.p. (S.Fraser), C.C.F.P.; Raymond McLwain, M.D. (Qu.), C.C.F.P.; Veronica McKinney, M.D. (Sask.), C.C.F.P.; Adi K. M. Mudaliar, M.D. (Br.Col.), C.C.F.P.; Philip A. Muir, M.D. (Br.Col.), C.C.F.P.; Warren D. Murschell, B.M.Sc., M.D. (Alta.), C.C.F.P. (E); Wendy Norman, M.D. (Qu.), C.C.F.P.; Barra F. O'Briain, B.Sc., M.D., C.M. (McG.), C.C.F.P.; Jeffrey L. Pooock, M.R.C.G.P., D.R.C.O.G. (Lond.), C.C.F.P.; Michael Puttick, B.Sc. (Ott.), M.D. (Tor.); Dietmar E. Raudzus, B.Sc., M.D. (Br.Col.), C.C.F.P.; Marianne Rev, B.A. (Tor.), M.D. (McM.), C.C.F.P.; Joan Robillard, M.D. (Manit.), C.C.F.P.; Peter A. Robson, M.B., B.S. (Lond.); Leonard W. Roy, M.D. (Sask.), C.C.F.P.; Kenneth Ryan, B.Sc. (Qu.), M.A.Sc., Ph.D. (Tor.), M.D. (Br.Col.), C.C.F.P.; Sharon Salloum, C.C.F.P.; Philip M. Sestak, B.A., M.D. (Sask.), C.C.F.P.; Stephen Shore, B.Sc. (Guelph), B.Med.Sc., M.D. (Nfld.), C.C.F.P.; Douglas K. Still, M.D.; James D. Stockhill, B.A. (Br.Col.), M.D. (McM.), C.C.F.P.; Thomas Suleiman, B.Sc. (Wurzburg), M.D. (Germany), C.C.F.P.; Thomas Teranishi, B.A., M.S.W. (Br.Col.); Harvey V. Thommasen, B.Sc. (McG.), M.Sc., M.D. (Br.Col.), C.C.F.P.; V. James Thorsteinson, B.Sc. (McG.), B.Sc. (Med.), M.D. (Manit.), C.C.F.P.; Gerrard Vaughan, M.D. (Br.Col.); Paul Walker, B.Sc. (McM.), M.D. (W.Ont.), C.C.F.P. (C); John H. Walton, M.D. (Br.Col.), C.C.F.P.; Karen Wanger, M.D.C.M. (McG.); Ronald Warneboldt, B.Sc., M.D. (Br.Col.), C.C.F.P.; James M. Warren, B.Sc. (Br.Col.), B.A., M.A., M.B., B.Chir. (Cantab.), C.C.F.P.; Christine Whittington, M.B., B.S., (Q'ld.), M.B.A., (Calg.), C.C.F.P.; Brian C. Willoughby, M.D. (W.Ont.), C.C.F.P.; Ronald A. Wilson, B.Sc., M.D. (Br.Col.), C.C.F.P.; Sandra Witherspoon, M.D. (W.Ont.), C.C.F.P.; Paul C. Wong, B.Sc., M.D., C.M. (McG.), C.C.F.P.; Thomas Wong, B.Sc., M.D. (Br.Col.), C.C.F.P.

Clinical Assistant Professors

Evan Adams, M.D., (Calg.); John M. Adams, M.B., Ch.B., M.R.C.P., (U.K.), D.L.O., D.C.H., C.C.F.P. (Canada); Stephen Adilman, B.Sc. (Guelph), M.D. (Br.Col.); Alistair J. Anderson, B.Sc., M.D. (Calg.), C.C.F.P.; Nancy J. Anderson, B.Sc. (McM.), M.D. (Calg.), C.C.F.P.; Carrie A. Armstrong, M.D. (Br.Col.), C.C.F.P., F.C.F.P.; Kathryn J. Atkinson, B.Sc. (S.Fraser), M.D. (Br.Col.), C.C.F.P.; Grant R. Ayling, B.Sc. (Vic., Well.), M.B., C.L.B. (Otago); Richard D. H. Backus, B.Sc., M.D. (Alta.); Richard D. H. Backus, B.Sc., M.D. (Alta.); Ray P. Baker, B.Sc., M.D. (W.Ont.), C.C.F.P., A.S.A.M.; Leon Bard, M.D. (Br.Col.), C.C.F.P.; Sally Barrio, B.Sc. (S.Fraser), M.D. (Br.Col.); Stephen R. Barron, B.Med.Sc., M.D. (Nfld.), C.C.F.P.; Doris Barwich, M.D. (Manit.), C.C.F.P., L.M.C.C.; Lynn Beck, B.Sc., M.D. (Manit.), C.C.F.P.; Erin B. Becker, M.D. (Calg.); Richard Bedell, B.Sc. (Br.Col.), M.D. (Br.Col.); Jeffrey H. Bell, M.D. (Sask.), C.C.F.P.; Antonio Benitez-Gomez, M.D. (Cordoba), C.C.F.P.; Winston Bishop, LRCP, S (I) (Dub.); Rainer Borkenhagen, B.M.E., M.D.C.M. (McG.), C.C.F.P.; Jan Bosman Burg, M.B., Ch.B. (Pretoria, S.Africa); Patricia Boston, M.A., B.A., Ph.D. (McG.), R.N. (N.Y.); Peter Bowen-Roberts, M.B., B.S. (Lond.), C.C.F.P.; Steven Broughton, M.D. (W.Ont.); Anne Bruce, B.S.N., Ph.D. (Br.Col.); Michael L. Buchanan, M.D. (W.Ont.), FRCP; Susan Burgess, M.D. (Qu.), C.C.F.P.; Denis E. Burke Burgess, B.A., M.A. (Br.Col.); Mary T. Burke-Burgess, M.B., B.Ch., B.A.O. (Ireland), C.C.F.P.; Judith I. Bus, B.A., M.D. (Br.Col.); Kathleen A. Cadenhead, B.Hec., M.D. (Br.Col.), C.C.F.P.; Peter R. Callegari, M.B., Ch.B. (Edin.); Kenneth Chan, B.Sc., M.D. (Br.Col.), C.C.F.P.; Bruce H. Chang, M.D. (Br.Col.); Cindy Chang, M.D. (Br.Col.); Terence Chang, B.Sc., M.D. (Br.Col.); Dalton Chen, M.B.ChB (Glas.); Dalton Chen, MBChB (Glas.); Lawrence Cheng, M.D. (W.Ont.), C.C.F.P.; Larry R. P. Collins, B.Sc., M.D. (Br.Col.); Gisele M. Comeau, M.D. (Dal.); Caroline Condon, M.B., Ch.B. (Liv.), D.O. (Eng.), C.C.F.P.; H. Douglas Cooper, B.Sc., M.D. (Calg.), C.C.F.P.; Mark Corbett, B.Sc., M.D. (Br.Col.); Linda J. Davidson, B.Sc., M.D. (Br.Col.), C.C.F.P.; Ronald R. Davidson, B.A., M.D. (Sask.); Joseph DeWet, M.B.Ch.B. (Pretoria); Bernhard K. Dobovcnik, B.Sc., M.D. (Br.Col.), C.C.F.P.; Alexander Dougall, M.B., Ch.B. (Glas.); Doug Drummond, B.A., M.D. (Western), C.C.F.P.; Sylvia Duceschi, M.D. (Ott.), C.C.F.P.; Desmond Dwyer, M.B., B.Ch., B.A.O. (Ireland), C.C.F.P.; Carmen Eadie, M.D. (Man.), C.C.F.P.; Charles T. Eckfeldt, B.A. (New Hamp.), B.Ed., M.D. (Br.Col.), C.C.F.P.; Charles T. Eckfeldt, B.A. (New Hamp.), B.Ed., M.D. (Br.Col.), C.C.F.P.; Allan Erickson, B.Sc., M.D. (Br.Col.), C.C.F.P.; Nora J. M. Erches, B.A., M.D. (Br.Col.), C.C.F.P.; Christian A. Fabriol, M.D. (Sask.), C.C.F.P.; Paul A. Farnan, M.B., B.C.L., B.A.O., D.Ch., B.Obs., LRCP, S (I) (Ireland), MPCGP, (U.K.), C.C.F.P.; Garry Feinstadt, B.Sc., M.D. (Tor.), C.C.F.P.; Steven Finkleman, M.D., F.R.C.P. (C); Jacqueline C. Fraser, M.B., B.Ch., B.A.O. (Belf.); Alister Frayne, M.B.Ch.B. (Cape T.); Gillian M. Fyles, B.Sc. (Tor.), M.D. (Manit.); Mark E. Gelfer, M.D. (Tor.), C.C.F.P.; Thomas Gibson, M.D. (Tor.); Rhona Gordon, B.Sc. (Dal.), M.D. (Br.Col.), C.C.F.P.; Peter Gorman, B.Sc. (Alta.), M.D. (Calg.); Kathy Greenberg, M.D. (Calif., San Fran.); Kathy Ann Greenberg, M.D. (Calif.); Samuel Gutman, B.Sc. (Br.Col.), M.D. (W.Ont.), A.C.L.S., C.C.F.P., L.M.C.C.C.; Catherine Hagen, M.Sc. (McG.), M.D. (Calg.), C.C.F.P.; Darlene M. Hammell, B.Sc., M.D. (Tor.); Kenneth K. Harder, B.Ed., M.D. (Sask.), C.C.F.P.; Robert A. Harpur, B.Sc. (E. Anglia), M.D., C.M. (McG.), M.H.Sc. (Br.Col.), C.C.F.P.; Devin Harris, M.D. (Br.Col.), C.C.F.P.; Mary P. Harrison, B.Sc., M.D. (Br.Col.); Catherine A. Harvey, M.D. (Br.Col.); James M. Hayward, B.A.Sc. (Tor.), M.D. (Ott.), C.C.F.P.; Mary C. Heffernan, M.D. (McM.); Colleen Hennessy, B.Sc. (Hon.) (St. F. Xav.), M.D. (Dal.); Ken Hirst, B.Sc., M.D. (Br.Col.); Thomas M. Ho, B.Sc. (Pharm.), M.D. (Br.Col.); Thomas Man-

Wai Ho, M.D. (Br.Col.); Trish Hopkins, B.Sc. (P.T.) (Br.Col.); Allan Horii, M.D. (Br.Col.); Bruce D. Horne, B.Sc., M.Sc., M.D. (Calg.), L.M.C.C., F.R.C.P. (C), F.A.C.C.; Colin H. Horricks, B.A., M.D. (Sask.), C.C.F.P.; Christopher Hunt, M.B.B.S. (Lond.); Brad C. Hunter, M.D. (Calg.); Georgia C. Immege, B.A. (Rice), M.D. (McM.); Jean Jamieson, B.A. (Qu.), M.D., M.H.Sc. (Br.Col.); Shamin Jetha, M.D. (Iran), C.C.F.P.; Azim Jiwani, M.D. (Uganda), C.C.F.P., F.C.F.P.; Campbell Johnston, B.Sc., M.Sc., M.B., Ch.B. (Cape T.); Mary T. Johnston, B.Sc., M.Sc., (McG.), M.D. (Dal.); Williard P. Johnston, M.D. (Calg.); Kathryn Gail Jones, M.D., C.M. (McG.); Ralph M. Jones, M.B., Ch.B. (Birm.); Daniel Kalla, B.Sc., M.D. (Br.Col.), C.C.F.P.; Rozmin F. Kamani, M.D. (Manit.), C.C.F.P.; Videsh Kapoor, B.Sc., B.Ed., M.D. (Br.Col.), C.C.F.P.; John C. Kennedy, B.Sc. (Guelph), M.D. (Calg.), C.C.F.P.; Atila H. Ketene, B.Sc., M.D. (Dal.); Charles King, M.D. (Tor.), C.C.F.P.; Charles King, M.D. (Tor.); Peter King, B.M.Sc., M.D. (Alta.); Jonathan Kline, M.D. (Br.Col.); Susan E. Knoll, M.D. (Sask.), C.C.F.P.; Barbara Kobierski, M.D. (Br.Col.), C.C.F.P., F.C.F.P.; Anthony Koelink, B.Sc. (Notre D.), M.Sc., M.D. (Br.Col.), C.C.F.P.; Jude Kornelsen, M.D. (Sask.), C.C.F.P.; Stephen A. Kurdyak, B.A., M.D. (Qu.), L.M.C.C.C., C.C.F.P.; James Lai, M.D. (Br.Col.), C.C.F.P.; Anthony P. Lane, M.B., B.Ch., B.A.O. (Nat'l., Ireland), L.M.C.C.C., C.C.F.P.; C. C. Lau, M.B., B.S. (H.K.), L.M.M.C.C., C.C.F.P.; Archie Lee-son, B.Sc. (Rhodes), M.B., Ch.B. (Cape T.); Robert M. Lehman, M.D. (Br.Col.), C.C.F.P.; Brahm Lerner, M.D.C.M. (McG.), C.C.F.P.; Donald A. Lewis-Watts, B.Sc. (Tor.), M.D. (Calg.); Krystaleah Lindsay, B.Sc., M.D. (Western); Lana Lipkowitz, M.D. (Manit.); Jodie L. Lippa, M.D. (Br.Col.), C.C.F.P.; Robin R. Love, B.Sc. (Vic. B.C.), M.D. (Br.Col.), C.C.F.P.; Peter Lutsky, B.Sc. (Alta.), M.D. (Br.Col.), C.C.F.P.; Jan Macphail, B.A. (Br.Col.), M.Sc. (W.Ont.), M.D. (McM.), C.C.F.P.; Donald MacRitchie, M.D.; Melanie L. Madill, M.D. (Br.Col.); Sunil Mangal, B.Sc., M.D. (Alta.), C.C.F.P.; Joy Masuhara, B.Sc., M.D. (Br.Col.), L.M.C.C.C., C.C.F.P.; Roderick L. McFayden, M.D. (Manit.), C.C.F.P.; Margaret J. McGregor, B.A. (McG.), M.D., M.H.Sc. (Br.Col.), C.C.F.P.; Gordon H. McIntyre, B.Sc., M.D. (Sask.); John D. McMorran, B.Sc. (Hon.), M.D., C.M., (McG.); Ivar C. Mickelson, B.A. (Sask.), M.D. (Br.Col.), C.C.F.P.; Michael M. Milewski, B.Sc., M.D. (Br.Col.); Elliot Mintz, M.D. (Tor.); Amita Modi, B.Sc., M.D. (Br.Col.), C.C.F.P., Dip. Sport Medicine; Michael Moran, B.Sc. (Br.Col.), B.A., M.A. (Oxf.), M.B., B.S. (Lond.), FR.C.S.C. (Br.Col.), C.C.F.P., F.C.F.P.; Brian Myhill-Jones, B.Sc., M.D. (Br.Col.), C.C.F.P.; Sheldon Nathanson, B.A., B.Sc., M.D. (Wayne State), C.C.F.P.; Alan J. Nixon, M.B., B.Ch., B.A.O. (Belf.), C.C.F.P.; Wendy Norman, M.D. (Qu.), C.C.F.P.; Fraser R. Norrie, M.D. (Manit.), C.C.F.P.; Mary Louise O'Driscoll, M.B., B.Ch., B.A.O., D.C.H., D.Obs., (Ireland), LRCP, S (I), C.C.F.P.; Heidi Otterter, M.D. (Br.Col.); Ray Orlando, M.D. (Alta.), C.C.F.P.; Sarah P. Ostler, B.Sc.P.T., M.D. (W.Ont.), C.C.F.P.; Veronic Ouellette, M.D. (Mont.), C.C.F.P.; Gurdeep Parhar, M.D. (Calg.); R. Keith Phillips, B.Sc., M.D. (Alta.), C.C.F.P.; William Phipps, B.Sc. (Vic.B.C.), M.D. (Br.Col.); Navin Prasad, B.Med.Sc., M.D. (Alta.), M.Sc. (Br.Col.); Morgan Price, M.D. (Alta.), C.C.F.P.; Richard J. Raymond, M.D. (Dal.); Donald Reed, M.B., Ch.B. (Cape T.), C.C.F.P.; Launette M. Rieb, B.Sc. (McG.), M.Sc. (Tor.), M.D. (McM.), C.C.F.P.; Michael Riesling, B.Sc., M.D., (Br.Col.), C.C.F.P.; Anthony H. Robinson, M.B., B.S. (Lond.); Alan Roche, B.Sc. (Surrey), M.S.W. (Liv.); Adrienne Ross, B.Sc. (Wales), Ph.D., M.D. (Br.Col.), C.C.F.P.; Conrad Rusnak, M.D. (Sask.), C.C.F.P.; Juy Russell, B.Ed., M.D. (Br.Col.), C.C.F.P.; Philip Rutherford, B.Sc., M.D., M.Sc. (Qu.), C.C.F.P.; John C. Ryan, B.Sc., M.D. (Br.Col.), C.C.F.P.; Luigi Salvino, M.D. (Br.Col.); James R. Salzman, M.D. (W.Ont.); Nelson Savein, B.Sc., M.D. (Tor.); Lee Saxell, M.A. (Thames V.), R.M.; Ian Schokking, M.D. (Tor.), M.Sc. (McG.),

C.C.F.P.; Mark Schonfeld, B.Sc., M.D. (Br.Col.); Gerhard Schumacher, B.Sc., M.D. (Br.Col.), C.C.F.P.; Andrew I. Sear, M.B.B.S. (Lond.); Basil Segal, M.B., Ch.B. (Cape T.), C.C.F.P.; John M. Sehmer, M.Sc. (Lond.), M.D. (Br.Col.), C.C.F.P.; Sachit Shah, M.B., Ch.B. (Manch.), C.C.F.P.; Maureen Sharko, M.D. (Alta.), C.F.P.C., C.C.F.P.; Richard D. Sherwin, B.A. (W.Ont.), M.D. (Tor.), C.C.F.P.; Jessica Shintani, B.Sc., M.D. (Br.Col.), C.C.F.P.; Laurel Shugarman, B.A. (Tor.), M.D. (McM.), C.C.F.P.; Laurel Shugarman, B.A. (Tor.), M.D. (McM.), C.C.F.P.; Dana A. Sinclair, B.P.E. (Br.Col.), M.A. (Miami), Ph.D. (Cantab.), Ph.D. (Ott.); Clyde Smith, B.Sc. (Oregon), Dip.p.t. (Alta.); John T. Smith, M.B., B.Ch. (Dub.), FRCPC; Lorie A. Smith, M.D. (Tor.), C.C.F.P.; Isaac Sobol, M.D. (Qu.), M.H.Sc. (Br.Col.), C.C.F.P.; Parmjit S. Sohal, B.Sc., M.Sc. (India), Ph.D. (Sask.), M.D. (Alta.), C.C.F.P., L.M.C.C.; Beverly Spring, M.D. (McM.); Andrew J. Stager, B.A., M.D. (Qu.), M.Sc. (Br.Col.), C.C.F.P.; Gordon Stahl, M.D. (Br.Col.), C.C.F.P.; Robert N. Stanley, M.D. (Br.Col.), C.C.F.P.; Carol L. Story, B.Sc. (Vic.B.C.), M.D. (Br.Col.), C.C.F.P.; Charles Sun, M.D. (Ont.), M.C.F.P.(EM), F.R.C.P.C.; Ann Martha Syme, RM, M.S.N. (Br.Col.); Thomas G. Taylor, B.Sc., M.D. (Br.Col.), C.C.F.P.; William R. Templeton, B.Sc., M.B., B.Ch., B.A.O. (Belg.), C.C.F.P.; Marco Terwiel, M.B., M.D. (Utrecht), C.C.F.P.; David Thomson, B.Sc., M.D. (Br.Col.), M.Sc. (S.Fraser), C.C.F.P.; Sharon Thomson, B.Sc. (Calif.), R.N. (Alta.); Gregory Toibert, M.D. (Br.Col.), L.M.C.C., C.C.F.P.; Kevin L. Tong, M.D. (Rio De Janeiro); Konia Trouton, B.Sc., M.D. (Qu.); Barbara Tully, B.Sc. (S.Fraser), M.D. (Br.Col.), C.C.F.P.; Sue A. Turgeon, M.D. (McM.), C.C.F.P.; Edgar R. Turski, M.D. (Br.Col.), C.C.F.P.; Johann Van Eeden, MBChB (Pretoria), C.C.F.P.; Peter Vizolyi, M.D. (Br.Col.), C.C.F.P.; M. Anne Wachsmuth, B.S.C.N. (Tor.), M.D. (McM.); George K. Watson, M.D. (Br.Col.); Paul N. Watson, B.Sc., M.D. (Br.Col.); Timothy Watterson, B.Sc., M.D. (Br.Col.), C.C.F.P.; Graham E. White, M.Sc. (Calg.), M.D. (Alta.), C.C.F.P.; Keith White, M.D. (Glas.); Lalya S. Wickremasinghe, B.Sc. (Regina), M.D. (Sask.); Carl Thomas Wiebe, M.D. (Manit.), C.C.F.P.; David G. Williams, B.Sc., M.D. (Br.Col.); Leslie G. Williams, M.D. (Sask.); Anthony B. Wilson, M.D. (Br.Col.), C.C.F.P.; John C. N. Wilson, M.B.B.S. (Lond.), C.C.F.P.; Kathleen Wilson, M.B., B.Ch. (Belg.); Danny H. K. Wong, B.Sc., M.D. (Br.Col.); Grover Wong, M.D. (Br.Col.), C.C.F.P.; Timothy Yeomans, B.Sc., M.D. (Br.Col.); Timothy Yeomans, M.D. (Br.Col.); Joanne Young, B.Sc. (Trent), M.Sc., M.D. (McM.), C.C.F.P.; Margery H. Zapf-Gilje, B.Sc. (McG.), M.D., (Br.Col.), C.C.F.P.

Clinical Instructors

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Mieke Koehoorn, B.Sc. (Dal.), Ph.D. (Br.Col.); Jean Francois Kozak, M.A., Ph.D. (Br.Col.); Steven Morgan, B.A. (W.Ont.), (M.A. (Qu.), Ph.D. (Br.Col.); Monica Naus, M.D. (Alta.), M.H.Sc. (Tor.), FRCP; Babak Pourbohloul, B.Sc., M.Sc. (Iran), Ph.D. (Laval); Robert Reid, B.Med.Sc., M.D. (Alta.), M.P.H., Ph.D. (Balt.); Jerry Spiegel, Ph.D., M.Sc., M.A. (McG.); Patricia Spital, B.A. (McM.), M.A. (Guelph), Ph.D. (McM.); Hubert Wong, B.A.Sc., Ph.D. (Br.Col.).

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Clinical Assistant Professors

Chris Badijk, Ph.D. (Br.Col.), M.Math (Wat.), B. Math (Wat.); Mark Bigham, M.H.Sc. (Br.Col.), M.D. (Qu.), B.Eng. (R.R.M.C.); Marilyn Borugian, B.A., M.Sc., Ph.D. (Br.Col.); G. Keith Chambers, B.Sc., M.D., M.H.Sc. (Br.Col.); John Farley, B.Sc. (Wat.), M.B.B.S. (Lagos); Murray Fyfe, B.Sc., (Vic.B.C.), M.D., (Br.Col.), M.Sc. (Ott.); Paul Hasselback, M.D., M.Sc. (Ottawa), C.C.F.P. (McG.), FRCP (Ottawa); Janet Heavyside-Schechter, B.Sc. (Concordia) D.O.H. (McG.), M.D. (Br.Col.) FRCP; Thomas Lampinen, M.D., B.A. (Chic.), MS (Ill.), Ph.D. (Wash.); Tim Lee, Ph.D. (S.Fraser), MSc. (Br.Col.), BSc. (Br.Col.); Heather Manson, M.H.Sc. (Br.Col.), MD (Br.Col.), BSc (Br.Col.); Mary McBride, B.A., M.Sc. (Br.Col.); Peter D. Riben, B.A., B.Ed. (Sask.), M.D. (Calg.), M.H.Sc. (Br.Col.); Vicki Scott, B.Sc.N., Ph.D. (Vic.B.C.).

Senior Instructor

Gary Poole, B.A. (Br.Col.), M.A. (San Diego), Ph.D. (S.Fraser).

Adjunct Professors

Jack Altman, B.Sc. (McG.), M.A. (W.Ont.), Ph.D. (Chic.); Nelson Ames, B.Sc. M.D. (McM.), M.H.Sc. (Br.Col.), C.C.F.P.; Michael Arbogast, M.B.A. (Qu.),

B.Sc.(Econ.) (Trent); Gillian Arsenault, B.Sc., (S.Fraser), M.D., M.H.Sc. (Br.Col.), C.C.F.P., IBCLC, FRCPC; Rolando Barrios, M.D. (San Carlos, Guatemala), FRCPC; Maria Barroetavena, M.D. (Buenos Aires), M.H.Sc. (Br.Col.), Ph.D. (Br.Col.); Alex Berland, Dip. Nursing (Selkirk), B.Sc.N., M.Sc. (Br.Col.); David W. Birnbaum, B.A. (Calif., Berkeley), M.P.H. (Minn.), Ph.D. (Br.Col.); Robert Breen, B.Sc. (St. Mary's), M.Sc. (Br.Col.); Edward Bruce, M.A. (Regina); Frances Caruth, B.Sc. (Tor.), M.Sc. (Br.Col.); Mark Chase, B.Sc. (Mt. All.), M.Sc. (Br.Col.), C.H.E.; Kathryn Copeman-Stewart, B.Sc. N. (Tor.), M.P.A. (Harv.); Farid Damji, B.Sc., M.H.A. (Br.Col.); Philip Owen Davies, B.Sc. (Guelph), D.V.M., Ph.D. (Lond.); Ian Forbes, B.A.Sc., M.H.Sc. (Br.Col.), M.D. (Calg.); Stephen J. Gray, M.D. (Ott.), B.Sc., M.H.Sc. (Br.Col.); Trevor Hancock, B.Sc., B.S., M.B. (Lond.), M.H.Sc. (Tor.); Bruce Harber, B.A. (Car.), M.H.A. (Ott.), B.A. (St. Par's Coll.); Philip Hassen, B.Sc. (Wayne State), M.P.H. (Mich.); Gerald L. Hastings, B.Com., M.Sc. (Br.Col.); Andrew G. Hazlewood, B.A. (Ryerson); Neva Hilliard, M.H.Sc. (Tor.), M.D. (Nfld.), LMCC, FRCPC, MRO; Marcus J. Hollander, B.A. (McG.), M.A. (Hawaii), M.Sc. (Br.Col.), Ph.D. (Vic.B.C.); David Hsu, B.Sc., M.Sc., M.D. (Br.Col.); Tracy D. Irwin, B.A., M.H.A. (Br.Col.); Andrew Jin, M.D. (Tor.), M.H.Sc. (Br.Col.); Michael Johnson, B.Sc., M.H.Sc. (Tor.), M.B.A. (Br.Col.); Elizabeth Kallstrom, B.Sc., M.Sc. (Br.Col.); Barbara A. Kaminsky, B.A., M.S.W., M.Sc. (Br.Col.); Ann Kelly, B.Sc. (Mt. St. Vin.), M.P.H. (Wash.); Stephen Kenny, B.Sc. (Dal.), M.H.S.A. (Alta.); Arlene King, B.Nursing (Tor.), M.D. (McM.), FRCPC, C.C.F.P., M.H.Sc. (Br.Col.); James Lu, B.Sc., M.H.Sc., M.D. (Br.Col.); Hugh MacLeod, M.A. (R.R.M.C.); Michael D. Mahony, B.Com. (Liv.), F.C.A., Dip. in H.O.M.; J. David Martin, M.D. (Tor.), Cert. in Hospital Admin. (Sask.), M.H.Sc. (Br.Col.); Paul Martiquet, B.Sc., Ph.D., M.D., C.M. (McG.), M.H.Sc., C.C.F.P. (Tor.), FRCPC; Anne McFarlane, M.A. (Tor.), M.Sc. (Sask.); Patrick McGowan, B.A., M.S.W., Ph.D. (Br.Col.); Mark McLean, M.Sc., M.D. (Ott.); William G. Meekison, B.A., M.D. (Br.Col.), D.P.H. (Tor.), FRCP; Dora Nicinski, B.S.N., M.Sc. (Br.Col.); Myles Noël, B.Comm. (Hons.) (Qu.), M.B.A. (Northland); Brian A. O'Connor, M.D., M.H.Sc. (Tor.); Ellen Pekeles, B.Sc. (Tor.), M.H.A. (Ott.); Larry Peters, B.A. (Vic.B.C.), M.A. (Guelph), Ph.D. (Sask.); Peter D. Riben, B.A., B.Ed. (Sask.), M.D. (Calg.), M.H.Sc. (Br.Col.); David C. Richardson, B. Comm. (Br.Col.), M.H.A. (Minn.); Etta L. Richmond, C.G.A. (Br.Col.), Dip. Hosp. Organ. and Management; Lorna Romilly, B.A., M.Sc. (Br.Col.); Laurie J. Soloway, B.Ed. (Regina), M.Ed. (Alta.), LL.B. (Vic.); Barry W. Stevenson, B.Sc. (S.Fraser), M.Sc. (Health Services Planning) (Br.Col.); Greg Stump, B.Sc., M.Sc. (S.Fraser), M.H.A. (Ott.); Darrell Thomson, B.A. (Sask.), M.A. (Regina); Sharmen Vigouret, Cipl. Medical Laboratory, (B.C.I.T.), B.M.L.Sc., M.H.A. (Br.Col.); Dennis Wardman, M.D., FRCPC; Richard Woo, B.Comm. (Br.Col.), C.G.A., C.H.E.; Charles J. Wright, M.B., Ch.B. (Glas.), M.Sc. (McG.), FRCS.

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Clinical Associate Professor

M. E. Suzanne Lewis, B.Sc., M.D. (W.Ont.), FRCPC, F.A.A.P., F.C.C.M.G.

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Chieko Chijiwa, M.Sc. (S.Lawrence, N.Y.), B.Sc. (McG.), Queb.), Genetic Counsellor, C.G.C.; Christele du Souich, B. Sc., M.Sc. (McG.), Genetic Counsellor, CCGG, CGG; Emily Dwosh, B.Ed. (McG.), M.Sc. (Br.Col.), Genetic Counsellor, CCGG; Kim Gall, B.Sc. (W.Ont.), M.Sc. (Br.Col.), Genetic Counsellor, CGG; Colleen Guimond, B.Sc. (Guelph), M.Sc. (Br.Col.), Genetic Counsellor, C.G.C., M.S.C.S.; Sara Jane Hamilton, B.Sc. (Lakehead), M.Sc. (Br.Col.), Genetic Counsellor, CCGG; Gurdip K. Hulait, B.Sc., M.Sc. (Br.Col.), Genetic Counsellor, CGC, CCGG; Jane Hurlburt, B.Sc. (Br.Col.), M.Sc. (McG.), Genetic Counsellor, R.N., CCGG; Pardeep Kaurah, B.Sc. (UA), M.Sc. (McG.), Genetic Counsellor, CCGG; Stephanie Kieffer, B.Sc. (Br.Col.), M.S. (Sarah Lawrence), Genetic Counsellor, CGC, CCGG; Janet Livingston, B.Sc. (Br.Col.), M.Sc. (Br.Col.), Genetic Counsellor, CCGG; Natasha MacPhee, B.Sc. (St. Mary's), M.Sc. (McG.), Genetic Counsellor; Sarah McIntosh, B.Sc. (Vic.B.C.), M.Sc. (Br.Col.), Genetic Counsellor, CCGG; Kirsten Meagher, B.Sc. (Br.Col.), M.S. (Sarah Lawrence), Genetic Counsellor, CGC; Tracey Oh, B.A. (Hons.) (W.Ont.), M.Sc. (S.Lawrence, N.Y.), Genetic Counsellor; Patricia Power, B.Sc. (Mun.), M.Sc. (Br.Col.), Genetic Counsellor, CCGG; Yolanda Ridge, B.Sc. (Alta.), M.Sc. (Br.Col.) Genetic Counsellor, CCGG, CGG; Rosemarie Rupp, B.Sc. (Sask.), M.Sc.(McG.),

Genetic Counsellor, CGC; **Karan Sangha**, M.Sc. (Br.Col.), B.Sc. (Br.Col.), Genetic Counsellor, C.C.G.C.; **Jennifer Scott**, B.Sc. (Qu.), M.S. (S.Lawrence), Genetic Counsellor, C.G.C.

Associate Members

Jehanne Austin, Psychiatry; **Hugh W. Brock**, Zoology; **Marion B. Coulter-Mackie**, Pediatrics; **Sandra E. Dunn**, Pediatrics; **Thomas A. Grigliatti**, Zoology; **Douglas Horsman**, Pathology and Laboratory Medicine; **R. Keith Humphries**, Medicine; **David Huntsman**, Pathology and Laboratory Medicine; **Peter M. Lansdorp**, Medicine; **Deborah E. McFadden**, Pathology and Laboratory Medicine; **Tanya Nelson**, Pathology & Laboratory Medicine; **Evica Rajcan-Separovic**, Pathology and Laboratory Medicine; **Dorothy Shaw**, Obstetrics and Gynaecology; **Sandra Sirrs**, Endocrinology; **Fumio Takei**, Pathology and Laboratory Medicine; **Hilary Vallance**, Pathology and Laboratory Medicine.

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Clinical Professors

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Catherine Allaire, M.D. (Queb.), FRCSC; Jan E. Christilaw, B.Sc. (Wat.), M.D. (McM.), FRCSC; Jonathan L. Cope, B.A. (Cantab.), M.B. (Lond.), FRCSC; Jerome Dansereau, M.D. (Montr.), FRCSC; Alain Gagnon, M.D. (Sherbrooke), FRCSC; Matthew M. Garrey, M.B., B.Ch. (Alta.), FRCSC; Glenn H. Gill, M.D. (Dal.), FRCSC; Yamuna Kalyanpur, M.B., B.S. (India), M.R.C.O.G., FRCSC; Lorena J. Kanke, M.D. (Br.Col.), FRCSC; Nancy Kent, M.D. (W.Ont.), FRCSC; Gary E. J. Kinney, B.Sc. (McM.), M.D. (W.Ont.), FRCSC; Kenneth Lim, M.D. (Br.Col.), FRCSC; Vincent C. Scali, M.D. (McG.), FRCSC; Lynn Simpson, M.D. (W.Ont.), FRCSC; Waldemar G. Unger, M.D. (Br.Col.), FRCSC; David H. L. Wilkie, M.D. (Br.Col.), FRCSC.

Clinical Assistant Professors

Dena Bloomenthal, B.Sc. (Vict.), M.D. (Alta.), FRCSC; Marie-France Delisle, M.D. (Laval), FRCSC; Ellen M. Giesbrecht, M.D. (Calg.), FRCSC; Madhu Gupta, M.B. (Kanpur), FRCSC; Stephen Hudson, M.B., Ch.B. (Cape T.), FRCSC; Alan P. Hunt, M.D. (Johannesburg), FRCSC; Elisabet A.E. Joa, B.Sc., M.D. (Br.Col.), FRCSC; Sayrin Lalji, M.D. (Br.Col.), FRCSC; J. David Mathews, M.D. (W.Ont.), FRCSC; Elissa J. McMurttrie, M.D. (Br.Col.), FRCSC; Debra Millar, B.Sc., M.D. (Br.Col.); Nancy L. Mitenko, B.Sc., M.D. (Calg.), FRCSC; Caroline P. Mueller, M.D. (Alta.), FRCSC; Sheila M. Pride, M.D. (Dal.), FRCSC; Jacqueline Purcell, M.D. (Br.Col.), FRCSC; Shirley A. Reimer, M.D. (Ott.), FRCSC; Mark I. Rosengarten, M.B., B.Ch. (Johannesburg), FRCSC; Valerie Rychel, M.D. (McG.), FRCSC; Jacquelynn Schouls, M.D. (Alta.), FRCSC; Petra Selke, M.D. (Br.Col.), FRCSC; Dale Steele, M.D. (N.S.), FRCSC; Julianne E. Stone, M.D. (Dal.), FRCSC; Francine Tessier, M.D. (Queb.), FRCSC; Sydney Thomson, M.D. (Br.Col.), FRCSC; Dorothy C. Tier, R.N.; John Turner, M.B.B.S. (Lond.), FRCSC; Christina Williams, M.D. (Barcelona), FRCSC; Henry Woo, M.D. (W.Ont.), FRCSC.

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(Emory), FRCSC; John G.M. Robertson, B.Sc., M.D. (Br.Col.), FRCSC; Helen J. Robson, M.D. (Man.), FRCSC; Robert P.A. Roy, M.D. (Man.), FRCSC; J. Dewaal Smith, M.B.Ch.B. (Pret.), FCOG; D. Keith Still, M.D. (Alta.), FRCSC; Jagdeep Ubhi, M.D. (Sask.), FRCSC; Douglas Waterman, M.D. (Alta.), FRCSC.

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Adjunct Professor

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Research Associates

Jean Cui, M.D. (P.R. China); Ljubomir Kojic, Shiv Prasad, B.Sc. (Guyana), Ph.D. (Br.Col.).

Adjunct Clinical Assistant Professor

Susan Lewallen, M.D. (Colorado), B.Sc. (Calif.), FRCSC.

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Christine M. Alvarez, B.Sc. (Victoria), M.Sc. (Br.Col.); Charles G. Fisher, M.D., FRCSC; Donald S. Garbuz, M.D., C.M. (McG.), FRCSC; Nelson V. Greidanus, M.D. (Alta.), FRCSC; Pierre Guy, M.D., C.M. (McG.), MBA, FRCSC; Brian K. Kwon, M.D. (Queens), Ph.D. (Br.Col.), FRCSC; Robert G. McCormack, M.D. (Qu.), Dip.Sport.Med., FRCSC; William D. Regan, M.D., (Tor.), FRCSC; Bonita J. Sawatzky, B.P.E., M.P.E. (Br.Col.), Ph.D. (S.Fraser); Keith A. Stothers, M.D. (Br.Col.), FRCSC; David R. Wilson, B.Eng (McG.), D.Phil. (Oxon.).

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Clinical Professors

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Clinical Associate Professors

Henry M. Broekhuysse, M.D. (Tor.), FRCSC; Iain G. Dommissie, M.B., Ch.B. (S.Africa), FRCSC; Hubert E. Hawk, B.A. (Case Western Reserve), M.D. (Dal.), M.Sc. (Br.Col.), FRCSC; Graham C. Pate, B.A.Sc. (Br.Col.), M.D. FRCSC; Donald G. Werry, M.D., FRCSC; Paul H. Wright, M.D. (W.Ont.), FRCSC.; Alastair S. E. Younger, M.B., Ch.B. (Aberd.), M.Sc., Ch.M., FRCSC.

Clinical Assistant Professors

Paul B. Bishop, M.D. (Calg.), Ph.D. (Br.Col.); Thomas J. Goetz, B.Sc. Eng., B.Sc., M.D. (Qu.), FRCSC; Andrew Hepburn, M.B., Ch.B., L.M.C.C., FRCSC; Simon G. D. Horlick, B.Sc., LMCC, M.D. (Qu.), FRCSC; Gerard M. McKenzie, M.D., FRCSC, B.Sc. (Br.Col.); Murray J. Penner, B.Sc. (Man.), M.D. (Calg.) FRCSC; Bertrand H. Perey, B.Ch., M.D. (Dal.), FRCSC; Kevin J. Wing, M.D. (Br.Col.), FRCSC.

Clinical Instructors

Christopher Bailey, B.P.E. (Ont.), M.D. (Ont.); J.F. Myles Clough, M.B., Ch.B. (Oxf.), FRCSC; Kenneth Kousaie, M.D. (Ott.); Jordan M. Leith, B.Sc. (Br.Col.), M.Sc. (Chic.), M.D. (Br.Col.), FRCSC; Randall Loch, M.D. (Manit.); Kishore Mulpuri, M.B.B.S. (India), M.S. (India); Kostas Panagiotopoulos, B.Sc. (Queens),

M.D. (Tor.); Donna Smith, B.Sc. (Br.Col.), M.D. (Br.Col.), FRCSC.

Adjunct Professors

James A. McEwen, B.A.Sc., Ph.D. (Br.Col.), P.Eng., Mem.I.E.E.E., Mem. A.A.M.I., Mem. C.M.B.E.S.; Gail M. Thornton, B.Sc., M.S.M.E., Ph.D. (Calg.), P.Eng.

Associate Members

Bernard H. Bressler, B.Sc. (Sir Geo. Williams), M.Sc., Ph.D. (Manit.); Peter A. Crompton, B.Sc. (Dal), B.Eng. (Tuns), M.Sc. (Eng.), Ph.D. (Qu.); Karim M. Khan, MBBS, B.Med.Sc., Ph.D. (Melb.); Peter Munk, B.Sc., M.D., C.M. (McG.), FRCPC.

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Professors

Michael Allard, B.Sc., MD (Br.Col.), FRCPC; Samuel Aparicio, B.A. (Camb.), BN B.Ch. (Oxf.), Ph.D. (Camb.), MA (Camb.); Donald E. Brooks, B.Sc., M.Sc. (Br.Col.), Ph.D. (Oregon); Elizabeth Bryce, B.Sc., (Regina), M.D., Ph.D., (Sask.), FRCPC; Andrew M. Churg, A.B. (Col.), M.D., Ph.D. (Chic.); Nevio Cimolai, B.Sc., M.D. (Alta.), FRCPC; Philip B. Clement, M.D. (Br.Col.), A.P.; Dana Devine, B.A., M.A. (Boston), Ph.D. (Duke); James E. Dimmick, M.D. (Br.Col.), FRCPC; Katerina Dorovini-Zis, M.D. (Athens); Allen Eaves, B.Sc. (Acadia), M.Sc., M.D. (Dal.), Ph.D. (Tor.), FRCPC, FACP; Jiri Frohlich, M.D. (Prague), FRCPC; Colin Fyfe, B.Sc., Ph.D. (Scotland), F.R.S.C.; Blake Gilks, B.Sc. (New Br.), M.D. (Dal.); William J. Godolphin, B.Sc. (Manit.), Ph.D. (Alta.), FACP; Shizu Hayashi, B.Sc., M.Sc. (Br.Col.); Richard Hegele, M.D. (Tor.), Ph.D. (Br.Col.), FRCPC; Judith L. Isaac-Renton, M.D., D.P.H. (Tor.), FRCPC; Gerald Krystal, B.Sc., M.Sc., Ph.D. (McG.); Victor Ling, B.Sc., Ph.D. (Br.Col.); Gillian Lockitch, M.B., Ch.B., M.D. (Cape T.), FRCPC; Ian Mackenzie, B.Sc., M.D. (W.Ont.), FRCPC; Alexander B. Magil, B.Sc. (McG.), M.D. (Qu.), FRCPC; Bruce McManus, B.A. (Sask.), M.Sc. (Penn. State), Ph.D. (Toledo), M.D. (Sask.), FRCPC, FACP, FACC; Michael A. Noble, B.A., M.D. (W.Ont.), FRCPC; David Owen, M.B. (Wales), FRCPC; Martin Petric, B.Sc., M.Sc. (McM.), Ph.D. (Br.Col.); Haydn Pritchard, B.Sc., Ph.D. (Nott.); Jack Rootman, M.D. (Alta.) F.R.C.S., C.R.C.P.(C); William E. Schreiber, B.A. (Ohio), M.D. (Houston); Poul Sorensen, B.Sc., M.D., Ph.D. (Br.Col.); Fumio Takei, B.Sc. (Tokyo), Ph.D. (Br.Col.); Joanne L. Wright, B.Sc., M.D. (Alta.), FRCPC; Herman Ziltener, Pd.D. (Freib.)

Associate Professors

Cedric Carter, M.B., B.S. (Lond.), M.R.C.P. (U.K.), FRCPC; Janet K. Chantler, B.Sc. (St. And.), Ph.D.

(Glas.); David Huntsman, M.D. (Nfld.); Aly Karsan, B.A., M.D. (Qu.); Niamh Kelly, B.A., Ph.D. (Dub.); Mel Krajdjen, B.Sc., M.D. (McG.), FRCPC; John R. O'Kusky, B.Sc. (Loyola), M.Sc. (Ott.), Ph.D. (Laval); Thomas J. Podor, B.Sc. (W.Ont.), M.Sc., Ph.D. (S.Calif.); David Seccombe, M.Sc. (W.Ont.), M.D. (Calg.), Ph.D. (Br.Col.); Chun Seow, B.Sc. (Manit.), Ph.D. (Manit.); Joseph Y. C. Tai, B.Sc. (McM.), M.Sc., Ph.D. (Dal.); Rusung Tan, B.Sc., M.D. (Br.Col.), FRCPC; Bruce Verchere, B.Sc., M.Sc., Ph.D. (Br.Col.); David Walker, B.A., M.A. (Calif., Santa Barbara), Ph.D. (Br.Col.); Valerie White, B.Sc., M.D. (Nfld.), FRCPC (Joint appointment with Department of Ophthalmology); Decheng Yang, M.Sc., Ph.D. (Ill.)

Assistant Professors

Brett Casey, B.A. (Claremont, Calif.), M.D. (Texas); Helene Cote, B.Sc. (Laval), Ph.D. (Br.Col.); Jason Ford, M.D. (Br.Col.), FRCPC; David Granville, B.Sc. (S.Fraser), Ph.D. (Br.Col.); John Hill, B.M.L.Sc., M.Sc., Ph.D. (Br.Col.); Jayachandran Kizhakkedathu, B.Sc. (India), M.Sc. (India), Ph.D. (India); Honglin Luo, M.S. (W. China), M.D. (Chong-qing); Torsten Nielsen, B.Sc. (Br.Col.), Ph.D., M.D., C.M. (McG.), FRCPC; Corinne S. L. Ong, B.Sc. Ph.D. (Birm.); Maureen O'Sullivan, B.Sc. (Ireland), MB.BCh.BAO, MD (Ireland); Erica Rajcan-Separovic, M.Sc., Ph.D. (Belgrade); Cheryl Wellington, Ph.D. (Br.Col.), B.Sc. (Alta); Andrew Weng, B.Sc. (Stan.), M.D. (Chic.), Ph.D. (Chicago).

Clinical Professors

Marcel Bally, B.Sc., M.Sc. (Texas), Ph.D. (Br.Col.); Diponkar Banerjee, FRCPC, Ph.D. (Ott.), M.B.Ch.B. (Makereve Med Sc.); Vagn Bonnevie-Nielsen, M.D., D.M.Sc. (Copenhagen); Richard Crawford, B.Sc., M.D. (Br.Col.), FRCPC; Bakul Dalal, M.B., B.S., M.D. (India); Jorge Denegri, M.S. (Argentina), FRCPC; Arun K. Garg, B.Sc. (Agra), M.Sc. (Agra), Ph.D. (Sask.), M.D. (Br.Col.); Randy Gascoyne, B.Sc., M.D. (Br.Col.); Allen Gown, B.S. (N.Y.), M.D. (Yeshiva); Gershon H. Growe, M.D. (Tor.), FRCPC; Malcolm Hayes, M.B., Ch.B. (Rhodesia); David Hoar, B.Sc. (Br.Col.), Ph.D. (Calif., Davis); Douglas E. Horsman, M.D. (Sask.), FRCPC; Edward C. Jones, B.Sc. (S.Fraser), M.D. (Br.Col.), FRCPC; James Kelly, M.B., B.Ch. (Galway); Michael T. Kelly, B.Sc. (Purdue), M.D., Ph.D. (Indiana); Steven Kleinman, Ph.D. (M.I.T.), M.D. (Calif., San Diego); Mladen Korbelik, B.Sc., M.Sc., Ph.D. (Zagreb); Deborah McFadden, B.A. (Minn.), M.D. (Calg.); Wayne Moore, B.Sc. (Nfld.), M.D. (McG.), FRCPC; Robert O'Connor, M.B., B.Ch., B.A.O. (Dub.), FRCPC; Michael O'Shaughnessy, B.Sc., M.Sc. (N.Y.), Ph.D. (Dal.); Jaakko T. Pantzar, Lic.Med. (Finland), FRCPC, F.C.C.M.G.; Morris Pudek, B.Sc. (S.Fraser), Ph.D. (Br.Col.); Diane Roscoe, B.S. (Penn. State), M.S. (Thomas Jefferson), M.D.; Frances M. Rosenberg, M.D., Ph.D. (Dal.); Miriam Rosin, B.Sc. (Sask.), Ph.D. (Tor.); Mark Scott, B.A., M.A. (Colorado), Ph.D. (Minn.); Christopher Sherlock, M.B., B.S. (Lond.), F.R.S.M., L.M.C.C.; Eva Thomas, B.Sc., M.D. (Sweden), FRCPC; Louis D. Wadsworth, M.B., Ch.B. (Manc.), FRCPC.

Clinical Associate Professors

Nigel Ball, M.D. (St.M.); Kenneth Berean, B.Sc., M.D. (Alta.); Edith Blondel-Hill, B.Sc., M.D. (Alta.); Gregory Bondy, B.Sc., M.Sc., M.D. (W.Ont.), FRCPC; Thomas Cooney, M.B., B.Ch. (Ireland), M.R.C.P.(I), M.R.C.P. (Eng.), FRCPC; Patrick Doyle, M.D. (Br.Col.); FRCPC; John English, B.Sc. (W.Ont.), M.D. (Calg.), FRCPC; Douglas Filipenko, B.Sc., (S.Fraser), M.Sc., (Alta.), M.D., (Br.Col.); Sweeney Han Goh, B.Sc., M.Sc., Ph.D. (Manit.); Dennis Grant, M.D. (Alta.), FRCPC; Laurel Gray, B.Sc. (Tor.), M.D. (Qu.), FRCPC; Lawrence Haley, M.D. (Br.Col.); Anne C. Halstead, M.D. (Tor.); Maria Issa, B.Sc. (P.E.I.), Ph.D., M.Sc. (Br.Col.); Gareth P. Jevon, M.B., Ch.B. (Cape

T.); Calum E. MacAulay, B.Sc., M.Sc. (Dal.), Ph.D. (Br.Col.); John Maguire, M.B., B.Ch., B.A.O. (Dub.); Bonnie Massing, B.Sc., M.D. (Finland), R.T.; Jasenka P. Maticic, M.D. (Zagreb); Muhammad Morshed, B.Sc., M.Sc. (Dhaka), Ph.D. (Yamaguchi); John X. O'Connell, M.B. (Ireland), FRCPC; David Pi, M.B.B.C. (H.K.), FRCPC; Susan D. Porter, B.Sc. (New Br.), Ph.D. (Br.Col.); Robert Power, M.B., B.Ch., B.A.O. (Ireland); Edward L.G. Prydzial, B.Sc., Ph.D. (Tor.); Nadine Urquhart, B.Sc., Ph.D. (Br.Col.); Hilary Vallance, M.D. (Br.Col.); Blair Walker, B.Sc., (Vic.B.C.), M.D. (Br.Col.); Karen J. Whitlow, B.Sc. (S.Fraser), M.Sc. (Ott.), Ph.D. (Br.Col.).

Clinical Assistant Professors

Brian Berry, B.Sc. (St.F.X.), M.D. (Ott.), FRCPC; Banami Bhaumick, B.Sc., M.Sc. (Calc.) Ph.D. (McG); Helene Bruyere, M.Gen., M.D. (Saint-Etienne, France); Sylvie Champagne, M.D. (Sher.), FRCPC; Mukesh Chanabhai, M.B.Ch.B. (Z'bwel.); Jennifer Davis, B.Sc., M.B., B.S. (Aust.); Monika Huboda de Bady, M.D. (Czechoslovakia), FRCPC; Valerian Dias, M.Sc., Ph.D. (Calg.); David Ferguson, B.Sc., M.D. (Alta.), FRCPC; Julia Flint, B.Sc., M.B., Ch.B. (Cape T.), FRCPC (Br.Col.); Deborah Griswold, B.Sc., M.D. (Br.Col.), FRCPC; Glenda Henderson, B.Ch., M.B. (Witw.), FRCPC; Janet Holden, M.D. (Sask.), FRCPC; Jaelyn Hung, B.Sc. (P.E.I.), Ph.D., M.Sc. (Br.Col.); Hugh D. Jones, B.Sc., M.D. (Alta.); Samuel Krikler, M.B., Ch.B. (Rhodesia), L.R.C.P., M.R.C.S. (U.K.); Wan Lam, B.Sc., M.Sc. (Alta.), Ph.D. (Dal.); James Fergal Magee, B.A., B.A.O., B.Ch., M.B., (Dub.); Anil Mangal, M.D. (Fiji), FRCPC; Justin Martin, M.B., B.Ch., BAO (Belf.), FRCPC; Magdalena Martinka, M.D. (Lublin), FRCPC; Elisabeth Maurer, M.Sc., Ph.D. (Graz); Michael McNeely, B.Sc. (Vic.B.C.), M.D. (Manit.), FRCPC; Thomas Mock, B.Sc., M.Sc., Ph.D. (Manit.); Douglas Morrison, B.Sc., M.D. (Calg.), FRCPC; Tanya Nelson, Ph.D. (Br.Col.); Mike Nimmo, B.A., B.Sc. (Qu.), LLB (W.Ont.), M.D. (Br.Col.); Steven Rasmussen, M.D. (Colorado); Marc Romney, B.Sc. (Alta.), M.D. (W.Ont.), D.T.M.&H (Lond., UK); Craig Smith, B.Sc., M.Sc. (Br.Col.); Susan Tha, M.D., (Br.Col.), Ph.D., (McG.); Thomas Thomson, B.Sc., M.D. (Br.Col.); Dirk J.T. van Niekerk, M.B., Ch.B. (Pret.), FRCPC; Paula Waters, B.Sc., Ph.D. (Bath); Hadi Yaziji, M.D. (Damascus School of Med.); Haishan Zeng, B.Sc., M.Sc. (Beijing), Ph.D. (Br.Col.); Peter Zetler, B.Sc., M.D. (Cape T.), FRCPC.

Senior Instructor

Carol Park, B.Sc., M.Sc. (Br.Col.), Ph.D. (Tor.).

Instructors

Amanda Bradley, B.Sc., Ph.D. (Br.Col.); Maria Victoria Monsalve, B.Sc. (Los Andes, Columbia), Ph.D., M.Sc. (Sao Paulo, Brazil).

Clinical Instructors

Terry C. Bainbridge, M.D. (Br.Col.); Sharon Boone, B.Sc. (New Br.), B.M.S., M.D. (Nfld.), FRCPC; Suzanne Chan, BSc, MD (Alta), FRCPC; Larry Cheevers, B.D.S. (Dub.), D.D.S. (Tor.), Dipl. (Am. Board of Forensic Odontology); David Chercover, B.Sc. (Br.Col.), M.D. (Br.Col.); Enid Edwards, B.Sc., M.D. (Sask.), FRCPC (Br.Col.); David Garner, B.Sc. (Alta.), Ph.D. (Br.Col.); Olaf Heisel, M.D. (Saarland, Germany); Scott Henwick, M.D. (Br.Col.) FRCPC; Sherali Hussein, B.Sc., Ph.D. (McM.); Helga Klein-Parker, M.D. (Lübeck); Charles Lee, B.Sc. (Br.Col.), M.D. (Alta.), FRCPC; Elena Levin, M.D. (Kalinin Med. Inst.); Mildred Martins, B.Sc. (Winn.), M.D. (Manit.); Andre Mattman, M.D. (Br.Col.), FRCPC; Robert McGuinness, B.Sc. (Br.Col.), M.D. (Br.Col.), FRCPC, FACP; Senthilselvi Nanthakumar, MBBS (C'bo), FRCPC; R. (Kent) Neuert, B.Sc. (Calg.); Jan Palaty, B.Sc., M.Sc., Ph.D. (Br.Col.); Malcolm Parslow, B.Sc. (Vic.N.Z.), Ph.D. (Calg.); Peter Payne, B.Sc., Ph.D. (Br.Col.); Neal

Poulin, B.Sc. (Winn.), M.Sc., Ph.D. (Br.Col.); Dale Purych, B.Sc., M.D. (Alta.), FRCPC; Grant Roden, B.Med.Sc. (Alta.), M.D. (Alta.), FRCPC; Christof Senger, M.D. (Bamberg, Bavaria), FRCPC; Katherine Serrano, B.Sc., Ph.D. (Br.Col.); Omar Shokeir, M.D. (Sask.); Ingrid Spadinger, B.A.Sc., Ph.D. (Br.Col.); Danny Straathof, B.M.Sc., M.D. (Alta.), FRCPC; Grace Tanhuanco-Kho, M.D. (Philippines); Michael Tyler, B.Sc. (Calg.), B.Sc. (Calg.), M.D. (Calg.), FRCPC; Nicholas van der Westhuizen, M.B., C.H.B. (Rhodesia), FRCPC; Robert Wolber, M.Sc., Ph.D., M.D. (Mich.); Tung Yang, B.Sc., B.M.S., M.D. (Ott.), FRCPC; Wilson Yeung, M.B., B.S. (H.K.), FRCPC; Chen Zhou, M.D. (China), Ph.D. (Sask.), FRCPC(C).

Research Associates

Yangxin Fu, M.Sc. (China), M.D. (China), Ph.D. (China); Ala Aoukati, B.Sc. (Baghdad), Ph.D. (Norway); Troussard Armelle, B.Sc., M.Sc., Ph.D. (France); Hongwei Chen, M.D. (China), Ph.D. (China); Meixei Dan, B.Sc. (China), M.Sc. (China), Ph.D. (China); Mark Elliott, B.Sc., Ph.D., (Tor.); Hahn Huynh, B.Sc., M.Sc., Ph.D. (Br.Col.); Johan Janzen, B.Sc., Ph.D. (Br.Col.); Rajesh Kainthan, B.Sc. (India), M.Sc. (India), Ph.D. (India); Lucy Marzban, Doct. Deg. (Iran), Ph.D. (Br.Col.); Bernard Meshi, M.D. (Albania), M.Sc. (U.K.); Li Min, B.Sc. (Winn.), M.Sc. (Br.Col.), Ph.D. (Br.Col.); Elena Okon, M.Sc. (Moscow), Ph.D. (Russian Acad. Sci.); Annette Plesner, Cand.Sci., Ph.D. (Copenhagen); Neal Poulin, B.Sc. (W.Ont.), Ph.D. (Br.Col.); Manju Sharma, M.B.B.S., M.D. (India); Christina Togno, B.Sc. (W.Ont.), Ph.D. (Br.Col.); Janet Wilson-McManus, B.S. (Colorado), ASCP (Nebraska); Damian Yap, M.Sc., Ph.D. (U.K.); Huifang Mary Zhang, B.Sc., M.S. (Beijing).

Associate Members

Karen Bartlett, Occupational & Environmental Hygiene; Anthony Chow, Medicine; Marion Coulter-Mackie, Pediatrics; Angela Devlin, Pediatrics; Connie J. Eaves, Medical Genetics; Donna E. Hogge, Medicine; Keith Humphries, Medicine; Sheila M. Innis, Pediatrics; William Jia, Surgery; Marla Kiess, Medicine; Piotr Kozlowski, Surgery; Peter Lansdorp, Medicine; Patrick MacLeod, Medical Genetics; Colleen Nelson, Surgery; Tanya Nelson, Medical Genetics; Joel Oger, Medicine; Catherine Pallan, Pediatrics; Peter Pare, Medicine; Neil E. Reiner, Medicine; Paul Rennie, Surgery; Marianne Sadar, Surgery; J. W. Schrader, Medicine; Kirk Schulz, Pediatrics; C. H. Scudamore, Surgery; David Speert, Pediatrics; Richard Stokes, Pediatrics; Eric Webber, Surgery; Mark Wilkinson, Medical Genetics.

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William L. Dunn, B.Sc., M.D. (W.Ont.), Ph.D. (Lond.), FRCPC, Professor; Ralph Durand, B.Sc. (Calg.), Ph.D. (W.Ont.), Professor; Andrew Minchinton, B.Sc. (Hatfield), Ph.D. (Lond.), Assistant Professor; Peggy Olive, B.Sc. (Queb.), M.Sc. (W.Ont.), Ph.D. (McM.), Professor; Branco Palčić, B.Sc., Dipl. Ing. Physics (Yugoslavia), Ph.D. (McM.), Professor; Ravindra Shah, B.D.S. (Bom.), M.S. (N.Y.State), Ph.D. (Qu.), Assistant Professor; Kirsten Skov, B.Sc. (Qu.), Ph.D. (Tor.), Professor. *

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Professors Emeriti

Derek A. Applegarth, B.Sc. (Dur.), Ph.D. (Kings Coll., Durh.), F.C.C.M.G.; James E. Carter, M.B., Ch.B. (Cape T.), C.R.C.P. (C.), FRCPC; A. George F. Davidson, B.Sc., M.D. (Br.Col.), FRCPC; Henry Dunn, M.B., B.Chir. (Lond.), FRCP, D.C.H., R.R.C.P.C.; Peter Hahn, M.D., Ph.D., FRCPC; Judith G. Hall, B.A. (Mass.), M.S., M.D. (Wash.), F.A.A.P., F.C.C.M.G., F.A.B.M.G., FRCPC; Robert H. Hill, B.M., B.Ch.,

FRCPC; David S. Lirenman, B.Sc., M.D. (Manit.), FRCPC, C.R.C.P. (C.), D.A.B.L.M., F.A.C.P.; Margaret Mullinger, M.D., FRCPC; Andrew B. Murray, M.B., Ch.B., M.C.L.Sc., C.C.F.P.; Ross E. Petty, M.D., FRCPC; Gordon E. Pirie, M.D., C.M. (McG.), FRCPC, C.R.C.P.; Geoffrey Robinson, M.D., C.M. (W.Ont.), C.R.C.P., FRCPC; Mavis Teasdale, M.B., Ch.B. (Leeds), D.C.H., L.M.C.C., C.R.C.P., FRCPC; Bluma Tischler, M.D.; Roger S. Tonkin, M.D., C.M. (McG.), FRCPC.

Professors

Ron Barr, B.A. (Bishop's), M.A. (Tor.), M.D.C.M. (McG.), F.R.C.P.(C), C.S.P.Q.; Oscar Casiro, M.D., FRCPC; Philippe Chessex, M.D. (Geneva, Switzerland), ECFMG, FRCPC, L.M.C.C.; Kevin Farrell, M.B., Ch.B. (Edin.), M.R.C.P., C.H.R.C.P., FRCPC, D.C.H.; Alexander C. Ferguson, M.B., Ch.B. (Glas.), E.C.F.M.G. (U.S.), D.C.H., L.M.C.C., FRCPC, A.B.A.I.; Alan Hill, B.Sc., Ph.D. (Nott.), M.D. (Sask.), FRCPC; Sheila M. Innis, H.N.D., M.Sc. (Alta.), Ph.D. (Tor.); Niranjana Kissoon, M.B.B.S. (West Indies, Mona, Jamaica), CPE, FAAP, FACP, FCCM, FRCPC; Stuart M. MacLeod, M.D., Ph.D., FRCPC; Andrew J. MacNab, M.B., B.S., M.D. (Lond.), M.R.C.S., L.R.C.P. (Eng.), FRCPC; Peter N. Malleon, M.B., B.S. (Lond.), M.R.C.P., FRCPC; Catherine Pallan, B.Sc. (Hons.), Ph.D. (Calg.); Ralph R.L. Rothstein, B.Sc. (Brooklyn), M.D. (Yeshiva), R.C.P.S.C., FRCPC, A.A.P.; George G. Sander, M.B., Ch.B., D.C.H. (Glas.), M.R.C.P. (Edin.), FRCPC; David W. Scheifele, M.D. (W.Ont.), FRCPC; David P. Speert, B.A., M.D. (Col.), FRCPC, F.I.D.S.A., D.N.B.M.E. (U.S.), D.A.B.P.; Aubrey J. Tingle, M.D. (Alta.), Ph.D. (McG.), FRCPC, F.A.A.P.; Michael F. Whitfield, B.Sc., M.B., Ch.B. (Edin.), M.R.C.P., D.C.H. (Lond.), FRCPC; Peter K.H. Wong, B.Eng., M.D. (Hamilton), FRCPC.

Associate Professors

Robert W. Armstrong, B.Sc. (S.Fraser), M.D., M.Sc., Ph.D. (McM.), FRCPC, Department Head; Marion Coulter-Mackie, B.Sc. (Br.Col.), Ph.D. (Alta.); Ruth Grunau, B.A. (Syd.), M.A., Ed.D., Ph.D. (Br.Col.); Eric Hassall, M.B., Ch.B. (Cape T.), D.C.H. (U.K.), M.R.C.P. (U.K.), A.E.P. F.R.C.P. (C); Anne K. Junker, B.Sc. (Hons.), M.D. (Calg.), FRCPC; Shoo Lee, M.B.B.S. (Sing.), M.B., B.S., M.S. (Harv.), Ph.D. (Harv.), FRCPC, L.M.C.C., A.B.P. (Diploma); Christine Loock, M.D. (Harv.), FRCPC, F.A.A.P., D.A.A.P.; Douglas Matsell, B.Sc. cum laude (Notre D.), M.D., C.M. (McG.), LMCC, FRCPC; Timothy Oberlander, B.A., M.D. (W.Ont.), L.M.C.C., F.L.E.X., FRCPC; Maureen O'Donnell, M.Sc., M.D. (Sask.), FRCPC, A.B.P.; Margaret M. Pendray, M.B., B.S., L.R.C.P., M.R.C.S., D.C.H. (Lond.), L.M.C.C., FRCPC; Elke H. Roland, M.D. (W.Ont.), L.M.C.C., D.N.B.M.E. (U.S.), FRCPC; Kirk R. Schultz, B.S., M.D. (Nebraska), FRCPC, A.A.P.; David F. Smith, M.D. (Qu.), FRCPC; Richard Stokes, B.Sc. (Wales), M.Sc., D.I.C., Ph.D. (Lond.).

Assistant Professors

Jill Hoube, B.A., M.D., M.Phil.; Amedeo D'Angiulli, Laurea (M.Sc. equiv.), M.A., Ph.D.; Angela Devlin, B.Sc., Ph.D.; Sandra Dunn, B.S. (O.H.), M.S., Ph.D. (N. Carolina); Valentina Evdokimova, Ph.D., M.Sc., B.Sc.; Anne G. George, B.A. (Acadia), Dipl. of Criminology (Syd.), M.L.S. (Br.Col.), Ph.D. (Br.Col.); Anne Klassen, B.A. (Hons.) (Wat.), D.Phil. (Oxf.); Tobias Kollman, Ph.D., M.D.; Jan Ochmion, M.D. (Warsaw, Poland), Ph.D.; Dawei Ou, Ph.D.; Ian Pike, B.Sc., M.Sc., Ph.D.; Martin Pusic, M.D., N.B.M.E., M.C.C., F.R.C.P.C., A.B.P. (Emergency Med.); Shubhayan Sanatani, B.Sc. (Br.Col.), M.D., FRCPC; Nicola Shaw, Higher Natl. Dipl., B.Sc. (Hons.), Ph.D. (Central Lancashire; Oxf.); Stuart Turvey, B.Sc., MBMS, Ph.D.; Bruce Vallance, B.Sc., Ph.D. (McM.); Inez Vincent, B.Sc., Ph.D., M.D.

Clinical Professors

Robert J. Adderley, B.Sc., M.D. (Br.Col.), FRCPC; Susan Albersheim, B.Sc., M.D. (Manit.), L.M.C.C., F.L.E.X., FRCPC, A.B.N.P.M.; Godfrey M. Baumgard, M.B., Ch.B. (Manc.), FRCPC; Basil C. Boulton, M.D. (Br.Col.), FRCPC; David M.C. Chan, M.B., B.S. (H.K.), FAAP, DABP, LMCC, (MCC), FRCPC; Jean-Pierre Chanoine, M.D., Ph.D. (Belgium), E.C.F.M.G., Cert. Parasitology, Cert. Clinical Research; Sterling Clarren, B.A., M.D. (Minnesota Med School), DABP, ABP; Walter J. Duncan, M.D. (Sask.), FRCPC, FAAP, FACC; Christopher Fryer, L.R.C.P. (U.K.); Lond.), M.R.C.S., F.R.C.P.C., D.M.R.T.; Jean Hlady, B.Sc., M.D. (Br.Col.), FRCPC, F.A.A.P.; Helena H. Ho, B.Sc. (Ott.), M.A. (Radcliffe), M.D., C.M. (McG.), FRCPC, D.A.B.P.; R. Morrison Hurley, M.D., M.Sc. (W.Ont.), FRCPC, F.M.R.C.C., D.A.B.P., A.O.A.; David Israel, B.Sc. (Ben Gurion), M.D. (Alta.); Leora Kuttner, B.A. (Hons.), M.A., Ph.D.; Emily W.-Y. Ling, E.C.F.M.G., M.B., B.S. (H.K.), FRCPC, A.A.P., L.G.M.C. (U.K.), L.G.M.C. (H.K.), L.M.C.C., F.L.E.X.; Barrie S. Maclean, Sc., M.B. (Lond.), B.M., B.Ch. (Oxon.), M.R.C.P., FRCPC; Juliette Prendiville, B.A., M.B., B.Ch., B.A.O. (Dub.), M.R.C.P.I., M.C.C.E.E., L.M.C.C., FRCPC; David G. Riddell, B.Sc. (Med.), M.D. (Manit.), FRCPC; Paul Rogers, B.Sc., M.B., Ch.B. (Lond.), M.B.A. (Bath), D.C.H., M.R.C.P., FRCPC, FRCP; Richard Schreiber, B.Sc., M.D., C.M. (McG.), L.M.C.C. (MCC), FRCPC, F.S.M.Q., D.A.A.P., D.N.B.M.E.; Michael Seear, B.Sc. (Lond.), M.B., Ch.B. (Rhodesia), FRCPC; Alfonso Solimano, M.D., B.Sc. Biol. (Lima), E.C.F.M.G., A.B.N.P.M., A.B.P., E.C.F.M.G., F.L.E.X., FRCPC, L.M.C.C.; Keith W. Spacey, M.B., B.S., L.R.C.P., M.R.C.S., C.R.C.P. (C.), D.A.B.P., D.C.H. (U.K.), FRCPC; Paul N. Thiessen, B.Med.Sc., M.D. (Alta.), FRCPC; Marion-Anne Tipple, M.B., B.S., P.Ch. (Lond.), MRCP (U.K.), FRCPC; David Wensley, M.B., B.S. (Lond.), FRCPC, M.R.C.P. (U.K.).

Clinical Associate Professors

Greg Baldwin, M.D. (Ott.), FRCPC, Cert. Ped. Emergency Med., A.B.P.; Mary M. Bennett, B.Sc., M.D. (Br.Col.), FRCPC; Nazmudin Bhanji, M.D. (Pahlavi, Iran), FRCPC; Marianna Brussoni, B.A. (Calg.), M.A. (Br.Col.), Ph.D. (Br.Col.); David Cabral, M.B.B.S. (Aust.), M.C.C.E.E., FRCPC, A.B.P.W.E., A.B.P., M.C.C.Q.E., L.M.C.C.E.; Mary B. Conolly, B.A., M.B., B.Ch., B.A.O., D. Ch. (Dub.), M.R.C.P. (I.), M.R.C.P. (U.K.), Am. Med. E.E.G. Assoc., U.S.M.L.E., FRCPC; Jeff Davis, M.D. (Birm.), C.R.C.P.; Melvin I. De Levie, M.D. (Br.Col.), CRCP (McG.); John M. Dean, M.B., B.S. (Lond.), FRCPC; Simon Dobson, B.A., M.A., M.B.B.S., M.R.C.P. (U.K.); Jack Forbes, B.Sc., M.B., Ch.B. (Natal), FRCPC; Joan Fraser, M.B., Ch.B. (Aberd.), C.C.F.P.(C), L.M.C.C., FRCPC; George Hahn, M.D. (Br.Col.), FRCPC; Jane Hailey, B.A., M.A., M.B.B.Chir. (Calif.), FRCPC; Martin Hoskings, B.Sc., M.D. (Calg.), FRCPC, D.A.A.P.; Derek Human, B.A. (Hons.), B.M., B.Ch. (Oxon.), Cert. Ped. Cardiology, FRCPC; Franklyn Jagdis, M.B., B.S. (Jamaica), FRCPC, L.M.C.C., Spec. Cert. A.B.P.; Nasir Jetha, M.D. (Pahlavi, Iran), FRCPC; Paul M. A. Korn, B.A., M.D. (McM.), FRCPC; Brian Lupton, M.B., Ch.B., B.A.O. (Belf.), M.R.C.P. (U.K.), D.C.H., L.M.C.C., FRCPC; Peter A. McDermick, B.A.Sc. (Tor.), M.D., C.M. (McG.), FRCPC; Daniel Metzger, M.D. (Ohio), U.S. Fed. Lic. Exam, D.A.B.P., Dip. Ped. End., A.B.P., FRCPC, L.M.C.C.; Anton Miller, M.B., Ch.B. (Cape T.), FRCPC; Horacio Osioviach, M.D. (Argentina), MCCCE, L.M.C.C., FRCPC; Donlim Peacock, M.B., Ch.B. (Cape T.), FRCPC; Jorge Pinzon, M.D. (Juan N. Corpus), L.M.C.C., A.B.P., FRCPC; Sheila L. Pritchard, B.Med.Sci., B.M., B.S. (Nott.), M.B.B.S., FRCPC; Roy A. Saunders, M.B., Ch.B. (Birm.), L.R.C.P. (Lond.), M.R.C.S. (Eng.), FRCPC, L.M.C.C.; Harold Siden, B.A. (Hons.), M.D., M.H.Sc., N.B.M.E., L.M.C.C., B.C.M.L., A.B.P., FRCPC; Jeffrey Simons,

M.B., B.S. (Lond.), M.R.C.S., L.R.C.P. D.C.H. (Engl.), L.M.C.C., FRCPC; **Brian Sinclair**, B.Sc. M.D. (Qu.), FRCPC; **Peter Skippen**, M.D. (Aust.), L.M.C.C., F.A.N.Z.C.A., F.F.I.C.A.N.Z.C.A., FRCPC; **John A. Smyth**, M.B. (Dub.), L.R.C.P. and S.I., FRCPC; **Laura Stewart**, M.D. (Alta.), L.M.C.C., Cert. Endocrinology and Metabolism, FRCPC; **Anne Synnes**, M.D.C.M. (McG.), M.H.Sc. (Br.Col.), FRCPC; **Lionel Traverse**, M.D., E.C.F.M.G., F.L.E.X., L.M.C.C. (Paris), FRCPC, F.A.A.P., A.A.A.C.P.D.M.; **Lori Tucker**, B.A. (Hartwick Coll., N.Y.), M.D. (Tufts U. School of Medicine Boston, M.A.), A.B.P.; **Vugranam Venkatesh**, M.B., B.S., M.D., D.C.H., M.R.C.P. (U.K.), FRCPC, A.B.P., C.M.L.; **Sandra Whitehouse**, M.B.B.S. (Hons.), F.A.A.P., FRCPC; **John Wu**, B.M., B.Sc. (H.D.), FRCPC.

Clinical Assistant Professors

Constadina Panagiotopoulos, B.Sc. (Hons.), M.D. (Qu.), D.A.B.P., L.M.C.C.; **William H. Abelson**, M.D., FRCPC; **Coleen Adams**, BAO, M.B.B.Ch., M.D.; **Ariane Alimenti**, M.D.; **Warren Anquist**, B.Sc., M.D. (Alta.), FRCPC; **Anne Antrim**, B.Sc., M.D. (Br.Col.), FRCPC; **Shelina Babul**, B.Sc., Ph.D.; **Collin Barker**, B.Sc. M.D., (Alta.), F.R.C.P.C., D.A.B.P., L.M.C.C.; **Amanda Barlow**, M.B.B.S., M.D.; **Mary Ann Beimers**, B.Sc., M.D. (McM.), FRCPC; **Bruce Bjornson**, B.Sc., M.D. (Alta.), FRCPC, D.N.B.M.E., L.M.C.C., C.A.B.P.; **Mason Bond**, M.D. (Br.Col.), FRCPC; **David Brabyn**, M.B., Ch.B., FRCPC, FAAP, LMCC; **Chor Kei Chan**, M.B.B.S. (H.K.), M.R.C.P. (C), D.A.B., C.R.C.P. (C); **Arthur Cogswell**, B.Med.Sc., M.B., B.S., Dip. Obs., D.C.H., FRCPC; **Margaret Colbourne**, B.Sc., M.D. (Br.Col.), A.A.P., FRCPC, L.M.C.C.; **Carolyn Davies**, B.Sc., M.D.; **Navid Deghani**, B.Sc. (Br.Col.), M.D., FRCPC, FAAP; **David Dix**, MB, Ch.B. (Cape T.); **Jonathon Down**, M.B.B.S., M.H.S.C., FRCPC, M.D.; **Jennifer Druker**, M.B., Ch.B., D.C.H. (S.A.), FRCPC, F.L.E.X., L.M.C.C., E.C.F.M.G., P.A.L.S.; **Robert Everett**, M.D. (W.Ont.), FRCPC, D.A.B.D.; **Jane Finlay**, M.D. (Alta.), D.A.A.P., FRCPC; **Barbara E. Fitzgerald**, M.D. (Br.Col.), L.M.C.C., D.A.C. (Cape T.); **Paul M. Gelpke**, M.B.B.S., D.C.H. (Lond.), FRCPC, F.R.C.P.(E); **Liliane Gendreau-Reid**, M.D. (Laval), F.A.A.P., F.A.A.P., FRCPC(C), L.M.C.C.; **William Grut**; **John M. Hales**, M.B.B.S. (Syd.), FRCPC; **Andrew C. Hamson**, M.B., Ch.B. (Liv.), FRCPC; **Adele Harrison**, M.B.Ch.B., FRCPC, L.M.C.C., M.D.; **David Haughton**, B.A., M.D. (C'neil), FRCPC; **Marie Hay**, M.B. (Dub.), M.R.C.P., L.M.C.C., D.C.H., FRCPC; **Juliette Hukin**, M.B.B.S. (Aust.), M.C.C.E.E., L.M.C.C., F.A.A.P., FRCPC, U.S.M.L.E., E.C.F.M.G.; **Kevan Jacobson**, M.B., B.Ch., FRCPC; **Yigal Kaikov**, M.D. (Israel), FRCPC; **Nicolle Kent**, B.A., M.D. (Br.Col.), FRCPC; **Steven N. Kent**, B.Sc., M.D. (Manit.), FRCPC, F.A.A.P.; **Vinod Kesavan**, M.B.B.S., M.D.; **Anna Kielska**, M.D., FRCPC; **Hilary E. Kitson**, M.B., Ch.B. (Birm.), F.R.A.C.P., FRCPC; **Mark Kovacs**, B.Sc., M.D. (Alta.), FRCPC, F.A.A.P.; **Alison Laswick**, M.D. (McM.), L.M.C.C., FRCPC, C.A.B.P.; **Cynthia Lauriente**, B.Sc., M.D. (Br.Col.), FRCPC; **Wai-Ying Lee**, M.B., B.S. (H.K.), A.B.P., FRCPC; **Howard Liang**, M.B.B.S. (H.K.), D.C.H., M.R.C.P. (U.K.), FRCPC, F.A.M.H.K.; **Yolanda Lillquist**, B.A., M.D., L.M.C.C., FRCPC; **Alisa B. Lipson**, B.A. (Hons.), M.D. (Br.Col.), FRCPC; **Peter Lloyd-Jones**, M.B., B.S., MRCP (U.K.), FRCPC, L.M.C.C.; **Heather Louie**, M.D. (Manit.), FRCPC; **Carey Matsuba**, B.Sc. (Hons. 1st class), M.D.C.M. (McG.), M.H.Sc., LMCC, FRCPC; **Derek Matthew**, M.B., M.S., L.R.C.P., M.R.C.S. (U.K.), D.R.C.O.G., FRCPC; **Elizabeth Mickelson**, B.Sc. (W.Ont.), M.D. (McM.), L.M.C.C., D.A.B.P., FRCPC; **Steven Miller**, M.Sc., M.D.; **George Pachey**, B.A., M.A., Ph.D.; **Min Phang**, M.B.Ch.B., M.D.; **Min Sen Phang**, M.B., Ch.B., M.R.C.P. (U.K.), D.C.H. (U.K.), FRCPC; **Bruce Phillips**, M.B., Ch.B. (Natal), FRCPC; **James Popkin**, M.B., Ch.B. (Natal), FRCPC; **James E. Potts**, M.P.E. (Br.Col.), B.P.E. (Br.Col.), Ph.D.; **Lorraine Prisman**,

M.B., Ch.B. (Cape T.), M.C.C.E.E., L.M.C.C., F.L.E. (U.S.), FRCPC, D.A.B.P.; **Hanna Reysner**, M.D., FRCPC; **Zita Rutkunas**, B.Sc. (Calg.), M.D. (Alta.), FRCPC; **Kathryn Selby**, B.Sc., M.B., Ch.B., M.R.C.P., L.M.C.C., M.C.C.E.E., FRCPC; **Avash Singh**, M.B.B.S., M.C.C.E., A.C.L.S., B.C.L.S., F.A.A.P., E.C.M.O., P.A.L.S., R.C.P.S. (C.); **Mark Sorial**, M.B.B.Ch., M.D.; **Todd Sorokan**, B.Sc., M.D. (Alta.); **Caron Strahlendorf**, M.B.Ch. (Witw.), F.C.P. (Br.Col.), Fellowship (Pediatric Hem/Onc/BMT); **Cherrie Tandy**, B.Sc., M.D.; **Suresh Tuisiani**, M.B.B.S., D.C.H., FRCPC, F.A.A.P.; **Henry Ukpeh**, M.B.B.S., F.A.A.P., FRCPC; **Vugranam Venkatesh**, M.B.B.S., M.D.; **Katherine Wambora**, BSc (Honours in Psychology and English), MD, FRCPC, LMCC; **Glen Ward**, B.Sc., Ph.D. (McG.), FRCPC; **Stephen Wellington**, B.Sc., Ph.D., M.D. (Calg.), M.H.Sc.; **Colin White**, B.Sc., M.D. (Ott.), LMCC, FRCPC, FAAP, DAAP; **Robert Wishart**, M.B., B.S. (Monash), FRCPC; **Collin Yong**, B.Sc., M.B. (Leic.), Ch.B., F.A.A.P., FRCPC; **Anna Zajackowska-Kielska**, M.D., FRCPC.

Clinical Instructors

Robert Alisharan, M.B.B.S., D.C.H., D.M. (Jamaica), L.M.C.C., FRCPC; **Anna Banerji**, B.Sc., M.D. (Tor.), FRCPC, ABP; **Amanda Barclay**, B.A., M.D.; **Bernard Behrmann**, M.B., B.Ch., FRCPC; **Simi Bharya**, B.Sc., M.D. (Br.Col.), FRCPC, LMCC, ABP; **Pargat Bhurji**, MD (Bombay), FRCPC; **Karina Breikss**, MD, FRCPC, FAAP; **Ruby Chan**, M.D. (Tor.), FRCPC; **Denise Chapple**, B.Sc., M.D., FRCPC; **Tahir Chaudhry**, M.B.B.S., D.C.H., M.R.C.P., M.D.; **Kwame Danso**, M.B., Ch.B. (Ghana), A.B.P., FRCPC, L.M.C.C.; **Sarah Denny**, B.S., M.Sc., M.D. (McM.), LMCC, FRCPC; **Quynh Doan**, MDCM (McG.), FRCPC, LMCC; **Keyvan Hadad**, B.Sc., M.D. (W.Ont.), FRCPC; **Andrew Henderson**, M.B., B.S., M.R.C.S., L.R.C.P., FRCPC; **Nita Jain**, B.Sc., M.D. (Br.Col.), MCC, ABP, FRCPC; **Tanuja Kodeeswaran**, B.Sc., M.D. (McM.), L.M.C.C., C.P.S.O., D.A.B.P., FRCPC; **Kyle Okano**, B.Sc., M.D., FRCPC; **Derek Prevost**, B.Sc., M.D. (Br.Col.), L.M.C.C., FRCPC; **Trent Smith**, B.P.E. (Hons.), M.D. (Alta.), FRCPC; **Sue Stock**, B.Sc., M.D. (Qu.), FRCPC; **Donald Voaklander**; **Robert W. White**, B.Sc., M.D. (Calg.), FRCPC, L.M.C.C.; **Ruth Wingerin**, M.B. (Cape T.); **Judith Wolfe**, B.Sc., M.D. (W.Ont.), FRCPC; **Grace Yu**, M.D.C.M. (McG.), FRCPC, FAAP.

Associate Members

Laura Arbour, Medical Genetics; **Patricia A. Baird**, Medical Genetics; **Virginia J. Baldwin**, Pathology and Laboratory Medicine; **Stuart H. Fine**, Psychiatry; **Roger Freeman**, Psychiatry; **Norbert Froese**, Anaesthesia; **Robert E. W. Hancock**, Microbiology; **Susan R. Harris**, Rehabilitation Sciences; **Michael C. Klein**, Family Practice; **Gillian Lockitch**, Pathology and Laboratory Medicine; **Chris Lyons**, Ophthalmology; **Patrick MacLeod**, Medical Genetics; **Roey Malleson**, Family Practice; **Bonnie G. Massing**, Pathology and Laboratory Medicine; **Deborah McFadden**, Pathology and Laboratory Medicine; **Barbara C. McGillivray**, Medical Genetics; **Helen R. Nadel**, Radiology; **G. A. R. O'Connor**, Anaesthesia; **Susan Penfold**, Psychiatry; **Martha C. Piper**, Rehabilitation Sciences; **Haydn Pritchard**, Medical Genetics; **Martin Putterman**, Commerce and Business Administration; **Keith Riding**, Surgery; **Stephan Salzberg**, Centre for Asian Legal Studies; **Samuel B. Sheps**, Health Care and Epidemiology; **Derryck Smith**, Psychiatry; **Q. R. Son-Hing**, Surgery; **Paul Sorensen**, Pathology; **P. Steinbok**, Surgery; **Joseph Y. C. Tai**, Pathology and Laboratory Medicine; **Eva Thomas**, Pathology and Laboratory Medicine; **Margot Van Allen**, Medical Genetics; **Louis D. Wadsworth**, Pathology; **Siu-li Yong**, Medical Genetics.

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Kuo-Hsing Kuo, Ph.D. (Br.Col.), M.Sc., M.D. (Taipei).

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Clinical Professor

Alexander P. Goumeniouk, B.Sc., M.D. (Br.Col.), FRCPC.

Clinical Professor Emeritus

Sultan Karim, Ph.D., D.Sc. (Lond.), LL.B. (Br.Col.).

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Jonathan A. E. Fleming, B.A., M.B., B.A.Q., B.Ch. (Dub.), FRCPC; Josie Geller, B.A. (Hons.) (Ott.), M.A., Ph.D. (Br.Col.); Elliot M. Goldner, B.Sc. (Tor.), M.D. (Calg.), M.Hsc. (Br.Col.), FRCPC; Grant L. Iverson, B.A. (N. Iowa), M.A., Ph.D. (W. Virginia); Kerry Jang, B.A. (Hons.), M.A. (S.Fraser), Ph.D. (W.Ont.); Stephen Alan Kline, B.Sc., M.D. (Alta.), FRCPC.

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Clinical Professors

M. Oluwafemi Agbayewa, M.B., B.S. (Ibadan), M.R.C.Psych. (Lond.), FRCPC; Semion Altman, M.D. (Poland), L.M.C.C., FRCPC; Rosemary Basson, M.B.B.S., M.R.C.P. (Lond.); Ronald E. Braunstein, M.D. (Manit.), D. Psych. (S. Calif.), FRCPC; R. Alan Buchanan, B.Sc., M.D. (Calg.), FRCPC; Maria Corral, B.Sc. (S.Fraser), M.D. (Br.Col.), FRCPS; Stacy L. Elliott, B.A., M.D. (Br.Col.); Diane K. Fast, M.D., C.M. (McG.); Roger D. Freeman, B.A. (Swarthmore), M.D. (Johns H.), D.Psych. (McG.), CRCPC; Soma Ganesan, M.D. (Saigon), FRCPC; Jane Garland, B.Sc., M.D. (Qu.), FRCPC; Trevor Hurwitz, M.B., Ch.B. (Pretoria), M.R.C.P. (U.K.), FRCPC; Riho Kalda, M.D. (Tor), FRCPC; Harry Karlinsky, B.Sc., M.D. (Manit.), M.Sc. (Lond.), FRCPC; William J. Koch, B.A. (Montana) M.A., Ph.D. (Alta.); Lili Kopala, B.Sc. (Alta.), M.D. (Calg.), FRCPC; Pierre P. Lechner, B.Sc. (McG.), M.D. (Qu.), FRCPC; Donald F. Louie, B.Sc. (Vic.B.C.), M.D. (Br.Col.), FRCPC; Keith Marriage, M.B., B.S. (Melb.), FRCPC; Shaila Misri, M.B., B.S. (Calc.), FRCPC; Emilene Murphy, B.A., B.S.W., M.Med.Sci., M.D. (Nfld.), FRCPC; Michael F. Myers, M.D. (W.Ont.), FRCPC; Joseph A. Noone, M.D. (Dub.), FRCPC; Roy J. O'Shaughnessy, M.D. (Ott.), FRCPC; Pratibha N. Reebye, M.B.B.S. (Mysore), D.P.M. (Leeds), FRCPC; Kamal Rungta, M.D. (Tor.), FRCPC; Anthony Schon, M.D. (Manit.), FRCPC; Kristin S. Sivertz, B.Sc. (W.Ont.), M.D. (McM.), FRCPC; Derryck Smith, B.Sc. (Wat.), M.D. (W.Ont.), FRCPC; Richard Williams, M.B., B.S. (Lond.), M.R.C.Psych. (U.K.), M.Phil. (Edin.), LMCC, FRCPC; Sheldon Zipursky, B.Sc., M.D. (Manit.), PRCP, DABPN.

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(Alta.), FRCPC; **Ronald Gibson**, B.A., M.D. (Sask.), FRCPC; **Caroline Gosselin**, M.D. (Sask.), FRCPC; **Valerie Gruson**, B.A. (Tor.), M.D. (Calg.), FRCPC; **Robert Hewko**, B.Sc., M.D. (Alta.), FRCPC; **John A. Higenbottam**, B.A., M.A. (Manit.), Ph.D. (Vic.B.C.); **David Irwin**, B.Sc., M.D. (Br.Col.), FRCPC; **Abdul Karim M. Jiwa**, M.B., Ch.B. (E. Africa), FRCPC, L.M.C.C.; **Arvind Kang**, M.B.B.S. (Punj.), FRCPC; **Nirmal Kang**, M.B., B.S. (Dayanand, India), FRCPC; **Andrzej Koczapski**, B.Sc., M.D. (Br.Col.), FRCPC; **Raymond Liang**, B.Sc. (Alta.), M.D. (Manila), FRCPC; **Susan Lomax**, B.Sc., B.S.N., M.D. (Br.Col.), FRCPC; **G. William MacEwan**, B.Sc., M.D. (Br.Col.), FRCPC; **Akber Mithani**, B.Sc., M.D. (Nfld.); **Richard Monks**, B.Sc. (Car.), M.D. (McG.), FRCPC; **Janine O'Kane**, MBBS (Kings Coll.), FRCPC; **Lance L. Patrick**, M.D. (Br.Col.), FRCPC; **R. Oliver Robinow**, B.Sc. (McG.), M.D., C.M. (W.Ont.), FRCPC; **Carl J. Rothschild**, B.A., M.D. (George Wash.); **Anton Scamvougeras**, M.B., Ch.B.; **Roger D. Shick**, B.A., B.Sc., M.D., D.Psych. (Manit.), FRCPC; **Resa S. Shore**, M.D. (McM.), FRCPC; **Kevin Solomons**, M.V., Ch.B. (Cape T.), FRCPC; **Ronald W. Stevenson**, B.Sc., M.D. (Calg.), FRCPC; **Robert Stowe**, B.Sc. (Car.), B.A. (Br.Col.), M.D. (Qu.), FRCPC; **Edwin Tam**, D.E.C. (Marianopolis Coll.), M.D.C.M. (McG.), FRCPC; **Mark Tapper**, B.A., D.Phil., B.M., B.Ch. (Oxon.), FRCPC; **Reginald Wand**, M.D. (Manit.), FRCPC; **Wahan Wanis**, M.D. (Rostowski), FRCPC; **Margaret Weiss**, B.A. (Brandeis), M.D.C.M. (McG.), FRCPC; **Frances Wilt**, B.Sc., M.D. (Manit.), FRCPC; **Allan Wong**, B.Sc. (Br.Col.), M.D. (Calg.), FRCPC.

Clinical Assistant Professors

Elizabeth Baerg Hall, B.A. (Goshen), M.D. (McM.), FRCPC; **Leon Berzen**, M.B., Ch.B. (Witw.), C.R.C.P.C., L.M.C.C., FRCPC; **Dan Bilsker**, M.A., Ph.D. (S.Fraser); **Myles Blank**, M.D. (Manit.), FRCPC; **Allan Burgmann**, B.Sc., M.D. (Br.Col.), FRCPC; **Caron Byrne**, B.A. (Windsor), M.Sc., M.D. (Manit.); **Laura Chapman**, B.Sc., M.D. (Br.Col.), FRCPC; **Leslie A. Cockhill**, M.D., C.M. (McG.), FRCPC; **Michael Cooper**, B.Sc., M.D. (Br.Col.), FRCPC; **Laura Doyle**, M.D. (Calg.), FRCPC; **Elisabeth J. Drance**, B.Sc. (Br.Col.), M.D. (Br.Col.), FRCPC; **Vikram Dua**, B.Sc. (Hons.) (Tor.), M.D. (McM.), FRCPC; **Craig Emes**, M.D. (Alta.), FRCPC; **David Erickson**, B.A. (Regina), M.A. (S.Fraser), Ph.D. (Br.Col.); **Stephen Fitzpatrick**, B.Sc. (New Br.), M.D. (Dal.), FRCPC; **Wesley H. Friesen**, B.Sc., M.D. (Manit.), FRCPC; **Colleen Froese**, B.Sc. (Br.Col.), M.D. (Br.Col.), FRCPC; **Maria Geizer**, M.D. (Charles), FRCPC (Nfld.); **James G. Harris**, B.Sc., M.D. (Br.Col.), FRCPC; **Lorraine Hathaway**, B.A. (N.Y.State), B.S.W. (Lake.); **Timothy Holden**, M.B., Ch.B., M.Med. (Cape T.), FRCPC; **David Hutnyk**, M.D. (Calg.), FRCPC; **Valerie Kaye**, B.Sc. M.D.C.M. (McG.), FRCPC (Br.Col.); **Stephen Kiraly**, M.D. (W.Ont.), FRCPC; **Teresa M. Kope**, M.D. (Br.Col.), FRCPC; **Endre Koritar**, B.Sc., M.D., C.M. (McG.); **Man Wai Kwan**, B.Sc., M.D. (McG.), FRCPC; **David Leishman**, B.A. (Guelph), M.D. (McM.), FRCPC; **John Mark Levy**, B.A., M.D. (Br.Col.), FRCPC; **Elena Lisiak**, B.A., M.D. (Czech.), FRCPC; **Jake Locke**, M.D. (Br.Col.), FRCPC; **Shao-Hua Lu**, B.Sc., M.D. (Br.Col.), FRCPC; **Kurban Madhani**, M.B., B.S. (Kashmir), FRCPC; **Ronald Manley**, B.Sc. (Hons.) (Trent), M.A., Ph.D. (Qu.); **Biju Mathew**, M.D. (India), FRCPC; **Kathleen McGarvey**, B.Sc. (W.Ont.), M.D. (Br.Col.), FRCPC; **Janette M. McMillan**, B.Sc., M.D. (Br.Col.), FRCPC; **Dorothy McWatters**, M.D. (Qu.); **Hiram Mok**, M.A., M.B., B.Ch., B.A.D. (Dub.), FRCPC; **Colleen Northcott**, B.Sc. (Hons.), Ph.D. (New Br.), M.D. (Manit.), FRCPC; **Bruce D. Patterson**, B.M.S., M.D. (Alta.), FRCPC; **Rainer Persaud**, B.Sc., M.D. (Manit.), FRCPC; **Sidney Perzow**, B.Sc. (Hons.) (McG.), M.D. (Sask.), FRCPC; **Lewis Pullmer**, B.Sc., M.D. (Manit.), FRCPC; **Raj Raina**, M.B.B.S. (India), FRCPC; **Kulwant S. Riari**, B.Sc.II, M.B.B.S. (Raj.), FRCPC; **Deidre M. A. Ryan**,

M.B., B.Ch., B.O.A. (Galway), FRCPC; **Nathan Schaffer**, B.M.Sc., M.D. (Alta.); **Stephen Schertzer**, M.D. (Sher.), FRCPC; **Patricia T. Schwartz**, M.D. (Chile), FRCPC; **Stanley Semrau**, B.Sc., M.D. (Br.Col.); **Leslie Sheldon**, B.Sc., M.D. (Alta.), FRCPC; **Kulbir Singh**, M.B., B.S. (Ranchi, India), FRCPC; **Geoffrey Smith**, B.A. (Hons.) (Vic.B.C.), M.A., Ph.D. (Br.Col.); **Jeanette Smith**, M.B., B.S. (Lond.), FRCPC; **Suja Srikameswaran**, B.A. (Hons.), M.A., Ph.D. (Manit.); **Irena Straszak**, B.A. (McG.), M.D. (McM.), FRCPC, M.H.A. (Ott.); **Arthur Sullivan**, B.A. (Naz.), M.D. (Vermont) FRCPC; **Eduardo Tesler-Mabe**, M.D. (Buenos Aires), FRCPC; **R. Peter Uhlmann**, M.D. (Ill.), FRCPC; **Rene Weideman**, B.A. (Natal), M.A., Ph.D. (Br.Col.); **Jacqueline Weiss**, B.S.W., M.D.C.M. (McG.), FRCPC; **John Michael Whelan**, M.B., Ch.B. B.A.O. (Galway), FRCPC; **Maureen L. Whittal**, B.A. (Br.Col.), M.A., Ph.D. (W. Virginia); **Stephen Wiseman**, M.D. (Calg.), FRCPC; **David Worling**, B.A. (Guelph), M.A. (Tor.), Ph.D. (Tor.); **Elizabeth Zoffman**, B.Sc., M.D. (Br.Col.), FRCPC.

Adjunct Professors

Fumitaka Noda, M.D. (Japan).

Clinical Instructors

Geoffrey Ainsworth, M.B., Ch.B. (Leeds), FRCPC (Br.Col.); **John Anderson**, B.A. (W.Ont.), M.D. (McM.); **Lorraine Andrews**, B.Sc. (Hons.), M.D. (Br.Col.); **Raymond Au**, B.Sc., M.D. (Alta.), FRCPC; **Jehanne Austin**, B.Sc. (Bath), M.Sc. (Br.Col.), Ph.D. (Wales); **Auby H. Axler**, B.Sc., M.D. (Alta.); **Ellen Becker**, R.N. (Jewish Gen.), B.N., M.Ed. (McG.); **Kevin Berman**, M.D. (Qu.); **Maurice Bloch**, B.A. (Hons.) (Cape T.), M.A., Ph.D. (Br.Col.); **David Bond**, B.Sc., M.D. (Memorial), FRCPC; **Tricia Bowering**, B.Sc. (Vic.B.C.), M.D. (Br.Col.), FRCPC; **Lauren Broadway**, B.A., M.D. (Br.Col.), FRCPC; **Paula Campbell**, B.Sc. (Br.Col.), M.D. (Br.Col.), FRCPC; **Maureen Ceresney**, B.Sc. (Qu.), M.D. (Br.Col.), FRCPC; **Harpreet Chauhan**, B.Sc., M.D. (Br.Col.), FRCPC; **Grant M. P. Chernick**, M.D., C.C.F.P., (Manit.), FRCPC; **Adam Chodkiewicz**, B.Sc., M.D. (Alta.), FRCPC; **Abi Dahi**, M.D. (Iran), FRCPC; **Jana-Lea Davidson**, B.Sc., M.Sc., M.D. (Br.Col.), FRCPC; **Miriam Driscoll**, B.A. (S.Fraser), M.D. (Br.Col.), FRCPC; **Patrice M. Dunn**, B.A. (Hons.), M.D. (Br.Col.), FRCPC; **James Fabian**, B.Sc. (McG.), M.D. (Alta.), FRCPC; **Mellisa Fahy**, B.Sc. (Br.Col.), M.Sc. (McG.), M.D. (Br.Col.); **Ingrid Fedorov**, B.A. (Sask.), M.A., Ph.D. (Tor.); **Glenn Freedman**, B.A. (Bishops), M.D. (Alta.); **Darlynne Gehring**, B.S.W. (Calg.), M.S.W. (Br.Col.); **Margot Genge**, M.D. (Nfld.), FRCPC (Dal.); **Garen Gharakhanian**, M.B.B.S. (Karachi), FRCPC; **Andrea Grabovac**, B.Sc., M.D. (Br.Col.), FRCPC; **Linda Healey**, B.M.Sc. M.D. (Memorial) FRCPC; **Theresa Isomura**, B.Sc., M.D. (Br.Col.); **Balaraju Katta**, M.D. (AIIMS), FRCPC; **Samatha Kelleher**, M.D. (Manit.), FRCPC; **Clifford Kerr**, M.B., B.Ch., D.P.M. (Belf.), FRCPC; **Irfan Khanbhai**, B.Sc. (McG.), M.D. (Br.Col.), FRCPC; **Gail Knudson**, B.Sc. (Alta.), Dip. Ed., M.P.E., M.D. (Br.Col.), FRCPC; **Anson Koo**, B.A., M.D. (Br.Col.), FRCPC; **Garth Kroeker**, B.Sc., M.D. (Manit.), FRCPC; **Gary Lazar**, M.D. (Manit.), FRCPC; **Susan Lazar**, B.A., M.D. (Manit.), FRCPC; **Alexander Levin**, M.D. (Tver State, Russia), FRCPC; **C.V. Manjunath**, MBBS (Vellde India), FRCPC; **Doug Maskall**, B.Sc. (Hons.), M.D. (Br.Col.), FRCPC, LMCC; **Daniel E. McDonald**, B.A. (Br.Col.), M.D. (Calg.); **Lee Anne Meldrum**, M.D. (Sask.), FRCPC (Manit.); **Jamal Mirmiram**, MBBS (Karachi), FRCPC; **Sarah Newth**, B.A. (Hons.) (S.Fraser), M.A., Ph.D. (Br.Col.); **Sheila Nolan**, B.Sc. (Alta.), M.D. (Calg.), FRCPC; **Suniti Pande**, MBBS (Deli), FRCPC; **Michael Passmore**, B.Sc., M.D. (Br.Col.), FRCPC; **Sheila Patton**, M.D. (Br.Col.), FRCPC; **Hem Phaterpekar**, M.B.B.S. (India), FRCPC; **Emily Piper**, B.A. (Colorado Coll.), M.A., Ph.D. (Calif. School Professional Psych., Fresno); **Carole Richford**,

B.S.N., M.D. (Br.Col.), FRCPC; **Mark P. Riley**, B.Sc. (Hons), B.Med., B.Surg. (Nott.), L.M.C.C., FRCPC; **Eva Risling**, B.Sc.N. (Tor.), M.D. (W.Ont.), C.C.F.P., FRCPC; **Heather Robertson**, B.Sc. (Alta.), M.D. (McM.), FRCPC; **Brian Scarth**, B.Sc., M.D. (Br.Col.), FRCPC; **Deborah Schwartz**, B.A. (S.Fraser), M.D. (McM.), FRCPC; **Judith Setton-Markus**, M.Ed. (Okla.); **Edward Shen**, B.Sc., M.Sc. (H.K.), Ph.D. (S.Fraser); **Megan Sherwood**, B.Sc. (Tor.), M.D. (Br.Col.), FRCPC; **Victoria Smye**, M.H.Sc. (McM.), B.A. (Brock); **Ingrid Sochting**, B.A., M.A., Ph.D. (S.Fraser); **Michael Stefanelli**, M.D. (Br.Col.), FRCPC; **Christine Taylor**, B.Sc. (Hons.), M.D. (Alta.), FRCPC; **Joseph Tham**, B.M.Sc., M.D., (Alta.); **Agnes To**, B.Sc., M.D. (Br.Col.), FRCPC; **Todd Tomita**, B.Sc. (Qu.), M.D. (Tor.), FRCPC; **David Ward**, B.Sc. (Man.), M.D. (Man.), FRCPC; **William Warrian**, M.D. (Manit.), L.M.C.C., R.C.P.S.C.; **Withold Widajewicz**, M.Sc. (Montr.), M.D. (Poland), FRCPC; **Michael Wilkins-Ho**, B.Sc. (Vic.B.C.), M.D. (Br.Col.), FRCPC; **Angela Wong**, B.Sc., M.D. (Br.Col.), FRCPC; **Katherine Wrixon**, B.Sc. (Hons.), M.D. (Dal.), FRCPC; **David Yaxley**, B.Sc. (Car.), M.D. (Ott.), FRCPC; **June Ye**, M.A., M.D. (China), FRCPC; **Kay Young**, B.Sc., M.D. (Br.Col.); **Timothy Yuswack**, B.Sc., M.D. (Br.Col.), FRCPC.

Honorary Professors

William T. Brown, B.Sc. (McG.), M.D. (Br. Col.); **Eli Debbane**, M.D. (Lebanon), FRCPC; **Paul Termansen**, B.Sc., M.D. (Br.Col.).

Associate Members

Jean-Pierre Chanoine, Pediatrics; **Kalina Christoff**, B.Sc. (New Bulgarian), Ph.D. (Stanf.); **Alexander P. Goumeniouk**, Pharmacology and Therapeutics; **F. Ishu Ishiyama**, Counselling Psychology; **Charlotte Johnston**, Psychology; **Jane McKay**, B.Sc., M.D. (Sask.), FRCPC; **Anton Miller**, Pediatrics; **Randy Patterson**, Psychology; **Thomas L. Perry**, Medicine; **Jorge Pinson**, Pediatrics; **Ric M. Procyshyn**, Pharmaceutical Sciences; **Elizabeth Simpson**, Medical Genetics; **Marvin Westwood**, Psychology; **Sheila Woody**, Psychology.

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Lentle, M.B., B.Ch., M.D. (Wales), DM.RD, FRCPC, Professor Emeritus; David K. Li, B.Sc., M.D. (Br.Col.), FRCPC, Vice-Chair- Administration; Alexander MacKay, B.Sc., M.Sc., Ph.D. (Oxon.); Nestor L. Müller, M.D. (Brazil), Ph.D. (Tor.), FRCPC; Peter Munk, B.Sc., M.D., C.M. (McG.), FRCPC.

Associate Professors

A. R. Buckley, M.B. (Dub.), B.C.H.B.A.O., FRCR, FFR, RCSI; Anna Celler, M.Sc. (Warsaw), Ph.D. (Warsaw); Bruce Forster, M.D., B.Sc., M.Sc. (Br.Col.), LMCC, FRCPC; Philip Harrison, B.Sc. (Br.Col.), M.D. (Alta.), FRCPC; Jocelyne Lapointe, B.A. (Montr.), M.D. (Sher.), FRCPC; Lindsay Machan, M.D. (Alta.), FRCPC; John R. Mayo, B.Sc. (Br.Col.), M.D. (Tor.), FRCPC, Vice-Chair, Research; Robert Nugent, B.M.S., M.D. (Alta.), A.B.R.(D), FRCPC; Qing San Xiang, B.S. (Beijing), M.S., Ph.D. (Calif.).

Assistant Professors

Gordon Andrews, RT(R) (Sask.), M.D. (Sask.), FRCPC; Jacqueline Brown, B.Sc.N. (Br.Col.), M.D., FRCPC; Silvia Chang, B.Sc., M.D. (Br.Col.), FRCPC; Harvey Coxson, B.Sc., Ph.D. (Br.Col.); Stephen G. F. Ho, M.D. (Br.Col.), FRCPC, Director, Residency Training; Piotr Kozłowski, B.Sc., M.Sc., Ph.D. (Krakow, Poland); Gerald M. Legiehn, M.D. (Manit.), FRCPC; Michael Martin, B.M., Sc., M.D. (Alta.), FRCPC; John Mawson, M.B., Ch.B. (Auck.); Savvakis Nicolaou, B.A., M.D. (Tor.), FRCPC; K. J. Poskitt, M.D. (Montr.); Audrey Spielmann, B.Sc. (Br.Col.), M.D. (Br.Col.), FRCPC.

Clinical Professors

John Aldrich, B.Sc., Ph.D. (Nott.); Linda Warren Burhenne, M.D. (Br.Col.), FRCPC; Paula B. Gordon, M.D. (Tor.), FRCPC; Douglas Graeb, M.D. (Tor.), FRCPC, D.A.B.R.; D. Christopher Morris, M.D. (Dal.), FRCPC; Connie M. Siu, M.B., B.S. (H.K.), FRCPC; Philip Switzer, B.Sc., M.D. (McG.), FRCPC; Anthony Wong, M.B., Ch.B. (N.Z.), FRCPC.

Clinical Associate Professors

Shamim Bhimji, M.B., Ch.B. (E. Africa), FRCPC; Robyn Cairns, M.D. (Br.Col.), FRCPC; P. Chipperfield, M.D. (Sask.), FRCPC, D.A.B.R.; Douglas Connell, M.D. (W.Ont.), FRCPC; Borys Flak, M.D., B.Sc. (Alta.), FRCPC; Brian Goodacre, B.Sc., M.D. (Br.Col.), FRCPC; Dorothy Anne Harrison, M.D. (Calg.), FRCPC; Patricia Hassell, B.Sc., M.D., C.M. (McG.), FRCPC; Barry Irish, M.D. (Br.Col.), FRCPC; Douglas H. Jamieson, M.B., Ch.B. (S.Africa); John Mathieson, B.A., M.D. (Calg.), FRCPC; Denise Pugash, B.Sc., M.D.C.M. (McG.); V. Allen Rowley, B.Sc., M.D. (Alta.), FRCPC; Michael Sargent, M.B., Ch.B. (U.K.); David Zacks, M.B. (Cape T.), FRCPC; Charles V. Zwirwich, M.D. (W.Ont.), FRCPC.

Clinical Assistant Professors

John Barberie, B.Sc., M.D. (Br.Col.), FRCPC; Simon Bicknell, B.Sc., M.D. (Br.Col.), FRCPC; Heather Bray, M.D. (Sask.), FRCPC; Larry Breckon, M.D., FRCPC; Yvette Cheong, M.D. (Tor.); Moira Cooper, B.P.E., M.D. (Dal.), FRCPC; Ian Dunn, B.Sc. (Br.Col.), Ph.D. (Tor.), M.D. (Calg.); Emmy Duran, B.Sc., M.Sc., Ph.D. (Roch.); Richard Eddy, B.A., M.D. (Nfld.); Kevin Forkheim, B.Sc., M.Sc., M.D. (Manit.); Ian Gardiner, B.Sc. (Vic.B.C.), M.D. (Br.Col.); Mary F. Graham, B.A., B.Sc. (New Hamp.), M.D., C.M. (McG.), C.S.P.Q., FRCPC; Manraj Heran, B.Sc., M.D. (Br.Col.), FRCPC; Ciaran Keogh, B.A.O., M.B., B.Ch. (Dub.); Robert Koopmans, M.Sc., M.D. (Alta.), FRCPC; Nicola Lapinsky, M.D. FRCPC; D'Arcy Lawrence, M.D. (Tor.), FRCPC; Luck Louis, B.Sc., M.D. (Br.Col.), FRCPC; Richard Mark, B.Sc., M.D. (Manit.); Catherine Phillips, M.D. (Sask.), FRCPC; Stuart Silver, B.Sc., M.D. (W.Ont.), FRCPC; Rick Smith, B.Sc., M.D. (W.Ont.); Vanessa Vanraalte, B.Sc.,

M.D. (Br.Col.); Ian Weir, B.Med.Sc., M.D. (Alta.); Christine Wilson, B.A., M.D. (Sask.), FRCPC; William C. Yee, M.D. (W.Ont.), FRCPC.

Clinical Instructors

Sven E. Aippersbach, B.Sc., M.D. (Alta.), FRCPC; Maura Brown, B.Sc., M.D. (Br.Col.), FRCPC; Derek Chu, B.Sc., M.D. (Alta.), FRCPC; Jen Ellis, M.D. FRCPC; Nicola Finn, B.A., M.D. (Qu.), FRCPC; Catherine H. Fix, RTR, RDMS, RDSC; Walt Hodgins, B.Sc., M.D. (Tor.); Michael Huk, B.Sc., M.D. (Alta.); Alasdair Leighton, M.D. (Br.Col.), FRCPC; James Nugent, M.D., (Qu.), FRCPC; Wayne Patola, RTR, RTMR; Del Pengelly, B.Sc., M.D. (Alta.); David Spouge, B.Sc., M.D. (Br.Col.), FRCPC; Hamid Tahmasebpour, B.Sc. RDMS; Michael Woolnough, M.B., B.S. (Lond.), FRCP, FRCPC.

Clinical Professor Emeritus

Martha Grymaloski, B.A., M.D. (Sask.).

Clinical Associate Professor Emeritus

James Knickerbocker, B.A., M.D. (Manit.).

Associate Members

S. L. Goldenberg, Surgery; Jack Rootman, Ophthalmology; Vesna Sossi, Medicine.

Honorary Professors

Ronald Harrop, B.A., M.A., Ph.D. (Camb.).

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John Powe, Head

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Donald M. Lyster, B.Sc. (Pharm.), M.Sc., Ph.D. (Alta.).

ASSOCIATE PROFESSORS

Helen R. Nadel, M.D. (Manit.), D.A.B.R., FRCPC; John Powe, M.D. (W.Ont.), FRCPC.

ASSISTANT PROFESSOR

Dan Worsley, M.D. (Br.Col.), FRCPC.

CLINICAL PROFESSOR

Allan S. Belzberg, M.D. (Alta.), FRCPC.

CLINICAL ASSOCIATE PROFESSOR

Philip Cohen, B.A., B.Sc. (New Hampshire), M.D., C.M. (McG.), C.S.P.Q., (FRCPC); George Sexsmith, M.D. (Sask.), FRCPC, Director, Residency Training.

CLINICAL ASSISTANT PROFESSORS

Moira Stilwell, M.D. (Calg.), FRCPC.

CLINICAL ASSOCIATE PROFESSOR

EMERITUS

Ivan J. Szasz, M.B.B.S. (Lond.), FRCSC, FRCPC.

CLINICAL INSTRUCTOR

Juan Carlos Guijon, M.D. (Manit.).

ASSOCIATE MEMBER

Anthony Y. Fung, Medicine.

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S.W. Chung, M.D. (Tor.), Ph.D., FRCSC; D. D. Cochrane, M.D. (Tor.), FRCSC; Richard J. Finley, M.D. (W.Ont.), FRCSC, F.A.C.S., Fellow of the American Coll. of Chest Physicians; Martin Gleave, B.Sc., M.D. (Br.Col.), FRCSC; S. Larry Goldenberg, M.D. (Tor.), FRCSC; York N. Hsiang, M.B. (Otago, N.Z.), FRCSC; Thomas Keane, M.B. (Univ. Coll., Dub.), B.Ch., B.A.D., MRCP, FRCPC; Martin McLoughlin, M.D. (Br.Col.), FRCSC, F.A.C.S. (part-time); M. D. Morrison, M.D. (Sask.), FRCSC; Ivo Olivotto, B.Sc., M.D. (Br.Col.), FRCPC; A. K. Qayumi, M.D., Ph.D. (Kiev); P. Steinbok, B.Sc. (N'cle,

U.K.), M.B., B.S. (W. Indies), FRCSC; Garth L. Warnock, B.Med.Sc., M.D. (Alta.), M.Sc., FRCSC, F.A.C.S.

Associate Professors

Noelle L. Davis, M.D. (Calg.), FRCSC; Guy Fradet, M.D. (Laval), FRCSC; Aziz Ghahary, M.Sc. (Tehran), Ph.D. (Manit.), PDF (Manit.); Kendall Ho, M.D. (Br.Col.), FRCPC (McG.); Chris Honey, M.D., D. Phil. (Br.Col.), FRCSC; William W.G. Jia, M.Sc., Ph.D. (Br.Col.); Tim Kieffer, B.Sc., Ph.D. (Br.Col.); A. MacNeily, B.Sc., M.D. (Ont.), FRCSC, FAAP; Mark Meloche, M.D. (W.Ont.), FRCSC (Br.Col.); Colleen Nelson, B.Sc., Ph.D. (Aust.); P. T. Phang, M.Sc., M.D. (Tor.), FRCSC (Nfld.); R. Purssell, M.D. (Br.Col.), E.M.R.C. (McG.), FRCPC; Gary J. Redekop, B.Sc., M.D. (W.Ont.), M.Sc., FRCSC; C. H. Scudamore, B.Sc., M.Sc., M.D. (Br.Col.), F.A.C.S., FRCSC, F.R.C.S. (Ed.), F.R.C.S. (Eng.); A. M. Seal, M.B., M.S. (Lond.), FRCSC; R. Simons, M.B. (Cantab.), FRCS, FRCSC, FACS; E.D. Skarsgard, M.D. (Br.Col.), M.Sc., FACS, FAAP, FRCSC; M. Lynn Stothers, M.D. (Br.Col.), FRCSC; D. C. Taylor, M.D. (Br.Col.), FRCSC; Joel Teichman, M.D. (McG.), S.B., C.M. FRCSC; Eric M. Webber, M.D. (Tor.), FRCSC.

Assistant Professors

R. Abu-Laban, M.D. (Alta.), B.M.Sc., FRCPC; Kourosh Afshar, M.D., FRCSC; Andrew Campbell, M.D. (Ott.), FRCSC; Nadine Caron, B.Sc., M.D. (Br.Col.), M.P.H., FRCSC; Rona Cheifetz, M.D. (Tor.), M.Ed., FRCSC; Michael Cox, B.Sc., Ph.D. (N. Carolina at Chapel Hill); William Gourlay, M.D. (McG.), FRCSC; Emma Guns, B.Sc., Ph.D. (Liv.); Charles Haw, M.D., FRCSC; Cheryl Helgason, Ph.D. (Alta.), B.Sc., M.Sc.; James J. Johnson, M.D., FRCSC; Piotr Kozłowski, M.Sc., Ph.D. (Inst. of Nuclear Physics, Krakow); Megan Levings, Ph.D. (Br.Col.), M.Sc; Alice Mui, B.Sc., Ph.D. (Br.Col.); Christopher Ong, B.Sc., Ph.D. (Br.Col.); Ryan Paterson, M.D. (Br.Col.), FRCSC; Ravindar Sidhu, M.D., B.Sc., M.Ed. (Tor.), FRCSC; Peter Skarsgard, M.D. (Br.Col.), FRCSC; Brian D. Toyota, M.D., C.M. (McG.), M.Sc., FRCSC, (part-time); Sam Wiseman, M.D., B.Sc. (Man.), FRCSC; John Yee, M.D., FRCSC.

Clinical Professors

Geoffrey Blair, M.D. (Tor.), FRCSC; Andris Blokmanis, M.B., B.S. (Melb.), FRCSC, F.R.A.C.S.; James M. Christenson, B.Sc., M.D. (Ott.), C.C.F.P. (Calg.); D. Lynn Doyle, M.D. (Br.Col.), FRCSC; J. Scott Durham, B.Sc. (Regina), M.D. (Sask.), FRCSC; K. G. Evans, B.Sc., M.D. (Br.Col.), FRCSC; D. J. Fairholm, M.D. (Alta.), FRCSC; H. N. Fenster, B.Sc., M.D., C.M. (McG.), FRCSC; Peter D. Fry, M.B. (Dub.), F.R.C.S.(I), FRCSC; J. H. Hay, M.B., B.Chir. (Cantab.), M.R.C.P., D.M.R.T., F.R.C.R.; Robert Hayden, M.D. (McG.), FRCSC; Grant D. Innes, M.D. (Alta.), FRCPC; Michael T. Janusz, M.D. (Manit.), FRCSC; Edmund C. Kostashuk, M.D. (Qu.), C.C.F.P., FRCPC; Jacques LeBlanc, M.D. (Laval), FRCSC; S. V. Lichtenstein, M.D., Ph.D. (Maryland), FRCSC; Neil S. Longridge, M.D., B.Sc., M.B., Ch.B. (N'cle), F.R.C.S. (Eng.), FRCSC; J. Masterson, M.D., FRCSC; Gregor I. McGregor, B.Sc. (Tor.), M.D. (W.Ont.), FRCSC; Alex Nagy, B.Sc. (Loyola), M.D. (Ott.), FRCSC; Mark K. Nigro, M.D. (Alta.), FRCSC; Jock D. S. Reid, M.D. (Calg.), FRCSC; K. H. Riding, M.B., B.S. (Lond.), M.R.C.S., C.R.C.P. (Eng.), FRCSC; Anthony J. Salvian, M.D. (Ont.), FRCSC; Richard J. Warren, M.D. (Br.Col.), FRCSC; Jeremy D. Woodham, M.B., Ch.B. (Manc.), FRCSC; W. Barrie Woodhurst, M.D. (Br.Col.), FRCSC; Jamie E. Wright, M.D. (Alta.), FRCSC; Ritchie A.L. Younger, M.D. (Alta.), FRCSC.

Clinical Associate Professors

Alexander L. Agranovitch, M.D. (St. Petersburg), FRCPC; Donald W. Anderson, M.D. (Alta.), FRCSC;

Eric Berthelet, M.D. (Montr.), FRCPC; N. Peter Blair, M.D. (Qu.), F.R.C.S. (U.K.), FRCSC; Michael C. Boyd, M.D. (Sask.), FRCSC; James C. Boyle, M.D. (Br.Col.), FRCSC; Jeff Brubacher, M.D. (McG.), M.Sc., FRCPC; G. E. Bryce, B.Sc., M.D. (Tor.), FRCSC; Samuel P. Bugis, M.D. (Alta.), FRCSC, Diplomat Amer. Board Surgery, F.A.C.S.; Kevin Bush, M.D. (Br.Col.), FRCSC; Nicholas J. Carr, M.D. (Br.Col.), FRCSC; Jerry Chen, M.D. (Br.Col.), FRCSC; Jeff Coleman, M.D. (W.Ont.); D.J. Courtemanche, M.D. (Br.Col.), FRCSC; Michael S. Dettman, M.D. (Br.Col.); Robert I. Dickson, B.Sc., M.D. (Manit.), FRCSC; J. R. Dmytryshyn, B.A., M.D. (Sask.), FRCSC; Graeme Duncan, M.B., Ch.B. (Edin.), FRCPC; Donald G. Fitzpatrick, M.D. (Br.Col.), FRCSC; Bruce Fleming, M.D. (Br.Col.), C.F.P.C. Certificate; M. Brian Foley, M.B., Ch.B. (St.And.), FRCSC; Annie E. Gareau, M.D. (McG.), FRCPC; Karen J. Goddard, M.B. (Manc.), MRCP, FRCPC; Eric Grafstein, B.Sc., M.D., (Tor.), FRCPC; Clive A. Grafton, M.B., B.S. (Lond.), FRCSC; Donald E. Griesdale, B.Sc., M.D. (Tor.), FRCSC; J. G. Haegert, M.D. (Nfld.), FRCPC; David W. Harrison, M.D. (W.Ont.), C.C.F.P., FRCPC; Robert A. Irvine, M.D. (Sask.), FRCSC; D. A. Kester, M.D., M.Sc. (Br.Col.), FRCSC; D. J. Kibblewhite, B.Sc., M.D. (Br.Col.), FRCSC; Charmaine Kim-Sing, M.B., Ch.B. (Cape T.), FRCPC; Frederick K. Kozak, M.D. (McM.), FRCSC; Urve Kuusk, M.D. (Br.Col.), FRCSC; William J. Lang, M.D. (Tor.); Thomas F.-S. Lee, M.D. (Manit.), FRCPC; Charles M. Ludgate, M.B., Ch.B., M.D. (Edin.); Michael McKenzie, M.D., (Qu.), FRCPC; R. Douglas McKnight, M.D. (Qu.), FRCPC; Donald R. Mintz, M.D. (Qu.), FRCSC; Andrew J. Moore, M.D. (W.Ont.), FRCSC; W. James Morris, M.D. (Vic.B.C.), FRCPC; James J. Murphy III, M.D., M.Sc.Eng., B.Eng. (New Jersey), Diplomate A.B.S.; O. Neely M. Pantan, M.B. (W. Indies), FRCSC, FACS; Christina Parsons, M.D. (McG.), FRCPC; Thomas Pickles, M.B. (Middx.), M.D., M.R.C.P., F.R.C.P.; Ramesh Sahjipal, M.H.Sc., M.D. (Tor.), FRCSC; Albert Scholtz, M.D. (Tor.), FRCPC; Harold Schubert, M.D. (Br.Col.), MCFP (EM); William T. Simpson, M.D. (Manc.), FRCSC, F.A.C.S.; Quintin R. Son-Hing, M.B., Ch.B. (Cape T.), FRCSC; Holly Stevens, M.D. (Tor.), FRCSC; Robert H. Taylor, M.D., C.M. (McG.), FRCSC; William Taylor, M.B., B.Ch. (Witw.), FRCSC, F.A.C.S.; R.P. Thompson, M.D. (Sask.), FRCSC; N. Chee Thong, M.B., F.R.C.S.(I) (Ireland), FRCSC; Pauline Truong, M.D. (McG.); Laurence J. Turner, M.B., B.Sc. (Lond.), FRCSC, F.A.C.S.; Nancy van Laeken, M.D. (Ott.), FRCSC; Leslie Vertesi, M.D. (Tor.), FRCPC; J. A. Vestrup, M.D. (Br.Col.), FRCSC; Nicholas J. S. Voss, L.R.C.P., M.R.C.S., D.M.R.T., F.R.C.R. (Engl.), FRCSC; Lorna Weir, M.D. (Qu.), FRCPC; Brian Westerberg, M.D. (Qu.), FRCSC; Francis L.-W. Wong, B.Sc., M.D. (Br.Col.), FRCPC; Victor Wood, B.Sc., M.D. (Manit.); Jeremy Woodham, M.B., Ch.B., (Manc.), FRCSC; Jian Ye, M.Sc., M.D. (Wenzhou), FRCSC; Thomas J. Zwimpfer, M.D., Ph.D. (Tor.), FRCSC.

Clinical Assistant Professors

James G. Abel, B.Sc., M.D. (Tor.), FRCSC; Ryojo Akagami, M.D. (Tor.), B.Sc., FRCSC; J. A. Appleby, M.D. (Br.Col.), FRCSC; Alistair D. Baillie, B.Sc., Ph.D. (Glasg.), FCCPM; Susan Balkwill, B.Sch., M.D. (Calg.), FRCPC; Jan J. Bijlsma, B.A., M.D. (Br.Col.), FRCPS; Paul Blood, B.Sc., B.M. (S'ton.), FRCPC; D. Ross G. Brown, B.Sc., M.D. (McM.), FRCSC; Erin Brown, B.Sc., Ph.D., M.D. (Br.Col.), FRCSC; Mary Lynn Brumwell, M.D. (Alta.), FRCSC; Andrzej Buczowski, M.D. (Poland), FRCSC, Honorary Lecturer; Michael G.R. Carter, M.B. (Liv.), M.R.C.P., M.R.C.G.P.; Victor Chow, B.Sc., M.D. (Br.Col.), FRCSC; Brian Chung, M.D. (Tor.), FRCPC; Kevin D. Clarke, B.Sc., M.D. (Dalh.), FRCSC; Aaron Davison, B.Sc., M.D. (McG.), FRCPS; Andrew Denton, M.D. (Dal.), FRCSC; Carol K. Dingee, B.Sc., B.M.Sc., M.D. (Nfld.), C.C.F.P., FRCSC; Charles Dong, M.D.,

(Shanghai Med.), B.Sc., Ph.D.; Kevin R. Dubeta, M.D. (Alta.), FRCSC; Lyne Filiatrault, M.D. (McG.), FRCPC; Sheldon Glazer, M.D., C.M., A.B.E.M. (Part I & II); James F. Goulding, B.Sc., M.D. (Dalh.), FACEP; Virginia Gudas, M.D. (Nfld.), FRCSC; Ross Halperin, M.D.; Allen H. Hayashi, M.D. (W.Ont.), M.Sc., FRCSC; D. Hoegler, M.S., M.D. (McM.), FRCPC; Allan Holmes, M.D. (Br.Col.), FRC Emerg. Med; Amin R. Javer, M.D. (Br.Col.), FRCSC; Shahzad S. Karim, B.Sc., M.D. (Br.Col.), FRCSC; Mira Keyes, M.D. (Yugoslavia), FRCPC; Gary Kingston, M.Sc., M.D. (Br.Col.), FRCSC; Winkle Kwan, M.B., B.S. (H.K.), FRCPC; Stephan N. Larsson, M.B. (Birm.), FRCPC; Peter Lennox, M.D. (Br.Col.), FRCSC; Carson Leong, M.D. (Br.Col.), FRCSC; Cosmas Leung, M.B. (Syd.), FRCPC; Jan T. W. Lim, M.B., Ch.B. (Manc.), F.F.R.C.S.I. (L), F.R.C.R. (U.K.); Peter Lim, M.D. (Br.Col.), FRCPC; Hilton Ling, M.B., M.Ch. (Witw.), F.R.C.S. (Ed.), FRCSC; Mitchell Liu, M.D.C.M. (McG.), FRCPC; Glen M. Litcher, B.A., M.D. (Manit.), FACEP; Jeffrey Ludemann, M.D. (McG.), FRCSC; Roy Ma, M.D. (Br.Col.), FRCSC; P. Shaun MacDonald, B.Sc., M.D. (Tor.), FRCSC; Jessica Macnab, M.D. (Tor.), FRCPC; Jill McEwen, M.D. (Tor.), FRCPC, Emergency Medicine; Adam Meneghetti, M.D. (Br.Col.), M.H.Sc. (Br.Col.), FRCSC; Rua R. Mercier, M.D. (Otago, N.Z.), FRCPC; Barry J. Miller, M.D. (W.Ont.), FRCSC; Alexander B. Morrison, Ph.D., M.B., B.Sc. (Univ. Coll. Engl.); Meite Moser, M.D. (Manit.), FRCPC; J. Paul Moxham, M.D. (Alta.), FRCSC; Fraser Noel, M.D. (Nfld.); Robert F. Noseworthy, M.D. (Nfld.), FRCPC; Brian Oldring, M.D. (Alta.); Lloyd Oppel, B.Sc., M.D. (Br.Col.); Howard Pai, M.D. (W.Ont.), FRCPC; Irvin Pathak, M.D. (W.Ont.), FRCSC; Tracy A. Pickett, M.D., FRCPC; Milton Po, B.Sc., M.D. (E. Quezon, Philippines), FRCPC; Melanie J. Reed, M.D. (Qu.), FRCPC; B. Rudston-Brown, M.D. (Br.Col.), FRCSC; Finbarr Sheehan, M.D. (Cork); J. Michael Smith, M.B., B.Ch., FRCSC; Christopher Stitt, M.D. (W.Ont.), C.C.F.P.(F.M.); Robert M. Street, B.Med.Sc., M.D. (Nfld.), FRCPC; Scott Tyldesley, M.D. (Br.Col.), M.P.A., A.B.R., FRCPC; Cynthia Verchere, M.D. (Br.Col.), FRCSC; Elaine Wai, B.Sc., M.D. (Br.Col.), M.Sc.; Karen Wanger, M.D.C.M. (McG.), FRCPC; Neil Wells, B.Sc., M.D. (Br.Col.), FRCSC; Donald C. Wilson, B.Sc., M.D. (Sask.), FRCPC; Jane Wilson, B.Sc. (Bio.), B.Sc. (Pharm. Sci.), M.D. (Br.Col.), FRCPC; Frank S. H. Wong, M.B. (Nat. Taiw.), FRCSC, FACS; Jonn S. Wu, B.M.Sc., M.D. (Alta.), FRCPC; Karen Zahn, M.D. (Dal.), FRCPC (EM).

Clinical Instructors

Kurt Alscher, M.D. (Br.Col.), B.Sc., M.Sc.; Cameron Bakala, M.D. (Br.Col.), FRCPS; Christopher Baliski, M.D. (Alta.), FRCSC; J. Andrew Bartlett, M.D. (Qu.), FRCSC; Scott Bloom, B.A., M.D. (Qu.), FRCSC; Teodor Bojanowski, M.D. (McM.), FRCSC; R. James Bond, B.N., M.D. (Calg.), M.Ad.Ed., FRCSC; Daniel T. Brosseau, M.D. (Qu.), FRCSC; Michael G. Brown, B.A., M.D. (Sask.), FRCSC; Thomas J. Buonassisi, B.F.A., M.D. (UBC), FRCSC; Michael D. Carter, M.D. (Br.Col.), FRCSC; Norman Causton, M.D., M.Sc. (Br.Col.), FRCSC; George Chang, M.D. (Alta.), B.M.Sc., M.Sc., FRCSC; Anson Cheung, MD. (Manit.) B.Sc., M.Sc., FRCSC; William Cleland, B.Sc., M.D. (Sask.), FRCSC; Johann Cunningham, B.Sc., M.D. (McG.), FRCSC; Arko Demianczuk, B.Sc., M.D. (Qu.), FRCSC; Christopher R. DeWitt, M.D. (Colorad.), ABEM; Jim Dooner, M.D. (W.Ont.), FRCSC, FACS; Anthony J. Dowell, M.B., B.S. (Lond.), M.Sc., FRCSC, F.A.C.S.; Ken Edmonds, M.D. (Calg.), C.C.F.P.(EM); Gunnar Erhardt, M.D. (Manit.), FRCPC; Peter S. Fowler, M.D. (Dalh.), FRCSC; Rodney J. French, B.Sc., M.A.Ed., M.D. (Br.Col.), FRCSC; Euan Frew, M.B., Ch.B. (Scott.), FRCSC; Ben Gelfant, M.D. (Br.Col.), FRCSC; Saul H. Goodman, B.Sc., M.D. (Dalh.), FRCSC; Vic G. Goshko, B.Sc., M.D. (Alta.), FRCPC, FACEP; Robert Granger, M.D.

(Br.Col.), FRCSC; Jason Gray, M.D. (Br.Col.), FRCSC; Maureen Harriman, M.D. (McM.), FRCSC; Murray Hein, M.D. (Calg.), C.C.F.P.(EM); Jerrod Hendry, B.Sc., M.Sc., M.D. (Br.Col.), CCFP; Corrine M. Hohl, M.D.C.M. (McG.), B.S., CCFP, FRCPC; Simon Hoogewerf, B.Sc., M.D. (Br.Col.) CCFP; Gordon T. M. Houston, B.Sc., M.D. (Br.Col.), FRCSC; Paul Huang, M.D., (Br.Col.), FRCPC; James Hunter, M.D. (Br.Col.), B.Sc., L.L.B., FRCSC; T.Ghee Hwang, M.D. (Glas.), M.B.Ch.B., FRCSC; Joseph K.H. Ip, B.Sc., M.Sc., M.D. (Br.Col.), FRCPC; Brendon R. Irvine, B.Sc., M.D. (Br.Col.), CCFP; Clark B. Jamieson, B.Sc., M.D. (Alta.), FRCSC; Rhonda Janzen, B.Sc., M.D. (Nfld.), FRCPC; Shonda Janzen, B.Sc., M.D. (Br.Col.), FRCSC; Lawrence Jewett, B.A., B.Sc., M.D. (Dal.), FRCSC; Howard Joe, M.D. (Br.Col.), F.R.A.C.R., FRCPC; Hosna Kader, M.D. (Cairo), MRCP, FRCR, FRCPC; Tim Kalla, D.P.M. (Penn. Coll. of Podiatric Medicine), B.Sc.; A. T. Kamitakahara, M.D. (Tor.), FRCSC; Anand Karvat, B.Med.Sc., M.D. (Alta.), FRCPC; David Kassen, M.D. (Sask.), C.C.F.P.(EM); Afshin Khazai, B.Sc., M.D. (Br.Col.), CCFP, FRCPC; David Kim, M.D. (Alta.), B.Sc., RCPC, FRCPC; Tom J. Kinahan, M.D. (Br.Col.), FRCSC; Stephanus P. Kloppers, M.B., Ch.B. (Pret.), M.Med.(Pret.), FRCSC; Corrie R. Krahn, B.Sc., M.D. (Manit.), FRCSC (Br.Col.); David Kramer, B.Sc., M.D. (Br.Col.), FRCSC; Tim Kramer, B.Sc., M.D. (Br.Col.), FRCSC; Peter M. Kuechler, B.Sc., M.D. (Alta.), FRCSC; John J-H. Kwak, B.Sc., M.D. (Calg.), FRCSC; Timothy Latham, M.D. (W.Ont.), FRCSC; Pamela Leco, B.Sc. (Hon), M.Sc., M.D. (Calg.), FRCPC; Andrew Lee, M.D. (W.Ont.), FRCSC; Patricia K. Lee, B.Sc., M.D. (Br.Col.), FRCSC; Shung Lee, B.Sc., M.D. (Alta.), FRCSC; Ercole Leone, M.D. (Br.Col.), FRCSC; W.Y. Victoria Leung, M.D., FRCPC; Gregory M. Lewis, M.B., Ch.B. (Cape T.), FCS (S.Afr.), FRCSC; Richard Lewis, M.D. (N.Ont.), FRCSC; Rick H. Little, B.Sc., M.D. (Br.Col.), CCFP; Ramesh Lokanathan, M.D. (McG.), FRCPC; Adam J. Lund, B.Sc., M.D. (Br.Col.), FRCPC; Kathleen MacKay, B.Sc., B.S.W. (Br.Col.), M.S.W.; Stanley Mah, B.Sc., M.D., FRCSC; Amanda Maloney, B.A., M.D. (Br.Col.), FRCSC; Shu Sing Christopher Man, M.D. (Manit.), FRCSC; Caroline McIntyre, B.Sc., M.D. (Ott.), M.H.Sc; Elaine C. McKevitt, B.Sc., M.Ed., M.D. (Br.Col.), FRCSC; Gordon McLaughlan, B.Sc., M.D. (Glas.), M.B.Ch.B., FRCSC; Mark Miller, M.D. (Sask.), FRCSC; Ian Mitchell, M.D. (McG.), FRCPC; Islam Mohamed, M.D. (Atla.), FRCPC; David Morwood, M.D. (Alta.), FRCSC; Omid Mostafchi, B.Sc., M.D. (Tor.), FRCSC; Michael S. Mostrenko, B.Sc., M.D. (Br.Col.); Nam Nguyen, B.Sc., M.D. (Br.Col.), FRCSC; Alan M. Nichol, B.A.Sc., M.D. (Calg.), CCFP, FRCPC; William J. Orrom, B.Sc., M.D. (Qu.), M.Sc. (Alta.), FRCSC; Geoffrey Palmer, B.Sc., M.D. (Br.Col.), FRCSC; Scott J. Paquette, B.Sc.H., B.Med.Sc., M.D. (Nfld.), FRCSC; Brian Peterson, M.D. (Sask.), B.Sc., FRCSC, FACS; David Pledger, B.Sc., M.D. (Dalh.), FRCPC; Peter J. Pommerville, B.A., M.D. (Ott.), FRCSC; Christina I. Poon, B.Sc., M.Sc., M.D. (Br.Col.), FRCSC; Kenneth Poon, M.D., FRCSC; Bruce Povah, M.D. (Manit.), FRCSC; Keith Prestage, M.D. (Sask.), FRCSC; Andrea Pusic, M.D. (Calg.), FRCSC, MHS; Rasika D. Rajapakshe, B.Sc., M.Sc., Ph.D. (Manit.), FCCPM; Charles W. Ricketson, M.D. (Qu.), FRCPC; Alison C. Ross, B.Ph.E., B.A., M.D. (Br.Col.), FRCPC; Helen Ross, B.Sc., B.M.S., M.D. (Mem.), FRCPC; Ben Sawyer, M.D. (W.Ont.), FRCSC; Bernie Schopf, M.D. (W. Ont.), FRCSC; Richard Schwarz, M.D. (W.Ont.), FRCSC; Peter K. Skepasts, M.D. (Calg.), FRCSC; Ingrid T. Spadinger, B.A.Sc., Ph.D. (Br.Col.), FCCPM; Gary E. J. Steinhoff, B.A., M.D. (Ott.), FRCSC; Harvey Strecker, M.D. (Calg.), FRCSC; Susan Stromberg, M.D. (Br.Col.), C.C.F.P.(EM); Barry Sullivan, M.D. (Tor.), M.Sc., FRCPC; Michelle Sutter, M.D. (Br.Col.), FRCSC; Bao Tang, B.Sc., M.D. (W.Ont.), FRCSC; Christopher Taylor, M.D.,

FRCS(C); **Drew Thompson**, M.D. (Dal.), FRCS(C); **Ian Thordarson**, B.Sc., M.D. (Br.Col.), FRCP(S); **Victor Tsang**, M.D., FRCS(C); **Stan Valnicek**, M.D. (Sask.), FRCS(C); **Gilbert Wankling**, M.D., (Manit.), FRCS(C); **Stephen J. Wheeler**, B.Sc., M.D. (Br.Col.), A.B.P.; **M. Christo Wiggins**, M.D. (S.Africa), M.Fam.Med., F.C.S., FRCS(C); **David Williamson**, M.D. (Dal.), B.Sc., D.V.M., FRCS(C); **Scott Williamson**, M.D. (Qu.), B.Sc., FRCS(C); **Bruce M. Wong**, M.D., FRCP(C), FACEP; **Lillian Wong**, M.D., FRCS(C); **Emile C-H. Woo**, B.Sc., M.D. (Br.Col.), FRCS(C); **Ronald W. Youngash**, M.D. (W.Ont.), FRCP(C).

Associate Members

Gregory Baldwin, Pediatrics; **Kenneth Bercan**, Pathology & Lab. Medicine; **Ross Beringer**, Family Practice; **Keith Chambers**, Health Care & Epidemiology; **Lawrence Cheng**, Family Practice; **Kim Chi**, Medicine; **Margaret L. Colbourne**, Family Practice; **Carolyn Davies**, Pediatrics; **B. Joyce Davison**, Nursing; **Stacey Elliott**, Psychiatry; **Jeremy Etherington**, Family Practice; **John C. Fenwick**, Medicine; **Richard Gallagher**, Health Care and Epidemiology; **D. Graeb**, Radiology; **Peter Gropper**, Orthopedics; **David Haughton**, Pediatrics; **Kirk Hollohan**, Family Practice; **Daniel Kalla**, Family Practice; **Paul M.A. Korn**, Pediatrics; **Cynthia E. Lauriente**, Pediatrics; **Cindy-Ann Lucky**, Family Practice; **Lindsay Machan**, Radiology; **Sunil Mangal**, Family Practice; **Julian Marsden**, Family Practice; **D. Christopher Morris**, Radiology; **Jock Murray**, Family Practice; **Bruce Phillips**, Pediatrics; **Sipke Pijl**, School of Audiology & Speech Sciences; **Matthew Ramer**, Icoord; **J. Rootman**, Ophthalmology; **Wade Sabados**, Family Practice; **Amin Sajjan**, Family Practice; **John D. Steeves**, Zoology; **Philip Teal**, Medicine; **W. G. Tetzlaff**, Zoology; **C. Bruce Verchere**, Pathology & Lab. Medicine; **Sandra R. Whitehouse**, Pediatrics; **Peter Zed**, Pharmaceutical Sciences.

Honorary Members

John Fredrickson, M.D. (Br.Col.), Ph.D. (Linkoping), Ph.D. (Ohio), FRCS(C), Honorary Professor; **W. R. E. Jamieson**, B.A. (New Br.), M.D. (Dal.), FRCS(C), Honorary Professor; **Paul Rennie**, B.Sc. (W.Ont.), Ph.D. (Alta.), Honorary Professor; **Conrad Rusnak**, B.A.Sc. (Sask.), M.D. (Sask.), FRCS(C), Honorary Associate Professor; **Marianne Sadar**, B.Sc., Ph.D. (Brad.), Honorary Associate Professor.

Adjunct Members

Ronald Lett, B.M.Sc., M.Sc., M.D. (Alta.), FRCS(C), Adjunct Professor; **Yuzhuo Wang**, B.Sc., M.Sc., Ph.D., Adjunct Professor.

Research Associate Members

Ziliang Ao, Med.Sc. (China), B.Med. (China), M.Sc.; **Joaane Clifton**, M.Sc.; **Ruhangiz Kilani**, B.Sc., M.P.H. (Tehran), Ph.D. (Manit.); **Linda Rammage**, B.Sc., M.Sc., Ph.D. (Wisconsin-Madison).

Staff By Division

Division of Cardiovascular Surgery, S. V. Lichtenstein (Head), J. G. Abel, A. W. Cheung, G. Fradet, V. Gudas, R. Hayden, W.R.E. Jamieson, M.T. Janusz, S. Karim, T. Latham, J. LeBlanc, H. Ling, K. Qayumi, P. Skarsgard, D. Thompson, J. Ye; **Division of Emergency Medicine**, R. A. Purssell, (Head), R. Abu-Laban, J.J. Bijlsma, T. Brubacher, M.G.R. Carter, J.M. Christenson, B. Chung, J. Coleman, A. Davison, M.S. Dettman, C. DeWitt, K. Edmonds, G. Erhardt, L. Filiatrault, B. Fleming, A. Gareau, S. Glazer, V. Goshko, J. F. Goulding, E. J. Grafstein, J. G. Haegert, D. W. Harrison, M. Hein, J. Hendry, K. Ho, C. Hohl, A. Holmes, S. Hoogewerf, P. Huang, G.D. Innes, J. K. H. Ip, B. R. Irvine, S. P. Jones, D. Kassen, A. Khazei, W. J. Lang, T.E.S. Lee, C. Leung, R. H. Little, G. M. Lowther, A. J. Lund, K. MacKay, J. Macnab, J. McEwen, C. McIntyre, R. D. McKnight, R.R. Mercier,

B.J. Miller, I. Mitchell, A.B. Morrison, M. Moser, M. S. Mostrenko, R.F. Noseworthy, B. Oldring, L. Oppel, T. Pickett, D. Pledger, C. W. Ricketson, H. Ross, H. Schubert, C. Stitt, R.M. Street, S. Stromberg, I. Thordarson, L. Vertesi, K. Wanger, S. J. Wheeler, B. M. Wong, V. Wood, R. W. Youngash, K. Zahn; **Division of General Surgery**, S.W. Chung (Head), K. Alscher, Z. Ao, J.P. Appleby, C. Baliski, N.P. Blair, S. Bloom, D. Brosseuk, D.R.G. Brown, M. G. Brown, A. Buczkowski, S. P. Bugis, N. Caron, N. Causton, G. Chang, R. Cheifetz, J. Cunningham, N.L. Davis, C. Dinglee, A. Dowell, E. Frew, T.W. Hwang, R. Granger, A. H. Hayashi, C. Helgason, J. Hunter, R. Janzen, J. Johnson, A. Kamitakamara, T. Kieffer, G. Kingston, U. Kuusk, R. Lett, M. Levings, R. Lewis, G.I. McGregor, E. McKeivitt, G. McLaughlan, M. Meloche, M. Meneghetti, A. Mui, A.G. Nagy, N. Nguyen, C. Ong, W. J. Orrom, O.N. Pantan, P.T. Phang, A. C. Ross, B. Rudston-Brown, C. Rusnak, B. Sawyer, B.Schopf, R. Schwarz, C.H. Scudamore, A.M. Seal, R. Simons, W.T. Simpson, B.Sullivan, M. Sutter, B. Tang, R. Taylor, V. Tsang, L.J. Turner, J.A. Vestrup, G. Wankling, G.L. Warnock, M.C. Wiggins, S. Wiseman, E. C-H. Woo; **Division of Neurosurgery**, G.J. Redekop (Head), R. Akagami, M.C. Boyd, D.D. Cochrane, C. Dong, D.J. Fairholm, D.E. Griesdale, C. Haw, C. Honey, W.W-J Jia, A. Lee, S. J. Paquette, R. Sahjpaul, P. Steinbok, B.D. Toyota, W.B. Woodhurst, T.J. Zwimpfer; **Division of Otolaryngology**, N.S. Longridge (Head), D.W. Anderson, C. Bakala, J.A. Bartlett, G.E. Bryce, A. Blokmanis, T. Bojanowski, T. J. Buonassisi, K. D. Clarke, W. Cleland, A. Denton, R.I. Dickson, J. R. Dmytryshyn, K.R. Dubeta, S. Durham, J. Frederickson, M. Harriman, R.A. Irvine, A. Javer, L. Jewett, D. J. Kibblewhite, S. Kloppers, F.K. Kozak, D. Kramer, T. Kramer, J. J-H. Kwak, P. K. Lee, J. Ludemann, S. Mah, A. Maloney, S.S.C. Man, M. Miller, D. R. Mintz, M.D. Morrison, D. Morwood, O. Mostachfi, P. Moxham, F. Noel, I. Pathak, B. Povah, L. Rammage, K.H. Riding, J.M. Smith, H. Stevens, H. Strecker, N.C. Thong, B. Westerberg, F. S. H. Wong, L. Wong, J. Woodham, R. Younger; **Division of Pediatric General Surgery**, E.D. Skarsgard (Head), G. Blair, J. Murphy, E. Webber; **Division of Plastic Surgery**, N.J. Carr (Head), J. Boyle, E. Brown, K. Bush, P., D.J. Courtemanche, A. Demianczuk, D.G. Fitzpatrick, B. Foley, P. S. Fowler, R. J. French, A. Gharhary, B. Gelfant, J. Gray, D.A. Kester, R. Kilani, P. Lennox, B. Peterson, A. Pusic, Q.R. Son-Hing, C. Taylor, R.P. Thompson, S. Valnicek, N.Y. Van Laeken, C. Verchere, R.J. Warren, N. Wells, D. Williamson, S. Williamson; **Division of Radiation Oncology and Developmental Radiotherapeutics**, T.J. Keane (Head), A. Agranovich, A. D. Baillie, S. Balkwill, E. Berthelet, P. Blood, G. Duncan, K.J. Goddard, C.A. Grafton, R. Halperin, J.H. Hay, D. Hoegler, H. Kader, A. Karvat, H. Joe, M. Keyes, D. Kim, C. Kim-Sing, E.C. Kostashuk, W. Kwan, S. Larsson, P. Leco, C. Leong, W.Y.V. Leung, J.T.W. Lim, P. Lim, M. Liu, C.M. Ludgate, R. Ma, M. McKenzie, I. Mohamed, W. J. Morris, A. M. Nichol, I.A. Olivotto, H. Pai, C. Parsons, T. Pickles, M. Po, R. D. Rajapakshe, M. Reed, F. Sheehan, I. T. Spadinger, P. Truong, F. Tyldesley, N.J.S. Voss, E. Wai, L. Weir, D. Wilson, J. Wilson, E.L.W. Wong, J. Wu; **Division of Thoracic Surgery**, R. J. Finley (Head), R. J. Bond, M. L. Brumwell, J. Clifton, K. G. Evans, G. Fradet, K. Qayumi, J. Yee; **Division of Urology**, S.L. Goldenberg (Head), K. Afshar, M. D. Carter, V.D.W. Chow, M. Cox, H.N. Fenster, M. Gleave, S. H. Goodman, W. Gourlay, E. Guns, C.B. Jamieson, T. Kinahan, P. Kozlowski, C. Krahn, E. Leone, A.E. MacNeily, M. McLoughlin, J. Masterson, A.J. Moore, C. Nelson, M. Nigro, G. Palmer, R. Paterson, P. J. Pommerville, C. I. Poon, K. Poon, K. Prestage, P. Rennie, M. Sadar, P. Skepasts, G. E. J. Steinhoff, L. Stothers, W.N. Taylor, J. Teichman, Y. Wang, J.E. Wright; **Division of Vascular Surgery**, L. Doyle (Acting Head), J. Chen, J. Dooner, P. D. Fry, G. Houston, Y. Hsiang, T. Kalla, P. M.

Kuechler, S. Lee, G. M. Lewis, R. Lokanathan, S. Macdonald, J. Reid, A. J. Salvian, R. Sidhu, D. Taylor.

2006-07

18 The School of Music

A SCHOOL WITHIN THE FACULTY OF ARTS

Director's Office

J. Read, Director

6361 Memorial Road
Vancouver, BC V6T 1Z2
Telephone: 604-822-3113
Fax: 604-822-4884

Music Website (www.music.ubc.ca)

The School of Music offers programs of study in performance and composition leading to the Bachelor of Music, the Diploma in Collaborative Piano Studies, the Diploma in Musical Performance, the Master of Music, and the Doctor of Musical Arts, as well as programs in musical scholarship leading to the Bachelor of Music, the Master of Arts, and the Doctor of Philosophy. The School also offers Bachelor of Music programs designed for prospective school teachers, elementary and secondary. All Bachelor of Music programs have a performance component. For students with a strong interest in music but little background in performance, the School offers the Bachelor of Arts with a major, minor, or honours in Music. For a description of the Bachelor of Arts, see *Music*, p. 144, in the Faculty of Arts section. For graduate degrees, see *Music*, p. 268, in the Faculty of Graduate Studies section.

BACHELOR OF MUSIC

The School of Music offers a four-year degree program leading to the Bachelor of Music. At the heart of the program is the core curriculum of music theory, music history, performance, and liberal arts electives, in which all majors participate. Academic and performance standards are consistent with those established by the Canadian University Music Society, of which the School is a member.

ACADEMIC ADVISING

Advising is mandatory at both the undergraduate and graduate levels. Returning students are advised at the end of the Winter Session. Newly admitted undergraduates are advised from early June to mid-July. Advising outside these times is available by appointment.

ADMISSION

Admission to the School of Music is limited, and is based upon an evaluation of the total skills and preparation of each applicant, including performance auditions, previous academic

record, proficiency in music theory, and letters of recommendation. To apply to the School, complete two applications. First apply to UBC through the PASBC website (www.pas.bc.ca); indicate the B.Mus. program as the preferred program. The application deadline is February 28. After completing this application, you will receive a UBC student number. You must then complete the Music supplemental application, available on the UBC Student Services website (www.students.ubc.ca/SSC). On this application indicate preferred majors, previous musical training, and preferred dates for a live audition and a theory examination. Complete it as soon as possible, and no later than March 15. In late March the School will contact each applicant to arrange the audition and theory examination, which are typically held in early April. Applicants must also request that two letters of recommendation be sent to the Undergraduate Admissions Officer in the School of Music. At least one of these should be from a music teacher. All letters should be sent directly by the referee and under no circumstances should pass through the hands of the applicant.

Students who are applying to transfer into third year will not be considered for admission unless they have completed six credits of transferable first-year English by April 30 of the year in which they apply. Students applying to transfer into second year must at least be eligible to register in first-year English, usually by having achieved a score of level 5 on the *Language Proficiency Index (LPI) examination*, p. 120, by April 30 of the year in which they apply.

Transfer Credits

Students intending to transfer to UBC from other institutions should plan their programs of study carefully to match, as nearly as possible, the majors outlined here, including both music and non-music courses. The *British Columbia Transfer Guide* (www.bccat.bc.ca) (published by the BC Council on Admissions and Transfer), should be consulted to determine the transferability of specific courses. The year and major to which a transfer student is admitted are based upon both the number of transferable courses and the student's performance ability, as determined by the entrance audition. Therefore, the number of transfer credits awarded for instrumental (or composition) study may be less than the number of corresponding credits the

student has taken at other institutions. Transfer credit awarded for ensemble performance cannot be used to satisfy the ensemble requirements for the third and fourth years.

DEGREE REQUIREMENTS

Additional Majors and Minors Outside Music

Students enrolled in the B.Mus. program can combine their major with a major or minor of the B.A. program. For successful completion of the B.A. major, they must take at least 42 credits in a field or specialization, of which 18 must be in courses numbered 300 or above; in addition, they must fulfil all the requirements set by the Faculty of Arts department or program. For successful completion of a B.Mus. with an Honours in Mathematics, see the requirements of the *Combined Honours in Mathematics and Another Subject*, p. 143, under Mathematics in the Faculty of Arts.

A very limited number of B.Mus. students may also minor in Commerce. Eligibility is restricted as specified for the B.A. Minor in Commerce. Enrolment must also be approved by the senior undergraduate advisor in the School of Music.

DOUBLE MAJOR

A student who is exceptionally qualified may undertake two majors concurrently in the B.Mus. To graduate with a double major, a student must be admitted to the two majors by established procedures (by audition, for most majors), and must satisfy the continuation requirements of both majors each year, and must complete all course requirements for both majors. Neither of the majors may be General Studies.

Performing Organizations

All students in the Bachelor of Music programs participate in the large and small instrumental and choral ensembles sponsored by the School of Music to develop their skill as musicians and to experience a wide range of repertoire. The ensembles are also open to qualified non-music majors, who may be accepted by audition and who may receive credit for participating (consult faculty listings). The ensembles are the University Singers, University Choral Union, University Symphony Orchestra, University Wind Ensemble, University Opera Ensemble, the Contemporary Players, the Asian Music Ensembles, the Jazz Ensemble, the Collegium

Musicum Ensembles, and various chamber groups. No more than half of a student's small ensemble credit is to be in Jazz Ensemble. Where the term 'large ensemble' is used in lists of degree requirements, it refers to MUSC 150 (Large Instrumental Ensemble), 153 (University Singers), and 154 (University Choral Union).

Specific ensembles may tour extrasessionally. Student participation in such tours, while desirable, is not obligatory. Students should inform ensemble directors of their plans as early as possible in the Winter Session.

Recitals by Faculty and Students

Recitals include the following:

- Faculty Recitals. Members of the faculty present formal recitals throughout the academic year. All students in the Bachelor of Music program are expected to attend.
- Wednesday Noon-Hour Recitals. On many Wednesdays, recitals feature outstanding soloists and chamber ensembles. Students in the Bachelor of Music program are expected to attend.
- Student Recital Series. More formal recitals are presented occasionally during the academic year. Normally several students will share one of these periods on the recommendation of the faculty. Attendance is expected of students majoring in performance.
- Graduation Recitals. All students majoring in performance (except opera) must present full-length graduation recitals in partial fulfilment of their degree requirements. Students in the Bachelor of Music program are expected to attend.

Minimum Achievements in Piano

Where piano is neither the major nor the concentration instrument, the student will be required to achieve the following keyboard proficiencies, normally by taking piano as a secondary instrument.

First-year students with little or no keyboard experience will be placed in Class Piano, MUSC 141.

Students with some previous piano experience may be exempted from all or part of the piano requirement by demonstrating proficiency in the skills listed below. They must take other Music electives to make up for the credits of any secondary piano courses from which they are exempted. For details, consult the undergraduate coordinator of the keyboard performance division.

By the end of first year of study, students must be able to:

- perform independently-prepared repertoire at the level of Grade IV as defined by a recognized examining board;
- sight-read pieces at the level of Grade II;
- transpose pieces at the level of Grade II;
- improvise accompaniments using common-practice harmonies and/or contemporary techniques (melody and accompaniment; accompaniment alone); and

- play: major and minor scales in keys up to and including four sharps and four flats; triads, chords, and arpeggios, in the same keys as above; and chromatic scales from any note.

By the end of second year of study, students must be able to:

- perform independently-prepared repertoire at the level of Grade VI;
- sight-read pieces at the level of Grade IV;
- transpose pieces at the level of Grade IV;
- improvise accompaniments utilizing more extensive harmonic and contrapuntal vocabulary (melody and accompaniment; accompaniment alone);
- play complete scales, triads, chords, and arpeggios in all keys;
- play ensemble scores, with preparation and also at sight.

Annual Review in the Performance and Composition Majors

All students enrolled in the Performance and Composition Major Programs will be reviewed annually to determine whether they should be allowed to continue in their course of study.

Non-Music Electives

The following courses are acceptable for credit as non-Music electives in the Bachelor of Music:

- all courses in the Faculty of Arts (other than Music courses) and Science;
- all courses in Family Studies (FMST);
- 18 credits in courses outside Arts, Science, and Family Studies.

Courses in musical performance, conducting, and arranging offered by the Faculty of Education are not acceptable for credit in Music degrees, except as specified in the programs of the Elementary and Secondary Education Streams of the General Studies Major.

English Requirement

To qualify for the Bachelor of Music, students must satisfy the Language Proficiency Index requirement (see *Language Proficiency Index Requirement for First-Year English*, p. 120) and first-year English requirements as stipulated by the Faculty of Arts (see *English Requirement*, p. 120, under Faculty of Arts, Degree Requirements).

Private Instrumental Instruction

Students may be registered for private instruction on their principal instrument only in a session in which they are taking at least 15 credits, and only if they are taking concurrently, or have already taken, all ensembles required in their major for the year level of their private instrumental instruction.

COMPOSITION

This four-year program is formulated for student swith particular capabilities in musical composition.

A student will not be allowed to enrol in this program unless ability in composition has

already been demonstrated by submitting copies of original scores to the Composition division.

Composers will have opportunities to hear their works performed by ensembles of students and faculty during their four years at the University.

To be eligible for graduation, a student majoring in Composition must compose at least 45 minutes of music and have it performed. In each year of the program, there must be at least one public premiere performance of the student's work. Performance dates and locations must be documented, including a recording if possible, and submitted to the principal composition teacher. Reading sessions by an orchestra or another large ensemble are acceptable as performances only upon approval of the Composition division.

COMPOSITION

First Year	
ENGL 100-level	6
MUSC 107 ¹	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
Music Performance ²	4
Non-Music Elective(s)	6
Total Credits	34
Second Year	
MUSC 207	6
MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
Music Performance ²	4
MUSC 309	2
MUSC 310	2
Large Ensemble	3
Literature Requirement	6
Total Credits	35
Third Year	
MUSC 300	3
MUSC 301	3
MUSC 307	6
Piano Performance ²	2
Small Ensemble	2
Music Electives ³	6
Non-Music Electives	9
Total Credits	31
Fourth Year	
Theory Electives ⁴	6
MUSC 407	6
Piano Performance ²	2
MUSC 311	2
Music 312 or 313	2
Music Electives ³	6
Non-Music Electives	9
Total Credits	33

¹ Composition I: It is possible to commence a Major in Composition after one year in another field. In such a case the Composition division will decide whether the student must take all of MUSC 107, 207, 307, and 407.

² At least 2 credits of piano are required each year. Students may study either at the concentration level (182, 282, 381, 481) or at the secondary level (172, 272, 371, 471). Students who study at the concentration level must meet jury requirements.

³ Additional credits of ensemble are not permitted to fulfill the Music Elective requirement.

⁴ Students will choose two courses from MUSC 410-415.

GENERAL STUDIES

This curriculum is designed to provide a general higher education in music, including performance, and to prepare students for professional work in a wide variety of fields such as criticism, broadcasting, editing, and arts management. The degree will allow continuation toward graduate degrees.

All applicants for the Major in General Studies will be required to audition on the instrument of their greatest competence. Students are required to study for four years in a concentration of their own choice; possibilities are piano, organ, voice, guitar, harp, strings, woodwinds, brass, percussion, and some historical instruments such as harpsichord, lute, viola da gamba, early flutes, recorder, and other instruments as instruction is available.

Students interested in preparing to teach music in BC schools should see *General Studies: Elementary Education Stream*, p. 355, or *General Studies: Secondary Education Stream*, p. 355, in the following sections.

GENERAL STUDIES

First Year

ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
MUSC 182 ¹	4
MUSC 141 or 171 ²	2
Large Ensemble ³	3
Non-Music Elective(s) ⁴	6
Total Credits	33

Second Year

MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 282 ¹	4
MUSC 241 or 271 ²	2
Large Ensemble ³	3
Literature Requirement	6
Non-Music Elective(s) ⁴	6
Total Credits	33

Third Year

MUSC 300	3
MUSC 301	3
MUSC 382 ¹	4

Third Year (Continued)

Large Ensemble ³	3
Music Electives and Small Ensemble ⁵	14
Non-Music Elective(s) ⁴	6
Total Credits	33

Fourth Year

MUSC 482 ¹	4
Large Ensemble ³	3
Music Electives and Small Ensemble ⁵	14
Non-Music Electives ⁴	9
Total Credits	30

¹ The concentration instrument is usually the one on which the student is most competent, and on which the student auditioned to enter the School.

² Normally secondary-level lessons in piano; see *Minimum Achievements in Piano*, p. 354 under Degree Requirements for the B.Mus.

³ The large and small ensembles chosen are normally those most appropriate to the student's concentration instrument. Substitutions can occasionally be made after consultations with the student's adviser, and with some consideration being given to the needs of the ensembles. Piano concentrators will take MUSC 167 in their third year (possibly supplemented by MUSC 169, with permission of the instructor). In their fourth year, if the coordinator of the keyboard division approves, they will take MUSC 161 and possibly 169, or else another small ensemble. Students with concentrations in historical instruments will take 6 credits of small ensemble (usually Collegium Musicum, starting in the second year) and 6 credits of large ensemble.

⁴ The non-Music electives may be freely chosen, except that at least 12 credits must be in the same department, with at least 6 of these at the 200-level or higher. If English is chosen to fill this requirement then 12 credits must be selected beyond those necessary to complete the literature requirement.

⁵ In each of third and fourth years a total of 14 credits, comprised of small ensemble and music electives, must be taken with a minimum of 2 credits and a maximum of 6 credits of small ensemble. The 2-credit small ensemble minimum may be waived if inappropriate to the concentration instrument or to the needs of the student, or by decision of the Director, in which case the Music electives will be increased from 12 to 14 credits. Extra credits of large ensemble beyond those required for this major may not be used as Music electives. Students with keyboard concentrations must take MUSC 349. Those with harpsichord concentrations must take MUSC 333 and 433. Those wishing to concentrate on historical instruments are advised to take 12 credits of music history courses (from MUSC 350, 352, 353, 354, and 355) as part of their Music electives.

GENERAL STUDIES: ELEMENTARY EDUCATION STREAM

This curriculum is a preparation for studies in education leading to certification as a teacher in BC elementary schools. It is intended to develop relevant skills in music performance along with a broad knowledge of musical styles. Students who successfully complete this program will have the prerequisites for admission to the Elementary Teaching Program in the Faculty of Education.

The first two years of the program are identical to the first two years of the Major in General Studies, except that the Large Ensemble and the Non-Music Electives should be selected in conformance with footnotes 2 and 3 below.

GENERAL STUDIES: ELEMENTARY EDUCATION

Third Year

MUSC 300	3
MUSC 301	3
Music Electives ¹	4
MUSC 311	2
Music 312	2
Music 313	2
MUSC 382	4
Large Ensemble ²	3
Class Instrument (MUSC 102, 112, or 122)	2
Non-Music Elective(s) ³	6
Music Education Electives ⁴	3
Total Credits	34

Fourth Year

Music Elective(s) ¹	6
MUSC 482	4
Large Ensemble ²	3
MUSC 131 ⁵	2
Class Instrument (MUSC 102, 112, or 122)	2
Non-Music Electives ³	12
Music Education Elective(s) ⁴	3
Total Credits	32

¹ Of the 12 required Music elective credits, at least six must be in history, theory, ethnomusicology, orchestration, or composition. At most 2 credits of small ensemble may be elected.

² For orchestral instrument concentrators, one of the four required large ensembles must be a choir (MUSC 153 or 154), and the remaining three will be Large Instrumental Ensemble (MUSC 150).

³ The non-Music Electives should be chosen to satisfy the admissions requirements of the Elementary Teaching Program of the Faculty of Education.

⁴ Students should consult with Music Education faculty to determine which courses are most suitable as electives.

⁵ Students are required to take MUSC 131 if they have had no previous vocal instruction. Voice concentrators and secondaries will take 2 additional credits of Music Elective instead of MUSC 131.

GENERAL STUDIES: SECONDARY EDUCATION STREAM

This curriculum is a preparation for studies in education leading to certification as a music teacher in BC secondary schools. Successful completion of the program, or a program with comparable requirements, is a prerequisite for admission into the B.Ed. (Secondary) program in the Faculty of Education, with music as the major teaching field.

The curriculum is based on that of the Major in General Studies (see *General Studies*, p. 355), with the following differences:

1) Second Year: Students must take MUSC 122 (2).

2) All Years:

- Large Ensemble: for instrumental concentrators, one of these, in the four years, must be a choir, and the remaining three will be Large Instrumental Ensemble.
- Non-Music Electives: students should consult the Faculty of Education for distribution requirements.

GENERAL STUDIES: SECONDARY EDUCATION

Third Year	
MUSC 112	2
MUSC 300	3
MUSC 301	3
MUSC 309	2
MUSC 310	2
MUSC 311	2
MUSC 312	2
MUSC 313	2
MUSC 382	4
MUSC 371	2
Large Ensemble	3
Small Ensemble	2
Music Electives ¹	2
Non-Music Elective(s) ²	6
Total Credits	37
Fourth Year	
MUSC 482	4
Music Performance (Secondary) ³	2
Large Ensemble	3
MUED 302	4
MUED 303	4
Non-Music Electives ²	12
Music Electives	5
Total Credits	34

¹ 2 credits of the Music Elective may be in additional small ensemble work. MUSC 102 is recommended as an elective for string players.

² The non-Music electives may be freely chosen, except that at least 12 credits must be in the same department, with at least 6 of these at the 200-level or higher. If English is chosen to fill this requirement then 12 credits must be selected beyond those necessary to complete the literature requirement.

³ Voice concentrators take an appropriate level of their secondary instrument; those with previous secondary voice instruction take an appropriate level of voice or of the secondary instrument begun in the third year; those without previous voice instruction take MUSC 131.

GUITAR

All students planning to major in Guitar in the Bachelor of Music program are required to audition just prior to the beginning of classes. Transfer students from other colleges and universities will audition at the same time. The auditions will determine the admission of students to the performance program and whether they will be allowed to transfer credits in guitar performance from other universities and colleges.

In general, the entrance level corresponds to the Toronto or Western Board Grade X, and there must also be the probability of significant development during the years of study at the University. The possession of a diploma is not a guarantee of acceptance.

Students accepted as first-year Guitar majors will be expected to attain annual levels corresponding approximately to those given below. The works cited are given as guides to the levels of technical and musical achievement to be attained and do not indicate specific repertoire requirements.

Entrance auditions and term examinations will include sight reading and quick study in addition to the performance of prepared repertoire. Third-year students will be required to study French and Italian lute tablature systems (in their private lessons). Fourth-year students will be expected to transcribe a work from the repertoire of another instrument (e.g., piano, violin).

- 1) End of First Year. Etudes (Villa-Lobos: No. 1, Mignone: No. 10); Dowland: *Lacrimae Pavan*; Weiss: *Fantasia*; Sor: *Fantasia Op. 7*; Berkeley: *Theme and Variations*.
- 2) End of Second Year. Etudes (Villa-Lobos: No. 6, Sor: [Segovia] No. 12); Dowland: *Fantasia*; Bach: *Third Lute Suite*; Somers: *Sonata*; Torroba: *Suite Castellana*.
- 3) End of Third Year. Etudes (Villa-Lobos: No. 2, Dodgson: [Quine] No. 20); Bach: *Prelude, Fugue and Allegro*; Sor: *Sonata Op. 22*; Walton: *Bagatelles*; Concertos (e.g., Castelnuovo-Tedesco); vocal and instrumental accompaniments; chamber works. Third-year recital.
- 4) End of Fourth Year. Etudes (Villa-Lobos: No. 10, Mignone: No. 3); Bach: *Fourth Lute Suite*; Castelnuovo-Tedesco: *Sonata*; Britten: *Nocturnal*; Bolcom: *Seasons*; Concerto (e.g. Rodrigo: *Aranjuez*); vocal and instrumental accompaniments; chamber works. Fourth-year recital.

GUITAR

First Year	
ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
MUSC 193	6
MUSC 141 or 171 ¹	2
Large Ensemble ²	3
MUSC 160 ³	2
Non-Music Electives	3
Total Credits	34
Second Year	
MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 293	6
MUSC 271 or 271 ¹	2
Large Ensemble ²	3
MUSC 160 ³	2
Literature Requirement	6
Non-Music Electives	3
Total Credits	34
Third Year	
MUSC 300	3
MUSC 301	3
MUSC 363	4
MUSC 394	8
Small Ensemble ³	2
Music Electives	6
Non-Music Electives	6
Total Credits	32

Fourth Year

MUSC 494	8
Small Ensemble ³	2
Music Electives	6
Non-Music Elective(s)	12
Total Credits	28

¹ Normally secondary-level lessons in piano; see *Minimum Achievements in Piano*, p. 354, under Degree Requirements for the B.Mus.

² Students may elect any one of MUSC 150, 153, or 154, with the permission of the School.

³ It is often desirable that students take the guitar ensemble section of MUSC 160 in each of their first and second years, and that they either continue with the ensemble or elect one of the following courses in each of their third and fourth years: MUSC 156, MUSC 163, MUSC 165. Should appropriate small ensemble courses not be available in any given year, the required credits will be waived and the Music Elective requirement increased correspondingly.

HARPSICHORD

This major is designed for students planning a performing or teaching career in Harpsichord performance of both solo repertoire and continuo practice for music of the 16th, 17th, and 18th centuries.

All students who plan to major in harpsichord, including transfer students from other colleges and universities, must audition prior to the commencement of the academic year. Specific requirements for the audition are outlined on the B.Mus. application form. Students in the first or second year of a Bachelor's program in Piano or Organ who demonstrate an aptitude for harpsichord performance may apply to change their major to Harpsichord.

Students in this major will be expected to attain annual levels corresponding approximately to those given below:

- 1) End of First Year. J.S. Bach: *French Suite*; F. Couperin: *Suite from Bks. I-II*; Byrd: *Pavan and Galliard*; Frescobaldi or Froberger: *Canzona or Ricercar*; J.C. Bach: *Sonata*.
- 2) End of Second Year. J.S. Bach: *Toccatà*; L. Couperin: *Suite*; Gibbons: *Fantasia*; Frescobaldi or Froberger: *Toccatà*; Haydn: early *Sonata*; continuo work (from figured basses) in small ensembles.
- 3) End of Third Year. J.S. Bach: *English Suite or Partita*; Rameau: *Suite*; Rossi or Picchi: *Toccatà*; Sweelinck: *Chromatic Fantasy*; C.P.E. Bach: *Sonata Wq.51*; continuo work (from figured and unfigured basses) in large and small ensembles; chamber music for obbligato harpsichord, e.g., Bach sonatas for violin and harpsichord. Third-year recital.
- 4) End of Fourth Year. J.S. Bach: *Chromatic Fantasy and Fugue*; Forqueray: *Suite*; Byrd: *Walsingham Variations*; Frescobaldi: *Cento Partite*; C.P.E. Bach: *Prussian Sonata*; chamber music from the 17th and 18th centuries for both continuo and obbligato harpsichord, e.g., Rameau: *Pièces de Clavecin en Concert*. Fourth-year recital.

Performance examinations also include sight-reading and quick study for both solo repertoire and continuo realization.

HARPSICHORD

First Year	
ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
MUSC 154 or 153	3
MUSC 193 ¹	6
MUSC 333 ¹	2
Non-Music Elective(s)	6
Total Credits	35

Second Year	
MUSC 136	4
MUSC 157	2
MUSC 171 (Organ)	2
MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 293	6
MUSC 433 ¹	2
Literature Requirement	6
Total Credits	34

Third Year	
MUSC 157	2
MUSC 169	2
MUSC 271 (Organ or Fortepiano)	2
MUSC 300	3
MUSC 301	3
MUSC 354	3
MUSC 394 (+ recital)	8
Non-Music Electives	9
Total Credits	32

Fourth Year	
MUSC 157	2
MUSC 169	2
MUSC 494 (+ recital)	8
Music Electives	6
Non-Music Electives	9
Total Credits	27

¹ For students who enter the Harpsichord major after one year of General Studies concentrating in piano or organ, MUSC 182 (4) and 171 (2) will be accepted in lieu of MUSC 193 (6). In this case, MUSC 333 and 433 may be taken in the second and third years, respectively.

MUSIC SCHOLARSHIP

Combining broad upper-level course work in music theory, music history, and ethnomusicology with the performance standards of the B.Mus., this program provides a strong preparation for graduate work in music scholarship. The major begins in the third year of undergraduate study, following two years in another major. Admittance is not automatic: students must submit a written application explaining their interest in the program. Normally an applicant will not be admitted without at least an overall 80% average in the first- and second-year core courses in music theory and history, and at least a 75% average in first-year English.

MUSIC SCHOLARSHIP

Third and Fourth Years	
MUSC 300	3
MUSC 301	3
MUSC 328	3
MUSC 428	3
Music History ¹	6
MUSC 382	4
MUSIC 482	4
Large or Small Ensemble ²	2(4)
Another Large or Small Ensemble ²	2(4)
Music Electives ³	15
Non-Music Electives ⁴	18
Total Credits	63(67)

¹ Students will choose two courses from MUSC 350-358.

² Students interested in ethnomusicology should take one or both of the Asian Music Ensembles, MUSC 165.

³ Electives must include at least 9 credits of music theory, music history, or ethnomusicology in addition to those required in the program. MUSC 349, Keyboard Harmony, is required of keyboard concentrators and recommended for students interested in theory. As not all courses are offered every year, students should meet with an advisor to determine which courses are best suited to the student's interests. With the approval of a supervising faculty scholar, a student may undertake a one-term, 3-credit research project, MUSC 402.

⁴ PHYS 341 is recommended for students interested in music theory. Students interested in ethnomusicology should consider courses in Anthropology or Asian languages. Students contemplating graduate study in theory or history should study German.

OPERA

This course of instruction is limited to those students wishing to pursue a career in either performance or production of opera. A successful audition and interview with the director of Opera prior to enrolment in course work is required of all prospective Opera majors.

- First Year. Vocal development, musicianship, and tone production are emphasized. Stress is laid on vocal materials best suited to the student's individual requirements and development. Exploration of operatic styles is begun.
- Second Year. Technical and interpretive vocal studies are continued. Further exploration of styles in both song and operatic literature is stressed.
- Third Year. Considerable vocal development is expected. Production and performance of operatic scenes or complete operas become a part of the student's curriculum. Emphasis on good singing techniques is continued. An increasing number of operatic arias is required as part of the student's vocal repertoire. Styles continue to be stressed. Practical work in movement and acting for the lyric stage is introduced.
- Fourth Year. Continued emphasis on vocal techniques especially on the vocal-dramatic techniques of operatic vocal literature. Operatic acting skills are further developed. Considerable understanding of representative operatic styles is expected. Performance and production of scenes or complete operas continue.

OPERA

First Year	
ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
MUSC 192	4
MUSC 141 or 171 ¹	2
MUSC 135	2
Large Ensemble	3
Italian ²	6
Total Credits	35

Second Year	
MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 292	4
MUSC 241 or 271 ¹	2
MUSC 235	2
Large Ensemble	3
Literature Requirement	6
German ²	6
Total Credits	35

Third Year	
MUSC 170	2
MUSC 300	3
MUSC 301	3
MUSC 336	4
MUSC 339	6
MUSC 393	6
MUSC 454	3
French ²	6
Total Credits	33

Fourth Year	
MUSC 436	4
MUSC 439	6
MUSC 455	3
MUSC 493	6
Music Elective	6
Non-Music Elective(s) ³	6
Total Credits	31

¹ Normally secondary-level lessons in piano; see *Minimum Achievements in Piano*, p. 354, under Degree Requirements for the B.Mus.

² Foreign languages: In certain cases students may concentrate on one or two of the languages required, and the indicated sequence may be altered.

³ To be chosen in consultation with the Opera division advisor.

ORCHESTRAL INSTRUMENT

The Major in an Orchestral Instrument is formulated for students who plan to become professional performers or a teachers in schools of music or private studios.

Before entering this course of study, the student must successfully audition for the School. In general, the entrance level corresponds to the Toronto or Western Board Grade X, and there must also be the probability of significant development during the years of study at the University.

Although solo performance is stressed, all students in this program will constantly participate in large and small ensemble activity. Solo recitals are required at the end of the third and fourth years.

A detailed syllabus of repertoire representing standards of expectation in performance during undergraduate study is available on application to the School of Music.

ORCHESTRAL INSTRUMENT

First Year

ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
MUSC 193	6
MUSC 141 or 171 ¹	2
MUSC 150	4
Small Ensemble ²	2
Total Credits	32

Second Year

MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 293	6
MUSC 241 or 271 ¹	2
MUSC 150	4
Small Ensemble ²	4
Literature Requirement	6
Total Credits	34

Third Year

MUSC 300	3
MUSC 301	3
MUSC 394	8
MUSC 150	4
Small Ensemble ²	4
Non-Music Electives	12
Total Credits	34

Fourth Year

MUSC 494	8
MUSC 150	4
Small Ensemble ²	4
Music Elective ³	6
Non-Music Elective(s)	6
Total Credits	26

¹ Normally secondary-level lessons in piano; see *Minimum Achievements in Piano*, p. 354, under Degree Requirements for the B.Mus.

² In the four years of the program, 14 credits of small ensemble are required. The ensembles taken in any given year will be determined in consultation with the ensemble directors. Wind and Percussion students must take 2 credits of MUSC 305, at least 4 credits of MUSC 162, and at least 2 credits of MUSC 157, 163, 164, or 165. String students must take 8 credits of MUSC 160 or 159, and 6 credits of any small ensemble, including 2 credits of MUSC 157 or MUSC 163.

³ MUSC 309, MUSC 310, MUSC 311, and MUSC 312 are highly recommended as especially appropriate to this major. Additional credits of ensemble are not permitted for fulfilling the Music Elective requirements.

ORGAN

A student planning to pursue a career as recitalist, teacher of organ, or church organist should enrol in this program.

All students who plan to major in Organ, including transfer students from other colleges and universities, must audition in the spring prior to the commencement of the academic year. Specific requirements for the audition are outlined in the B.Mus. application form.

In general, the entrance level corresponds to the Royal Conservatory Associateship or its equivalent.

Students accepted as Organ Performance majors will be expected to attain annual levels corresponding approximately to those listed below. In addition to solo repertoire, the areas of sight reading and quick study will be tested.

- End of First Year. Bach: Trio Sonata No. 1; Mendelssohn: Sonatas No. 1 or 6; Messiaen: Le Banquet Celeste.
- End of Second Year. Bach: Dorian Toccata; Franck: Chorales; Dupré: Prelude and Fugue in G minor.
- End of Third Year. Bach: Fantasia and Fugue in G minor; Hindemith: Sonatas; Durufle: Suite. Third-year recital.
- End of Fourth Year. Bach: Trio Sonatas No. 5 and 6; Reger: Fantasia; Messiaen: Transports de Joie. Fourth-year recital.

ORGAN

First Year

ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
Music 154 or 153	3
MUSC 171	2
MUSC 193	6
Non-Music Elective(s)	6
Total Credits	36

Second Year

MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 293	6
MUSC 271	2
Music 154 or 153	3
Literature Requirement	6
Non-Music Elective(s)	6
Total Credits	35

Third Year

MUSC 300	3
MUSC 301	3
MUSC 311 and 313	4
MUSC 349	2
MUSC 394	8
Music Electives	6
Religious Studies ¹	6
Total Credits	32

Fourth Year

MUSC 333	2
MUSC 494	8
Music History Elective	6
Theory Electives ²	6
Non-Music Elective(s)	6
Total Credits	28

¹ To be elected after consultation with the Department of Religious Studies and School of Music. Students are also advised to take one or more non-credit courses from one of the theological colleges on campus after consultation with the School of Music and the college concerned.

² Students will choose two courses from MUSC 410 to 415.

PIANO

All students who plan to major in Piano, including transfer students from other colleges and universities, must audition in the spring prior to the commencement of the academic year. Specific requirements for the audition are outlined in the B.Mus. application form.

In general, the entrance level corresponds to the Royal Conservatory Associateship or its equivalent. However, students must realize that they will be accepted contingent solely on the probability of rapid development during the four-year program. The possession of a diploma in itself is not a guarantee of acceptance.

Students accepted as first-year Piano majors will be expected to attain annual levels corresponding approximately to those given below. The works cited are given only as flexible guides to the levels of technical and musical achievement to be attained and do not indicate specific repertoire requirements. Naturally, it is assumed that artistic and musical achievement will keep pace with technical growth at every stage of the student's development.

- End of First Year. Virtuoso études (e.g., Chopin: Op. 10, No. 5); Bach: French Suite No. 3; Beethoven: Sonata Op. 7; Schumann: Papillons; Bartok: Bagatelles; Concertos (e.g., Mozart: K. 453).
- End of Second Year. Virtuoso études (e.g., Chopin: Op. 25, No. 3); Bach: English Suite No. 4; Beethoven: Sonata, Op. 28; Schubert: Sonata, Op. 122; Ravel: Sonatina; Concertos (e.g., Liszt: No. 1).
- End of Third Year. Virtuoso études (e.g., Liszt: Paganini Etudes); Bach: Toccata in C minor; Beethoven: Sonata, Op. 57; Brahms: Scherzo, Op. 4; Stravinsky: Sonata; Concertos (e.g., Rachmaninoff: No. 2); vocal and instrumental accompaniments; piano chamber works. Third-year recital.
- End of Fourth Year. Virtuoso études (e.g., Chopin: Op. 10, No. 2); Bach: Chromatic Fantasy and Fugue; Beethoven: Sonata, Op. 110; Schumann: Kreisleriana; Stockhausen: Klavierstücke; Concertos (e.g., Brahms: Nos. 1 and 2); vocal and instrumental accompaniments; piano chamber works. Fourth-year recital.

In general, entrance auditions and term examinations for Piano majors include sight reading in addition to the performance of prepared repertoire.

PIANO

First Year

ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
MUSC 136	4
MUSC 167	2
MUSC 193	6
MUSC 149	2
Large Ensemble ¹	3
Total Credits	35

Second Year

MUSC 161 ¹	2
MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 236	4
MUSC 293	6
MUSC 249	2
Literature Requirement (Arts)	6
Non-Music Elective	3
Total Credits	35

Third Year

MUSC 161	2
MUSC 300	3
MUSC 301	3
MUSC 340	3
MUSC 349	2
MUSC 394	8
Music Elective ¹	3
Non-Music Elective(s)	9
Total Credits	33

Fourth Year

MUSC 161	2
MUSC 440	3
MUSC 494	8
Small or Large Ensemble	2-4
Non-Music Elective(s)	12
Music Electives	3
Total Credits	30-32

¹ Students may elect MUSC 169 for their collaborative work with singers, supervised by their assigned chamber music instructor. One additional small or large ensemble may be taken as a music elective.

VOICE

Students planning to major in Voice must successfully audition before the Vocal division just prior to the beginning of classes, singing music of their own choice.

- First Year. Tone production and diction are stressed. Song-literature from the early Italian period and from oratorio is usually emphasized. During the first year the student will be carefully evaluated in regard to voice, musicianship, and physical

stamina for the purpose of determining whether he or she has the combination of talents needed for successful performance.

- Second Year. Technical and interpretative studies are continued. The repertoire will be expanded as the student's technical facility develops. As the use of foreign language is increased, French and German songs will comprise a larger share of the literature to be studied.
- Third Year. Considerable vocal agility, volume, range, and pleasing tone quality should be achieved in the third year. Frequent group recitals will be encouraged. Operatic and oratorio arias are a necessary part of the repertoire as well as wide-ranging choices in several languages. Ability to perform contemporary English, Canadian, and American songs will be expected. A third-year recital is required.
- Fourth Year. The fourth year should be devoted to the interpretative aspects of singing, supported by a growing technical command. It will be assumed that the student can satisfactorily perform any of the standard repertoire for his or her vocal classification. A fourth-year recital is required.

VOICE

First Year

ENGL 100-level	6
MUSC 100	3
MUSC 101	3
MUSC 120	3
MUSC 121	3
MUSC 193	6
MUSC 141 or 171 ¹	2
Music 153 or 154	3
MUSC 170	2
Total Credits	31

Second Year

MUSC 200	3
MUSC 201	3
MUSC 220	3
MUSC 221	3
MUSC 293	6
MUSC 241 or 271 ¹	2
Music 153 or 154	3
Literature Requirement	6
Italian ²	6
Total Credits	35

Third Year

MUSC 300	3
MUSC 301	3
MUSC 394	8
MUSC 365	2
Music 153 or 154	3
German ²	6
Non-Music Elective(s)	6
Total Credits	31

Fourth Year

MUSC 494	8
MUSC 465	2
MUSC 442	4

Fourth Year (Continued)

Music 153 or 154	3
Music 156 or 157	2
Music Elective(s) ³	6
French ²	6
Total Credits	31

¹ Normally secondary-level lessons in piano; see *Minimum Achievements in Piano*, p. 354, under Degree Requirements for the B.Mus.

² Languages other than English: in certain cases students may concentrate on one or two of the languages required, and the indicated sequence may be altered.

³ MUSC 311 or MUSC 313, and MUSC 441 are highly recommended electives.

BACHELOR OF ARTS

The Bachelor of Arts in Music is designed for students interested in studying music as one of the liberal arts. It can also lead successfully to graduate work in music theory, music history, or ethnomusicology. For a description of the Bachelor of Arts Major, Honours, and Minor programs in Music, see *Music*, p. 144, under the Bachelor of Arts in the Faculty of Arts.

COURSES FOR STUDENTS

MAJORING IN OTHER FIELDS

The School offers a number of courses intended for students with little or no formal background in music. A selection from among the following courses will be offered each year including:

- MUSC 103, 104, 321, 322, 324, 325, and 326. These courses are not acceptable for credit toward the Bachelor of Music or toward the Bachelor of Arts Major, Honours, or Minor in Music.
- MUSC 328, 345, 428, and certain sections of 403, as indicated in the online course schedule. These courses are acceptable for credit toward the Bachelor of Music and toward the Bachelor of Arts Major, Honours, and Minor in Music.

Students who play musical instruments may enrol for credit in ensembles, such as MUSC 150, 153, 154, 156, 157, 160, 163, 164, and 165. An audition may be required. These courses are acceptable for credit toward the Bachelor of Music and toward the Bachelor of Arts Major, Honours, and Minor in Music.

DIPLOMA IN COLLABORATIVE PIANO STUDIES

The School of Music offers the Diploma in Collaborative Piano Studies. The unique demands of collaborative work with singers and instrumentalists require specialized training for pianists. The Diploma program combines repertoire study with a diverse array of courses designed to enhance specific skills in preparation for, or in place of, graduate degree work in collaborative piano.

ADMISSION

Enrolment in the program is limited. Applicants must hold a bachelor's degree, normally in piano performance, including several years of experience in collaborative work, in both vocal and chamber music, and with very strong proficiency in sight reading. Qualified candidates will be selected based on audition. Some study of German and either French or Italian is recommended. Prospective students should inquire at the School of Music for application information.

DIPLOMA REQUIREMENTS

The Diploma program consists of the following 29 credits of work, which must be completed within two years:

DIPLOMA IN COLLABORATIVE PIANO STUDIES

Core	
MUSC 170	2
MUSC 442 or 512	4
MUSC 443	3
MUSC 468	2
MUSC 561	2
MUSC 593	6
Total Credits	19
Electives	
MUSC 102	2
MUSC 131 or 271	2
MUSC 135 or 235	2
MUSC 333 or 433	2
MUSC 365 or 465	2
Contemporary Players	2
Collegium Musicum Ensemble	2
Total Credits	10

DIPLOMA IN MUSIC PERFORMANCE

The Diploma in Music Performance is an advanced program designed to prepare vocalists and instrumentalists for professional performing careers through private instruction and intensive solo and ensemble performance experiences.

ADMISSION

Prospective students should inquire at the School of Music office for application information. Only gifted performers with good prospects for a professional career, and who hold a university degree in music performance or have considerable equivalent experience, will be considered. Admission to the program is by audition, and enrolment is strictly limited. The minimal standard varies by instrument. In general, applicants should have training equivalent to that of B.Mus. Performance graduates of UBC; for example, singers should have a working command of three languages, and all applicants should have extensive familiarity with the repertoire for their instrument.

PROGRAM OF STUDY

A two-year residency is required. All students are admitted on a probationary basis for the first year. Continuation into the second year is contingent upon excellent progress, participation in the musical activities at the School, and a year-end performance jury, and must be approved by the full-time faculty in the appropriate Performance division.

The total number of credits required for the Diploma is 30, and must satisfy program requirements designed for each student by supervising faculty within the following general outline. Students must take two years and 12 credits of private performance instruction (MUSC 593), two years comprising at least 8 credits of suitable ensembles, and 10 credits of electives. Depending upon the student's program and background, additional coursework may be required, for example MUSC 170, 336 and 436 for Opera diploma students.

The specific ensembles required in the program will be determined by supervising faculty. Orchestral instrumentalists must play at least one year in a large ensemble (MUSC 550) and in a wide range of small ensembles (MUSC 556–569). Opera students will take MUSC 539 twice.

Electives should be directly related to performance skills and must be approved by a full-time faculty supervisor. They may include, for example, study in language and theatre (for singers) or in conducting and instrumentation (for instrumentalists) beyond that achieved in previous degrees.

ACADEMIC STAFF

Professors

William E. Benjamin, B.Mus. (McG.), M.F.A., Ph.D. (Prin.); Martin C. Berinbaum, B.S. in Trumpet and Music Ed. (S.Calif.), M.S. in Trumpet (Juilliard); Gregory G. Butler, B.Mus. (McG.), M.A., Ph.D. (Tor.); Stephen G. Chatman, B.Mus. (Oberlin), M.M., D.M.A. (Mich.); Jane A. Coop, B.Mus. (Tor.), M.Mus. (Peabody); Keith Hamel, B.Mus. (Qu.), A.M., Ph.D. (Harv.); Nancy Hermiston, B.Mus. (Tor.); J. Evan Kreider, B.A. (Goshen), M.Mus., Ph.D. (Indiana); David Metzger, B.A. (Dickinson Coll.), M.Phil, Ph.D. (Yale); Jesse Read, B.Mus. (Jacksonville), M.Mus. (Vic.B.C.); John B. Roeder, B.A. (Harv.), Ph.D. (Yale); Rena Sharon, B.Mus., M.Mus. (Indiana); Michael Tenzer, B.A. (Yale), Ph.D. (Calif., Berkeley).

Associate Professors

Richard Kurth, B.Sc. (Tor.), M.Mus. (Hartford), Ph.D. (Harv.); Vera Micznik, Diploma (Bucharest Conservatory), M.A. (Virginia), Ph.D. (S.U.N.Y., Stony Brook); Bruce Pullan, B.A., M.A. (Camb.); Eric J. Wilson, B.Mus., M.Mus. (Juilliard).

Assistant Professors

Sara Davis Buechner, B.Mus., M.Mus. (Juilliard), D.M.A. (Manhattan); Dorothy Chang, B.Mus., M.Mus. (Mich.), D.M.A. (Indiana); Eugenia Choi, B.Mus., M.Mus. (Juilliard); Alan Dodson, B.Mus. (Mt. All.), M.Mus., Ph.D. (W.Ont.); Alexander J. Fisher, B.M. (Northwestern), M.A. (Indiana), M.A., Ph.D. (Harv.); Corey Hamm, B.Mus. (Alta.), M.Mus., D.M.A. (Minn.); David Harding, B.M. (Juilliard); Nathan Hesselink, B.Mus. (Northwestern), M.A. (Mich.), Ph.D. (Lond., School of Oriental and African Studies); Roelof Oostwoud, Diploma, Opera School

(Tor., Royal Conservatory of Music); Jasper Wood, B.Mus., M.Mus. (Cleveland Institute of Music).

Instructors

Terence Dawson, B.Mus. (Mt. All.), M.Mus., D.M.A. (Br.Col.), Piano; Robert Pritchard, D.M.A. (Br.Col.), Theory.

Lecturers

Peter Barcza, Diploma (Tor.), Voice; Anne Berman, Ph.D., M.A. (Calif.), B.Mus. (Oberlin), Theory, Computer Music; Sonja Boon, M.Mus. (Indiana), Performance Practice and Early Music; David Boothroyd, B.A. (Mt. Allison), M.A. (Western); David Branter, B.Mus., M.Mus. (Indiana), Saxophone; Michael Bushnell, B.A. (Bennington Coll.), M.A., Ph.D. (S.U.N.Y., Stony Brook), Film Music; Susan Chai, M.Mus. (Mich.), Class Piano; Amanda Chan, B.Mus. (Br.Col.), M.Mus. (S. Calif.), Piano; Gordon Cherry, B.Mus. (Eastman), Trombone; Roger Cole, B.Mus. (Juilliard), Oboe; Rita Costanzi, B.Mus., Performers Certificate (Eastman), Harp; Gregory Cox, B.Mus. (Eastman), Trombone; Nancy DiNovo, M.Mus. (Tor.), Violin; Bruce Dunn, Conducting; Alice Enns, A.R.C.T., B.Mus. (Manit.), B.A. (Sask.), Piano; Richard Epp, B.Mus. (Manit.), M.Mus. (S.Calif.), Opera, Voice Accompanist, Opera and Song Repertoire, Vocal Accompanist; Dennis Esson, M. Mus., B.Mus. (Br.Col.), Jazz Ensemble; Brenda Fedoruk, B.Mus. (Br.Col.), Flute; Salvador Ferreras, B.Mus. (Windsor), Percussion; Kenneth J. Friedman, B.Mus. (S.Calif.), M.S. (Juilliard), Double Bass; Taras Gabora, Violin; Marisa Gaetanne, M.Mus. (Br.Col.), Voice; Peter Gal, B.Sc. (Mc.G.), Class Woodwinds; Vernon Griffiths, M.Mus. (Manhattan), Percussion; Mei Han, B.A. (Beijing Workers' Coll.), M.A. (Br.Col.), Chinese Ensemble; Patricia Hoy, B.Mus. (Texas, Austin), M.Mus., D.M.A. (S.Calif.), Piano; Cris Inguanti, B.Mus. (Northwestern), M.Mus. (Manhattan), Clarinet; Tom Keenlyside, B.Mus. (Br.Col.), Film Music Composition; Benjamin Kinsman, B.Mus. (Acadia), French Horn; Brandon Konoval, D.M.A. (Br.Col.), Music Appreciation, Music Theory; Helen Lee, Voice; Karen Lee-Morlang, B.Mus., DPST (Br.Col.), Collaborative Piano; James Littleford, B.Mus. (Br.Col.), Class Brass; Paul Luchkow, B.Mus., M.Mus. (Br.Col.), Collegium Musicum; Ramona Luengen, B.Mus., M.Mus. (Br.Col.), D.M. (Tor.), Theory, Music Appreciation; Giorgio Magnanensi, Diploma (S. Cecilia), Composition, Contemporary Players; Alan Matheson, B.Mus. (Northwestern), Trumpet; David McCoy, B.Mus., M.Mus. (Br.Col.), Piano; Lorna McGhee, Diploma (Royal Acad. Music), Flute; Richard Mingus, M.Mus. (Ohio), French Horn; Michael Murray, B.Mus. (W. Wash.), Diploma (Royal Conservatory of Music), Organ; Julia Nolan, B.Mus. (Br.Col.), M.Mus. (Indiana), Saxophone; Ray Nurse, Collegium Musicum; Doreen A. Oke, B.Mus. (Br.Col.), Harpsichord, Collegium Musicum; Beth Orson, B.Mus. (Oberlin), Oboe; Gene Ramsbottom, Clarinet; Henri-Paul Sicsic, D.M.A. (Rice), Piano; Eugene Skovorodnikov, B.Mus. (Voroshi Iovgrad), M.A. (Kharkov), D.M.A. (Leningrad), Piano; Stephen Smith, D.M.A. (Br.Col.), Choral Coach/Accompanist; Douglas Sparkes, B.Mus. (Tor.), Trombone; Frederick Stride, B.Mus. (Br.Col.), Jazz Ensemble, Jazz Theory and Arranging; Michael Strutt, Guitar; Heather Thomson-Price, Voice; Dale Throness, B.A. (Winn.), M.Mus. (Br.Col.), Voice; Elizabeth Volpe, B.Mus. (Tor.), Harp; Ellis Wean, Tuba; Miranda Wilkins Wong, A.R.C.T., B.Mus. (Vic.B.C.), M.Mus. (Johns H.), Piano.

19 The School of Nursing

A SCHOOL WITHIN THE FACULTY OF APPLIED SCIENCE

Director's Office

Sally Thorne, Director

T201–2211 Wesbrook Mall
Vancouver, BC V6T 2B5
Telephone: 604-822-7417
Fax: 604-822-7466

Nursing Website (www.nursing.ubc.ca)

The School of Nursing offers baccalaureate, master's, and doctoral programs. Students with advanced standing can complete the baccalaureate program leading to a Bachelor of Science in Nursing in five terms of 300- and 400-level upper-division courses. Registered nurses can take a program leading to a Bachelor of Science in Nursing. Baccalaureate graduates are offered a program leading to a Master of Science in Nursing. For master's graduates, the School of Nursing offers a program leading to a Doctor of Philosophy in Nursing. For details of these graduate programs, see *Nursing*, p. 269, in the Graduate Studies section.

The mission of the School, as a leading provincial, national, and international centre for nursing education, research, and practice scholarship, is to prepare outstanding nurses who are committed to excellence and innovation. Through its extensive programs of research, the School of Nursing also strives to develop and transmit knowledge regarding nursing practice and the human experience of health, illness, and healing.

BACHELOR OF SCIENCE IN NURSING

The baccalaureate program offers courses in the theory and practice of nursing. Students with significant progress toward a degree in another field or with a previous bachelor's degree begin studies in nursing with the 300-level courses. Registered nurse students also enter the program at the 300-level and may complete the program in Nursing through on-campus study, distance delivery, or a combination of modes.

ACADEMIC ADVISING

Advising is recommended. Students with advanced standing, post-RN students, and students with other academic concerns are expected to seek advising. The School reserves the right to require advising prior to registration.

ADMISSION

All inquiries relating to the Bachelor of Science in Nursing (BSN) program should be directed to the School of Nursing. Students considering application should refer to the School of Nursing website (www.nursing.ubc.ca) for more details.

The last day for submission of applications for the Winter Session beginning the following September or January is February 28, with necessary documents and official transcripts to be received in Enrolment Services by May 15. For registered nurses, application and documentation submitted to the Undergraduate Program Records Office in the School of Nursing by June 1 will be processed for either September or January admission. Once accepted, registered nurse students should consult a faculty advisor in order to determine their course sequence.

The School of Nursing has a limited enrolment. Since the number of qualified applicants usually exceeds the number of places available, fulfilment of the following requirements is not a guarantee of admission. The faculty reserves the right of selection of all students for admission and readmission to the School.

Applicants whose first language is not English must demonstrate competence in both oral and written English. Please refer to the *English Language Admission Standard*, p. 15, in the Admissions chapter.

Admission from Secondary School
Admission directly from Secondary School is suspended, effective September 2006.

Admission with Advanced Standing
Advanced standing includes a bachelor's degree or significant progress (48 credits) toward a degree in another field of study.

The School will select for admission those students who not only demonstrate academic potential, but who also most aptly display a motivation to study nursing and who demonstrate that they possess the qualities and skills most necessary to be a caring and competent professional nurse. Candidates may be invited for an interview at the discretion of the admissions committee.

Applicants from post-secondary institutions are required to have a minimum "C" average, or

grade point average of 2.0 (calculated on a 4-point scale). **Note:** Due to enrolment limitations, the academic standing required for admission is higher than the above average and is subject to change each academic year. Applicants who have completed college and/or university courses should consult the third and fourth year advisor in the School of Nursing. The University will consider granting transfer credit for all appropriate post-secondary courses completed. The following courses are required:

- English (3–6) (ENGL 112 is recommended)
- BIOL 153 (7) or BIOL 155 (6) or equivalent (pending approval by Senate, BIOL 153 and BIOL 155 will be renumbered as BIOL 253 and BIOL 255, respectively, for 2006 Winter Session).

The following courses are recommended: BIOL 112 and MICB 202 or 3 credits of microbiology.

Applicants for admission for advanced standing must submit the following additional supplemental admission requirements to Undergraduate Program, School of Nursing, T201–2211 Wesbrook Mall, Vancouver, BC, V6T 2B5, by February 28:

- 1) Name and contact information for two individuals who can provide reference information. It is recommended that one referee be a teacher, instructor, employer or supervisor.
- 2) A current resumé (structured form provided in the application package).
- 3) A brief written personal statement about the applicant's reasons for requesting admission to the School of Nursing and understanding of the profession of nursing. (Format to be provided in the application package.)
- 4) Supplemental application form and processing fee. A processing fee of CAD\$107.50 must accompany the supplemental application admission forms that are returned to the School of Nursing. This fee is non-refundable and should be made payable to the UBC School of Nursing. No applications will be processed unless the fee is received.

Inquiries and requests for a supplemental application package may be addressed to the School of Nursing (information@nursing.ubc.ca).

Incomplete applications and late applications will not be considered.

Applicants with advanced standing who are accepted will be sent a letter of acceptance and details about the registration procedures.

Admission for Registered Nurses

Registered nurses who have a Diploma in Nursing from a recognized institution will be considered for admission to the RN-BSN program. Although science prerequisites and course content are a standard element in most Canadian diploma programs, applicants from programs not including such requirements will require an additional 6 credits of human anatomy and physiology at a post-secondary level, with Chemistry 11 (or equivalent) strongly recommended.

BC applicants applying as registered nurses for on-campus or distance study must hold current practising nurse registration in BC. Out-of-province applicants wishing to complete the program by distance education must hold current practising nurse registration in the province in which they reside. International students must meet general eligibility criteria of nurse registration in BC. Students presently completing a nursing diploma program can make application for a conditional acceptance. A letter from the Director of the School of Nursing indicating the anticipated date of completion of the program should be included with the application. Official acceptance will only be granted upon successful completion of the RN examination and CRNBC registration or eligibility for membership.

Provided they meet the entry requirements, in addition students can also apply for advanced standing towards a maximum of 21 of the 45 credits required for the award of RN-BSN. Students may apply for prior learning to be considered for advanced standing towards their RN-BSN award based upon any combination of the following: transfer credit for relevant courses from other higher education institutions; credit for post-basic continuing education courses in nursing; and credit for demonstrable acquired competencies from relevant experiential learning in nursing (with a maximum of 6 out of the total of 21 credits being in the last two categories). Application for advanced standing must be through submission of a professional portfolio. The portfolio will be assessed by the School of Nursing Prior Learning Assessment and Recognition Committee, and credit awarded provided such work meets all the requirements of the University and the School of Nursing. There may be fees associated with this assessment, and applicants are directed to the School of Nursing website (www.nursing.ubc.ca) for more information.

Supplemental Application Form and Processing Fee

A University application and a supplemental application package must be completed and returned to the School of Nursing by June 1. Along with the supplemental application form, two confidential assessment forms, a resumé,

and a personal statement must be submitted. A processing fee of CAD \$107.50 plus \$50.00 for out-of-province applicants must accompany the supplemental application forms. These fees are non-refundable and should be made payable to the UBC School of Nursing. No applications will be processed unless the fee is received. Late applications will not be considered.

The School will select for admission those students who demonstrate the potential for academic success, leadership and ability to advance the nursing profession. Admission to the Post-RN program is based on evidence of the ability to achieve in an academic nursing program. Examples of evidence include, but are not limited to: a) 12 university or college credits with a minimum average of 67%, b) a minimum grade average of 67% in high school if the applicant graduated within the last five years.

Further examples of indicators of the ability to achieve include: success in specialty nursing courses, a specialty certificate, and professional accomplishments. Strong letters of reference that address the applicant's academic ability, leadership, critical thinking, and communication skills are required. A personal interview may be one component of the admissions criteria. Selection for interview will be based on an admissions index calculated from the admissions application submission data. Applicants will be ranked in relation to other applicants, and interviews will be held with selected applicants. Details regarding the supplemental application process can be found at the School of Nursing website (www.nursing.ubc.ca/start12.asp).

Readmission

The School reserves the right to readmit students and to stipulate conditions attached to readmission. Application for readmission to the School will be reviewed on an individual basis.

ACADEMIC REGULATIONS

Advancement

The minimum passing grade in each nursing course is 60%. The minimum cumulative grade average to continue in the program is 65%.

In clinical nursing courses the student is required to have successfully completed clinical practice before being allowed to write the final examination.

Supplemental examinations are not offered.

Students who do not achieve the minimum grade average for promotion will normally be required to discontinue study in the School of Nursing for at least one year.

Students admitted as registered nurses must maintain current practising provincial registration and provide evidence of it upon request in order to continue in the program.

Although satisfactory academic performance is a prerequisite to advancement, it is not the sole criterion in the consideration of the suitability of a student for promotion or graduation. The School of Nursing reserves the right to require a student to withdraw from the School if consid-

ered to be unsuited to proceed with the study or practice of nursing.

Costs Other Than Sessional Fee

There are additional expenses for uniforms, travel, and clinical practice. Students should be prepared to have clinical practice outside the Vancouver area and therefore should include travel costs for this experience in estimating total expenses. Students must have access to a car for transportation to minimize time and effort expended in travel to the varied areas used for clinical experiences. It is the student's responsibility to arrange transportation to clinical practice settings and to arrive at scheduled times. The School will provide applicants with information regarding these additional costs.

Time Period for Program Completion

Students entering the Bachelor of Science in Nursing program must normally meet all requirements within a maximum of five years from initial enrolment. Post-RN students must normally meet all requirements within a minimum of 12 months and a maximum of six years after beginning the first nursing course. Students interrupting their program are advised that curriculum changes may necessitate a period of supplementary work to enable them to fit into the subsequent courses.

Where time normally permitted for completion of degree has elapsed, candidates will be required to provide evidence to justify special consideration.

DEGREE REQUIREMENTS

English Requirements

To qualify for the Bachelor of Science in Nursing, all students must have a minimum of 3 credits in English. Students entering the program from secondary school (or those with advanced standing) must have completed the 3 credits of first-year English prior to taking clinical nursing courses. Completion of the Language Proficiency Index (LPI) examination is prerequisite to all first-year English courses at UBC. (See *Language Proficiency Index Requirement for First-Year English*, p. 120.) Post-RN students are encouraged to complete the required 3 credits of English prior to entry into the nursing program. Students who wish to complete the program in 12 months must have completed 3 credits of English prior to admission.

First and Second Year Requirements

Please Note: Admission directly from secondary school is suspended, effective September 2006.

Students in the second year of the program must complete all of the following requirements prior to progressing to 300-level nursing courses. A minimum of 48 credits is required.

- ENGL (3) (ENGL 112 is recommended)
- BIOL 153 (7) (pending approval by Senate, BIOL 153 will be renumbered as BIOL 253, for 2006 Winter Session).
- MICB 153 (3)

- PSYC courses at the 100- or 200-level (3–6)
- Electives chosen in consultation with a faculty advisor and considering the following: a balance of 100- and 200-level courses, normally with no more than 15 credits at the 100-level; courses in the biological, health and social/behavioural sciences that contribute to students' understanding of processes in health and illness
- Recommended courses in second year include FNH 250, PHAR 240, PATH 375, STAT 203, IHHS 200, IHHS 404. Faculty advisors are available for consultation regarding the selection of elective courses.

THIRD AND FOURTH YEAR COURSES

Term 1

NURS 310	3
NURS 320	4
NURS 330	6
NURS 350	3
Total Credits	16

Term 2

NURS 312	3
NURS 321	2
NURS 331	8
NURS 452	3
Total Credits	16

Term 3

NURS 413	6
NURS 430	8
Total Credits	14

Term 4

NURS 421	2
NURS 432	6
NURS 450	3
NURS 453	3
Total Credits	14

Term 5

NURS 411	4
NURS 416	3
NURS 460	8
Total Credits	15

Total Credits (Program) 123

Required Nursing Courses

NURS 450	3
NURS 453	3
Clinical Nursing Courses	6 credits minimum
Non-Clinical Nursing Courses	15–24 credits
Electives	9–18 credits
English First Year	3
Total Credits	45

INTERPROFESSIONAL ELECTIVES

Under the auspices of the Council, the *College of Health Disciplines*, p. 291, is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Nursing. For more information see Courses (www.students.ubc.ca/calendar/courses.cfm), IHHS, or visit the College of Health Disciplines website (www.health-disciplines.ubc.ca).

Post-RN Program

Registered nurse students are required to complete a program of 45 credits, consisting of 27–33 credits of nursing courses, 9–15 credits of electives, and 3 credits of first-year English. RN students will build a program in consultation with a faculty advisor.

REGISTERED NURSES ASSOCIATION OF BC

Students who successfully complete the Bachelor of Science in Nursing program and who are recommended by the Director of the School of Nursing to the College of Registered Nurses of British Columbia (www.crnbc.ca) will be eligible to write the nurse registration examination and to apply for nurse registration in BC on passing the examination.

Information relative to other requirements for registration may be obtained from the College of Registered Nurses of British Columbia, 2855 Arbutus Street, Vancouver, BC, V6J 3Y8. Applicants who have reason to believe they may not be eligible for registration should consult the professional association before beginning studies.

AWARDS AND FINANCIAL ASSISTANCE

Student Financial Assistance & Awards publishes information on awards and financial assistance on their website (www.students.ubc.ca/finance). It contains a list of current academic awards (scholarships and prizes) and financial assistance (grants, bursaries, and loans). Students are encouraged to refer to the website to determine awards for which they may be eligible and for interpretation of “full-time” study as it relates to eligibility for scholarships and other forms of financial assistance. For further information and award application forms contact Student Financial Assistance & Awards, The University of British Columbia, 1036–1874 East Mall, Vancouver, BC, V6T 1Z1; Tel: 604-822-5111.

The following awards are not administered by Student Financial Assistance & Awards:

- Registered Nurses Foundation. A number of bursaries are offered through the Foundation. Information is available from the Registered Nurses Foundation of BC, 2855 Arbutus Street, Vancouver, BC, V6J 3Y8.
- Victorian Order of Nurses for Canada. Bursaries available to students in the final year of the Bachelor of Science in Nursing program. Information and application forms may be obtained from the National Director, Victorian Order of Nurses for Canada, 5 Blackburn Avenue, Ottawa, Ontario, K1N 8A2.
- Heart and Stroke Foundation of Canada. Nursing research fellowship for graduate students undertaking study in some area of cardiovascular or stroke research. Information available from the Heart and Stroke Foundation of Canada, 1402–222 Queen St., Ottawa, Ontario, K1P 5V9.

- Local CRNBC Districts. Many Districts and other local organizations offer bursaries and/or loans to students from their area. Information can be obtained from the Director of the School of Nursing or the College of Registered Nurses of BC.
- Canadian Nurses Foundation Awards. Members of the Canadian Nurses Association may apply for awards and fellowships valued at \$4,500 to \$6,000 for study at the doctoral level, \$3,000 for study at the master's level, and \$1,500 for study at the baccalaureate level in nursing. Application forms may be obtained from CNF after November 1 and must be submitted by April 30. Information and/or application forms are available from the Canadian Nurses Foundation, 50 The Driveway, Ottawa, Ontario, K2P 1E2.

ALUMNI ASSOCIATIONS

Many School of Nursing alumni associations offer bursaries and/or loans to their members. Information about these would be obtainable from the Director of the School from which you have graduated.

ACADEMIC STAFF

SCHOOL STAFF

Honorary Professors

Madeleine Dion-Stout, B.N. (Leth.), M.A. (Car.), Ph.D. (Hon.) (Br.Col.), Nursing consultant; Verna Splane, B.Sc. (Col.), M.P.H. (Mich.), R.N., Consultant, Splane Associates; Beverly Witter Du Gas, B.A. (Br.Col.), M.N. (Wash.), Ph.D. (Br.Col.), LL.D. (Windsor), R.N.; Glennis Zilm, B.S.N. (Br.Col.), B.J. (Car.), M.A. (S.Fraser), R.N., Freelance writer, editor, and nursing historian.

Professors

Joan M. Anderson, B.N. (McG.), M.S.N., Ph.D. (Br.Col.), R.N.; Elaine A. Carty, B.N. (New Br.), M.S.N. (Yale), R.N.; Joy L. Johnson, B.S.N. (Br.Col.), M.N., Ph.D. (Alta.), R.N.; Pamela A. Ratner, B.Sc., M.N., Ph.D. (Alta.), R.N.; Sally E. Thorne, B.S.N., M.S.N. (Br.Col.), Ph.D. (Union), R.N.

Associate Professors

Annette Browne, B.N. (Manit.), M.S.N. (Rhode Island), Ph.D. (Br.Col.), R.N.; Wendy Hall, B.N. (Manit.), M.S.N. (Br.Col.), Ph.D. (Manc.), R.N.; Angela Henderson, B.S.N., M.S.N. (Br.Col.), Ph.D. (C.) (Manc.), R.N.; Carol Jillings, B.S. (San Francisco), M.S.N. (Br.Col.), Ph.D. (Union), R.N.; Gloria Joachim, B.S.N. (Maryland), M.S.N. (Br.Col.), R.N.; M. Judith Lynam, B.Sc.(N) (McG.), M.S.N. (Br.Col.), Ph.D. (Kings Coll., London), R.N.; Jo Ann Perry, B.S. (Adelphi, N.Y.), M.S.N. (Br.Col.), Ph.D. (Wash.), R.N.; Patricia Rodney, B.S.N. (Alta.), M.S.N., Ph.D. (Br.Col.), R.N.; Elizabeth M. Saewyc, B.S.N. (Minn.), M.N., Ph.D. (Wash.), R.N.; Colleen Varcoe, B.S.N., M.S.N., Ph.D. (Br.Col.), R.N.

Assistant Professors

Lynda G. Balneaves, B.S., B.N., M.N. (Manit.), Ph.D. (Br.Col.); Geertje Boschma, B.S.N. (HBO-V; Groningen, Netherlands), Drs. (Groningen), M.S.N., Ph.D. (Penn.); Connie Canam, B.N. (Dal.), M.S.N. (Br.Col.), Ph.D. (Vic.B.C.), R.N.; Lyren Chiu, B.S.N. (National, Taiwan), M.S.N. (Calif., San Francisco), Ph.D. (Texas, Austin), R.N.; V. Susan Dahinten, B.A. (S.Fraser), M.B.A. (Br.Col.), M.S.N. (Gonzaga), Ph.D.

(Br.Col.), R.N.; **Anne Dewar**, B.A., B.Sc.N. (Sask.), M.H.P. (N.S.W.), Ph.D. (Q'ld U.T.), R.N.; **Bernard Garrett**, B.A. (Hons.), (Portsmouth Polytechnic), P.G. Cert. Ed. (Wales), Ph.D. (Portsmouth), R.N.; **John Oliffe**, M.Ed., (Vic.U.T.), Ph.D., (Deakin), R.N.; **Alison Phinney**, B.A. (McG.), M.Sc. (McG.), Ph.D. (Calif., San Francisco), R.N.; **Jane Alison Rice**, B.S.N. (Br.Col.), M.S. (Calif., San Francisco), R.N.; **Victoria Smye**, B.A. (Brock), M.H.Sc. (McM.), Ph.D. (Br.Col.), R.N.; **Fay Warnock**, B.Sc. (Alta.), M.S.N. (Alta.), Ph.D. (Alta.), R.N.; **Sabrina Wong**, B.S.N. (Br.Col.), M.S.N., Ph.D. (Calif., San Francisco), R.N.

Senior Instructors

Marion Clauson, B.S.N., M.S.N. (Br.Col.), R.N.;
Joanne Ricci, B.S.N., M.S.N. (Br.Col.), R.N.

Instructors

Elsie Tan, B.S.N., M.S.N. (Br.Col.), R.N.; **Paula Tognazzini**, B.S.N., M.S.N. (Br.Col.), R.N.

Lecturers

Cathy Ebbelohj, B.S.N., M.S.N. (Br.Col.), R.N.;
Rochelle Einboden, B.Sc.N., M.N. (Tor.), R.N.; **Lynne Esson**, B.S.N. (Vic.B.C.), R.N.; **Marlee Groening**, B.S.N., M.S.N. (Br.Col.), R.N.; **Cathryn Jackson**, B.S.N., M.S.N. (Br.Col.), R.N.; **Mary Lou Jennings**, B.S. Health Sci. (Chapman Coll.), M.S.N. (Calif., San Francisco), R.N.; **Linda A. Kowalski**, B.Sc. (Rochester), Ph.D. (S.Fraser), R.N.; **Maura Macphee**, B.S. (Mich.), M.S. (Purdue), B.S. (N. Carolina), M.S.N. (N. Colorado), Ph.D. (Colorado), R.N.; **Katharine O'Flynn-Magee**, B.S.N., M.S.N. (Br.Col.), R.N.; **Margaret Osborne**, B.N. (McG.), M.Ed. (Calg.), Ph.D. (Texas), R.N.; **Margaret Simpson**, B.N., M.N. (Calg.), Ph.D. (H.K.); **Sharon Thompson**, B.S. Health Sci. (Chapman Coll.), R.N.; **Beverley Valkenier**, B.Sc.N. (Tor.), M.S.N. (Br.Col.), R.N.

Clinical Associates

Carol Bassingthwaite, B.S.N., M.S.N. (Br.Col.), R.N.; **Margaret Cunningham**, B.S.N., M.S.N. (Br.Col.), R.N.; **Patricia Dunn**, B.S. (Chicopee, Mass.), M.S.N. (Br.Col.), R.N.; **Cheryl Entwistle**, B.S.N. (Ott.), M.Ed. (Br.Col.), R.N.; **Sharon Lowe**, B.S.N. (Br.Col.), R.N.; **Helga Marshall**, B.Sc.N. (Tor.), M.S.N. (Br.Col.), R.N.; **Enid Muirhead**, B.S.N., M.S.N. (Br.Col.); **Valerie Rogers**, B.S.N., M.S.N. (Br.Col.).

Clinical Assistants

Frances Affleck, B.S.N. (Vic.BC), R.N.; **Tatijana Dunat**, R.N.; **Farah Jetha**, B.S.N. (Br.Col.), R.N.; **Jennifer Lawton**, R.N.; **Linda Leung**, B.S.N., B.Sc. (Br.Col.), R.N.

Adjunct Professors

Romilda Ang, B.S. (Br.Col.), M.Sc.(A) (McG.), R.N., Clinical Practice Leader, Rehabilitation, Vancouver Coastal Health Authority; **Rhea Arcand**, B.Sc., M.Sc. (Alta.), R.N., Nursing consultant; **Lynne Baillie**, B.Ed., M.Ed., Ph.D. (Sask.), BC Cancer Agency; **Melanie Basso**, B.S.N., M.S.N. (Br.Col.), R.N., Senior Practice Leader-Perinatal, Children's and Women's Health Centre of B.C.; **Faye Bebb**, B.S.N. (Vic.B.C.), R.N., Clinical Nurse specialist, Youth Health Program, Children's and Women's Health Centre of B.C.; **Fiona Bees**, B.S.N. (Br.Col.), Intensive Care Nursing Cert., (Br.Col.), M.S.N. (McG.), R.N., Regional System Therapy Process Leader, BCCA; **Lynette Best**, B.S.N., M.S.N. (Br.Col.), Director, Nursing Practise, St. Paul's, Providence Health Care; **David Birnbaum**, B.A. (Calif., Berkeley), M.P.H. (Minn.), Ph.D. (Br.Col.); **Bernice Budz**, B.N. (Leth.), M.N. (Br.Col.), R.N., Clinical Nurse Specialist, Cardiac, St. Paul's, Providence Health Care; **Mollie Butler**, B.S.N., M.P.A. (Vic.B.C.), R.N., Health Consultant and Researcher; **Gail Butt**, M.H.S. (Clin. Practice), (McM.), R.N., Associate Director, BC Hepatitis Services, BC Centre for Disease Control;

Patti Byron, B.S.N., M.S.N. (Br.Col.), R.N., Program Manager, Oncology/Hematology, BMT, Children's and Women's Health Centre of B.C.; **Marcia Carr**, B.N. (McG.), R.N., Clinical Nurse Specialist, Geropsychiatry and Geriatrics, Nurse Continence Advisor, Simon Fraser Health Region; **Anne Carten**, B.S.N. (Sask.), M.N. (Alta.), R.N., Clinical Nurse Practitioner, Children and Youth Program, Vancouver Coastal Health Authority; **Rosemary Cashman**, B.A. (Chic.), M.Sc. (McG.), R.N., Advanced Practise Nurse, Neuro-oncology, B.C.C.A.-Vancouver Centre; **Loryle Cander**, B.S.N. (Alta.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Children's and Women's Health Centre of B.C.; **Alice Chan**, B.Ed., B.S.N. (Br.Col.), M.S.N. (Mass.), R.N., R.P.N., Clinical Nurse Specialist, Mental Health, Vancouver Hospital, Vancouver Coastal Health Authority; **Heather F. Clarke**, B.H.Sc. (Qu.), M.N., Ph.D. (Wash.), R.N.; **Lisa Constable**, B.S.N. (Vic.B.C.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Trauma, Fraser Health Authority, New Westminster; **Marilyn J. Crawford**, B.N., M.N. (Calg.), R.N., Vice President, Client Relations, Right Management Consultants, Vancouver; **Joyce Davison**, B.N., M.N., Ph.D. (Manit.), R.N., Clinical Assistant Professor, Dept. of Surgery, UBC; **Gina Dingwell**, M.A. (S.Fraser), R.N., Private Practice, Vancouver; **Sharon Dixon**, B.S.N., M.S.N., (Br.Col.), R.N., Nursing Systems Process Leader and Informatics Specialist, Providence Health Care; **Dianne Doyle**, B.S.N., M.S.N. (Br.Col.), R.N., V.P., St. Paul's, Providence Health Care; **Anne Earthy**, B.N. (McG.), M.A. (Adult Ed.), (Br.Col.), R.N., Clinical Nurse Specialist, Gerontology, Fraser Health Authority; **Marci Ekland**, B.S.N., M.S.N., (Br.Col.), R.N., Certified Reg., Rehab. Nurse (Ill.), Sexual Health Clinician, Vancouver Hospital, Vancouver Coastal Health Authority; **Christine Emery**, B.S.N., M.S.N., (Br.Col.), R.N., Clinical Nurse Specialist, Hospice/Palliative Care, Fraser Health Authority; **Hilary Espezel**, B.S.N., M.S.N. (Br.Col.), R.N., Research Nurse, Children's and Women's Health Centre of B.C.; **Barbara Findlay**, B.S.N. (Br.Col.), R.N., Research Associate, Samuelli Institute, Alexandria, V.A.; **Barbara Fitzgerald**, B.S.N. (McM.), M.N. (Penn.), R.N., Clinical Practice Leader/Advanced Practice Nurse, Toronto Sunnybrook Regional Cancer Centre; **Barbara Fitzsimmons**, B.S.N., M.S.N. (Br.Col.), R.N., Patient Services Director, Oncology/Hematology/BMT, A179; **Doreen Fofonoff**, B.N., M.N. (Calg.), R.N., Clinical Nurse Specialist, Providence Health Care; **Sharon Galloway**, B.N. (Manit.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Vancouver Hospital, Vancouver Coastal Health Authority; **Irene L. Goldstone**, B.N. (McG.), M.Sc. (Br.Col.), R.N., Director, Professional Education and Care Evaluation, BC Centre for Excellence in HIV/AIDS; **Anna Gravelle**, B.Sc.N. (Windsor), M.S.N. (Br.Col.), R.N., Cystic Fibrosis Nurse Clinician, Children's and Women's Health Centre of B.C.; **Barbara Greenlaw**, B.N. (McG.), M.A. (S.Fraser), R.N., Education Consultant; **Deb Gue**, B.N., M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Vancouver Hospital, Vancouver Coastal Health Authority; **Gillian Harwood**, B.A. (Guelph), M.Ed. (Br.Col.), R.N., Health Services Administrator, Burnaby Community, Fraser Health Authority; **Doreen Hatton**, B.S.N., M.S.N. (Br.Col.), R.N., Formerly Clinical Nurse Specialist, BC C&W; **Phyllis Hunt**, B.N. (Dal.), M.S.N. (Br.Col.), R.N., Geriatric Clinical Specialist, Peace Arch Hospital; **Carolyn Iker**, B.S.N., M.S.N. (Br.Col.), R.N., Perinatal Clinical Nurse Specialist, Children's & Women's Health Centre of B.C.; **Rosella Jefferson**, B.S.N. (W.Ont.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Children's and Women's Health Centre of B.C.; **Kay Johnson**, B.A. (Royal Roads), B.H.S. (O.L.U.), R.N., Director, Griefworks BC; **Annamarie Kaan**, M.C.N. (Cardiothoracic) (Austrian Catholic U.), R.N., Clinical Nurse Specialist, Heart Failure and Heart Transplantation, Providence Health Care; **Patricia Keith**, B.M. (McG.), M.A.

(S.Fraser), Ph.D. (Br.Col.), R.N., Regional Planning Leader, Maternity and Paediatrics, Vancouver Hospital, Vancouver Coastal Health Authority; **Claudette Kelly**, B.Sc.N. (Alta.), M.A. (Br.Col.), Ph.D. (W. Aust.), R.N., Educator and Researcher, Kamloops, B.C.; **Holly Kennedy-Symonds**, B.Sc. (Bran.), M.H.Sc. (Health Care Practice) (McM.), R.N., Clinical Nurse Specialist, Vancouver Hospital, Vancouver Coastal Health Authority; **Kori Kingsbury**, B.S.N., M.S.N., (Br.Col.), R.N., Director Coordination Cardiac Services, Provincial Health Services Authority; **Karen Kline**, B.Sc.N., M.Sc.N. (Tor.), R.N., Nursing Consultant; **Vita Kolodny**, B.S., M.S. (McG.), Health Care Consultant, Vancouver; **Arden Krystal**, B.S.N., M.H.A. (Br.Col.), R.N., Director, Health Services, Burnaby Community, Fraser Health Authority; **Sheila Lamb**, B.S.N. (Vic.B.C.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Vancouver Hospital, Vancouver Coastal Health Authority; **Barbara Lawrie**, B.S.N. (Vic.B.C.), M.S.N. (Br.Col.), R.N., Regional Manager, Program Development, Health Care Professional & Patient/Client Education, Vancouver Coastal Health; **Rachel Lawson**, B.S.N., M.S.N. (Br.Col.), R.N., Clinical Resource Nurse, Sunny Hill Health Centre for Children; **Adaire Leander**, B.S.N., M.S.N. ((Br.Col.), R.N., Program Leader and Clinical Nurse Specialist, Palliative Care, Fraser Health Authority; **JoAnn Leavey**, B.A.A. (Nursing), M.Ed., Ph.D. (Tor.), R.N., Health Consultant; **Lily Lee**, B.N. (Manit.), M.S.N. (Texas), R.N., IBCC, Nursing Administration, Royal Columbian Hospital; **Martha Mackay**, B.S.N., M.S.N. (Br.Col.), CNCC(C), R.N., Clinical Nurse Specialist, St. Paul's, Providence Health Care; **Heather Mass**, B.N., M.Sc. (Calg.), R.N., Chief of Nursing, Children's and Women's Health Centre of B.C.; **Marsha McCall**, B.Sc. (Alta.), M.Sc. (Br.Col.), Vancouver Richmond Health Board; **Mary McCullum**, B.S.N., M.S.N. (Br.Col.), R.N., Nurse Educator, Hereditary Cancer Program, BCCA; **Amy McCutcheon**, B.Sc.N., M.Sc.N., Ph.D. (Tor.), R.N., Executive Lead, Professional Practice, and Chief Nursing Officer, Vancouver Coastal Health Authority; **Deborah McTaggart**, B.A. (Hon.), M.Sc. (Alta.), Ph.D. (Br.Col.), R.N., Counselling Psychologist, Vancouver BC; **Janice Muir**, B.S.N. (Vic.B.C.), M.S.N. (Oregon), R.N., Clinical Nurse Specialist, St. Paul's, Providence Health Care; **Filomena Nalawajek**, B.S.N., M.S.N. (Alta.), R.N., Director, Programs and Services, Canuck Place; **Molly Nevin-Haas**, M.S.N., C.P.M.H.N., R.N., School Nurse, Fairbanks North Star Borough School District, Fairbanks, AK; **Heather Nichol**, B.S.N., (Br.Col.), M.S.N. (Tor.), R.N., Clinical Nurse Specialist, Children's and Women's Health Centre of B.C.; **Becky Palmer**, B.S.N. (Br.Col.), M.N. (Alta.), Ph.D. (Br.Col.), R.N., Director of Professional Practice, Nursing and Allied Health, Vancouver Coastal Health; **Lynne Palmer**, B.S.N. (Vic.B.C.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Family Birthing Unit, Surrey Memorial Hospital, Fraser Health Unit; **Sarah Payne**, M.A. Midwifery, (Thames Valley), R.N., Clinical Nurse Specialist, Socially Complex Admissions, Children's and Women's Health Centre of B.C.; **Karen Pielak**, B.S.N., M.S.N. (Br.Col.), R.N., Nurse Epidemiologist, BC Centre for Disease Control; **Marilyn Porter**, B.N. (Dal.), M.S.N. (Br.Col.), R.N., Regional Professional Practive/Academic Leader, BCCA; **Patricia Porterfield**, B.Sc. (Alta.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Palliative Care, Vancouver Hospital, Vancouver Coastal Health Authority; **Natasha Prodan-Bhalla**, B.S.N. (Western), MN/ACNP (Tor.), R.N., Clinical Nurse Specialist, Providence Health Care; **Janice Radford**, B.S.N., M.S.N. (Br.Col.), R.N., Director, Surrey Health Services, Fraser Health Authority; **Sheila Rankin-Zerr**, B.Sc., M.Ed. (Ott.), R.N., Board of Directors, Delta Hospice Society; **Jocelyn Reimer-Kent**, B.N., M.N. (Manit.), R.N., Clinical Nurse Specialist, Royal Columbian Hospital; **Lenore Riddell**, B.S.N., M.S.N. (Br.Col.), R.N., Children's and Women's Health Centre of BC; **Dafna**

Rippel, M.D., (Tel-Aviv University), I.M.S., Technion Faculty of Medicine), M.H.A. (Ben-Gurion, University of Negev, Israel); **Della Roberts, B.S.N.** (Alta.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Palliative Care, Fraser Health Authority; **Betty Ross, B.S.N.** (Vic.B.C.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Respiratory Sciences, Vancouver Hospital, Vancouver Coastal Health Authority; **Joanne Roussy, B.Sc., M.Sc.** (Montr.), Ph.D. (Br.Col.), R.N.; **Marilyn Rugg, B.S.N.** (Br.Col.), M.N. (Wash.), Clinical Nurse Specialist, Chemical Dependency Resource Team, Vancouver Hospital, Vancouver Coastal Health Authority; **Margaret Scaia, B.S.N.** (Br.Col.), M.N. (Calg.), Nursing Consultant; **Jennifer Scarr, B.N.** (Manit.), M.S.N. (Br.Col.), R.N., Community Health Services Educator – Infant, Children & Youth, Vancouver Coastal Health; **Linda Schwartz, B.N.** (Manit.), M.S.N. (Br.Col.), R.N., Clinical Nurse Specialist, Vancouver Hospital, Vancouver Coastal Health Authority; **Patricia Semeniuk, B.N.** (McG.), M.A. (Br.Col.), R.N., Regional Director, Health Care Professional & Patient/Client Education, Vancouver Coastal Health; **Leah E. Shapera, B.S.N., M.S.N.** (Br.Col.), R.N., Geriatric Clinical Specialist, Mount St. Joseph Hospital; **Maureen Shaw, B.N., M.N.** (Calg.), R.N., Gerontology, Clinical Nurse Specialist, Vancouver Hospital, Vancouver Hospital Health Authority; **Loretta Solomon, B.S.N., M.S.N.** (Br.Col.), Health Services Administrator, Fraser Health Authority; **Mary Spencer, B.N.**, (New Br.), M.S.N. (Br.Col.) R.N., Clinical Nurse Specialist, Cardiac Sciences, Children's and Women's Health Centre of B.C.; **Victoria Stafford, B.A., B.N.** (Qu.), M.Sc. (Portland), R.N.; **Victoria Stafford, B.A., B.N.** (Qu.), M.Sc. (Portland), R.N.; **Janine Stevenson, B.S.N.** (Br.Col.), R.N., Outreach Nurse, B.C. Centre for Disease Control Society; **Lynn Stevenson, B.S.N., M.A.** (Vic.B.C.), R.N., Chief of Professional Practice/ Nursing, Vancouver Island Health Authority; **Miriam Stewart, B.S.N.** (Br.Col.), R.N., Director Health Services, Fraser Health Authority, Burnaby; **Cynthia Stutzer, B.S.N.** (Delaware), M.S. (Oklahoma), R.N., Clinical Nurse Specialist, Oncology, Children's and Women's Health Centre of BC; **Sharon Tobert, B.S.N., M.A.** (Br.Col.), R.N., Community Practice Consultant, Burrard Health Unit; **Tracey Truant, B.S.N., M.S.N.** (Br.Col.), Regional Nurse Leader: Education and Practice, BCCA; **Greg Trueman, B.S.N., M.N.** (Alta.), Clinical Nurse Specialist, Gerontology; **Elaine Unsworth, B.S.N., M.S.N.** (Br.Col.), R.N., Clinical Nurse Specialist, Residential Care, Providence Health Care; **Rena van der Wal, B.S.N.** (Br.Col.), M.N. (Alta.), R.N., Professional Practice Director, Nursing & Allied Health, Vancouver Coastal Health; **Janet Walker, B.S.N., M.S.N.** (Br.Col.), R.N., Nurse Consultant, Walker Consultants; **Barb Warren, B.N.** (Manit.), M.S.N. (Br.Col.), R.N., Clinical Practice Leader, Peace Arch Hospital; **Joan Wearing, B.N.** (McG.), M.N. (Wash.), R.N., Nursing Policy Consultant, College of Registered Nurses of B.C.; **Nora Whyte, B.S.N., M.S.N.**, (Br.Col.), R.N., PHC Consulting Ltd; **Sandra Whytock, B.Sc.N.** (Alta.), M.Ed. (Ott.), M.S.N. (Br.Col.), Clinical Nurse Specialist, Elder Care Program, Providence Health Care; **Wendy Winslow, B.S.N., M.S.N.** (Br.Col.), R.N., Nursing Policy Consultant, College of Registered Nurses of B.C.; **Linda Yearwood, B.S.N., M.S.N.** (Br.Col.), R.N., Nurse Consultant; **Susan Young, B.N.** (McG.), M.S.N. (Manit.), R.N., Clinical Nurse Specialist, Nephrology, St. Paul's, Providence Health Care; **Juhree Zimmerman, B.S.N.** (Iowa Wesleyan), M.Ed. (Calg.), R.N., Nursing Consultant.

Associate Members

Patricia Boston, B.A., M.A. (Concordia), Ph.D. (McG.), Clinical Assistant Professor, Dept. of Family Practice, UBC; **Joan L. Bottorff, B.Sc.** (Alta.), B.Ed., M.Ed. (Sask.), M.N., Ph.D. (Alta.), R.N., Professor and Dean, Faculty of Health and Social Development, (Br.Col., Okanagan); **Gregory Hislop, B.Sc.** (S.Fraser), M.Sc., M.D. (McG.), Senior Epidemiologist, BC Cancer Agency; **Patricia Janssen, B.S.N.** (Br.Col.), M.P.H., Ph.D. (Wash.), R.N., Assistant Professor, Dept. of Health Care and Epidemiology, UBC.

ASSOCIATED AGENCIES WITH CLINICAL STAFF

British Columbia Cancer Agency, British Columbia's Children's & Women's Hospital & Health Centre, Burnaby General Hospital, Fraser Health Authority, G. F. Strong Rehabilitation Centre, Holy Family Hospital, Lions Gate Hospital, Mount St. Joseph Hospital, Peace Arch Hospital, Provincial Health Services Authority, The Richmond Hospital and Richmond Community Health Services, Royal Columbian Hospital, St Paul's Hospital, Surrey Memorial Hospital, UBC Hospital, Vancouver Coastal Health Authority, Vancouver General Hospital.

2006-07

20 The School of Occupational and Environmental Hygiene

A SCHOOL WITHIN THE FACULTY OF GRADUATE STUDIES

Director's Office

Dr. Michael Brauer, Director

3rd Floor, 2206 East Mall
Vancouver, BC V6T 1Z3
Telephone: 604-822-9595
Fax: 604-822-9588

Occupational and Environmental Hygiene
Website (www.soeh.ubc.ca)

The School of Occupational and Environmental Hygiene is a teaching and research unit whose mandate is to study exposures, health effects, and control strategies in the work and community environments. The School's primary objective is to prepare professional and research hygienists with the expertise to evaluate risks from physical, chemical, and biological exposures, and with the skills and sensitivities to effect changes that will protect human health and well-being. Given the nature of the discipline, the School emphasizes applied research and interdisciplinarity. The School has formal academic links to units in the Faculties of Medicine, Applied Science, Science, Commerce, and Graduate Studies.

The study of workplace and community environments draws upon multiple disciplines, requiring diversity in the faculty members, students, and in the program of study. Therefore, students in the School have a wide variety of educational backgrounds, including the physical, chemical, and biological sciences; engineering; resource management; environmental health; pharmaceutical sciences; medicine; nursing; and kinesiology. Graduates are employed throughout Canada and abroad. Although many become practitioners in the comprehensive practice of occupational and environmental hygiene, others choose to specialize in hygiene issues related to their undergraduate field. There are excellent opportunities for hygiene professionals in management, policy analysis, inspection, advocacy, teaching, and research positions in public and private companies, government agencies, labour organizations, universities and colleges, and in private consulting.

Faculty members within the School have established world-renowned research programs involving diverse interactions with regional, national, and international communities. The research falls into five broad thematic areas: acoustics, noise and vibration; bioaerosols; exposure assessment and epidemiology;

occupational and environmental respiratory disease; and occupational and environmental policy and risk assessment. The School welcomes the participation of students in this research, and encourages them to develop research interests of their own.

In support of the research and teaching programs, the School has comprehensive exposure assessment laboratories for the analysis of a wide range of chemical, physical, and biological agents. These facilities include a broad spectrum of laboratory and field survey instrumentation which is available for student projects, faculty research, and selected non-university investigations. Research facilities include specialized laboratories for the study of acoustics, air pollution, microbiological hazards (including bioaerosols), and a mobile laboratory for conducting field surveys of pulmonary function.

MASTER OF SCIENCE

The School offers professional and research-oriented graduate education leading to the Master of Science. Because of the varied backgrounds of students, the program is course-intensive. A unique feature of the program is that students have the choice of registering in a project (Applied Option), usually completed in 20 months by a full-time student, or a thesis (Research Option), usually completed in 20 to 24 months. Part-time study is also possible. A typical class will have eight to 12 students.

The program provides graduates not only with the proficiency to practise as a hygiene professional, but also with the intellectual, social, and ethical groundwork to forge new approaches to issues affecting the health and well-being of the community.

Students are encouraged to become active in the world of hygiene by attending meetings of professional associations and by participating in local and international conferences. Students are subsidized to attend an annual meeting of researchers and practitioners, jointly sponsored by the University of Washington and the University of British Columbia, to discuss occupational and environmental health issues.

ORIENTATION AND ACADEMIC ADVISING

All entering students are required to attend an orientation session on the first day of Term 1, Winter Session, to become acquainted with the School's faculty members, staff, and fellow students.

All students are assigned a faculty advisor prior to the beginning of their first term. Students choosing the Research Option will typically choose their thesis supervisor and committee after the first term of classes.

ADMISSION

Prospective students should have completed a bachelor's degree in such areas as the physical, chemical, or biological sciences, or engineering. There are no specific prerequisite courses. However, interested individuals are encouraged to develop some breadth of knowledge during their undergraduate program by selecting courses in such fields as physiology, statistics, organic chemistry, physics, and calculus.

All applicants must meet the academic standing requirements of the Faculty of Graduate Studies. In exceptional circumstances, candidates with other backgrounds, or mature students who have had significant formal training and relevant professional experience to offset deficiencies in standing, may be admitted with the approval of the Director of the School and the Dean of Graduate Studies.

APPLICATION

The deadline for applications is January 31. A complete application for admission includes the following:

- an application for admission to the Faculty of Graduate Studies;
- three confidential letters of reference;
- two official transcripts;
- a letter of intent;
- official Graduate Records Examination (GRE) results (general test);
- proof of proficiency in the English language; and
- the application fee.

Applications for admission to the Faculty of Graduate Studies are available from the School. Applicants may also choose to use the online application on the Graduate Studies website (grad.ubc.ca).

Letters of reference should be written by individuals knowledgeable about the candidate's academic qualifications and abilities. Forms for this purpose are provided with the application, available from the School or from the Graduate Studies website. Applicants with professional experience are encouraged to solicit a letter of recommendation from a professional in the field. All reference letters must be mailed directly to the School by the referees.

Official transcripts must cover all post-secondary academic work and must be sent directly to the School. If any transcript is not in English or French, an official translation must be provided.

The applicant's letter of intent should indicate any relevant work history, and include a statement of education and career goals, reasons for seeking admission to the School, and plans for either full or part-time study.

For more information on the Graduate Records Examination, visit the GRE website (www.gre.org).

English Language Proficiency Requirement

Proof of proficiency in the English language is required if English is not the applicant's native language. Foreign applicants are required to complete the TOEFL (Test of English as a Foreign Language), TWE (Test of Written English) and TSE (Test of Spoken English) satisfactorily before any offer of admission can be made. The minimum acceptable TOEFL (or equivalent) score is 100 (on the old scale, this is equal to 600 paper-based, or 250 computer-based). For more information on the Test of English as a Foreign Language, visit the TOEFL website (www.toefl.org).

ACADEMIC REGULATIONS

The academic regulations of the University and of the Faculty of Graduate Studies apply. (See the chapter *Academic Regulations*, p. 45, in this Calendar and *Academic Regulations*, p. 223, under the Faculty of Graduate Studies.) Students who do not make satisfactory progress in the program may be asked to withdraw at any time.

DEGREE REQUIREMENTS

There are two options of study: the Applied Option and the Research Option. Students are asked to declare their choice by January of their first year of full-time study.

All students must attend the Occupational and Environmental Hygiene Seminar, OCCH 595, for a minimum of three terms. All students must also complete at least three non-credit training workshops from a list of approved workshops.

Applied Option

The Applied Option includes 39 credits of courses (30 credits of core courses and 9 credits of approved electives) and a 6-credit project (OCCH 598), generally requiring 20 months of full-time study or equivalent amount of time on a part-time basis. Students must successfully complete a comprehensive examination in order to graduate.

For information on required core courses, please contact the School or visit the SOEH website (www.soeh.ubc.ca).

The project (OCCH 598) includes a three-and-one-half-month practicum work term, usually in the summer after completion of the first full academic year. Employers may be from British Columbia, other provinces in Canada, or abroad. It is likely that the placement may require temporary relocation and therefore some additional expense. Work term positions are paid a salary by the employer, and some include a stipend for travel or moving expenses. Students have found these placements extremely rewarding.

Research Option

The Research Option includes 33 credits (4.5 credits of core courses, 16.5 credits selected from a list of additional core courses, and 12 credits of electives) and a 12-credit thesis, culminating in an oral examination. For information on required core courses, please contact the School or visit the SOEH website (www.soeh.ubc.ca).

The Research Option generally requires 20 to 24 months of full-time study or the equivalent on a part-time basis.

Students in both options are required to participate in two weekly seminar programs designed to enhance research and professional competencies.

DOCTOR OF PHILOSOPHY

The School offers a Doctor of Philosophy program for advanced study in research in the area of Occupational and Environmental Hygiene. The Doctor of Philosophy is primarily a research degree; students should enter with a strong background in their field of study.

SUPERVISORY COMMITTEES

A supervisory committee consists of the research supervisor and a minimum of two other faculty members to advise the student and develop the program of studies. The SOEH Graduate Advisor will be informed of the program of study and will sign off once the program is approved.

PROGRAM

Each doctoral student's program is designed by the supervisory committee in consultation with the student to reflect individual requirements. The first year of the doctoral program usually involves course work in preparation for the comprehensive examination and development of the thesis proposal. Students with a master's degree in Occupational and Environmental

Sciences must complete a minimum of nine credits of courses selected in consultation with the supervisory committee. Students with master's degrees in other disciplines must complete a minimum of 18 credits of courses, selected in consultation with the supervisory committee; 9 of these credits must be selected from the list of courses provided for the research-option master's degree in Occupational and Environmental Hygiene. Specific course requirements are decided by the candidate's committee in consultation with the candidate; additional courses may be necessary in support of the proposed thesis research. In addition to the standard course work, all doctoral students must participate in the research in progress seminar (OCCH 640) throughout their doctoral program. This will be a pass/fail course.

Doctoral students take a comprehensive exam upon completion of their course requirements. The focus is on theory, issues and methods in the student's area of specialization. The format will be decided in consultation with the supervisory committee. Students will design their research programs in consultation with their supervisory committee and prepare a thesis research proposal. After the thesis proposal has been approved, the candidate's efforts are devoted to research and preparation of the thesis.

ADMISSION

Applicants for admission must have a master's degree in Occupational and/or Environmental Sciences or a related field (e.g., engineering, natural sciences, health sciences), with high academic standing from a recognized institution. To ascertain the School's ability to fulfil potential applicants' objectives, a statement is required describing the applicant's research interests and objectives; this should be submitted with the application package. Ph.D. applicants are strongly encouraged to view the faculty research interests sections of the SOEH website (www.soeh.ubc.ca) and to make contact with at least one prospective research supervisor prior to submitting an application for admission.

Applications to transfer to the Ph.D. program after completion of the first year of the master's program will be considered in exceptional cases. All applicants must satisfy the general regulations of the Faculty of Graduate Studies of UBC, and must be accepted by the School of Occupational and Environmental Hygiene Admissions Committee.

The application deadline is January 31.

See *Application*, p. 367, under Master of Science for further details.

ACADEMIC REGULATIONS

The academic regulations of the University and of the Faculty of Graduate Studies apply. (See the chapter *Academic Regulations*, p. 45, in this Calendar and *Academic Regulations*, p. 223, under the Faculty of Graduate Studies.) Students who do not make satisfactory progress in the program may be asked to withdraw at any time.

PROFESSIONAL REGISTRATION

Upon completion of the program, students can begin working toward professional certification by such bodies as the Canadian Registration Board of Occupational Hygienists (Registered Occupational Hygienist, ROH) or the American Board of Industrial Hygiene (Certified Industrial Hygienist, CIH).

For more information, visit the Canadian Registration Board of Occupational Hygienists website (www.crboh.ca) or the American Board of Industrial Hygiene website (www.abih.org).

AWARDS AND FINANCIAL ASSISTANCE

Candidates wishing to apply for university, national, or international graduate awards and fellowships should check the application dates for these awards. Information on many of these awards is available from the Research Services website (www.orsil.ubc.ca). Some awards have application deadlines in the fall of the year preceding the year to which admission is sought. For awards which require prior acceptance to the program, students should submit their applications to the School at least two weeks prior and indicate the deadline they are trying to meet.

ACADEMIC STAFF

Professors

Michael Brauer, B.A. (Calif., Berkeley), Sc.D. (Harv.); **Murray Hodgson**, B.Sc. (Hons.) (Qu.), M.Sc., Ph.D. (Ston.), C. Eng; **Susan M. Kennedy**, B.A., Ph.D. (Br.Col.), M.Sc. (Harv.); **Katherine E. Teschke**, B.A. (Trent), Dipl.T. (B.C.I.T.), M.P.H. (Calif., Berkeley), Ph.D. (Wash.).

Associate Professor

Paul Demers, B.S. (William James Coll., Mich.), M.S., Ph.D. (Wash.).

Assistant Professors

Karen Bartlett, B.A. (Vic.B.C.), M.Sc., Ph.D. (Br.Col.); **Hugh Davies**, B.Sc. (Alta.), M.Sc., Ph.D. (Br.Col.).

Lecturer

Lydia Ma, M.Sc., Ph.D. (Br.Col.).

Associate Members

Gordon S. Bates, Chemistry; **Michael Buzzeli**, Geography; **Ray Copes**, Health Care and Epidemiology; **Judy Isaac-Renton**, Pathology and Laboratory Medicine; **Tom Knight**, Sauder School of Business (Commerce); **Mieke Koehoorn**, Health Care and Epidemiology; **Tim McDaniels**, Community and Regional Planning; **Aleck Ostry**, Health Care and Epidemiology; **Jerry Spiegel**, Liu Institute for Global Issues; **Christiaan van Netten**, Health Care and Epidemiology; **Helen Dimich Ward**, Medicine; **Annalee Yassi**, Institute of Health Promotion Research; **Maira Yeung**, Medicine.

Adjunct Members

John Beckett, C.R.S.P.; **David Bell**, B.Sc. (Dal.), C.I.H.; **Ed Chessor**, B.Sc. (Alta.), M.B.A. (S.Fraser), P.Eng., C.I.H.; **Warren Fox**, B.Sc. Hons. (Alta.), Dip.T. (BCIT), M.Sc. (S.Fraser); **Anya Keefe**, B.A.Sc., M.Sc. (Br.Col.); **Judy Village**, B.Sc. (Wat.), M.Sc. (S.Fraser); **Geoffrey Wright**, B.A.Sc., M.A.Sc., Ph.D. (UT).

Affiliates

Jingnan Guo, B.Sc. (Nanjing), Ph.D. (W.Aust.); **Dick Heederik**, M.Sc., Ph.D. (Wageningen); **P. J. E. Quintana**, M.P.H. (Calif., San Diego), Ph.D. (Calif., Berkeley).

2006-07

21 The Faculty of Pharmaceutical Sciences

Dean's Office

Robert D. Sindelar, Dean
Helen M. Burt, Associate Dean, Research and Graduate Studies
David W. Fielding, Associate Dean, Academic
Marguerite M. Yee, Director, Student Services
2146 East Mall
Vancouver, BC V6T 1Z3
Telephone: 604-822-2390
Fax: 604-822-3035

Pharmaceutical Sciences Website
(www.pharmacy.ubc.ca)

The Faculty of Pharmaceutical Sciences offers courses leading to the Bachelor of Science in Pharmacy and to the Master of Science, Doctor of Pharmacy, and Doctor of Philosophy. For information on graduate programs, see *Pharmaceutical Sciences*, p. 272, under the Faculty of Graduate Studies, Degree Programs. The Faculty of Pharmaceutical Sciences was established in 1945 and is housed in the George T. Cunningham Building. The first wing of the building was completed in 1960 and is used primarily for the undergraduate program. The research wing was completed in 1970 and provides space for the graduate program.

BACHELOR OF SCIENCE IN PHARMACY

The program leading to the Bachelor of Science in Pharmacy is designed to prepare graduates to enter a wide variety of careers associated with pharmacy in community pharmacies and hospitals, in industry and government service, and in other specialized fields. The program satisfies the requirements of the College of Pharmacists of BC for academic qualification for licensing in the Province of British Columbia. It also meets standards approved by the Canadian Council for the Accreditation of Pharmacy Programs.

ACADEMIC ADVISING

Advising is not required for most students but is available on request. The Faculty reserves the right to make advising mandatory prior to registration for students with academic problems. Call 604-822-0344 to arrange an appointment with an advisor.

ADMISSION

To be considered for admission to the four-year Bachelor of Science in Pharmacy program, a student must first achieve an average grade of at least 65% in the courses listed below or their equivalents at an approved college or university. Because of the limitations in clinical clerkship sites, laboratory facilities, and resources, enrolment is limited.

The Faculty will select for admission those students who not only demonstrate academic potential but who also most aptly display a motivation to study pharmaceutical sciences and who demonstrate that they possess the qualities and skills most necessary to be a caring and potentially competent pharmacist. Candidates may be invited for an interview at the discretion of the admissions committee.

Students are not admissible to the Faculty directly from a high school or secondary school program (BC Grade 12 or equivalent obtained in any province). Admission to the Faculty is to the first year of a four-year program following a post-secondary year. Students must complete at least 30 credits of course work by the end of the academic term in which application is made. The prerequisite courses are:

Biology	BIOL 112, plus BIOL 121 and BIOL 140
Chemistry	CHEM 111 & 113 or CHEM 121 & 123
English	1st year (6 credits). ENGL 112 is recommended.
Mathematics	MATH 102 (recommended) or MATH 100, 104, 120, 180 or 184, plus MATH 103 (recommended) or MATH 101, 105 or 121
Physics	PHYS 101
Electives	As required to fulfill the 30-credit minimum or equivalent.

Also acceptable is the UBC Science One program or the Coordinated Science Program (General Science Option) and 6 credits of first-year English.

Applicants without these specific UBC courses need to present a full year each (i.e., 2 semesters) of:

- first-year university Biology with a lab
- first-year university Chemistry with a lab

- first-year university English (for which UBC gives transfer credit)
- first-year university Calculus, and
- one semester of first-year university Physics equivalent to UBC Physics 101, with a lab,
- plus electives as required to fulfil 30 credit minimum.

If admitted, these non-UBC applicants may need to register in BIOL 112 if they have insufficient background for second-year Microbiology. Students who have any doubts about their preparedness for the first-year Pharmacy program should consult an advisor at undergrad@interchange.ubc.ca or telephone 604-822-0344. Non-UBC students taking courses in BC may also wish to consult the BC Transfer Guide (www.bccat.bc.ca).

All applicants must submit the following additional supplemental admission requirements to Undergraduate Admissions, Faculty of Pharmaceutical Sciences, 2146 East Mall, Vancouver, B.C., V6T 1Z3, by February 28, 2006, 5:00 pm PST.

Pharmacy College Admission Test (PCAT)

All applicants are required to take the PCAT test in order to be considered for admission. The PCAT is a multiple-choice, general aptitude test that measures five content areas: Verbal Ability, Reading Comprehension, Quantitative Ability, Biology, and Chemistry. It is administered by Harcourt, Inc. For further information about the PCAT test, please visit www.pcatweb.info.

Please ensure that you have registered to write the PCAT well in advance of the Pharmacy Application deadline. Seating for the PCAT is limited and the deadline for registration is well in advance of the sitting. Application for the test is made directly to The Psychological Corporation. Information available at: www.pcatweb.info.

The PCAT must be written within the two years prior to an application for admission and the score reported directly to the Faculty of Pharmaceutical Sciences. If more than one PCAT score report is received for an applicant, only the most recent scores will be used.

Other Requirements

Applicants must submit the following:

- Two letters of reference (structured form provided in the Faculty's Online Pharmacy Application);
- A current resumé (structured form provided in the Faculty's Online Pharmacy Application);
- Written personal statements from the applicant as instructed in Online Pharmacy Application; and
- Online Pharmacy Application and Processing Fee. No applications will be processed unless the fee of CAD\$125.00 is received.

APPLICATION

Application inquiries may be addressed to Enrolment Services at 604-822-3014 or 604-822-5544, or to the Faculty of Pharmaceutical Sciences (pharask@interchange.ubc.ca) at 604-822-0344 or the Faculty website (www.pharmacy.ubc.ca). The UBC application form and transcripts are to be sent to Enrolment Services with the appropriate fee. The Online Pharmacy Application (PCAT scores, reference letters, resumé, and personal statements) and processing fee must be submitted online from the Faculty's website (www.pharmacy.ubc.ca).

Because enrolment in the Faculty is limited and competitive, applicants should be aware that satisfying the minimum entrance requirements does not guarantee admission but only ensures eligibility for selection. Such selection shall be solely within the discretion of the Faculty of Pharmaceutical Sciences. In the selection of applicants, preference is given to well qualified residents of British Columbia who are Canadian citizens or permanent residents of Canada. Consideration may also be given to under represented areas of BC.

Applications received with incomplete documentation or without the correct fees will not be processed. Late applications will not be considered.

Registration

Applicants who are accepted will be sent a letter of acceptance and details of the registration procedures.

ACADEMIC REGULATIONS

Regular attendance is expected of students in all their classes (including lectures, laboratories, tutorials, and seminars). Students who neglect their academic work and assignments may be excluded from the final examinations. Students who are unavoidably absent because of illness or disability should report to their instructors on return to classes.

Students who because of illness are absent from a December or April examination must submit a certificate, obtained from a physician to the Student Health Service, as promptly as possible.

In any course that involves laboratory work a student must complete the laboratory assignments with a satisfactory record before being admitted to the written examination of the

course. A student may be required by the Faculty to discontinue such a course, during any term, because of failure to maintain a satisfactory standing in laboratory work, or because of absence from an appreciable number of laboratory periods through illness or other causes.

The passing mark for a course in the Faculty of Pharmaceutical Sciences is 50%.

A student who has failed in 12 credits or more will be considered to have failed in the work of that year, and will not receive credit for any of the courses passed in that year.

Any student whose academic record, as determined by the tests and examinations of the first term, is found to be unsatisfactory, may be required to discontinue attendance at the University for the remainder of the session.

Term essays and examination papers may be refused a passing mark if they are noticeably deficient in the quality of written English, including the correct use of grammar, spelling, and punctuation.

Although satisfactory academic performance is prerequisite to advancement, it is not the sole criterion in the consideration of the suitability of a student for promotion or graduation. The Faculty reserves the right to require a student to withdraw from the Faculty if that student is considered to be unsuited to proceed with the study or practice of pharmacy.

Dean's Honour List

Graduating students and students promoted to second, third or fourth year with a standing of 80% or better in the previous Winter Session will receive the notation 'Dean's Honour List' on their records. A program of at least 90% of a full course load for the year must have been carried in order to receive this designation.

Promotion Requirements

To be promoted, a student in the Faculty of Pharmaceutical Sciences must pass all of the required courses of the program year in which the student is registered and obtain a minimum average standing of 60% in the required courses of the program year in which the student is registered.

The following notes apply to these requirements:

- Required courses are used for this computation—elective courses are excluded. Failure in elective courses requires that the course be repeated, or an approved alternative course be taken;
- A student who by these regulations is not promotable may be required to repeat the work of that year or to withdraw from the Faculty and will not be able to take any of the required courses of subsequent years;
- A student who fails to meet promotion standards for a second time, either in a repeated year or a subsequent year, will normally be required to withdraw from the Faculty;
- Courses for which credit has not been obtained must be repeated or permissible substitutes taken, in the next regular

session attended. In the Winter Session, the total for all courses taken may not exceed 41 credits except with approval of the Dean; and

- A student with standing deficient in more than 6 credits, although not permitted to register in the higher year, may be allowed to continue by registering in the lower year and taking courses in accordance with the previous paragraph.

Supplementals and Examinations for Higher Standing

Supplemental examinations are not available in all courses. In courses in which proficiency is judged on a continuing basis throughout a term, or in courses where the final examination contributes less than 40% of the course grade, no supplemental examinations are provided. In courses where supplemental examinations are allowed, it is recommended that the supplemental examination should be a comprehensive examination of the full year's work and should receive a substantial value of the total mark. The supplemental mark should replace all of the marks received on the written examinations of the lecture content of the course.

- 1) In courses where supplemental examinations are allowed, a student who has obtained an average of at least 50% in the final examinations of the session may be granted supplemental examinations in the subject or subjects failed, provided a final grade of not less than 40% was obtained. Notices will be sent to students to whom such supplemental examinations have been granted.
- 2) In any one session no candidate will normally be granted supplemental privileges in more than six credits.
- 3) A student who has failed in 12 credits or more will be considered to have failed in the work of that year, and will not receive credit for any of the courses passed in that year.
- 4) A supplemental examination may be written only once except in the case of a Final Year student who may write twice. Should a supplemental be failed the course concerned must be repeated or a suitable substitute taken.
- 5) Where supplemental privileges are granted, the standing will be recalculated for purposes of promotion based on the actual marks obtained in these examinations.
- 6) In any one session, for purposes of promotion, a student may be allowed to rewrite a maximum of six credits of course work for higher standing. These six credits of course work will be the subject or subjects in which the student has obtained the lowest standing or at the discretion of the Dean.
- 7) The total of supplementals and examinations for higher standings should not normally exceed six credits.
- 8) The above policy applies only to courses administered by the Faculty of Pharmaceutical Sciences. Faculties and departments

responsible for other required or elective courses in the pharmacy program may have different policies on supplementals and examinations for higher standing.

DEGREE REQUIREMENTS

Bachelor of Science in Pharmacy (for students admitted for September 2003 and subsequent years)

The first week of the first year will include both scheduled course work and a formal orientation program. This orientation will introduce students to the Faculty, its expectations for academic and professional conduct, and some of the skills required to succeed in the program.

First Year

ANAT 390	3
ANAT 391	3
CHEM 233	3
CHEM 235	1
MICB 202	3
PHAR 201	3
PHAR 202	2
PHAR 220	3
PHAR 241	2
PHAR 299	3
PHYL 301	6
PHYL 302	3
STAT 203	3
Total Credits	38

Second Year

BIOC 300	6
PHAR 302	3
PHAR 303	2
PHAR 315	4
PHAR 321	3
PHAR 322	1
PHAR 323	3
PHAR 330	2
PHAR 341	3
PHAR 342	2
PHAR 351	2
PHAR 352	2
PHAR 361	1
PHAR 362	1
PHAR 369 ¹	3
PHAR 371	1
PHAR 399	3
Total Credits	42

Third Year

PHAR 401	2
PHAR 430	4
PHAR 435	3
PHAR 441	3
PHAR 442	3
PHAR 451	2
PHAR 452	2
PHAR 454	3
PHAR 461	1
PHAR 462	1

Third Year (Continued)

PHAR 469 ²	3
PHAR 471	1
PHAR 472	1
PHAR 498	3
Electives ³	9
Total Credits	41

Fourth Year

PHAR 400	3
PHAR 479	12
PHAR 489 ⁴	6
PHAR 499	3
Electives ³	9
Total Credits	33

¹ Taken in the summer after completing second year.

² Taken in the summer after completing third year.

³ Of the 18 elective credits required in the program, 6 must be chosen from outside the Faculty and 12 must be chosen from offerings within or approved by the Faculty.

⁴ Students must meet minimum requirements for community and institutional practice experience before opting for alternate practice sites.

Students admitted to the program prior to September 2002 who do not complete the program by April 2006 will take courses as required by the Dean's Office to fulfil the degree requirements.

Clinical Clerkships and Additional Expenses

Required clinical clerkships in facilities that have been approved as affiliated teaching sites by the Faculty of Pharmaceutical Sciences will be supervised by University-appointed personnel. These clerkships may be scheduled in community and hospital pharmacies, health care agencies and institutions, manufacturers in the pharmaceutical industry, and with selected pharmacy organizations. Clerkship sites outside the greater Vancouver area are also used. All students will be required to spend 12 of their 20 weeks of clerkship outside the Greater Vancouver area.

Students will be required to pay the B.Sc. (Pharm.) practice fee. See *Program and Course Fees*, p. 29, in the Fees, Financial Assistance and Scholarships chapter. Students should be prepared for clinical clerkships in sites around British Columbia and therefore should also include travel and accommodation costs for these experiences in estimating total personal expenses.

College Registration Requirement

Students must register with the College of Pharmacists of British Columbia during their first year in the Faculty of Pharmaceutical Sciences. This registration will be completed during Term 1 of Winter Session. Proof of such registration will be a requirement for admission into both the Pharmacy Skills Professional Practice Centre and structured practical experience courses.

English Requirements

To qualify for the Bachelor of Science in Pharmacy, students must satisfy the Faculty of Pharmaceutical Sciences English Requirement. To do this, students must obtain six credits of first-year English. Other English communication skills requirements are under Faculty review. Satisfactory completion of the Language Proficiency Index (LPI) is prerequisite to all first-year English courses at UBC. (See *Language Proficiency Index Requirement for First-Year English*, p. 120)

Interprofessional Electives

Under the auspices of the Council, the *College of Health Disciplines*, p. 291, is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Pharmaceutical Sciences. For more information see "Courses Descriptions" or visit the website at www.health-disciplines.ubc.ca.

CONTINUING PHARMACY PROFESSIONAL DEVELOPMENT

Continuing Pharmacy Professional Development is sponsored jointly by the Faculty of Pharmaceutical Sciences and the College of Pharmacists of British Columbia.

Mission Statement: The Division of Continuing Professional Pharmacy Development serves pharmacists by providing quality, evidence-based, life-long learning opportunities, in a variety of innovative learning formats, to enhance knowledge, skills, and abilities to improve practice and patient health outcomes.

The goals of the Division of Continuing Pharmacy Professional Development include the following:

- 1) To enhance and refine the development of local and national needs-based professional continuing professional development programs and activities that support advancement of learning for pharmacists;
- 2) To enhance the availability and accessibility of quality continuing professional development programs for all pharmacists, regardless of distance and/or scheduling constraints;
- 3) To develop and deliver programs optimizing the use of existing, emerging, and engaging technologies;
- 4) To provide education and support to the Regional Coordinators Network to enable them to assess learning needs and develop and evaluate continuing professional development programs for the pharmacists in their communities;
- 5) To encourage pharmacists to become self-directed, life-long learners, and to assist pharmacists in developing plans for their own continuous learning;
- 6) To provide innovative programs for certification and/or enhancing professional credentials; and

- 7) To design and conduct research projects to foster continuous quality improvement, innovation, and excellence.

RESIDENCY PROGRAMS

HOSPITAL PHARMACY RESIDENCY PROGRAM

A one-year post-graduate hospital pharmacy residency program is offered by a number of hospitals in British Columbia in affiliation with the Faculty of Pharmaceutical Sciences and the BC Branch of the Canadian Society of Hospital Pharmacists. These residencies are conducted following standards established for accreditation by the Canadian Hospital Pharmacy Residency Board. Residencies normally commence in June of each year. Some residency positions are available to commence in February. Those selected are registered as Residents in the Faculty of Pharmaceutical Sciences and are assessed the applicable program fee as indicated in Fees, Financial Assistance and Scholarships chapter. The residencies are offered by the Departments of Pharmacy in the following agencies: Children's and Women's Health Centre of British Columbia, Lions Gate Hospital, Fraser Health Authority, St. Paul's Hospital, Vancouver Hospital & Health Sciences Centre, Prince George Regional Hospital, and Vancouver Island Health Authority.

Admission

Graduates of any Canadian pharmacy school are eligible for admission. All candidates must satisfy the requirements for registration with the College of Pharmacists of BC. Graduates of foreign pharmacy schools must be registrants of the Pharmacy Examining Board of Canada. The selection is highly competitive and is determined using a matching process conducted by the BC Hospital Residency Program Committee and the Canadian Society of Hospital Pharmacists. The decision is based on applicant hospital preferences, interviews, letters of reference, and academic performance during the undergraduate pharmacy program.

Application

Application forms and descriptive literature may be obtained from the Faculty's website (www.pharmacy.ubc.ca). Inquiries may also be directed to the residency coordinators in the pharmacy departments in any of the hospitals offering a residency program. The closing date for submission of completed applications is usually in mid to late October for entry into programs the following June. The closing date for applications for February residencies is usually in mid-October of the preceding year.

Program Requirements

The residency program consists of required and elective rotations in the resident's hospital and other affiliated hospitals and agencies. A certificate signifying completion of the program is awarded jointly by the hospital and the University based on satisfactory performance in rotation assignments, oral and written assess-

ments, and project work as determined by the BC Hospital Pharmacy Residency Program Committee.

COMMUNITY PHARMACY RESIDENCY PROGRAM

A one-year post-graduate community pharmacy residency program is offered by the Faculty of Pharmaceutical Sciences. The program has been developed through the cooperative efforts of representatives from the College of Pharmacists of BC, practicing community pharmacists, and the Faculty. These groups also provide on-going support and guidance as participants in the Community Pharmacy Residency Program Committee. Those selected are registered as Residents in the Faculty of Pharmaceutical Sciences and are assessed the applicable program fee as indicated in *Program and Course Fees*, p. 29.

Admission

Graduates of any Canadian pharmacy school are eligible for admission. All applicants must satisfy the requirements for registration as a pharmacist with the College of Pharmacists of BC. The selection is highly competitive and is determined using a process conducted by the Community Pharmacy Residency Program Committee based on applicant interviews, letters of reference, as well as academic and clinical performance during the undergraduate pharmacy program.

Residency Program Completion Requirements

The residency program consists of required and elective rotations in selected community pharmacies and affiliated agencies. A certificate signifying completion of the program is awarded by the Faculty based on satisfactory performance in rotation assignments, oral and written assignments, and project work as determined by the program committee.

Application

Application forms and descriptive literature may be obtained from the Faculty's website (www.pharmacy.ubc.ca), inquiries may also be directed to the community pharmacy residency coordinator. The closing date for submission of completed applications is usually mid-December for entry into the program the following July.

GRADUATE PROGRAMS

INTRODUCTION

The Faculty of Pharmaceutical Sciences offers opportunities for advanced study leading to the *Master of Science (M.Sc.)*, p. 272, and *Doctor of Philosophy (Ph.D.)*, p. 272, in the following research areas: drug discovery, drug delivery and transport, drug metabolism, pharmacokinetics and toxicology, pharmacogenomics and pharmacogenetics, drug actions and disease processes, neuropharmacology, pharmaceutical health outcomes and pharmacotherapeutics, and pharmaceutical education.

The programs are open to those holding undergraduate or graduate degrees from recognized universities, whether in pharmacy or other related disciplines. A minimum TOEFL score of 600 (paper) or 250 (computer) is required.

See the Pharmaceutical Sciences website (www.pharmacy.ubc.ca).

DOCTOR OF PHARMACY

The Faculty of Pharmaceutical Sciences also offers opportunities for study leading to the Doctor of Pharmacy (Pharm.D.) in the field of clinical pharmacy. The Pharm.D. program is open to applicants who possess a Bachelor of Science in Pharmacy or equivalent and are eligible for registration with the College of Pharmacists of British Columbia. Students must observe the following:

- 1) A student may apply for admission to the Doctor of Pharmacy (Pharm.D.) program by writing to the Pharm.D. program Admissions Committee, Faculty of Pharmaceutical Sciences;
- 2) Class size is limited. All application materials must normally be received by January 15 to be considered for admission in the same year;
- 3) All students are admitted to the program only at the start of the Winter Session (the beginning of September);
- 4) Applicants for the Pharm.D. program must hold a bachelor's degree in pharmacy or equivalent, with 80% or higher in at least 12 credits of course work, and at least 74% in the remaining course work in the last two years of the Bachelor of Science in Pharmacy program and:
 - (a) hold current registration as a pharmacist in British Columbia, or
 - (b) hold registration (Qualifying Examination) with the Pharmacy Examining Board of Canada and be eligible for registration as a qualifying candidate with the College of Pharmacists of British Columbia. Students with questions regarding this eligibility are encouraged to contact the College;
- 5) Applicants who have a bachelor's degree, or its academic equivalent, that does not meet the requirements of Item 4 above, but who have had sufficient formal training and relevant professional experience to offset such deficiencies may be granted admission on the approval of the Faculty of Pharmaceutical Sciences;
- 6) A residency in hospital or community pharmacy practice is desired, but not mandatory;
- 7) Admission to the Pharm.D. program will be in one of the following categories.
 - (a) Full standing. Granted to applicants who have met both of the requirements noted in Item 4 above.
 - (b) Provisional standing. May be granted to applicants with deficiencies in Item 4(a) above.

- 8) There must be clear evidence that the student is competent to pursue studies in the English language. Students may be required to complete a satisfactory TOEFL before any offer of admission can be made;
- 9) Admission is based on the above criteria, interviews and reference letters.

DOCTOR OF PHARMACY

First Year

HCEP 400 ¹	6
HCEP 506	3
PATH 415	2
PATH 548	6
PHAR 501	12
PHAR 502	4
PHAR 508	4
PHAR 554	3
PHAR 570	2

Second Year

PHAR 533	12
PHAR 534	12
PHAR 535	2
Comprehensive Pharm.D. Examination	
Total Credits	65

¹ Equivalent courses: BIOL 300, STAT 200.

Contact Information

Faculty of Pharmaceutical Sciences
2146 East Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-2390
Fax: 604-822-3035
Email: shirlewo@interchange.ubc.ca
Web: www.pharmacy.ubc.ca
Ms. Shirley Wong, Graduate Secretary

COLLEGE OF PHARMACISTS OF BRITISH COLUMBIA

The possession of a B.Sc. (Pharm.) does not in itself confer the right to practise pharmacy in any province of Canada. In order to practise pharmacy in the Province of British Columbia, it is necessary to be registered as a pharmacist with the College of Pharmacists of British Columbia.

All applicants for registration as pharmacists with the College of Pharmacists of British Columbia are required to be registrants of the Pharmacy Examining Board of Canada.

Details of registration procedures and English language proficiency requirements may be obtained from the Registrar of the College of Pharmacists of British Columbia, 200-1765 West 8th Avenue, Vancouver, BC, V6J 1V8; web (www.bcpharmacists.org); telephone 604-733-2440, or email (info@collegepharmacists.bc.ca).

PHARMACY EXAMINING BOARD OF CANADA

The Board provides for examinations and issues a certificate to the successful candidate that may be filed with a Canadian provincial licensing

body in connection with an application for licence to practise Pharmacy under the laws of that province. Information relative to the dates of examinations, application forms, etc., may be obtained from the Registrar, Pharmacy Examining Board of Canada (www.pebc.ca), Suite 601, 415 Yonge Street, Toronto, Ontario M5B 2E7; Tel: 416-979-2431.

ACADEMIC STAFF

FACULTY ADMINISTRATION

Robert D. Sindelar, Dean
Helen M. Burt, Associate Dean, Research & Graduate Studies; David W. Fielding, Associate Dean, Academic; Marguerite M. Yee, Director, Student Services.

Associate Members

Emma Guns, Ph.D., The Prostate Centre, VGH;
Christopher E.R. Orvig, Ph.D., Chemistry.

DIVISION OF BIOMOLECULAR AND PHARMACEUTICAL CHEMISTRY

Ronald E. Reid, Chair

Professors

Stelvio M. Bandiera, B.Sc. (Wat.), M.Sc. (Dal.), Ph.D. (Guelph); Keith M. J. McLane (On Leave), B.Sc. (Pharm.), Ph.D. (Alta.); Ronald E. Reid, B.S.P. (Sask.), Ph.D. (Lond.); Robert D. Sindelar, B.A. (Millikin), M.S., Ph.D. (Iowa).

Assistant Professor

Adam Frankel, B.A. (Calif., Santa Barbara), Ph.D. (Calif., Los Angeles).

Senior Instructor

Simon P. Albon, B.Sc., M.Sc. (Br.Col.).

Instructor

Fatima Marankan, B.Sc. (Niamey, Niger), M.Sc. (Laval, Queb.), Ph.D. (Ill.).

Professor Emeritus

Frank S. Abbott, B.S.P., M.S. (Sask.), Ph.D. (Purdue).

Adjunct Professor

Brad Popovich, B.A. (Oakland U., Rochester), M.S. (S.Lawrence Coll., Bronxville), M.Sc., Ph.D. (McG.).

Associate Member

Thomas A. Grigliatti, B.S. (S.Clara U.), M.Sc. (S.Franisco State U.), Ph.D. (Br.Col.).

DIVISION OF PHARMACEUTICS AND BIOPHARMACEUTICS

Kishor M. Wasan, Chair

Professors

Helen M. Burt, B.Pharm. (Bath), Ph.D. (Br.Col.); K. Wayne Riggs, B.Sc. (Pharm.), M.Sc., Ph.D. (Br.Col.); Kishor M. Wasan, B.Sc. (Pharm.), M.Sc.(Pcut.), Ph.D. (Texas).

Associate Professor

Thomas Chang, B.Sc. (Psych.), B.Sc. (Pharm.), Ph.D.(Pcol), (Br.Col.).

Assistant Professors

Urs Hafeli, B.Sc. (Pharm.) (F.I.T., Zurich, Switzerland), Ph.D. (P.S.I., Villigen, Switzerland); Sylvia Ng (P/T), B.Sc., M.Sc. (Br.Col.), Ph.D. (Tor).

Adjunct Professors

Marcel Bally, B.Sc., M.Sc. (Texas A&M), Ph.D. (Br.Col.); Richard Liggins, B.Sc. (Pharm.), Ph.D. (Br.Col.); Ric Procyshyn, B.Sc. (Pharm.) (Man.), Ph.D. (Br.Col.), Pharm.D. (Br.Col.); Ellen Wasan, B.Sc.(Pharm.) (Houston), Ph.D. (Case Western Reserve U., Cleveland), Ph.D. (Br.Col.); Dawn Waterhouse, B.Sc., M.B.A. (S.Fraser), Ph.D. (Br.Col.); Donald T. Yapp, B.Sc., Ph.D. (Br.Col.).

Professor Emeritus

James E. Axelson, B.S. (Wash.), Ph.D. (N.Y. State, Buffalo).

DIVISION OF PHARMACOLOGY AND TOXICOLOGY

Brian Rodrigues, Chair

Professors

Sidney Katz, B.Sc., M.Sc., Ph.D. (McG.); Kathleen M. Macleod, B.Sc. (Mc.G.), Ph.D. (Alta.); Brian Rodrigues, B.Sc., M.Sc. (Karachi), M.Sc., Ph.D.(Br.Col.); Peter J. Soja, B.Sc. (Southeastern Mass.), M.Sc., Ph.D. (Br.Col.).

Associate Professor

Thomas K.H. Chang, B.Sc. (Pharm.), Ph.D. (Br.Col.); Ujendra Kumar, B.Sc., M.Sc. (Meerut U., India), Ph.D. (Jodhpur U., India).

Assistant Professor

Brian E. Cairns, B.Sc. (Honours), B.Sc. (Pharm.), Ph.D. (Br.Col.); Lucy Marzban, Assoc. Degree (Shahid Beheshti U., Iran), Doctoral Degree (Tehran U., Iran), Ph.D. (Br.Col.); Judy M.Y. Wong, B.Sc., M.Sc., Ph.D. (Tor).

Adjunct Professors

Shawn C. Black, B.Sc., M.Sc., Ph.D. (Br.Col.); Glen Tibbits, B.Ed. (McG.), M.S., Ph.D. (Calif., L.A.).

Professors Emeriti

Gail D. Bellward, B.S.P., M.S.P., Ph.D. (Br.Col.); John H. McNeill, B.Sc. (Pharm.), M.Sc. (Alta.), Ph.D. (Mich.), FRSC, FIACS, FACN, FACHS.

DIVISION OF CLINICAL PHARMACY

Peter J. Jewesson, Acting Chair

Professors

Mary H. H. Ensom, B.S., Pharm.D. (Kentucky), FASHP, FCCP, FCSHP; Peter J. Jewesson, B.Sc. (Pharm.), Ph.D. (Br.Col.), FCSHP; Marc Levine, B.Sc. (McG.), B.Sc. (Pharm.) (Br.Col.), Ph.D. (McM.); James P. McCormack, B.Sc., B.Sc. (Pharm.) (Br.Col.), Pharm.D. (S. Carolina).

Associate Professors

Bruce C. Carleton, B.Pharm. (Wash.), Pharm.D. (Utah); Fawziah Marra, B.Sc. (Pharm.), Pharm.D. (Br.Col.).

Associate Professors, Part-time

Peter S. Loewen, B.Sc. (Pharm.), Pharm.D. (Br.Col.).

Assistant Professors, Part-time

Patricia Gerber, B.Sc.(Pharm.), Pharm.D. (Br.Col.); Leela John, B.Sc., B.Sc.(Pharm.) (Alta.), Pharm.D. (Br.Col.); Adil S. Virani, B.Sc. (Pharm.), Pharm.D. (Br.Col.).

Senior Instructor

Penelope F. Miller, B.Sc. (Pharm.) (Br.Col.), M.A. (San Diego State).

Clinical Assistant Professors

For a complete listing of our Clinical Faculty please see the website (www.pharmacy.ubc.ca).

Clinical Instructors

For a complete listing of our Clinical Faculty please see the website (www.pharmacy.ubc.ca).

Adjunct Professors

Paul Cheng, B.Sc. (Pharm.) (Br.Col.), M.B.A. (W.Ont.), Surrey Memorial Hospital; **Derek Daws**, B.Sc., B.Sc. (Pharm.) (Br.Col.), B.C. Drug and Poison Information Centre; **Robin J. Ensom**, B.Sc. (Pharm.) (Br.Col.), Pharm.D. (S. Carolina), FCSHP, St. Paul's Hospital; **John Hope**, B.Sc. (Pharm.) (Br.Col.), Burnaby Hospital; **Barbara Jewesson**, B.Sc. (Pharm.) (Br.Col.), VHHSC; **Sam Louie**, B.Sc. (Pharm.) (Br.Col.), Lion's Gate Hospital; **Robert Nakagawa**, B.Sc. (Pharm.) (Br.Col.), FCSHP, Simon Fraser Health Region; **Ian Sheppard**, B.Sc. (Pharm.) (Br.Col.), Children's and Women's Health Centre of B.C.; **Barbara Thompson**, B.Sc. (Pharm.) (Br.Col.), Riverview Hospital.

DIVISION OF PHARMACY PRACTICE

David W. Fielding, Acting Chair

Professor

David W. Fielding, B.Sc. (Pharm.), M.Sc. (Dal.), Ed.D. (Br.Col.), Dr. Tong Louie Chair in Pharmacy Administration.

Assistant Professors

Rosemin Kassam, B.C. (Pharm.) (Alta.), Pharm.D. (Tor.); Larry D. Lynd, B.S.P. (Sask.), Ph.D. (Br.Col.); Carlo A. Marra, B.Sc. (Pharm.), Pharm.D., Ph.D. (Br.Col.).

Assistant Professor, Part-time

Judith A. Soon, B.Sc. (Pharm.), M.Sc., Ph.D. (Br.Col.).

Senior Instructors

Lynda Eccott, B.Sc. (Vic.B.C.), M.Sc. (Br.Col.); Marion Pearson, B.Sc. (Pharm.) (Br.Col.); Marguerite Yee, B.Sc. (Pharm.) (Br.Col.).

Instructor

Ingrid Price, B.Sc. (Okanagan Coll.), M.A., Ph.D. (Br.Col.).

Instructor, Part-time

Arun Verma, B.Sc. (Bioc.), B.Sc. (Pharm.), M.Sc., Ph.D. (Br.Col.).

Lecturers

Colleen Brady, B.Sc. (Hons. Biol), B.Sc. (Pharm.) (Alta.); Catherine Ekelund, Diplome d'Etat de Pharmacie, (U. Paris XI); Sandra E. Huttery, B.S.P. (Sask.); Janice Moshenko, B.Sc., M.Sc. (Br.Col.); Hilary Watson-McCormack, B.Sc. (Pharm.) (Br.Col.).

Lecturers, Part-time

Anar Dossa, B.Sc., Pharm. (Br.Col.), CDE; Tamiz Kanji, B.Sc. (Pharm.), (Br.Col.); Angela Kim-Sing, B.Sc. (McM.), B.Sc.(Pharm.) (Br.Col.), Pharm.D. (Medical U. of S. Carolina); Mona Kwong, B.Sc. (Pharm.), M.Sc. (Br.Col.); Sheryl Peterson, B.Sc. (Agr.), B.Sc. (Pharm.) (Br.Col.); Rola Priatel, B.Sc. (Pharm.) (Br.Col.).

Professors Emeriti

Finlay A. Morrison, Pharm.D. (Calif.); Bernard E. Riedel, C.D., B.Sc., M.Sc. (Alta.), Ph.D. (W.Ont.).

Adjunct Professor

Marshall Moleschi, B.Sc. (Pharm.), (Br.Col.).

Associate Member

Aslam Anis, B.S.S. (Dhaka U., Bangladesh), M.A., Ph.D. (Car.).

Affiliated Agencies

Clinical staff in Pharmacy Departments of numerous health care agencies provide teaching services to the Faculty. For a complete listing of these Pharmacy Departments and their clinical preceptors see the website (www.pharmacy.ubc.ca).

Affiliated Community Pharmacies

Pharmacy staff at numerous community pharmacy sites provide teaching services to the Faculty. For a complete listing of these pharmacies and their clinical preceptors see the website (www.pharmacy.ubc.ca).

CONTINUING PHARMACY PROFESSIONAL DEVELOPMENT

Janice Moshenko, Director
Sheryl Peterson, Assistant Director.

REGIONAL COORDINATORS

The Division of Continuing Pharmacy Professional Development works closely with a province-wide network of Regional Coordinators to ensure that continuing education programs are accessible to pharmacists throughout BC. For a complete listing of current Regional Coordinators, please visit the UBC CPPD website (www.pharmacy.ubc.ca/cppd/index.html).

22 The School of Rehabilitation Sciences

A SCHOOL WITHIN THE FACULTY OF MEDICINE

Director's Office

TBA, Director

Tal Jarus, Head, Division of Occupational Therapy

TBA, Head, Division of Physical Therapy
Darlene Reid, Research Graduate Program Coordinator (M.Sc. and Ph.D. programs)
Sue Stanton, Coordinator, Online Programs

T325-2211 Wesbrook Mall

Vancouver, BC V6T 2B5

Telephone: 604-822-7392

Fax: 604-822-7624

Rehabilitation Sciences Website
(www.rehab.ubc.ca)

The School of Rehabilitation Sciences provides professional preparation in the rehabilitation sciences, and awards the following degrees:

- **Professional Degree Programs:** The School first offered the Master of Occupational Therapy and Master of Physical Therapy programs as of September 2004. (The last degrees for the Bachelor of Science in Occupational Therapy and the Bachelor of Science in Physical Therapy were awarded in May 2005). The Master of Occupational Therapy and Master of Physical Therapy degrees provide the professional education necessary to obtain a license to practice occupational therapy and physical therapy, respectively. They differ from the research master's degree that prepares practitioners with advanced research skills and requires completion and defense of a thesis.
- **Research Degree Programs:** Opportunity for graduate study leading to a Master of Science in Rehabilitation Sciences and Doctor of Philosophy is also available. Our research programs are designed to prepare individuals to conduct research independently and in collaboration with other scientists. Students will investigate an area of research relevant to rehabilitation through critical analysis of problems related to basic sciences, clinical practice, or to development of theory.
- **Online Programs:** The Master of Rehabilitation Science (M.R.Sc.) is a 30-credit, non-thesis, online master's degree developed by the School of Rehabilitation Sciences. In addition to requiring the five graduate courses (15 credits) in the Graduate Certificate in Rehabilitation,

learners in this advanced master's degree will also complete other courses and a major project. This master's degree has been designed for occupational therapists, physical therapists, and other health professionals with a baccalaureate degree who have already established their eligibility to practice in their discipline but want advanced knowledge to inform their practice. The Graduate Certificate in Rehabilitation consists of five graduate-level courses, developed by the Schools of Rehabilitation Science(s) at The University of British Columbia in Vancouver, British Columbia and McMaster University in Hamilton, Ontario. The program has been designed for rehabilitation practitioners who want up-to-date knowledge and skills for best practice.

MASTER OF OCCUPATIONAL THERAPY

Occupational therapists provide specialized rehabilitation services to maintain, restore, or improve the ability of children and adults to perform the occupations of daily life, which may be impaired as a result of illness, injury, congenital or acquired disabilities, or social disadvantage. Occupational therapists focus on adapting the environment or improving the person's skills, to enhance performance in the areas of self care (eating, dressing, personal hygiene), productivity (household work, employment, school), and leisure activities, thereby improving overall health and quality of life.

The Master of Occupational Therapy degree provides the professional education necessary to obtain a license to practice occupational therapy. It differs from the research master's degree which prepares practitioners with advanced research skills and requires completion and defense of a thesis.

Applicants must meet the admissions requirements of the Faculty of Graduate Studies, and admission is offered on a competitive basis. The annual enrolment and class size is limited to 40 seats.

REQUIREMENTS

Completion of a recognized baccalaureate degree in any field and the successful completion of the following prerequisites:

- Biological Sciences (3 credits)
 - Social Sciences (3 credits)
 - Behavioural Sciences (3 credits)
- 10) Academic standing of a minimum B+ (76%) average in senior level courses (300 and 400 level)
 - 11) 70 volunteer hours or work experience with people with disabilities
 - 12) Three reference letters (two verifying volunteer hours and experience and one verifying the applicant's ability to succeed in a graduate program.) Forms to facilitate the reference letters will be provided.
 - 13) Residency: Primary consideration is given to residents of British Columbia. Out-of-province residents or international students will only be considered in special circumstances or in the event that there are not enough eligible BC applicants.
 - 14) English competency: Applicants who have completed a degree from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission. Acceptable English language proficiency tests for applicants to the Master of Occupational Therapy program are:
 - (a) TOEFL (Test of English as a Foreign Language): a minimum score of 580 (paper version); 237 (computer version);
 - (b) MELAB (Michigan English Language Assessment Battery): a minimum overall score of 81;
 - (c) IELTS (International English Language Testing Service): a minimum overall band score of 6.5 is required with a minimum score of 6.0 in each component of the academic (not general) IELTS test.
 - 15) Interview: Applicants who meet the above minimum requirements are eligible for interview consideration (verbal communication skill, maturity, and personal suitability). Fulfilment of the minimum requirements, however, does not guarantee an

interview. Selection of interview candidates is based on the academic standing in the senior level courses.

The full-time Master of Occupational Therapy curriculum spans two calendar years and comprises six terms.

The Master of Occupational Therapy program includes the following courses:

Course	Credits
ANAT 392 Gross Anatomy of the Limbs and Trunk	4
RHSC 420 Elements of Neuroanatomy & Neurophysiology	4
RSOT 511 Fundamentals of Theory and Practice	3
RSOT 513 Health, Illness and Occupation	3
RSOT 515 Practice Skills and Therapeutic Procedures I	3
RSOT 519 Professional Practice I	10
RSOT 521 Occupational Analysis, Activity and Participation	3
RSOT 525 Practice Skills and Therapeutic Procedures II	3
RSOT 527 Evidence for Practice I: Research Paradigms and Methods	3
RSOT 537 Evidence and Reasoning in Practice	2
RSOT 541 Theory and Practice: Advanced Applications	3
RSOT 545 Practice Skills and Therapeutic Procedures III	4
RSOT 547 Evidence for Practice II: Project	6
RSOT 549 Professional Practice II	18
RSOT 551 Societal and Environmental Influences on Practice	3
RSOT 553 Developing Effective Programs	3

APPLICATION FOR ADMISSION

Persons interested in applying to the Master of Occupational Therapy program may call or write for application materials or use the School of Rehabilitation Sciences website (www.rehab.ubc.ca). Individuals interested in applying to the Master of Occupational Therapy program should complete and submit necessary forms and transcripts **no later than February 1** in the year of application to be eligible for beginning the course of study in late August.

MASTER OF PHYSICAL THERAPY

Physical therapists specialize in the assessment and treatment related to movement. Common movement disorders result from impairment of the neuromuscular, musculoskeletal, respiratory, or cardiovascular systems. Following assessment of their clients, physical therapists often use physical agents such as therapeutic exercise, heat, cold, and electrical stimulation to increase muscle strength and function, reduce pain, promote general health and fitness, and prevent disability. As specialists in movement dysfunction, physical therapists also provide expertise in human mobility, carefully analyzing gait patterns and prescribing treatment regimens or devices (such as braces, crutches or wheelchairs)

to enable clients to move independently through their environments.

In many settings, therapists serve as members of a team of rehabilitation specialists, which may include physicians, nurses, social workers, special educators, speech pathologists and psychologists. Physical therapists work in hospitals, rehabilitation centres, psychiatric institutions, industrial facilities, government and voluntary health agencies, schools, extended care facilities, the client's home, or in private practice.

The Master of Physical Therapy degree provides the professional education necessary to obtain a license to practice physical therapy. It differs from the advanced or research master's degree which prepares practitioners with advanced research skills and requires completion and defense of a thesis.

Applicants must meet the admissions requirements of the Faculty of Graduate Studies, and admission is offered on a competitive basis. The annual enrolment and class size is limited to 40 seats.

REQUIREMENTS

- Completion of a recognized baccalaureate degree in any field and the successful completion of the following prerequisites:
 - (a) 1st year Biology (6 credits or equivalent)
 - (b) 1st year Physics (3 credits or equivalent)
 - (c) Chemistry 12 or higher
 - (d) Basic Human Anatomy (3 credits or equivalent)
 - (e) Basic Human Physiology 301 (6 credits or equivalent)
 - (f) Psychology (3 credits or equivalent)
 - (g) Statistics (3 credits or equivalent)
- Academic standing of a minimum B+ (76%) average in senior level courses (300 and 400 level)
- 70 volunteer hours or work experience with people with disabilities
- Three reference letters (two verifying volunteer hours and experience and one verifying the applicant's ability to succeed in a graduate program.) Forms to facilitate the reference letters will be provided.
- Residency: Primary consideration is given to residents of British Columbia. Out-of-province residents or international students will only be considered in special circumstances or in the event that there are not enough eligible BC applicants.
- English competency: Applicants who have completed a degree from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission. Acceptable English language proficiency tests for applicants to the Master of Physical Therapy program are:
 - (h) TOEFL (Test of English as a Foreign Language): a minimum score of 580

(paper version); 237 (computer version);

- (i) MELAB (Michigan English Language Assessment Battery): a minimum overall score of 81;
- (j) IELTS (International English Language Testing Service): a minimum overall band score of 6.5 is required with a minimum score of 6.0 in each component of the academic (**not** general) IELTS test.

Applicants who meet the above minimum requirements are eligible for interview consideration (verbal communication skill, maturity and personal suitability). Fulfilment of the minimum requirements, however, does not guarantee an interview. Selection of interview candidates is based on the academic standing in the senior level courses.

The full-time Master of Physical Therapy curriculum spans two years and two months in length and comprises seven terms.

The Master of Physical Therapy program includes the following courses:

Course	Credits
ANAT 392 Gross Anatomy of the Limbs and Trunk	4
PHYL 301 Human Physiology	6
RHSC 420 Elements of Neuroanatomy & Neurophysiology	4
RSPT 512 Directed Studies in Pathology in Rehabilitation	6
RSPT 514 Clinical Practice I	3
RSPT 516 Clinical Decision-Making I	2
RSPT 518 Exercise and Movement	2
RSPT 524 Clinical Practice II	10
RSPT 526 Clinical Decision-Making II	1
RSPT 528 Case-based Integration I	1
RSPT 532 Rehabilitation Research I	3
RSPT 538 Case-based Integration II	1
RSPT 544 Clinical Practice III	18
RSPT 546 Clinical Decision-Making III	3
RSPT 548 Case-based Integration III	1
RSPT 558 Case-based Integration IV	2
RSPT 564 Clinical Practice IV	10
RSPT 566 Clinical Decision-Making IV	4
RSPT 572 Rehabilitation Research II	2
RSPT 578 Case-based Integration V	1

APPLICATION FOR ADMISSION

Persons interested in applying to the Master of Physical Therapy program may call or write for application materials or use the School of Rehabilitation Sciences website (www.rehab.ubc.ca). Individuals interested in applying to the Master of Physical Therapy program should complete and submit necessary forms and transcripts **no later than February 1** in the year of application to be eligible for beginning the course of study in late August.

MASTER OF REHABILITATION SCIENCE

The online Master of Rehabilitation Science (M.R.Sc.) program is intended for qualified professionals who practice in rehabilitation settings. The program requires 30 credits of required and elective coursework that includes a major project, and successful completion of a comprehensive examination in which the ability to transfer cumulative knowledge to rehabilitation practice is assessed. The degree may be completed part-time or full-time within five years.

Graduate Certificate in Rehabilitation program students may be eligible to request transfer credits.

ADMISSION REQUIREMENTS

Applicants must meet the admissions requirements of the Faculty of Graduate Studies; admission is offered on a competitive basis.

Requirements

- Completion of a recognized four year baccalaureate degree at an accredited academic institution.
- Applicants must be an occupational therapist, physical therapist or rehabilitation practitioner in a related health and human services discipline.
- Academic standing of a minimum B+ (76%) average in senior level courses (300 and 400 level).
- Three reference letters (at least two of which should be written by an individual who has knowledge of the applicant's academic and/or research abilities).
- Submission of a Faculty of Graduate Studies Application Form (available through www.rehab.ubc.ca).
- Submission of a statement of intent to the School of Rehabilitation Sciences.
- English competency. Applicants who have completed a degree in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission.

Recommended: Completion of an introductory course in Statistics.

The School reviews applications twice a year, April 30 and September 15 for September and January cohorts respectively.

The required course work (21 credits including the 6-credit major project) includes the following: RHSC 501 (Evaluating Sources of Evidence), RHSC 503 (Reasoning and Decision-Making), RHSC 505 (Measurement in Practice), RHSC 507 (Developing Effective Rehabilitation Programs), RHSC 509 (Facilitating Learning in Rehabilitation Contexts), RHSC 587 (Major Project, Part I), RHSC 589 (Major Project, Part II), and electives (students select 9 of these 12 credits) : RHSC 500 (Advanced Concepts for Rehabilitation Research), or INDS 502 (Advanced Concepts in Health Research), or RHSC 581 (Writing to

Enhance Practice), or RHSC 583 (Applying Research to Practice).

For more information about the online Master of Rehabilitation Science (M.R.Sc.) program and admission requirements and procedures please go to the Rehabilitation Sciences website (www.rehab.ubc.ca).

MASTER OF SCIENCE

The Master of Science program is designed to prepare individuals to conduct research independently and in collaboration with other scientists. Students will investigate an area of knowledge within rehabilitation and develop skills that permit a critical analysis of problems which can be related to basic sciences, clinical practice, or to development of theory.

The program may be pursued by full or part-time students. Full-time study would normally require approximately 24 months, including completion of the thesis. A minimum of 30 credits is required for the degree. This consists of 18 credits of required course work in the School of Rehabilitation Sciences at the 500-level, which includes a 12-credit thesis. Twelve elective credits are also required, and these may be selected from courses offered within the School or from other academic units. At least six of the elective credits must be at the 500-level or above.

The specific courses taken will depend on the area of research concentration chosen, in consultation with a research supervisor. Once accepted, each student must have a plan of studies approved by his/her research supervisor and/or the graduate co-ordinator.

Courses regularly offered in the School include INDS 502/RHSC 500 (Advanced Concepts for Rehabilitation Research), RHSC 502 (Rehabilitation Theory), RHSC 504 (Directed Studies), RHSC 506 (Current Topics in Rehabilitation), RHSC 510 (Disability: Social, Economic, and Political Influences), RHSC 515 (Exercise Physiology and Metabolism in Injury and Disease), and RHSC 520 (Neurorehabilitation). Courses regularly offered as part of the post-graduate certificate in Rehabilitation include: RHSC 501 (Evaluating Sources of Evidence), RHSC 503 (Reasoning & Decision Making), RHSC 507 (Developing Effective Rehabilitation Programs), RHSC 505 (Measurement in Practice), RHSC 509 (Featuring Learning in Rehabilitation Contexts). These courses are available as electives to qualified graduate students. For details, please refer to the website (www.rehab.ubc.ca).

Minimum admission requirements include a degree in occupational therapy, physical therapy, or a related rehabilitation profession, an academic record which meets the requirements of the Faculty of Graduate Studies, and completion of a minimum of 3 credits in research methodology and/or analysis. Applicants from non-Canadian universities are required to provide general GRE (Graduate Record Examination) scores as part of their application. Preference will be given to applicants who hold degrees in occupational or

physical therapy, are qualified to practice their rehabilitation profession in British Columbia, and who have had recent clinical experience providing rehabilitation care.

Persons interested in applying to the program should request additional program and application information from the School of Rehabilitation Sciences.

DOCTOR OF PHILOSOPHY

The School of Rehabilitation Sciences offers a program for advanced research study and original investigation in Rehabilitation Sciences at the Doctor of Philosophy (Ph.D.) level. This program is governed by the general requirements for the Doctor of Philosophy as described by the Faculty of Graduate Studies.

The program will focus on the discipline of Rehabilitation Sciences, the study of providing treatment and education to persons with temporary or permanent disability to return them to maximum function, well-being, and personally-satisfying levels of independence.

A thesis-based master's degree in Rehabilitation Sciences, or in other related fields of study along with appropriate undergraduate and graduate courses, is normally required for admission. Appropriate coursework will be selected in consultation with the candidate's committee and will depend on the student's background and field of study. RHSC 500 and RHSC 502 are required courses. All candidates are required to complete a written and oral comprehensive examination after completion of all course work. Following the comprehensive examination, the student will present a formal thesis proposal for approval by the candidate's committee before proceeding to the research which will culminate in a formal thesis defence. The major requirement of the Ph.D. is completion of a research thesis demonstrating ability to conduct significant and original scientific research.

Students entering the Ph.D. program will be required to spend a minimum of two terms of uninterrupted duration (eight months) in full-time status at the University.

GRADUATE CERTIFICATE IN REHABILITATION

This **interdisciplinary, graduate-level web-based rehabilitation certificate** is targeted to occupational therapists and physical therapists, and other health professionals who want to update their knowledge and skills to better meet the "best practice" demands of the current health care environment. The program provides useable, evidence-based skills for the rehabilitation workplace.

Each course draws on the research and rehabilitation practice experience of those currently shaping the field. The collaboration between the University of British Columbia and McMaster University to develop and deliver the courses brings greater content expertise to learners. It also brings skill in web-based and problem-based learning that

can enhance learners' experience and ability to apply what they learn to practice.

The five courses in the program enable participants to develop essential knowledge and skills required for best practice in rehabilitation. Learners who successfully complete the five courses will receive the Certificate.

ADMISSION

For academic eligibility applicants require:

- Completion of a recognized baccalaureate degree at an accredited academic institution. Applicants must be an occupational therapist, physical therapist, or rehabilitation practitioner in a related health and human services discipline.

Recommended: completion of an introductory course in Statistics

- Academic requirements:
 - academic standing of a minimum B+ (76%) average in senior level courses (300 and 400 level)
 - English competency: Applicants from a university outside Canada in which English is not the primary language of instruction must present evidence of competency to pursue studies in the English language prior to being extended an offer of admission.
- Professional requirements: To achieve 'professional' eligibility, an applicant must be:
 - an occupational therapist, physical therapist, or a professional in a related health or rehabilitation discipline
 - eligible to practice in their discipline

For more information about the Graduate Certificate in Rehabilitation please go to www.rehab.ubc.ca.

CONTACT INFORMATION

School of Rehabilitation Sciences
T325-2211 Wesbrook Mall
Vancouver, BC V6T 2B5
Tel: 604-822-7050
Fax: 604-822-7624
Email: rehab.admissions@ubc.ca
Web: www.rehab.ubc.ca
Ms. Pary Mohamed, Graduate Secretary (M.O.T., M.P.T.)
Ms. Laura Selander, Graduate Secretary (M.R.Sc., M.Sc., Ph.D.)

COLLEGE OF OCCUPATIONAL THERAPISTS OF BC

On completion of all academic courses and clinical fieldwork requirements, graduates in Occupational Therapy are eligible to write the national Certification Examination offered by the Canadian Association of Occupational Therapists (CAOT).

The Occupational Therapy program at UBC is accredited by the CAOT, and meets or exceeds the academic accreditation standards of the World Federation of Occupational Therapists (WFOT).

UBC graduates who successfully complete the examination are eligible to apply for membership in the College of Occupational Therapists of British Columbia (COTBC). Registration is required to practice in BC.

Registrants are also eligible to apply for membership in CAOT and the provincial professional organization, the BC Society of Occupational Therapists (BCSOT).

COLLEGE OF PHYSICAL THERAPISTS OF BC

On completion of all academic courses and clinical fieldwork, graduates in Physical Therapy are required to write the Physiotherapy Competency Examination (PCE, formerly PNE). Successful completion of the PCE is required for registration with the College of Physical Therapists of BC. Registration is required in order to practice physiotherapy in BC.

The Physical Therapy program at UBC is accredited by an external organization, and students must graduate from an accredited program in order to write the PCE.

Upon receipt of a license to practice, graduates in Physical Therapy are eligible for membership in the Canadian Physiotherapy Association (CPA) and its provincial branch, the Physiotherapy Association of British Columbia (PABC).

ACADEMIC STAFF

Professors

E. Dean, B.A., Dip. (P.T.) (Manit.), M.S. (S.Calif.), Ph.D. (Manit.); I. Dyck, Dip. (O.T.) (Engl.), B.A., M.A. (Manc.), Ph.D. (S.Fraser); J. Eng, B.Sc. (P.T.) (Brit. Col.), M.Sc. (Tor.), Ph.D. (Wat.); S.R. Harris, B.S. (P.T.), M.Ed., Ph.D. (Wash.).

Associate Professors

C. Backman, B.S.R. (Br.Col.), M.S. (Wash.), Ph.D. (Br.Col.); L. Holsti, B.S.R. (Br.Col.), M.A. (Br.Col.), Ph.D. (Br.Col.); T. Jarus, B.O.T. (Hebrew), M.A., Ph.D. (N.Y.); L. Jongbloed, Dip. (O.T.) (S.A.), B.Sc. (O.T.) (W.Ont.), M.A., Ph.D. (Br.Col.); L. Li, B.Sc. (P.T.) (McG.), M.Sc. (P.T.) (W.Ont.), Ph.D. (Tor.); D.L. MacIntyre, Dip. (P.T.) (Alta.), B.S.R. (P.T.), M.P.E., Ph.D. (Br.Col.); W.H. Miller, B.Sc. (OT) (Br.Col.), M.Sc. (O.T.) (W.Ont.), Ph.D. (W.Ont.); W.D. Reid, B.M.R. (P.T.) (Manit.), Ph.D. (Br.Col.); S.J. Stanton, Dip. (O.T.) (N.Z.), B.S.R. (O.T.), M.A. (Br.Col.).

Senior Instructors

L. Bainbridge, Dip. (P.T.), B.S.R., M.Ed. (Br.Col.); S.J. Forwell, B.Sc. (O.T.) (W.Ont.), M.A. (S.Calif.); D. Redenbach, Dip. (P.T.) (Alta.), B.S.R. (P.T.), M.Sc., Ph.D. (Br.Col.); M. Sutro, B.S. (O.T.) (Calif., San Jose), M.A. (S.Calif.), Ph.D. (Br.Col.).

Clinical Professors

G. Fearing, B.S. (O.T.) (Kansas); B. Loveridge, B.P.T., M.Sc., Ph.D. (Manit.); L. McCloy, Dip. (P. and O.T.) (Tor.), B.A. (Br.Col.).

Clinical Associate Professors

R.J. Anson, Dip. (O.T.) (Engl.), B.S.R. (O.T.) (Br.Col.); C. Busby, B.Sc. (O.T.) (Tor.); M.J. Clark, B.Sc. (O.T.) (W.Ont.); R. Corbett, B.S.R. (Br.Col.); D. Daechsel, B.S.R. (O.T.), M.Sc. (Br.Col.); J. Gauthier, B.Sc., B.S.R. (Br.Col.); S. Jordan, B.S.R. (Br.Col.), M.B.A. (Wash.); K. Junaid, Dip. (P.T.) (Engl.), B.S.R. (Br.Col.), M.Sc. (Br.Col.); M. Lee, Dip. (O.T.) (H.K.), M.B.A. (Wash.);

D. Mah-Jones, B.Sc. (O.T.) (Alta.); S.R. Mannell, Dip. (P.T.) (Engl.); S.M. Murphy, Dip. (P.T.) (Engl.); J. Richardson, Dip. (P.T.); J. Rihela, B.S.R. (Br.Col.); L. Roxborough, B.S.R. (Br.Col.); E.A. Swain, B.App.Sc. (P.T.) (Melb.), M.A. (Col.); T.A. White, B.S.O.T. (Wayne State).

Clinical Assistant Professors

D. Arsenaault, B.S.R. (Br.Col.); B. Barr, Dip. (P. & O.T.) (Tor.), B.P.T. (Manit.); M. Barr, B.Sc. (P.T.) (Br.Col.), M.A. (S.Fraser); M. Bozzer, B.S.R. (Br.Col.); S. Bressler, B.O.T. (McG.), M.A. (R.R.M.C.); P.S. Brookman, Dip. (P.T.) (Engl.); P. Bustamante, B.O.T. (Chile); K. Calsaferrri, B.S.R. (O.T.), M.Sc. (Br.Col.); N. Cho, B.S.R. (Br.Col.), M.B.A. (City); J. Duivestein, B.S.R. (Br.Col.); M.L. Fulkus, B.P.E., B.Sc. (O.T.) (Alta.), M.Sc. (Br.Col.); R. Goodman, B.Sc. (P.T.) (Dal.); I.M. Harris, B.Sc. (O.T.) (Qu.); A.M. Hoens, B.Sc. (P.T.) (Br.Col.), M.Sc. (Aust.); B. Hudson, B.Sc. (P.T.) (McG.); M. Johnston, Dip. (P.T.) (Ireland); K. Kennedy, B.Sc. (P.T.) (Qu.); M. Konkin, B.M.R. (O.T.) (Manit.); M.T. Kyi, B.Sc. (O.T.) (Br.Col.); P. Lieblich, B.P.T. (McG.); B. Lundgren, Dip. (P.T.), B.Sc. (P.T.) (Manit.); M. McCuaig, B.Sc. (Br.Col.), M.A. (S.Calif.); J. Millard, Dip. (O.T.) (Engl.), B.S.R. (O.T.) (Br.Col.); A. Neale, Dip. (O.T.); B. Porter, B.S.R. (Br.Col.); B. Robinson, Dip. (O.T.), B.Sc. (O.T.) (Alta.); J. Ross, B.S.R., M.Sc. (Br.Col.); J. Spence, B.S.R. (Br.Col.); L.J. Stan, B.S.R., M.Ed. (Br.Col.), Ed.D. (Brigham Young); S. Stewart, Dip. (O.T.) (Engl.); S.N. Stewart, B.Sc. (P.T.) (Qu.); P. Straathof, B.S.R. (Br.Col.); K.M. Van Der Hoop, B.S.R., M.Sc. (Br.Col.); K. Varallyai, Dip. (P.T.) (Aust.); M. Westby, B.Sc. (P.T.) (Br.Col.); E.E. Wills, Dip. (P.T.) (Ireland), B.S.R. (P.T.) (Br.Col.).

Clinical Instructors

J. Bay, B.Sc. (Kin.) (S.Fraser), B.Sc. (P.T.) (W.Ont.); C. Beach, B.Sc. (P.T.), M.Sc. (Rehab.) (Qu.), Ph.D. (U.K.); D. Betz, B.Sc. (O.T.) (Br.Col.); G.R. Beverley, Dip. (P.T.) (Engl.); H. Boyes, B.Sc. (O.T.) (Br.Col.); V.H. Brittain, B.Sc. (P.T.) (Ireland); S. Broolin, B.Sc. (Kin.) (S.Fraser), B.Sc. (P.T.) (Aust.); W. Chan, Dip. (O.T.) (H.K.), B.Sc., M.B.A. (Wash.); S. Charchun, B.Sc. (Biochem.), B.Sc. (O.T.), (Br.Col.); M.L. Chin, B.Sc. (O.T.), (Br.Col.); J. Chisholm, B.S.R., M.Sc. (Rehab.), (Br.Col.); A. Craig, B.S.R. (Br.Col.); B. Crocker, Dip. (Remedial Gym) (England), Reg. (P.T.) (Br.Col.); L. Cyr, B.Sc. (O.T.) (Dal.); I.L. Davidson, B.S.R. (Br.Col.); C. Davis, B.Sc. (P.T.) (Alabama); D. Drynan, B.Sc. (O.T.), M.Ed. (Tor.); T. Dumont, B.P.E., B.Sc. (P.T.) (Alta.), M.Sc. (Rehab.) (Br. Col.); G. Ebert, Dip. (P.T.) (Alta.); P. Erlendson, B.Sc. (O.T.) (McG.); C.M. Faulkner, B.S.R. (Br.Col.); J. Fischer, B.Sc. (O.T.) (Qu.); C. Fraser, B.A., B.Sc. (O.T.), (Br.Col.); K. Friesen, B.E. (Windsor), B.P.E., B.Sc. (O.T.) (McM.); S. Garret, B.S.R. (Br.Col.); J. Garrett, B.A. (Qu.), B.Sc. (P.T.) (Tor.); B. Gordon, Dip. (O.T.) (Manit.); T. Green, B.Sc. (O.T.) (Br.Col.); R.C. Groves, B.S.R. (Br.Col.); S. Hale, B.Sc. (Rehab.) (Alta.); M. Harris, Dip. (P.T.); S. Haskett, B.Sc. (O.T.) (Br.Col.); S. Hearsey, Dip. (P.T.) (U.K.), B.S.R. (Br.Col.), M.B.A. (S.Fraser); H. Hermans, B.S.A. (Br.Col.), B.Sc. (P.E.) (Wash.); R. Hocking, B.A. (Car.), B.Sc. (P.T.) (Alta.); C. Horii, B.S.R. (Br.Col.); H. Jebson, Dip. (P.T.) (Otago Polytechnic), B.H.S. (P.T.) (Open U.); C. Kennedy, B.Sc. (P.T.) (Qu.); J. Kipnis, B.Sc. [Concordia (Alta.)], B.Sc. (P.T.) (London, Ont.); M. Kuo, B.Sc. (P.T.) (Br.Col.), M.P.H. (Wash.); M. Landry, B.S. (O.T.) (Quinnipiac U.); Y. Le, B.Sc. (P.T.) (Br.Col.); C. Lefavre, B.Sc. (O.T.) (Alta.); J. Letkemen, B.M.R. (P.T.) (Manit.); C. Levy, B.Sc. (O.T.) (S. A.); S. Leyland, B.S.R. (Br.Col.); S. Leznoff, B.Sc. (O.T.) (W.Ont.), B.Ed. (Ott.), M.A. (Ed.) (Br.Col.); W. Lintott, B.Sc. (O.T.) (W.Ont.); J. Lowcock, B.Sc. (P.T.) (Qu.); H. MacInnis, B.Sc. (O.T.) (E. Mich.); M. Mackay, B.Sc. (O.T.) (Qu.); L. Magnan, B.Sc. (P.T.) (Ott.), M.Sc. (Rehab.) (McG.);

Y.J. Mansfield, B.S.R. (Br.Col.); **D. Maxwell**, B.Sc. (Kin.) (Ott.), B.Sc. (P.T.) (Qu.); **R. McDonald**, Dip. (O.T.), B.Sc., M.Sc. (U.K.); **M. McIlwaine**, Dip. (P.T.) (Ireland), Dip. (Health Care Mgmt.) (B.C.I.T.); **A. McLean**, B.Sc. (O.T.) (Br.Col.); **A. McMichael**, Dip. (P.T.) (Engl.); **B. McNair**, B.Sc. (O.T.) (Alta.); **D. Mills**, B.S.R. (Br.Col.); **K.A. Mills**, B.A., B.Sc. (O.T.) (W.Ont.); **J.G. Montgomery**, B.Sc. (P.T.) (Br.Col.); **T. Moran**, Dip. (P.T.) (England); **P. Mortenson**, B.Sc. (O.T.), M.Sc. (Rehab.) (Br.Col.); **W. Mortenson**, B.Sc. (O.T.) (Alta.), M.Sc. (Br.Col.); **J. P. Moscovitch**, B.O.T. (McG.); **M. Nelson**, B.Sc. (O.T.), M.Sc. (Rehab.) (Qu.); **T. Newlands**, B.S.R. (Br.Col.); **A. Ng**, B.Sc. (P.T.) (H.K.); **M. Nolan**, B.Sc. (P.T.) (Ireland); **J. H. Oldham**, Dip. (P.T.) (Otago); **G. Olund**, B.Sc. (Bio.), B.Sc. (O.T.) (Br.Col.); **N. Pearson**, B.A. (B.P.H.E.), B.Sc. (P.T.), M.Sc. (Qu.); **J. Pillsworth**, Dip. (P.T.) (Engl.); **J. Poon**, Dip. (O.T.), B.Sc. (Hons.) (Kin.), M.Sc. (O.T.) (San Jose); **D. Powell**, B.S.R. (Br.Col.); **A. E. Rankin**, B.Sc. (P.T.) (McG.), M.Sc. (P.T.) (U.W.O.); **T. Readman**, Dip. (O.T.) (Engl.); **L. L. Reinhardt**, B.Sc. (O.T.) (Alta.), M.Sc. (Rehab.) (Br.Col.); **J. Ritson**, Dip. (O.T.) (U.K.); **M. Rizzardo**, B.P.E., M.P.E., B.Sc. (P.T.) (Br.Col.); **T. Ross**, B.M.R. (O.T.) (Manit.); **A. Scott**, B.S.R. (Br.Col.); **J. Selman**, B.Sc. (Psych.) (Vic.B.C.), B.Sc. (O.T.) (Br.Col.); **C. Sheffield**, B.Sc. (O.T.) (Qu.); **J. Shortreed**, B.Sc. (O.T.) (Qu.), M.Ed. (W.Ont.); **S. Sinanan**, B.A., B.Sc. (O.T.) (Br.Col.); **K. Skarpnes**, B.S.R. (Br.Col.); **L.A. Smith**, B.Sc. (O.T.) (Qu.); **J. Summersides**, B.Sc. (P.T.) (Alta.); **A.G. Taylor**, B.Sc. (P.T.) (Br.Col.); **F. Varona**, B.S.P.T. (Philippines); **A. Voute**, B.Sc., B.Sc. (P.T.) (Tor.); **V. Ward**, B.Sc. (P.T.) (U.A.); **N. Wellwood**, B.Sc. (O.T.) (Br.Col.); **P. Wilson**, B.A., B.S.R. (Br.Col.); **G. Yoneda**, B.S.R., M.B.A. (Br.Col.).

Adjunct Professors

A.V. Krassioukov, M.D. (Volgograd, Russia), Ph.D. (St. Petersburg, Russia); **J.R. Watzke**, B.A. (Psych.) (Calif., Berkeley), Ph.D. (Lund, Sweden).

Associate Members

A. Chalmers, Medicine; **S.A. Hashimoto**, Medicine; **T. Inglis**, Human Kinetics; **K. Khan**, Medicine; **J. Kopec**, Medicine; **H. McKay**, Medicine; **D. C. McKenzie**, Medicine; **T. Oxland**, Medicine; **D. Sanderson**, Human Kinetics; **B. Sawatzky**, Medicine; **B. Sheel**, Human Kinetics; **T. A. Van Rijn**, Rehabilitation Medicine; **D. Warburton**, Human Kinetics; **R. Y. M. Wong**, Geriatric Medicine.

2006-07

23 The Faculty of Science

Dean's Office

R. G. Ingram, Dean *pro tem*

I. A. Cavers, Associate Dean, Curriculum and Learning Initiatives

C. Suttle, Associate Dean, Research Initiatives

P. G. Harrison, Associate Dean, Student Services

R.G. Ingram, Associate Dean, Research Liaison

1505–6270 University Boulevard

Vancouver, BC V6T 1Z4

Telephone: 604-822-9868

Fax: 604-822-5558

Science Website (www.science.ubc.ca)

The Faculty of Science offers Major, Honours, General and Integrated Sciences undergraduate programs leading to the Bachelor of Science.

The Bachelor of Science can be earned in the fields of Astronomy, Atmospheric Science, Biochemistry, Biology, Biophysics, Chemistry, Cognitive Systems, Computer Science, Earth and Ocean Sciences, Environmental Sciences, General Science, Geography, Geology, Geophysics, Integrated Sciences, Mathematics, Mathematics and Economics, Microbiology, Oceanography, Pharmacology, Physics, Physiology, Psychology, Statistics, and Statistics and Economics. Biophysics, Climatology, Geology, Geophysics, Oceanography and Physiology are offered only as Honours programs. Co-operative Education programs are available in many disciplines. A Diploma in Computer Science and a Diploma in Meteorology are also offered. For information about graduate degrees, see the *Faculty of Graduate Studies*, p. 217.

BACHELOR OF SCIENCE

To earn a Bachelor of Science students must follow one of the following programs:

- Major. This program involves specialization in a single field. It may lead to graduate study if sufficiently high standing is obtained.
- Double Major. This program involves specialization in two fields. Students in this option will have to complete the degree requirements of two programs in Science or one in Science and one in Arts. It may lead to graduate study if sufficiently high standing is obtained.
- Honours. This program usually involves intense specialization in a single field or combination of fields (Combined

Honours), and is the normal route to graduate study. An Honours program requires maintenance of a high academic standing and may involve preparation of a graduating thesis.

The following two programs provide a broad and flexible education in science. These programs are appropriate and useful for those continuing in other professional areas such as Dentistry, Education, Law, Medicine, or Veterinary Medicine. These programs are not normally intended for students planning to continue with graduate study in science. With careful planning and sufficiently high standing it is possible to go on to graduate study, but this may require additional qualifying studies at some universities.

- The General Science Program. This program provides the opportunity for some specialization in either one or two of the following areas: Chemistry, Earth Science, Life Science, Mathematical Science, and Physics. The General Science route that requires concentrations in two areas provides excellent preparation for prospective secondary school teachers. General science programs are not normally intended for students planning to continue with graduate study in science. With careful planning and sufficiently high standing it is possible to go on to graduate study, but this may require additional qualifying studies and some universities.
- The Integrated Sciences Program. This program offers flexibility in course selection, academic support in building a coherent program, and Integration Courses to provide a framework to acquire the tools of research and communication. Students select one area of specialization from Earth and Ocean Sciences, Mathematical Sciences, Natural Sciences, Life Sciences, or a rationalized combination of courses that cross the boundaries of these areas. Admission to this program is limited and requires application to the ISP Board of Admissions. This program may lead to graduate study if care is taken in course selection and if sufficiently high standing is obtained.

The following options are available:

- Minor. An optional minor program comprising courses taken in Science but outside the main area of specialization or in

another faculty (Arts, Commerce and Business Administration, Human Kinetics, or Land and Food Systems) may be completed as part of the Bachelor of Science. The minor allows students to focus their electives in a single subject or field of specialization.

- Part-time Program. Some degree programs are amenable to part-time study. Students should inquire at the *Science Information and Advising Centre*, p. 383, for further information and direction in arranging a part-time study program.
- Co-operative Education Programs. Co-operative Education integrates students' academic education (classroom-based learning) with relevant, supervised and paid work experience (work-based learning) in employer organizations. Co-operative Education programs are optional and supplementary to academic programs in a department. For detailed information, see *Co-operative Education Programs*, p. 392, under Bachelor of Science, Co-op and Minor Options.

ADVISING

Advising service is available Monday through Friday in the Science Information and Advising Centre, Room A150, Chemistry/Physics Building, 6221 University Boulevard, telephone 604-822-3820. Front counter staff and academic advisors are there to assist undergraduate students in their general academic planning, in interpreting faculty regulations and course requirements, and in resolving academic and personal problems. Academic and personal assistance is also available through the Advising website (www.essential.science.ubc.ca/academic/advising).

Email Communication

Email is the preferred means for the Faculty of Science administration and faculty members to communicate important messages to students. It is the responsibility of all science students to ensure that their current email address is accurately recorded on the Student Service Centre (www.students.ubc.ca/ssc) and to read email sent to that account on a regular basis. Free email accounts (www.netinfo.ubc.ca) are available for all UBC students, but any email account may be registered through the SSC.

ADMISSION

Application for admission to the Faculty of Science must be made through Enrolment Services. Procedures, policies, and admission requirements to the University of British Columbia and the Faculty of Science are specified in the chapter *Admissions*, p. 13, of this Calendar. Approved examinable Grade 11 and 12 courses are also listed there. Students may find it to their advantage to present credit for as many of Biology 12, Chemistry 12, and Physics 12 as possible. Certain programs have reduced requirements in one or more of these subjects for students with Grade 12 credit.

For applicants who meet minimum academic requirements but who do not meet the required competitive average for early admission, additional academic criteria, such as achievement in standardized tests, results from national or international competitions, or compelling evidence of outstanding leadership may be considered. Details are available at the Faculty of Science website (www.science.ubc.ca).

Students admitted to the Faculty of Science by transfer from other post-secondary institutions must present credit for MATH 100 (or equivalent) and must either have met the English Requirement of the Faculty of Science (see *Transfer Credit*, p. 385, under Bachelor of Science, Academic Regulations, and *English Requirement*, p. 388, under Bachelor of Science, Degree Requirements) or be eligible to enrol in first-year English at the time of admission.

Students admitted by transfer and those admitted to a second-degree program (see *Second Degree Studies*, p. 391, under Bachelor of Science, Degree Requirements) will be admitted to the year level that is appropriate according to the First-Degree Promotion Requirements. The Promotion Requirements are based on the number of credits completed (both total and in Science courses) and degree of completion of the Lower-Level Requirements including English (see *Lower-Level Requirements*, p. 389, under Bachelor of Science, Degree Requirements).

Applicants who cannot meet the requirements as specified should submit an appeal to Enrolment Services with their application forms. The Dean, who has discretionary powers on admissions, will consider all appeals.

Students applying for admission from secondary schools outside of BC/Yukon must meet the minimum requirements applied to graduates from British Columbia secondary schools for admission to first year. A student required to discontinue from another faculty may be permitted to register only by special permission, and should consult the Dean's Office. A student with unsatisfactory standing from another post-secondary institution will not be admitted.

Students interested in applying to the Science One program must apply through Enrolment Services for admission to the Faculty of Science and, in addition, submit a formal application directly to the Program Office (see *Science One Program*, p. 392).

International Baccalaureate and Advanced Placement

Credit may be granted for some courses in the International Baccalaureate and Advanced Placement enriched secondary school programs. Such students are advised to consult departmental advisors at UBC before registering in any second-year courses. Prospective UBC students who have completed or are registered in a secondary school calculus course should see *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 16.

For detailed information about advanced credit for courses taken in the International Baccalaureate or Advanced Placement programs, consult the Welcome website (www.students.ubc.ca/welcome/admission.cfm). Advanced credit will count toward a degree program, but does not count as part of the credit load in the first year at UBC.

Registration and Program Approval

Students are required to follow the program regulations that were in effect at the time that they were admitted to the Faculty of Science at UBC and the program regulations that were in effect at the time they were accepted into the program.

The following is only a summary of the registration procedures for science students. Students should refer to registration information on the Student Service Centre (www.students.ubc.ca/ssc) and the Faculty of Science Student website (www.escience.ubc.ca).

Note: It is the responsibility of students who are registered on a waiting list to determine if they have been placed in the course by the department. It is also the responsibility of students to determine that they have the prerequisite for any course in which they register. If uncertainties arise, students should consult the appropriate department.

After two weeks of lectures, students (full-time or part-time) are not permitted to change the program for which they are registered except in special circumstances and with the permission of the Dean.

In Winter Session, students may drop one-term courses within two weeks of their commencement and two-term courses within 3 weeks of commencement. All record of registration in the courses will be removed from the student's transcript. Thereafter, students may withdraw from a one-term course up to the end of the sixth week of classes, and from a two-term course up to the end of the twelfth week of classes. Courses dropped during this latter period will be indicated by a withdrawal standing ('W') on the student's transcript. Students may drop or withdraw from courses using the Student Service Centre (www.students.ubc.ca/ssc). After these dates, students are not normally permitted to withdraw from courses but may apply for academic concession (see *Academic Concession*, p. 50, in the Academic Regulations chapter of this Calendar).

Students may not take courses for which they have not registered.

First-Year Students

First-year students do not choose a program or specialization and are not required to obtain program approval before registering. Students must be careful, however, to select courses appropriate for the program they plan to enter in second year. See *Lower-Level Requirements*, p. 389, under Bachelor of Science, Degree Requirements. Students should seek advice from the Science Information and Advising Office if their first-year program is non-standard because of advanced placement or transfer credit.

First-year students wishing to enrol in Science One must submit a formal application for admission to this course of study to the director of Science One by May 15. First-year students wishing to enrol in the Coordinated Science Program can register directly through the Student Service Centre (www.students.ubc.ca/ssc). The Science One Program and the Coordinated Science Program are described under *First-Year Programs*, p. 391, under Bachelor of Science.

Second, Third, and Fourth-Year Students

Students entering second and subsequent years must select a major, honours, general, or Integrated program as outlined by the Faculty of Science.

Students seeking admission to the Integrated Science Program (ISP) must submit a formal application after completing 60 credits (see *Integrated Sciences Program*, p. 417, under Bachelor of Science).

Students intending to do a Double Major in Science must select one of the majors upon entry into their second year and then obtain approval for the other before the start of their third year. A form is available from the Faculty of Science Student website (www.escience.ubc.ca) for this purpose; it requires approval of advisors in both major areas and of the Dean.

Students intending to do a Double Major in Science and Arts must obtain approval from the Science Information and Advising Office in their first year and then select their Science Major upon entry into second year and their Arts Major upon entry into third year (see *Program Requirements*, p. 389, under Bachelor of Science, Degree Requirements). Interested students are encouraged to plan first- and second-year courses so as to meet the prerequisite requirements for the desired Major areas concurrently (see program listings for *Bachelor of Arts*, p. 117, and for *Bachelor of Science*, p. 383).

Students intending to do a Minor in Science, Arts, or Land and Food Systems must obtain approval before the start of their third year. A form is available from the Faculty of Science Student website (www.escience.ubc.ca) for this purpose; Students intending to do a Minor in Commerce must apply in second term of their second year (see *Minor in Commerce*, p. 393, under Bachelor of Science, Co-op and Minor Options).

Unless students are registered in a specific program their academic records cannot be adjudicated for graduation.

Students not meeting the academic standing required for compulsory courses in a given program may be required to withdraw from that program. In many instances changes from one program to another are possible in later years. Changes in program may result in lengthening the time to complete the Bachelor of Science. Returning students are encouraged to obtain program advice before the end of Term 2. All study programs are subject to approval by the department(s) concerned.

With the approval of the Dean, departments may require, as a prerequisite for entering a program, that a student obtain at least 60% in a specified first-year course basic to the field of the major, unless special permission is received from the head of the department.

ACADEMIC REGULATIONS

Examinations

Formal written examinations are required at the end of all courses and also in December for two-term courses. These are scheduled during official examination periods at term end. The formal written examination may be replaced by alternative examination procedures only at the discretion of the head of the department and with the permission of the Dean.

Supplemental examinations and examinations for higher standing are not available in any course in the Faculty of Science.

Passing the final examination may not in itself be sufficient to pass a given course. Students may be denied a passing grade for unsatisfactory work during the session or if their essays, laboratory reports, or examination papers are deficient in English. Furthermore, in any Science course that has both laboratory work and written examinations, students must complete and pass both parts to pass the course. A student who fails the laboratory work may be refused permission to take the final written examination.

Regular attendance is expected of students in all their classes, including lectures, laboratories, tutorials, and seminars. Students who neglect their academic work and assignments may, on the recommendation of the head of the department, be excluded by the Dean from the final examinations.

In general, students who pass a course can use it as a prerequisite for a subsequent course in that subject. However, departments do have the right to bar entrance to their programs and third-year courses to students who obtain only a minimum passing grade in their first- or second-year prerequisite course or courses.

No failed course may be repeated more than once without special permission of the Dean. This does not apply to courses in first-year English or Mathematics, which may be repeated twice. Courses on the Science Credit Exclusion List are considered to be the same course for the purposes of this rule.

Limitation of Enrolment

Enrolment in the Faculty of Science is limited and admission to the Faculty does not guarantee that space will be available in any specific program, course, or section. Where the limitation of enrolment becomes necessary, the criteria for implementation normally are academic standing in the preceding Winter Session and grades in prerequisite courses. Students are encouraged to consult individual department or program offices for details of any restrictions on enrolment. Students are encouraged to register on their assigned date of registration.

Students registered in any Science course that has a laboratory must attend their first scheduled laboratory class in that course. Failure to do so will result in termination of the student's registration in the course. Students who are unable to attend their first scheduled laboratory class in a course must notify the head (or designate) of the department concerned within 48 hours of the time affixed for that class or have their registration in the course terminated.

It is the responsibility of students registered in a waiting list to determine if they have been placed in the course by the department.

A student who has passed a course will not be permitted to repeat that course for higher standing. Courses on the *Credit Exclusion List for Science*, p. 394, are considered to be the same course for the purposes of this rule.

Corequisites are courses that must either be taken concurrently with another course or successfully completed before taking the other course. Prerequisites are courses that must be successfully completed before another course.

Prerequisites can be fulfilled with equivalent courses or exempted with the permission of the instructor. Credit excluded courses are courses that have sufficient overlap in content that credit will be given for only one course or combination of courses listed in the *Credit Exclusion List for Science*, p. 394, in this chapter.

Credit Excluded courses are not equivalent, so permission of a program advisor is required for substitution of a required course with a course from the Credit Exclusion list.

Recommended courses provide background that would be helpful for the student when taking another course but are not required.

Credit

Although full-time students take at least 24 credits per Winter Session, and a standard load is 30 credits per Winter Session, many programs require more. First-year students especially should note that a standard load is five lecture courses a term (some may be combined lecture-lab courses, some may be lecture-only) with or without separate lab courses and the number of credits will often exceed 30. The minimum number of credits required for any Bachelor of Science is 120 credits but some programs require more. Full-time students must normally complete graduation requirements within seven calendar years following admission to first year or its equivalent.

First-year students at UBC or students transferring to UBC from another institution must request permission from the Dean's Office in order to register for more than 37 credits. No student may take more than 39 credits per Winter Session without special permission of the Dean. Students who fail a course in one Winter Session will not be allowed to attempt more than 30 credits in their next Winter Session, except with special permission of the Dean.

Part-time students are urged to complete graduation requirements in a reasonably short time to avoid complications resulting from program changes, or from substantial changes in course material, or from both.

Students transferring to the Faculty of Science from other faculties at the University of British Columbia must consult the Science Information and Advising Office regarding transfer of credits to the Bachelor of Science.

Credit earned as an unclassified student does not automatically apply to a Bachelor of Science program should the student subsequently be accepted in the Faculty of Science.

Transfer Credit

Students who are accepted on transfer from other post-secondary institutions must present credit for MATH 100 (or equivalent). They also must either have met the English requirement (See *English Requirement*, p. 388, under Bachelor of Science, Degree Requirements) or be eligible to enrol in first-year English (see point [1] under "English Requirement") before they will be permitted to register in any courses for credit. Students who have accumulated 60 or more credits either at UBC or elsewhere, and who have not fulfilled the English requirement, will not be permitted to enrol in courses other than first-year English until the requirement is met.

The University will not grant a degree for studies that represent less than the equivalent of two regular Winter Sessions (60 credits). In general transfer credit is limited to the first two years (60 credits) of a degree program, wherever those credits were completed.

Credit at a more senior level is possible if prior written permission has been obtained from the Dean. Under no circumstances will a student be granted transfer credit for more than 12 credits of upper-level course work. Although transfer credit allowed by the Dean may be included in the required 48 credits numbered 300 or above, a B.Sc. program must include a minimum of 30 credits of upper-level UBC Science courses specified by the program.

The Admission Office provides students with general information about transfer credits. Not all credits will apply towards specific degree requirements. Questions about the applicability of transfer credits should be directed to the appropriate department.

Summer Session Credit

Summer Session credit will count toward a degree program, but Summer Session courses do not count as part of the full-time program in

a Winter Session. The maximum credit for any Summer Session is 14 credits, except with the permission of the Dean. It is not possible to take two laboratory science courses concurrently in Summer Session. Summer Session is assessed independently of Winter Session (see *Continuation Requirements*, p. 386, in this section).

Concurrent Studies at UBC and Another Post-Secondary Institution

Students currently registered at UBC may not take courses for credit toward the B.Sc. at another institution without prior written permission from the Dean's Office. The Faculty has no obligation to grant transfer credit unless a letter of permission has been obtained. Students granted a letter of permission must reduce their UBC course load appropriately. It is the student's responsibility to ensure that an official transcript from the other institution is forwarded to Undergraduate Admissions in Enrolment Services. Transfer credit will be limited to lower-level courses and must not exceed 50% of the credits required for the degree.

Student Academic Performance

SCIENCE SCHOLAR

Graduating students and students promoted to second, third, or fourth year with a standing of 90% or better in the previous year will receive the notation 'Science Scholar' on their records. The average is calculated on the best 27 credits in Winter Session, but students must have passed all courses in order to receive this designation. Students in a co-operative education or an education abroad program who are registered at UBC for only one term in Winter Session must complete at least 15 credits and pass all credits attempted with a standing of at least 90% in order to receive the designation.

DEAN'S HONOUR LIST

Graduating students and students promoted to second, third, or fourth year with a standing of 80% or better in the previous year will receive the notation 'Dean's Honour List' on their records. The average is calculated on the best 27 credits in Winter Session, but students must have passed all courses in order to receive this designation. Students in a co-operative education or an education abroad program who are registered at UBC for only one term in Winter Session must complete at least 15 credits and pass all credits attempted with a standing of at least 80% in order to receive the designation.

GRADUATION STANDING

In an honours or combined honours program the categories of degree are Class 1 and Class 2, calculated on the basis of a minimum of 42 credits of courses, numbered 300 or above, designated as part of the program by the department, and approved by the Dean.

In a major or double major program the graduation standing is based on a minimum of 30 credits of courses, numbered 300 or above, designated as part of the program by the department(s), and approved by the Dean.

In the General Science program the graduation standing is based on the required work of the third and fourth years including a minimum of 30 credits of courses numbered 300 or higher.

In the Integrated Sciences program graduation standing is based on the required work of the third or fourth years including a minimum of 30 credits of science courses numbered 300 or higher, among which must be 9 credits of Integration courses (ISCI) and 18 credits of upper-level courses in the area of focus.

CONTINUATION REQUIREMENTS

Students who do not achieve a level 5 on the LPI examination before completing 30 credits of Science-eligible courses, taken either at UBC or another post-secondary institution, will not be permitted to register in any additional credit courses until they successfully complete the LPI. See *Exemptions*, p. 120, under Language Proficiency Index Requirement for First-Year English. See also *English Requirement*, p. 388, under Bachelor of Science, Degree Requirements.

Students who do not meet the 6-credit first-year English requirement before completing 60 credits of Science-eligible courses (30 credits for second-degree students), taken either at UBC or transferred from another post-secondary institution, will not be permitted to register in any additional credit courses other than first-year English until that requirement is satisfied. Students who approach the 60-credit limit will be restricted in taking further credits so as not to exceed the limit.

Continuation requirements are listed in the table "Summary of Continuation Requirements" below. Subject to the above conditions, students who pass all courses in any Winter or Summer Session will be assigned a Pass standing and will be eligible to continue their studies. Students who fail one or more courses, but attain a sessional average of 55% or more in any Winter or Summer Session, will also be assigned a Pass standing and will be permitted to continue their studies.

Students who attain a sessional average of less than 50% in any Winter or Summer Session will be assigned a Fail standing. They will be required to withdraw from the Faculty, unless this sessional average is based on fewer than 12 credits (Winter Session) or 6 credits (Summer Session) and there is no Fail or Academic Probation (ACPR) on their previous record, in which case they will be permitted to continue.

Students who fail one or more courses and attain a sessional average of at least 50% but less than 55% in a Winter or Summer Session will be placed on Academic Probation (ACPR). They will be permitted to continue their studies unless they had a Fail standing in any prior session or they were on Academic Probation in the previous session, in which case they will be assigned a Fail standing and required to withdraw from the Faculty.

Students assigned Academic Probation in one session will be removed from Academic Probation if, in a following session, they pass all courses and attain an average of at least 55% on at least 12 credits.

Students required to withdraw from the Faculty for poor academic performance or for failing to meet promotion requirements within the maximum credit limits (see *Promotion Requirements*, p. 390, under Bachelor of Science, Degree Requirements) or who otherwise leave UBC while ACPR is on their transcript may apply for readmission after one full year, but no student has the right to readmission. Applications for readmission should be submitted to the Undergraduate Admissions Office. Applications will be considered by the Science Admissions, Adjudication, and Appeals Committee. In considering an application for readmission, the committee will take into account any and all evidence of a student's ability to perform satisfactorily at the university level. Under normal circumstances, the committee will expect students required to withdraw before completing 60 Science-eligible credits and those who leave with ACPR on their transcript to demonstrate their abilities by completing the following amount of work at a BC College or similar institution and attaining an overall GPA of 2.50, calculated on all university-transfer work attempted after they were required to withdraw. A negative decision may be appealed to the Senate Admissions Committee. That committee does not change decisions of the Faculty based on academic grounds but may grant an appeal if due process was not followed by the Faculty. Thus, unless the appellant supplies additional information in support of special consideration, the appeal to Senate is unlikely to succeed.

Students required to withdraw after completing more than 60 Science-eligible credits are encouraged to take courses at a college or similar institution, even though some of the credits so earned may not be transferable to UBC.

Credits Completed Before Withdrawal	College Transfer Credits Required Before Applying For Readmission
30 or fewer	30
31-45	24
46-60	12
more than 60	no requirement

SUMMARY OF CONTINUATION REQUIREMENTS

Sessional Average, Course Success	Student Previously in Good Standing	ACPR on Student Record	Fail on Student Record
55% or higher, passed all courses	Pass, eligible to continue	Pass, eligible to continue; ACPR lifted if enrolled in 12 or more credits	Pass, eligible to continue
At least 50% but less than 55%, passed all courses	Pass, eligible to continue	Pass, eligible to continue; ACPR carried forward	Pass, eligible to continue
55% or higher, failed one or more courses	Pass, permitted to continue	Pass, permitted to continue; ACPR carried forward	Pass, permitted to continue
At least 50% but less than 55%, failed one or more courses	ACPR, permitted to continue	Fail, required to withdraw	Fail, required to withdraw
Below 50%; enrolled in 12 or more credits (Winter) or 6 or more (Summer)	Fail, required to withdraw	Fail, required to withdraw	Fail, required to withdraw
Below 50%; enrolled in under 12 credits (Winter) or under 6 (Summer)	Fail, permitted to continue	Fail, required to withdraw	Fail, required to withdraw

ACADEMIC CONCESSION

Academic concessions are a privilege, not a right, and are granted only by the Dean or designate.

Among the academic concessions that may be granted are permission to withdraw from or drop a course after the normal deadlines, Aegrotat standing or Deferred standing, and withdrawal from the university. For further information, see *Academic Concession*, p. 50, in the chapter “Academic Regulations” of this Calendar.

Students who are absent for short periods of time or are unable to complete tests or other graded work because of short-term illness, or for other reasons, should normally discuss with their instructors how they can make up for missed work, according to written guidelines given them at the start of the course (see *Grading Practices*, p. 47, in the chapter “Academic Regulations” of this Calendar). Students who do not agree with an instructor’s decision have the right to request academic concession through the Science Information and Advising Office. Students whose academic performance or attendance is severely affected by medical, emotional, or other problems must consult the Science Information and Advising Office as soon as possible, and certainly before the end of an academic term, if they wish to request academic concession. Students absent from formal end-of-term examinations have the responsibility to request academic concession from the Science Information and Advising Office. Students may not make arrangements directly with the instructor without the involvement of the Science Information and Advising Office. Failure to follow appropriate procedures will normally result in the refusal of the Dean to grant an academic concession.

In order to request academic concession, a student who is absent from any formal examination must report within 48 hours of the end of the examination (in person, by telephone at 604-822-3820, or by email (acadcon@science.ubc.ca)). Untimely notification will not normally be accepted. Students will be required to complete a “Request for Academic Concession” form and provide the necessary supporting documentation.

Before missing an examination, students should consider that deferred standing is not granted

automatically even with supporting documentation. Students must make every effort to avoid missing examinations. Students who have on-going health or emotional problems should consult Student Health Services or Student Counselling. Any student who has once been granted an academic concession should not assume they will be granted another.

DEFERRED STANDING

Deferred standing may be granted by the Dean if the student has been fulfilling course expectations during the term and obliges the student to write the next scheduled final examination. If the student did not write and pass examinations or hand in assignments or successfully complete laboratories or is in other ways not in good academic standing in the course, then Deferred standing will not be granted.

For many courses, the deferred examination will be scheduled by Enrolment Services to take place in the summer for Winter Session offerings and in December for Summer Session offerings (see “Dates and Deadlines” in chapter 1 of this Calendar). However, there are important exceptions for many Science courses.

Some Science courses schedule make-up examinations in January for Term 1 Winter Session courses that are prerequisite to Term 2 courses. A student with Deferred standing in one of those courses is expected to write the January examination. No other examination will be offered.

Other Science courses are offered in the next term of the same Winter Session or in the next Summer Session, and writing the scheduled examination for that offering is normally the required means of fulfilling Deferred standing. Students with Deferred standing are responsible for consulting their instructor or the department involved for the date of the next examination and the arrangements for writing it. Students granted Deferred standing in Winter Session courses must complete all outstanding course requirements by August 23 following. Students granted Deferred standing in Summer Session courses must complete all outstanding course work by December 25 following. See *Standings*, p. 48. Those dates do not replace the special arrangements for some Science courses described above.

Extensions of Deferred standing are not normally granted. If an examination is not written

according to the guidelines above, the student’s partial grade will stand as the final grade. Science students who do not fulfill their obligations by writing the required deferred examination may submit a written appeal to the Associate Dean, Students.

DEGREE REQUIREMENTS

Graduation Requirements

An honours or combined honours program requires a minimum of 132 credits but may require more. A Major, General Science, or Integrated Sciences program requires a minimum of 120 credits but may require more.

A minor program comprising courses in another faculty may be completed toward the Bachelor of Science in conjunction with a Major, General Science, Integrated Sciences, or Honours program in Science and requires at least 18 credits of courses numbered 300 and higher in a single subject or field of specialization.

A Minor program comprising courses in another discipline in Science may be completed toward the Bachelor of Science in conjunction with a Major or Honours program in Science and requires at least 18 credits of courses numbered 300 or higher in a single subject or from a program.

A Double Major in Science in most cases will require more than 120 credits. The exact number of credits required will depend on the particular choices of the majors. Students who are in the double major program must satisfy all degree requirements of one department, including all course, breadth, and Faculty requirements. The breadth requirement may be satisfied with upper-level Science courses taken for the second major. As far as the second department is concerned a student need only satisfy all departmental requirements at the 300 or higher level and any lower-level program requirements that are not part of the first major program. Students contemplating the double major should endeavour to satisfy course prerequisites for both departments in their first two years.

A Double Major in Science and Arts program requires a minimum of 120 credits, but in most cases will require more. Students who are in the double major program must satisfy all degree

requirements for a Bachelor of Science Major in one area. As far as the Arts Major is concerned a student need only satisfy Faculty of Arts and program requirements for the Bachelor of Arts Major. Courses may satisfy requirements for both programs. Students should endeavour to satisfy lower-level course prerequisites for both programs in their first two years.

In order to graduate in a Co-operative Education Program, students must successfully complete the required number of work terms in addition to the regular academic program requirements. Credit earned through co-operative work placement courses numbered 298, 299, 398, 399, 498, and 499 in the Faculty of Science can be used only towards graduation in the Co-operative Education Program and will not fulfill requirements of honours, major, double major, General Science, Integrated Sciences, or minor programs.

Students are responsible for selecting a program that meets all the Faculty and departmental requirements. Students who have interrupted their studies may find that requirements have changed since the period of their previous enrolment. They must consult the Dean and the department involved.

A student who does not meet the graduation requirements for the Bachelor of Science within a maximum of 180 credits of course work attempted will be required to withdraw from the Faculty of Science.

English Requirement

To qualify for the Bachelor of Science, students must satisfy the English requirement of the Faculty of Science. To do this students must obtain credit for two of ENGL 110, 111, 112, 120, and 121, or their equivalents if taken at another institution. ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121.

All students admitted to the Bachelor of Science program must take immediate steps to satisfy the English requirement. The following notes apply.

- 1) Students admitted directly from secondary school are required to take English in their first year if eligible to do so. To be eligible, students must have written the Language Proficiency Index (LPI) examination and obtained a score of level 5. For details on this examination, and exemptions from it, see *Language Proficiency Index Requirement for First-Year English*, p. 120.
- 2) Students admitted directly from secondary school who have not obtained a score of level 5 on the LPI will be permitted to register in no more than 12 credits of course work per term until a satisfactory LPI score is achieved. Students unable to enrol in a first-year English course because of an unsatisfactory LPI score are advised to take a non-credit writing course through the UBC Writing Centre.
- 3) Students who do not achieve a level 5 LPI score before completing 30 credits toward the Bachelor of Science will not be permitted to register in any additional credit courses until they obtain a level 5 score.

- 4) Students who are accepted on transfer from other post-secondary institutions, or who are readmitted to the Faculty after being required to discontinue, must either have met the English requirement or be eligible to enrol in first-year English before they will be permitted to register in any courses for credit. This usually requires achievement of a level 5 or better on the LPI exam in the summer prior to admission for the fall term (see *Language Proficiency Index Requirement for First-Year English*, p. 120).
- 5) Students admitted to a first-degree program who have not met the English requirement by the time they have completed 60 credits of course work toward the Bachelor of Science, taken either at UBC or at another post-secondary institution, will not be permitted to enrol in courses other than first-year English until the English requirement is met.
- 6) Students admitted to a second-degree program who have not met the English requirement by the time they have completed 30 credits of course work at UBC toward the Bachelor of Science will not be permitted to enrol in courses other than first-year English until the English requirement is met.
- 7) Once admitted to UBC, students will not normally be permitted to satisfy the English requirement at another institution.

Science Requirement

At least 72 credits must be in science courses. Geography courses designated as carrying Science credit are numbered 00–09 in the last digits, plus GEOG 370, 372, 373, and 470. (GEOG 449 also carries science credit, but only for B.Sc. honours students in Geography.) In addition to PSYC 348 and 448, all Psychology courses numbered 60 or above in the last two digits have Science credit. Only the following courses in the Faculty of Land and Food Systems have Science credit: FNH 350, 351, 450, and 451. Some courses in the Faculty of Medicine have Science credit: ANAT 390, ANAT 391; all BIOC, PCTH, and PHYL courses; MEDG 410-421.

Arts Requirement

At least 18 credits must be in Arts courses, which must include 6 credits of first-year English and at least 12 other credits in Arts courses that are for credit toward the Bachelor of Arts.

The Arts requirement can be met by Geography courses numbered 20 and above in the last two digits except those numbered 40–48 and 70–79 in the last two digits. (For further restrictions on students in the B.Sc. in Geography, see *Geography*, p. 416, under Bachelor of Science.)

Arts or Science Breadth Requirement

Each Major program must include a broad range of experience in the core disciplines of Science and Arts. Of the electives available in the program after the lower-level requirements, Arts requirement, and program requirements have been met, at least 9 credits must be in

Science courses outside the field of the major or in additional Arts courses (or in a combination of Science and Arts courses). Refer to the following table for definitions of the field of the Major. ISCI 311, 320, 322, 333, and 411 may count as breadth electives in all major programs. Major programs other than Cognitive Systems may also count COGS 200 as a breadth elective.

Courses in the Field of Major

Astronomy	ASTR, MATH, PHYS
Atmospheric Science	ATSC, EOSC (Oceanography), GEOG (Science), PHYS
Biochemistry	BIOC, BIOL, CHEM, MICB, and all courses offered for Science credit by departments in the Faculty of Medicine.
Biology	BIOC, BIOL, MICB, MRNE, EOSC 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306, PSYC (Science), and Science credit courses in the Faculties of Medicine and Land & Food Systems
Chemistry	CHEM, PHYS, BIOC
Cognitive Systems – CID Stream	CPSC, LING, PHIL, PSYC
Cognitive Systems – Cognition & Brain Stream	PSYC, PHIL, CPSC
Computer Science	CPSC, MATH, STAT
Earth & Ocean Sciences	EOSC, ATSC
Environmental Sciences	Courses in the <i>Area of Concentration</i> , p. 415.
Geography	GEOG
Mathematics	MATH, STAT, CPSC
Microbiology & Immunology	MICB, BIOL, and science credit courses in the Faculty of Medicine.
Pharmacology	BIOC, BIOL, PCTH, PHYL, and science credit courses in the Faculty of Medicine.
Physics	PHYS, ASTR, MATH
Psychology	PSYC, BIOC, BIOL, COGS, PCTH, PHYL
Statistics	STAT, MATH, CPSC

Double major and combined major programs satisfy the breadth requirement using their program requirements unless the program combines areas within the same field of major. In such cases, the breadth requirement must be satisfied with additional credits.

Upper-Level Requirement

For upper-level course requirements, see the table “Summary of Minimum Program Requirements” below. For the Bachelor of Science major, 30 of the 48 upper-level credits must be in Science courses. The remaining 18 upper-level credits for the major may be in any faculty. Those 18 upper-level credits may include upper-level Geography courses numbered 10 to 19, 40 to 48, and 70 to 79 in the last two digits which are not designated as either Science or Arts. Students in Honours, Double Major, or Minor in Science options have higher requirements for upper-level Science credits; they may also take 18 credits in any faculty, but at most 6 credits will count toward the minimum upper-level requirements.

SUMMARY OF MINIMUM PROGRAM REQUIREMENTS

	Major	Major+Minor in Science	Major+Major (Science)	Honours	Honours+Minor in Science
Total Credits	120	120	120	132	132
of which courses 300+	48	48	60	48	60
Total Science Credits	72	72	72	72	72
of which courses 300+	30	42	54	42	54
Total Arts Credits	18	18	18	18	18
Max. Credits not in Science or Arts (optional)	18	18	18	18	18

Other Credit Allowances

Up to 18 credits of course work in a faculty other than Science or Arts may be taken for credit towards the Bachelor of Science. These courses may not replace specific courses in a Science program or count towards the 72 credits of Science or the 18 credits of Arts courses required by the B.Sc. or the 9 credits of breadth required by the Major programs. The 18 credits may, however, count toward the required upper-level credits for the B.Sc. subject to the upper-level requirement. See *Upper-Level Requirement*, p. 388, in this section.

Double Counting

Students enrolled in a combined program, e.g., Double Major, Major+Minor in Science, or Honours+Minor in Science, are allowed to double-count a limited number of credits. The second major or the minor may normally contain no more than 6 upper-level credits that are also counted toward the core requirements for the first major or honours. Thus, in order to graduate, double major students must have at least 54 upper-level Science credits, Major+Minor in Science students must have at least 42, and Honours+Minor in Science students must have at least 54; this number of credits cannot be arrived at by double-counting. There is no maximum number of credits that can be double-counted. Students should be aware that by double-counting they could substantially weaken the intellectual content of one of their specialties.

Lower-Level Requirements

In the first 60 credits, every student, unless enrolled in Science One (see note below), must complete (or have advance credit or placement in) the minimum requirements in English, physical sciences, computational sciences, biology or another science, and in laboratory science described below.

Advance credit or placement may be granted where appropriate when the equivalent of any or all of these courses is completed at another institution prior to admission to the University.

Note: No more than 3 credits of the Faculty of Science lower-level requirements may be deferred beyond the first 60 credits completed; ENGL and MATH 100 (or 102 or 104 or 180 or 184 or 120) may not be deferred.

Students intending to apply for entry to Applied Science, Commerce and Business Administration, Forestry, Pharmaceutical Sciences, or Rehabilitation Sciences should refer to the

entrance requirements for each of these academic units. These requirements must of course be included within the normal program in the Faculty of Science.

Students intending to do graduate work in the sciences are reminded that competence in the reading of scientific literature in one or two languages other than English is sometimes required.

Students are reminded that the regulations listed under *Student Academic Performance*, p. 386, in Bachelor of Science, Academic Regulations apply.

ENGLISH

Students take two of ENGL 110, 111, 112, 120, or 121. ENGL 112 is recommended. One of these may be deferred to second year.

COMPUTATIONAL SCIENCES

Students take one of MATH 100, 102, 104, 180, 184, or 120 and 6 computational credits. These courses are normally in CPSC, MATH, or STAT. Some programs may allow the completion of other computational courses to satisfy 3 credits of the requirement. These alternative courses are specified in the program descriptions.

Students who intend to pursue an honours program requiring 6 credits of calculus should consider MATH 120/121, as these enriched courses provide a foundation for such programs.

PHYSICAL SCIENCES

Students take CHEM 111 if credit was not obtained for Chemistry 12 and 3 credits of 100-level PHYS (normally PHYS 100) if credit was not obtained for Physics 12. All students take 6 credits of CHEM and/or PHYS lecture courses at the 100-level beyond CHEM 111 and PHYS 100.

Students who intend to pursue an honours program should consider PHYS 121/122, as these enriched courses provide a foundation for such programs.

OTHER SCIENCES

Students who do not have credit for Biology 11 or 12 take 3 credits of 100-level BIOL. Students with credit for Biology 11 or 12 complete 3 credits of an ASTR, BIOL, EOSC, or science-credit GEOG or PSYC lecture course.

LABORATORY SCIENCE

Students take two one-term laboratory courses chosen from ASTR, BIOL, CHEM, EOSC, GEOG, PHYS, and PSYC. These may be stand-alone labs or parts of lecture-lab courses included in other requirements listed above.

ADDITIONAL LOWER-LEVEL COURSES

Students take additional courses chosen from Science or Arts to a total of at least 60 credits. A B.Sc. program may include up to 18 credits from a Faculty other than Science or Arts; see *Other Credit Allowances*, p. 389, in this section.

Students should consult the intended program of study to determine the correct choice of courses to fulfill both the Faculty of Science requirements listed above and the introductory requirements for the desired program. Students who are uncertain of their intended honours, major, General Science, or Integrated Sciences program should choose electives so as to provide maximum flexibility in their choice of program.

SCIENCE ONE

Students with credit for Science One and BIOL 140 have met all first-year Biology, Chemistry, Mathematics, and Physics requirements for programs in the Faculty of Science, and satisfy the lower-level requirements for physical sciences, other sciences, and laboratory science and 6 of the required 9 credits in computational science.

Program Requirements

Students are reminded that regulations apply as listed under Bachelor of Science, Academic Regulations, *Student Academic Performance*, p. 386. Choice of program and option will be limited if good academic standing is not maintained. Permission to pursue more than one of the following types of primary program will not normally be given: honours, combined honours, major, combined major, double major, Integrated Sciences, General Science.

Programs require varying numbers of credits but no Bachelor of Science program requires fewer than 120 credits.

Programs may require specific lower-level (i.e. 100- and 200-level) and upper-level (i.e. 300 and above) courses. See the *Bachelor of Science program listings*, p. 395, in this section.

HONOURS AND COMBINED

HONOURS PROGRAM

Honours candidates are required to follow the program as set out in the Calendar, to complete all courses attempted, and to maintain a minimum overall 68% average in each academic session.

Honours candidates in a co-operative education program are required to complete at least 15 credits in each study term. Other honours students are required to complete at least 30 credits in each Winter Session.

Self-declaration and meeting the minimum requirements are not a guarantee that a student will be able to continue in an honours program. Interested students are urged to consult the program's website for information and directions. Some honours programs require consultation with a program advisor.

MAJOR PROGRAM

A major program is intended to provide depth of study in one discipline while allowing sufficient elective space for a student to explore

other areas of study. In addition to the lower-level requirement (i.e., English, physical sciences, computational sciences, other sciences, and laboratory science), the Arts Requirement, and the program requirements, each major program requires at least nine credits in Science courses outside the field of the major or in additional Arts courses (or in a combination of Science and Arts. See *Arts or Science Breadth Requirement*, p. 388). The field of the major is defined for each program in the *Bachelor of Science program listings*, p. 395. At most 18 credits may be in courses in a faculty other than Science or Arts but individual program requirements may limit the number of such credits that contribute to minimum degree requirements.

COMBINED MAJOR

This program involves specialization in two fields, but students in this program complete defined combinations of the degree requirements of two programs in Science. Currently this program limits combinations to those of Computer Science and another field. This program may lead to graduate study if sufficiently high standing is obtained.

DOUBLE MAJOR IN SCIENCE PROGRAM

Students in the double major programs must satisfy all degree requirements of one department, including all Faculty of Science requirements. As far as the second department is concerned a student need only satisfy all departmental requirements at the 300 or higher level and any lower-level program requirements that are not part of the first major program.

Students intending to major in two areas must discuss their plan with academic advisors in both programs, preferably before the end of their first Winter Session but definitely before the end of second year. Normally students will be registered in the first major during second year and will add the second major upon registering for third year (see *Registration and Program Approval*, p. 384, under Bachelor of Science, Admission). All double major programs need the approval of both departments and a senior faculty advisor (for application form, see www.escience.ubc.ca). The second major may normally contain no more than 6 upper-level credits that are also counted toward the core requirements for the first major. Entry into and continuation in a double major program requires that the student remain in good academic standing. Students should be aware that in most cases it will not be possible to complete a double major in four years. See the information regarding the double major under *Graduation Requirements*, p. 387, in this section.

DOUBLE MAJOR IN SCIENCE AND ARTS PROGRAM

Students must satisfy all degree requirements for a bachelor of Science Major in one program, including all Faculty of Science requirements. As far as the Arts Major is concerned a student need only satisfy any remaining Faculty of Arts and program requirements for the Bachelor of Arts Major. Courses may satisfy requirements for both programs.

Students should endeavour to satisfy lower-level course prerequisites for both programs in their first two years. Entry into, and continuation in, a double major program requires that the student remain in good academic standing.

The B.A. Major in Music is available as a second major for a B.Sc. student but it has limited access to performance courses. The Bachelor of Music is not available as a second major. Students interested in combining studies in science and musical performance should consult advisors in both faculties prior to admission to UBC to discuss the appropriate faculty in which to enrol and to develop an academic plan.

MINOR PROGRAM

Students intending to embark on a minor program should see *Minor Programs*, p. 393. All minor programs must be approved by a senior faculty advisor.

GENERAL SCIENCE PROGRAM

Students in the General Science Program who have completed the first year should select courses in consultation with an advisor in the Science Information and Advising Office at the beginning of the second year and each subsequent year, if questions arise as to program requirements.

Students in the following B.Sc. Major programs may not complete a B.A. Major in the same subject: Geography, Mathematics, Mathematical Sciences, Psychology.

INTEGRATED SCIENCES (IS) PROGRAM

Students intending to apply for the Integrated Sciences Program after completing 60 credits should take care in selecting second-year courses which may be requirements for upper-level courses in their proposed area of focus. Integrated Sciences advisors may be consulted in planning a course of study. Changes to previously approved IS programs are permitted but must be approved by an IS advisor.

PART-TIME PROGRAM

Any course load less than 24 credits in Winter Session is considered part-time study. Students do not need permission of the Dean's Office for part-time study but should be aware that program requirements and courses may change over time (see *Credit*, p. 385). Normally, pursuing an honours program or a double major is not permitted through part-time study. Students should select courses and programs in consultation with the departmental advisors.

Successful completion of a total of 18 or more credits, of which 12 or more must be from first-year Science credits; or successful completion of Science One. A student who does not meet the minimum requirements for promotion to second year within a maximum of 60 credits of course work attempted will be required to withdraw from the Faculty of Science.

Promotion Requirements

Students in the Faculty of Science are required to make steady progress toward graduation. The total number of credits, the number of science credits, and the specifications of the student's program (in second year and after) are all considered in the decision to promote. The

decision is based on courses completed to the end of Winter Session. Registration in a program in second year is not a guarantee of continuing status in that program; maintenance of a competitive academic record is required. A student with second- or third-year standing who does not satisfy the following promotion requirements may be denied promotion to the next year level in the program and be removed from the program and required to gain admission to another. A student removed from a program who does not gain admission to another may be required to withdraw from the Faculty of Science. Students changing from one program to another will have their year standing reassessed.

PROMOTION TO SECOND YEAR

Promotion to second year requires successful completion of a total of 24 or more credits, of which at least 12 must be from the Faculty of Science lower-level requirements or equivalent advanced credit (see Lower-Level Requirements in this chapter). Students must meet the minimum requirements for promotion to second year within a maximum of 48 credits of course work attempted (i.e., passed or failed) after admission to first year in the Faculty of Science. Those who do not will be required to withdraw from the Faculty of Science.

Students admitted to or newly promoted to second year must declare a program before they start to register for courses for the next Winter Session. All continuing students are urged to consult program websites for information and directions before the end of their first Winter Session and not to wait until the registration period in the summer. Some programs require prior approval from a program advisor. Students who are promoted to second year but are either (1) on academic probation after first year, or (2) have a failed first year but have been permitted to continue (see Continuation Requirements in the chapter), must gain approval from a program advisor before they will be permitted to register as a second-year student.

PROMOTION TO THIRD YEAR

Promotion to third year requires successful completion of 48 or more credits. These must include 6 credits of first-year English, at least 15 science credits from the lower-level requirements (see Lower-Level Requirements in this chapter) or equivalent advanced credit, and at least 15 additional science credits eligible for credit in the student's program. Programs may identify one or more second-year courses that must be passed for promotion to third year.

Second-year students are required to achieve an average of at least 60% on the first attempts in three-fifths (3/5) of the credits (rounded up to the nearest whole course) for the named courses (i.e., not electives) in the second year of their declared program. For the General Science and Integrated Sciences programs, the 15 additional science credits used to calculate the average must prepare the student to take required upper-level courses in at least two General Science subject areas. Students who do not meet the minimum average will normally be removed from that program and required to gain admis-

sion to another. Some programs have limited enrolment and will not be able to accept all students who meet the minimum promotion requirements. Students must meet the minimum requirements for promotion to third year in a B.Sc. program with a maximum of 78 credits of coursework attempted or be required to withdraw from the Faculty of Science.

PROMOTION TO FOURTH YEAR

Promotion to fourth year requires successful completion of a total of 78 or more credits. Of these, 50 or more must be Science credits including all of the Faculty of Science lower-level requirements (see Lower-Level Requirements in this chapter), all courses specified in the first and second years of the program (but not all electives), and at least 40% of the credits in courses specified in the upper years of the program (i.e., not electives). Programs may identify one or more upper-level courses that must be passed for promotion to fourth year. In exceptional circumstances, a student who does not meet the promotion requirements may be removed from the program. A student must meet the minimum requirements for promotion to fourth year in a B.Sc. program within a maximum of 108 credits of course work attempted. Those who do not will be required to withdraw from the Faculty of Science.

Students must meet all the graduation requirements for the degree within a maximum of 180 credits of coursework attempted. Those who do not will be required to withdraw from the Faculty of Science.

POST-SECONDARY APPLICANTS

Students applying for admission to second and third years from British Columbia colleges and universities or from institutions outside the province must meet, in addition to the present University admission requirements, the Faculty of Science minimum requirements as applied to UBC students for promotion to that stage. Students admitted to UBC who have not completed either 6 credits of transferable first-year ENGL or achieved at least a level 5 on the LPI test will be placed in second year but will not be permitted to register in the Faculty of Science until they demonstrate a level 5 on the LPI test.

Second Degree Studies

REQUIREMENTS FOR THE BACHELOR OF SCIENCE

Students with a recognized undergraduate degree may be eligible to pursue a Bachelor of Science Major program as a second degree. Students are required to undertake a second degree program in a discipline distinct from that studied for a previously granted degree. If the previous degree included more than four core upper-level courses in a discipline, then the UBC second degree may not normally be taken in that discipline. The pursuit of an honours, General Science, or Integrated Sciences program as a second degree normally is not permitted.

Students admitted to a second degree must consult the Faculty of Science Student Information and Advising Centre and the appropriate pro-

gram advisor regarding specific second degree requirements prior to commencing the program. Transfer credit is not assigned to second-degree students.

Students are expected to complete a second degree in a timely manner. A part-time study program must be approved in advance by the Science Information and Advising Centre.

For a major second degree, students must complete a minimum of 60 credits at UBC while enrolled in their second degree program and must satisfy all Faculty and departmental requirements of their chosen program. All upper-level Faculty and departmental requirements must be met through second degree credits only. Specific departmental requirements completed prior to commencement of the second degree may not be repeated, and must be replaced by additional courses in order to satisfy the 60-credit and upper-level requirements. The remaining degree requirements and course prerequisites can be satisfied by any combination of first- and second-degree credits. Students with limited background for their chosen program may find it necessary to complete more than 60 credits to fulfill all degree requirements.

ENGLISH REQUIREMENT

All B.Sc. students must complete 6 credits of first-year ENGL courses. Any second-degree student who has not completed the English Requirement upon admission must complete it within the first 30 credits completed at UBC (see *English Requirement*, p. 388, in this chapter). Achievement of level 5 or better on the LPI test normally is required prior to taking ENGL courses.

Failure to complete the English requirement will result in a block on further registration until the requirement is met. No co-op work term or study abroad will be permitted if this requirement has not been met.

PROMOTION REQUIREMENTS

The promotion requirements above apply only to students admitted from high school or on transfer from another post-secondary institution. Students admitted on the basis of prior study (i.e., completion of a first degree) are subject to special promotion requirements based on the year level to which they were admitted. Promotion decisions are made at the end of each Winter Session.

Admission or promotion to second year requires completion of at least 12 required lower-level Science credits (either with UBC credits or from prior study); see Lower-Level Requirements in this chapter. First-year students must meet the minimum requirements for promotion to second year within a maximum of 36 credits of course work attempted (i.e., passed or failed) after admission to the second degree program. Those who do not will be required to withdraw from the Faculty of Science.

Second-year students must declare a major before they start to register for courses for the next Winter Session. All students are urged to consult the program's website for information

and directions before the end of Winter Session and not to wait until the registration period. Some majors require prior approval from a program advisor. Students who are promoted to second year and either (1) are on academic probation after first year, or (2) have a failed year but have been permitted to continue (see Continuation Requirements in this chapter), must gain approval from a program advisor before they will be permitted to register.

Admission or promotion to third year requires completion of any of the following specification with either UBC credits or credits from prior study: at least 3 credits of the English requirement, all of the lower-level Science requirements (including all of the Computational Sciences requirement), and a total of at least 30 Science credits required for the declared program. Programs may identify in the Calendar one or more second-year courses that must be passed for promotion to third-year.

Second-year students are required to achieve an average of at least 60% on the first attempts in three-fifths (3/5) of the credits (rounded up to the nearest whole course) for the named courses (i.e., not electives) in the second year of their declared program. Students who do not meet the minimum average normally will be removed from that program and required to gain admission to another. Some programs have a limited enrolment and will not be able to accept all students who meet the minimum promotion requirements.

Second-year students must meet the minimum requirements for promotion to third-year within a maximum of 36 credits of coursework attempted (i.e., passed or failed) while in second year. Those who do not will be required to withdraw from the Faculty of Science.

Promotion to fourth-year requires completion of the following, either with UBC credits or from prior study: all of the lower-level requirements including 6 credits of ENGL; and, a total of at least 45 Science credits. In addition, at least 18 UBC credits must have been completed successfully including at least nine credits of Science courses numbered 300 or above. Programs may identify in the Calendar one or more third-year courses that must be passed for promotion to fourth year. Third-year students must meet the minimum requirements for promotion to fourth year within a maximum of 36 credits or coursework attempted (i.e., passed or failed) while in third year. Those who do not will be required to withdraw from the Faculty of Science.

Second-degree students are permitted to be registered in fourth year for no more than two winter sessions without the prior approval of the Dean.

FIRST-YEAR PROGRAMS

The Faculty of Science offers three options for enrolment in first year:

- 1) The standard program, in which students admitted to the Faculty of Science design their own program according to the requirements listed above, selecting both

the courses and the sections they wish to attend.

- 2) The Coordinated Science Program (CSP), in which students admitted to the Faculty of Science attend a standard timetable of core science courses, plus an interdisciplinary workshop, together as a group. Students register separately for electives, including at least 3 credits of first-year English.
- 3) The Science One Program (25 credits plus 2 credits for corequisite Biology 140 Lab) is an academically rigorous interdisciplinary course. A separate application is required.

For additional information on first-year programs, visit the Faculty of Science website (www.science.ubc.ca).

Coordinated Science Program

Students with a broad interest in science and the relationships between various scientific disciplines may wish to register in the Coordinated Science Program (CSP). Within CSP, the General Science Option (GSO) consists of special sections of BIOL 121/140, CHEM 121/123, MATH 100/101, and PHYS 101/102. The Computer Science Option (CSO) consists of CPSC 111/121, MATH 100/101, BIOL 121, CHEM 121, and PHYS 101.

All CSP students attend their lectures together and have access to the CSP study space, creating a smaller social and learning community within first-year science.

The CSP instructors teach their courses at the same academic level as the standard program and work together to coordinate their course lecture material. They also select topics that promote scientific inquiry across all disciplines. The CSP teaching team also includes two lecturers who run the CSP workshops.

Each week, CSP students meet in smaller groups of about 30 for a two-hour interdisciplinary workshop. These involve participation in a variety of hands-on activities, discussions and debates, group projects, and student-led presentations. The workshops provide the opportunity to develop problem solving, critical thinking, and communication skills useful in all scientific disciplines and future careers. The workshops are not tutorial sessions. Rather, they are a chance to take a deeper look at course material and to explore connections between the sciences.

These workshops require a weekly two-hour commitment from students, in addition to time scheduled for the lectures and labs. CSP students are expected to participate fully in workshop activities. The two-term CSP Workshop will be worth 1 credit, with students receiving a mark on a pass/fail basis.

Students who have been admitted to the Faculty of Science and have taken Biology 11, Calculus 12, Physics 12, and Chemistry 12 (or their equivalents) are eligible for the program. Students who are interested in the program but who lack prerequisites should contact the Coordinated Science Program Office

(csp@interchange.ubc.ca) at 604-822-0274 to discuss their options. Because writing is a significant part of the CSP, proficiency in English is very strongly recommended.

Additional information about the program is available from the CSP website (www.science.ubc.ca/~csp).

Science One Program

Science One, an intensive alternative to the standard first year in the Faculty of Science, is a 25-credit program of study spanning two terms. Enrolment in Science One requires enrolment in the first-year biology lab course BIOL 140. The program is interdisciplinary and integrates the essential material of first-year Biology, Chemistry, Mathematics, and Physics through lectures, tutorials, workshops, and laboratories. Science One has a home base and a computer lab as well as excellent student support. The aim of the curriculum is to provide a coherent focus for the student's first-year Science studies, and a sense of being a member in a community of learners. Information about Science One and application forms may be obtained from the Science One Office (science1@interchange.ubc.ca), 464-6356 Agricultural Road, Vancouver, BC, V6T 1Z2; telephone 604-822-5552, fax 604-822-5551, or from the Science One website (www.science.ubc.ca/~science1). The deadline for receipt of completed applications is April 30. (Students are notified of their status by May 31.)

Late applicants may be considered until May 31.

ADMISSION

Admission to Science One requires a formal application. Enrolment is limited. Prerequisites for enrolment in Science One are admission to the Faculty of Science; marks of 'B' or better in each of Biology 11 or 12, Chemistry 12, Mathematics 12 and Physics 12, plus, at least 80% in English 12 or English Literature 12 or a satisfactory score (level 5 or better) on the *Language Proficiency Index (LPI) examination*, p. 120. Students who are lacking a prerequisite are advised to call the Science One Office to discuss their options.

ELECTIVES

Students enrolled in Science One may register for up to an additional 11 credits of electives. With the proper choice of electives, Science One satisfies prerequisite requirements for entry into all second-year programs in the Faculty of Science.

Students are advised to register as early as possible for English electives to ensure seats in the MWF 8:00 am or 9:00 am classes, which are compatible with the Science One schedule. Students who have not obtained at least 80% in English 12 or English Literature 12 (or BC equivalent) must write the LPI exam and achieve a level 5 standing before classes begin in September. For information about English eligibility and the LPI (Language Proficiency Index) requirement, see *English Language Admission Standard*, p. 15, and *English Language Proficiency Index*, p. 120, in this Calendar. Any questions about scheduling English electives or using Advanced Placement credits

for English should be addressed to the English Department at 604-822-5651.

Second-year Psychology courses may be open as electives to Science One students; arrangements must be made through the Science One Office. Please register for the Science One Program and other elective(s) first – record all relevant course registration information before calling the Science One office with the request.

Arts electives (which may include one additional first year English course) are chosen from Faculty of Arts courses numbered 100 to 199 for which students have the appropriate prerequisite. There are in addition a limited number of 200- and higher-level Arts courses for which students may be eligible. For further information, refer to the publication, *Courses Open to First-Year Students* which is available in the Arts Advising Office, telephone 604-822-4028.

Science One students are required to take BIOL 140 (a 2-credit Biology laboratory course) in their first year.

WITHDRAWAL

Students who enrol in Science One are expected to remain in the program for the complete session, but they may drop it without penalty during the period officially allowed for course changes. On successful completion of the program, students receive one composite mark for Science One and are promoted to second-year standing in the Faculty of Science.

ADVISING AND PROGRAM APPROVAL

Science One advisors will be available during the summer months. Appointments may be made by calling the Science One Office at 604-822-5552 after admission to the program. Students who are contemplating a specific department or another faculty after Science One, are advised to contact that department or faculty directly to ensure that they meet their elective prerequisites for second year.

CO-OP AND MINOR OPTIONS

Co-operative Education Programs

The Co-operative Education programs are intended to integrate the academic education (classroom-based learning) of interested and qualified students with relevant, supervised, and paid work experience (work-based learning) with employer organizations. Co-op students gain valuable skills that help guide them through their academic education, as well as prepare them for future job markets upon graduation.

The Faculty of Science offers Co-operative Education programs in the disciplines of Atmospheric Sciences, Biochemistry and Molecular Biology, Biology, Chemistry, Computer Science, Geology, Mathematics, Microbiology and Immunology, Pharmacology and Therapeutics, Physics and Astronomy, and Statistics. Initiatives are underway to offer the program to students in other departments in the Faculty.

Co-operative Education programs are optional and supplementary to academic programs in a department. Students who wish to be considered for the program must meet all require-

ments of their departments and will be selected on the basis of academic performance and suitability for the work environment. Total enrolment is subject to the availability of appropriate work placements. Students admitted into the program will register in the appropriate Co-operative Education courses for each work term, once a suitable position is confirmed, and will be required to pay the Co-operative Education program fee (see *Program and Course Fees*, p. 28, in the “Fees, Financial Assistance, and Scholarships” chapter of this Calendar). In addition, a co-op workshop fee is to be paid by all students accepted into the program. There will not be a tuition fee in addition to this.

Each successfully completed Co-operative Education course will be assigned 3 credits and will be recorded on the student’s transcript. In order to graduate in a Co-operative Education Program, a student must have completed the required number of work terms in addition to the normal academic requirements of the department. Co-operative Education course credits cannot be used in lieu of or to complement academic course credits required by the department.

To inquire about application deadlines and for further information, please contact the Co-operative Education Program Office, Room 170 Chemistry/Physics Building, The University of British Columbia, 6221 University Blvd, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

Minor Programs

Students who wish to focus their electives may, with the approval of a senior faculty advisor, undertake an optional minor program in conjunction with a Bachelor of Science program. The designation of the minor will be applied to the transcript upon graduation if permission has been granted and the requirements are met. Permission to pursue a minor will be denied if the student is not making good progress in the primary specialization. Permission to pursue more than one minor will not normally be given. The following five types of minor program are available: Minor in Land and Food Systems, Minor in Arts, Minor in Commerce, Minor in Human Kinetics, and Minor in Science. Entry into and continuation in a minor option requires that the student remain in good academic standing. Information on minor programs is also available on the eScience website (www.escience.ubc.ca).

MINOR IN LAND AND FOOD SYSTEMS
A minor in Land and Food Systems may be undertaken by students in a Major, Honours, General Science, or Integrated Sciences program. Upon completion of one of the following four minor programs, the notation “Minor in [Subject]” will be denoted on the student’s transcript.

The Applied Animal Science Minor will consist of 6 credits selected from BIOC 300, BIOL 310, BIOL 334, FNH 350, and 12 credits selected from AGRO 311, AGRO 312, AGRO 315, AGRO 316, AGRO 327, AGRO 360, AGRO

411, AGRO 414, AGRO 418, AGRO 460, FNH 452, FNH 453, FNH 454 for a total of 18 credits.

The Food and Resource Economics Minor will consist of ECON 310, ECON 311 and 12 credits selected from ECON 371, FNH 355, FRE 302, FRE 306, FRE 340, FRE 374, FRE 385, FRE 420, FRE 475 for a total of 18 credits. Students who have completed ECON 101 and 102 prior to entry into the program may use these courses in lieu of ECON 310 and 311, but may require additional upper-level credits to satisfy graduation requirements.

The Horticulture Minor will consist of 6 credits selected from BIOL 316 (AGRO 326), BIOL 327 (AGRO 327), BIOL 317 (AGRO 328), BIOL 351 (AGRO 324) and 12 credits selected from AGRO 322, AGRO 360, AGRO 420, AGRO 421, AGRO 423, AGRO 428, FNH 330, LARC 316 for a total of 18 credits.

The Nutritional Sciences Minor will consist of FNH 350, FNH 351, and 12 credits selected from FNH 301, FNH 355, FNH 370, FNH 371, FNH402, FNH 451, FNH 452, FNH 453, FNH 454, FNH 470, FNH 473, FNH 490 for a total of 18 credits.

Space in many Science and Land and Food Systems courses is limited. Admission to a Land and Food Systems Minor does not guarantee access to courses agreed upon for the minor.

MINOR IN ARTS

A Minor in Arts may be undertaken by students in a major, honours, General Science or Integrated Sciences program. An acceptable program must comprise courses in the Faculty of Arts that are for credit toward a Bachelor of Arts and consists of 18 upper-level credits in a single subject or field of specialization. Students should design a coherent and academically sound course of studies for their proposed Minor, which must be approved by a senior faculty advisor in the Faculty of Science Dean’s Office at the beginning of the second year. All courses must be acceptable for a Bachelor of Arts Major in the proposed subject area or field, but a student is not bound by the other requirements that the Faculty of Arts sets for a Major or Minor in the field. The following restrictions should be noted.

A Minor in Mathematics may not be undertaken by students in the Faculty of Science. Students majoring in one of the earth science programs (Earth and Ocean Science, Geography, Geology, Geophysics, Oceanography) may not undertake a Minor in Geography. Other students intending to Minor in Geography should take GEOG 101 (or 102 and 103) as a prerequisite; other Geography courses must be selected from those that carry Arts credit in the Faculty of Science. Students in the B.Sc. program in Psychology may not undertake a Minor in Psychology; other students intending to Minor in Psychology must select only those Psychology courses that carry Arts credit in the Faculty of Science.

Upon successful completion of the Minor program, the notation, ‘Minor in Arts’ will be denoted on the student’s transcript. Students

wanting a subject-designated Minor may also undertake a Minor in a specific Arts discipline *Minor Program*, p. 123, which requires the completion of at least 30 credits in a single subject field of specialization of which at least 18 of these credits must be numbered 300 or higher.

MINOR IN COMMERCE

A Minor in Commerce may be undertaken by students in a major, honours, General Science or Integrated Sciences program. Enrolment in this program is strictly limited. An application form may be obtained from the Faculty of Science Student Information and Advising Centre or from the eScience website (www.escience.ubc.ca). The completed form must be returned no later than May 15. At the time of application, students must be eligible for third year standing in the Faculty of Science with a cumulative average of at least 68% in the previous two years. Meeting the stated requirements does not guarantee admission into the program.

Applicants must have successfully completed one of MATH 100, 102, 104, 120, 180, 184, or Science One and both ECON 310 and 311 (or 101 and 102). The program will consist of COMM 329(3), COMM 457(3), COMM 465(3), COMM 473(3), COMM 493(3), and one of COMM 399(3) or COMM 458(3) for a total of 18 credits.

Note: Students may encounter difficulty fitting the COMM courses into their Science program timetable; careful planning is essential. Upon successful completion of this program, the notation ‘Minor in Commerce’ will be placed on the student’s transcript.

MINOR IN HUMAN KINETICS

A Minor in Human Kinetics may be undertaken by students in a major, honours, or General Science program. Enrolment in this program is strictly limited. An application form may be obtained from the Faculty of Science Advising Office and the completed form must be returned no later than May 15. At the time of application, students must have completed PHYS 100 or 101 and be eligible for third year standing in the Faculty of Science with a cumulative average of at least 68% in the previous two years, and be eligible to enrol in either PHYL 301(6), or BIOL 363(3) and 364(2). Students who do not complete this physiology requirement in their third year will be dropped from the minor. Meeting the stated application requirements does not guarantee admission into the program.

The program will consist of 18 credits selected from the following list of courses: HKIN 303(3), HKIN 353(3), HKIN 361(3), HKIN 363(3), HKIN 364(3), HKIN 368(3), HKIN 389(3), HKIN 461(3), HKIN 463(3), HKIN 464(3), HKIN 468(3), HKIN 469(3), HKIN 471(3), HKIN 473(3).

Students admitted to the Minor in Human Kinetics have the prerequisites waived for all HKIN 3** courses listed above. However, students should be aware of the 300-level prerequisites for some 400-level Human Kinetics

courses. Students may encounter difficulty fitting the HKIN courses into their Science program timetable; careful planning is essential. Upon successful completion of this Minor program, the notation 'Minor in Human Kinetics' will be placed on the student's transcript.

MINOR IN SCIENCE

A Minor in Science may be undertaken by students in an Honours or Major program. Courses taken for the Minor must be courses in the Faculty of Science that are acceptable for a Bachelor of Science Major or Honours in the proposed subject area or field. The Minor consists of 18 upper-level credits either in a single subject or selected from a program. Students should design a coherent and academically sound course of studies for their proposed Minor, which must be approved by program advisors in both the major (or honours) and minor areas and by the Dean during the second year. Approval will be withheld if the course of study for the Minor is deemed to overlap excessively with the course of study for the major or honours.

Students registered in other degree programs may, with approval of a departmental advisor in Science, a senior Faculty advisor in the Faculty of Science Dean's Office and a senior advisor in their home faculty, undertake a Minor in Science program in conjunction with their degree program. Students are strongly encouraged to consult with advisors in both Faculties before taking the necessary courses.

Upon completion of the Minor program, the notation, 'Minor in [subject]' will be denoted on the student's transcript. Space in many Science courses is limited. Admission to a Science Minor does not guarantee access to courses agreed upon for the minor.

A student completing a Minor in Science in conjunction with a major or honours program may use courses to fill program requirements in both areas of specialization (see *Double Counting*, p. 389, under Bachelor of Science, Degree Requirements). However, to complete a Major plus Minor in Science requires at least 42 upper-level credits of Science courses; to complete an Honours plus Minor in Science requires at least 54.

CREDIT EXCLUSION LISTS

Each line below lists courses in which there is sufficient overlap that credit may be obtained for only one selection. This does not imply that courses listed together are interchangeable. Program specifications may require a specific course selection. A student who fails a course may attempt that course once more or may attempt one other from the same Credit Exclusion List, but only once. A student who passes a course may not take for higher standing that course or another course on the same Credit Exclusion List.

Atmospheric Science

- 1) ATSC 409, ATSC 506, OCGY 510

Biochemistry

- 1) BIOC 300, 302, 303
- 2) BIOC 300, BIOL 201
- 3) BIOC 303, 503
- 4) BIOC 403, CHEM 413, 569
- 5) BIOC 410, 510
- 6) BIOC 435, BIOL 435, BIOC 535

Biology

- 1) BIOL 110 or 115 plus 120, 344, SCIE 001
- 2) BIOL 110 or 115 plus 120, FRST 300, SCIE 001
- 3) BIOL 112, MICB 201, BIOL 346, SCIE 001
- 4) BIOL 121, BIOL 120, SCIE 001
- 5) BIOL 201, BIOC 300
- 6) BIOL 300, EPSE 482, 483, FRST 231, GEOG 374, HKIN 371, PSYC 218, 366, POLI 380, STAT 200, 203
- 7) BIOL 301, FRST 430, STAT 305
- 8) BIOL 316, AGRO 326
- 9) BIOL 317, AGRO 328
- 10) BIOL 337, EOSC 371, MRNE 435
- 11) BIOL 310, MRNE 446, PSYC 306
- 12) BIOL 324, PLNT 258
- 13) BIOL 327, AGRO 327
- 14) BIOL 334, AGRO 414, FRST 302
- 15) BIOL 345, 302 and 303
- 16) BIOL 346, 112, MICB 201
- 17) BIOL 346, MICB 202
- 18) BIOL 351, PLNT 324, FRST 311
- 19) BIOL 352, PLNT 325
- 20) BIOL 350, BIOL 361
- 21) BIOL 350, BIOL 362
- 22) BIOL 353, BIOL 355, BIOL 361, AGRO 312
- 23) BIOL 353, BIOL 355, BIOL 364, AGRO 312
- 24) BIOL 353, BIOL 363, PHYL 302, PHYL 303
- 25) BIOL 443, AGRO 424
- 26) BIOL 438, PHYS 438
- 27) BIOL 462, FRST 413

Chemistry

- 1) CHEM 111, 121, 154, SCIE 001
- 2) CHEM 113, 123, 154, SCIE 001
- 3) CHEM 201, 205, 251
- 4) CHEM 203, 233, 260
- 5) CHEM 204, 233, 260
- 6) CHEM 202, 250
- 7) CHEM 250, 309, 210
- 8) CHEM 312, PHYS 304, PHYS 450
- 9) CHEM 313, 330
- 10) CHEM 402, 514
- 11) CHEM 407, 503, PHYS 403, 455
- 12) CHEM 408, 508
- 13) CHEM 410, 502, PHYS 474
- 14) CHEM 411, 566
- 15) CHEM 413, 569, BIOC 403

- 16) CHEM 414, 525
- 17) CHEM 416, 563
- 18) CHEM 418, 524
- 19) CHEM 427, 527
- 20) CHEM 435, 526

Computer Science

- 1) CPSC 100, FRST 232
- 2) CPSC 101, WMST 201
- 3) CPSC 111, 122, 152
- 4) CPSC 121, 218, EECE 259
- 5) CPSC 121, 220, EECE 320
- 6) CPSC 216, 221, 252
- 7) CPSC 221, 220
- 8) CPSC 304, COMM 437
- 9) CPSC 310, CPSC 352, EECE 310
- 10) CPSC 311, EECE 321
- 11) CPSC 313, 315, EECE 315
- 12) CPSC 313, 318, EECE 476
- 13) CPSC 314, 414, EECE 478
- 14) CPSC 319, EECE 319
- 15) CPSC 405, COMM 310, EECE 423
- 16) CPSC 414, 314, EECE 478
- 17) CPSC 416, EECE 411
- 18) CPSC 417, COMM 439
- 19) CPSC 417, EECE 456
- 20) CPSC 435, FRST 435
- 21) CPSC 444, EECE 418

Earth and Ocean Sciences

- 1) EOSC 110, GEOG 101, GEOG 103
- 2) EOSC 112, GEOG 102, GEOG 101
- 3) EOSC 120, 121
- 4) EOSC 222, 326
- 5) EOSC 330, GEOG 306
- 6) EOSC 220, 324
- 7) EOSC 352, PHYS 406
- 8) EOSC 371, BIOL 305, MRNE 435
- 9) EOSC 477, ATSC 414, EOSC 579

Geography

- 1) GEOG 101, GEOG 102, EOSC 112
- 2) GEOG 101, GEOG 103, EOSC 110
- 3) GEOG 102, GEOG 101, EOSC 112
- 4) GEOG 103, GEOG 101, EOSC 110
- 5) GEOG 200, GEOG 204, AGRO 244
- 6) GEOG 204, AGRO 244, GEOG 300
- 7) GEOG 201, GEOG 204, AGRO 244, GEOG 300
- 8) GEOG 205, CIVL 418, FOPR 388
- 9) GEOG 270, GEOG 370
- 10) GEOG 306, EOSC 330
- 11) GEOG 376, GEOG 470
- 12) GEOG 444, GEOG 448

Mathematics

- 1) MATH 100, 102, 104, 111, 120, 140, 153, 180, 184, SCIE 001
- 2) MATH 101, 103, 105, 121, 141, 154, SCIE 001

- 3) MATH 152, 221, 223
- 4) MATH 200, 217, 226, 253, 263
- 5) MATH 215, 255, 256, 265
- 6) MATH 217, 227, 254, 263, 266, 317
- 7) MATH 230, 335
- 8) MATH 256, 257, 267, 316
- 9) MATH 257, 316, PHYS 312
- 10) MATH 266, 300, 350
- 11) MATH 301, 350
- 12) MATH 302, 318, STAT 241, 251, 302
- 13) MATH 303, 318
- 14) MATH 312, 437
- 15) MATH 313, 437
- 16) MATH 407, CPSC 402

Marine Biology

- 1) MRNE 446, BIOL 310, PSYC 306

Microbiology

- 1) MICB 202, BIOL 346
- 2) MICB 318, CHBE 381
- 3) MICB 402, MEDG 410
- 4) MICB 407, PATH 437
- 5) MICB 419, CHBE 564
- 6) MICB 502, MEDG 510
- 7) MICB 508, PLNT 508

Pharmacology

- 1) PCTH 300, 305; PHAR 370, 380
- 2) PCTH 400, PHAR 385

Physics

- 1) PHYS 101/102, 107/108, 109, 121/122, 153, SCIE 001
- 2) PHYS 170, 216
- 3) PHYS 200, 250
- 4) PHYS 203, 257, 313
- 5) PHYS 209, 259
- 6) PHYS 301, 311, 354
- 7) PHYS 308, 458
- 8) PHYS 304, 450, 452, CHEM 312
- 9) PHYS 303, 403, 455, CHEM 407, 503
- 10) PHYS 312, MATH 257, 316
- 11) PHYS 401, 454
- 12) PHYS 438, BIOL 438

Physiology

- 1) PHYL 301 and 302 or 303, AGRO 312, BIOL 353, BIOL 355

Probability and Statistics

- 1) STAT 200, STAT 203, BIOL 300, COMM 312, COMM 291, EPSE 482, EPSE 483, FRST 231, GEOG 374, HKIN 371, POLI 380, PSYC 218, PSYC 366, SOCI 328
- 2) STAT 241, 251, 302, MATH 302, 318
- 3) STAT 300, 306, COMM 411
- 4) STAT 335, WOOD 335
- 5) STAT 241, STAT 251, STAT 302, COMM 290, MATH 302
- 6) STAT 241, STAT 251, ECON 325, PSYC 366

- 7) STAT 404, PSYC 359

Psychology

- 1) PSYC 201 and 202, 260
- 2) PSYC 304, 360
- 3) PSYC 217 and 218, 366
- 4) PSYC 306, MRNE 446, BIOL 310

ASTRONOMY

The Department of Physics and Astronomy (www.physics.ubc.ca) offers opportunities for study in Astronomy at the bachelor's, master's, and doctoral levels. For information on graduate degrees, see *Astronomy*, p. 234, in the Graduate Studies section.

Major Program

MAJOR (0030): ASTRONOMY (ASTR)

First Year

ENGL 100-level ¹	6
CHEM 121, (111, 113)	4
MATH 100-level ²	6-8
PHYS 107, 108, 109 (101, 102) ³	7(6)
Electives ⁴	6-9
Total Credits	30-34

Second Year⁵

ASTR 201, 202 ⁶	6
MATH 217(200, 317), 221 (223), 215	10-12
PHYS 209	3
PHYS 206 ⁷	3
Electives ⁴	8-11
Total Credits	30-35

Third Year

ASTR 303	3
MATH 316 or PHYS 312	3
PHYS 301, 308	6
PHYS 200, 203, 206 ⁸	9
Electives ⁴	9
Total Credits	30

Fourth Year

ASTR 402	3
ASTR 404, 405	6
PHYS 304, 403	6
Electives ⁸	15
Total Credits	30

Minimum Credits for Degree

¹ ENGL 112 is recommended. Qualified students are encouraged to consider 120 and/or 121. 3 credits of English may be deferred until second year.

² One of MATH 100, 102, 104, 180, 184, or 120 and one of MATH 101, 103, 105, or 121.

³ Students without Physics 12 should consult departmental advisor as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 121.

⁴ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and a further 9 elective credits in Arts or Science outside the field of the Major (Physics, Astronomy, Mathematics, are therefore excluded). Students without Biology 11 or Biology 12 must take 3 credits of 100-level BIOL. Up to 12 elective credits may be taken in any faculty. The remaining elective credits may be taken in any courses in Arts or Science, including the subject of the Major. Enough elective credits in Arts and Science

courses numbered 300 or higher must be taken so that the program's total number of Arts and Science credits at the 300-level or higher is at least 48, with at least 30 of these credits being in Science. Recommended elective: CPSC 111. Students interested in senior chemistry courses or who are planning to enter a career in teaching are reminded that they should take a second course of introductory chemistry.

⁵ Admission requirement: 60% Standing in first-year Physics courses or permission of department head.

⁶ One or both of these courses may be deferred to third year.

⁷ Students who have not obtained a standing of at least 68% in PHYS 102, PHYS 121, or PHYS 122 should substitute PHYS 216.

⁸ Qualified students are encouraged to take PHYS 206 in second year.

Honours in Physics and Astronomy

See *Physics*, p. 423.

ATMOSPHERIC SCIENCE

A program of undergraduate studies, and master's and doctoral degrees in Atmospheric Science and the Diploma in Meteorology are offered cooperatively by the Departments of Earth and Ocean Sciences and Geography. Students should direct enquiries to the Associate Chair of the Atmospheric Science Program. For information concerning the diploma program see *Diploma in Meteorology*, p. 432. For information on graduate degrees, see *Atmospheric Science*, p. 235, in the Graduate Studies section. For more information, visit the Atmospheric Science website (www.geog.ubc.ca/atmos).

Co-operative Education Program

A five-year optional Co-operative Education program is available in Atmospheric Science. The program is intended to help prepare interested and qualified students for technical careers in atmospheric science within government, university, or industrial settings. This is achieved through a minimum of 14 months of approved work placement under the supervision of practising professionals. Faculty advisors visit students at their place of work and provide advice on technical reports required of all students in the program. To be eligible, students must be admissible into third year of the B.Sc. Major in Atmospheric Science with a minimum overall grade of 72%.

Admission is by application to the Co-op Office in April of the second year. Selection of students will be based on academic performance and general suitability to the work environment as determined by resume and interview. Total enrolment in the program is subject to the availability of work placements and faculty advisors. Work placements are arranged by mutual agreement between employers and students. Participating students must register for ATSC 398, 399, 498, and 499 as appropriate, and pay the required Co-operative Education program fee per course. (See *Program and Course Fees*, p. 28, in the "Fees, Financial Assistance, and Scholarships" chapter of this Calendar.) Graduation in the Co-operative Education program requires a student to complete each of ATSC 398, 399, 498, and

499, in addition to the normal academic requirements.

To enquire about application deadlines and for further information, please contact the Associate Chair of the Atmospheric Science program or the Co-operative Education Program Office, Room 309, Hennings Building, The University of British Columbia, 6224 Agricultural Road, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

Programs

MAJOR (0167): ATMOSPHERIC SCIENCE (ATSC)

First Year

ENGL 100-level ¹	6
CHEM 121, 123 (or 111,113)	8
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107 (or 101) ²	3
PHYS 108, 109 (or 102)	4(3)
Arts Elective	3
Elective ^{2,3}	3
Total Credits	32(35)

Second Year

ATSC 201	3
EOSC 211 (or CPSC 111)	3(4)
EOSC 250	3
GEOG 200	3
MATH 200, 215, 221	9
PHYS 216	3
Arts Elective ³	3
Elective ^{3,4,5}	3
Total Credits	30(31)

Third and Fourth Years

ATSC 301 ⁶ , 303 ⁶	6
ATSC 404 ⁶ , 405 ⁶	6
GEOG 300, 304	6
PHYS 312 or MATH 316	3
PHYS 313	3
STAT 241 or 200	3
Arts Electives ³	6
ATSC Electives ⁷	6
Electives ^{3,4,5}	21
Total Credits	60

Minimum Credits for Degree 122

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students without Physics 12 must normally take PHYS 100 before 101. Qualified students are encouraged to take PHYS 107/108/109.

³ 18 credits of electives must be numbered 300 or higher.

⁴ 9 credits must be Science courses from outside the Major field, or Arts. The Major field includes all Atmospheric Science, Oceanography, Geography (Science) and Physics courses.

⁵ Students without Biology 11 or 12 must take 3 credits of 100-level BIOL.

⁶ Offered in alternate years.

⁷ Selected from ATSC 406, ATSC 409, ATSC 414, EOSC 354; GEOG 401, 402; PHYS 314.

HONOURS (0429): ATMOSPHERIC SCIENCE (ATSC)

First Year

ENGL 100-level ¹	6
CHEM 121, 123 (or 111, 113)	8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	3(4)
MATH 121 (or 101 or 103 or 105)	3(4)
PHYS 107 (or 101) ²	3
PHYS 108, 109 (or 102)	4(3)
Elective ^{3,4}	6
Total Credits	32(35)

Second Year

ATSC 201	3
CHEM 201	3
EOSC 211	3
MATH 215, 217, 221	9
PHYS 200, 206	6
STAT 241 or 200	3
Arts Electives	6
Total Credits	33

Third and Fourth Years

ATSC 301 ⁶ , 303 ⁶ , 404 ⁶ , 405 ⁶ , 449	18
ATSC Electives ⁷	6
CHEM 302, 304	6
GEOG 300, 304	6
MATH 300, 301, 316, 400	12
PHYS 301 or 354	3
PHYS 314	3
Arts Electives	6
Electives ⁵	9
Total Credits	69

Minimum Credits for Degree 134

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits for first-year English may be deferred until second year.

² Students without Physics 12 must normally take PHYS 100 before 101. Qualified students are encouraged to take PHYS 107, 108, and 109.

³ Students without Biology 11 or 12 must take 100-level Biology.

⁴ Recommended electives: EOSC 100-level or GEOG 102.

⁵ 6 credits total may be in any faculty.

⁶ Offered in alternate years.

⁷ Selected from ATSC 406, 409, 414; EOSC 354; GEOG 401, 402.

COMBINED HONOURS (1372): ATMOSPHERIC SCIENCE AND COMPUTER SCIENCE (ATSC, CPSC)

First Year

ENGL 100-level ¹	6
CHEM 121 (111)	4
CPSC 111, 121	8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	4(3)
MATH 121 (or 101 or 104 or 105)	4(3)
PHYS 101, 102 (107, 108, 109) ²	6(7)
Electives ^{2,3}	3
Total Credits	33(36)

Second Year

ATSC 201	3
CPSC 211, 213, 221	12
MATH 215, 217, 223	10
PHYS 216	3
STAT 200 or 241	3
Elective	3
Total Credits	34

Third and Fourth Years

ATSC 301, 303, 404, 405	12
ATSC 449 or CPSC 449 ⁴	6
CPSC 302, 303, 310, 320	13
CPSC course numbered 300 and above ⁵	3
CPSC 403 or CPSC 402	3
CPSC course numbered 400 and above ⁵	3
GEOG 300, 304	6
MATH 316	3
PHYS 313	3
Arts Electives	12
Elective ⁵	3
Total Credits	67

Minimum Credits for Degree 134

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students without Physics 12 must take PHYS 100. Such students please see PHYS advisor. Qualified 107/108/109, students are encouraged to take PHYS 107/108/109.

³ Students without Biology 11 or 12 must take 100-level Biology.

⁴ Students who intend to take CPSC 449, must take CPSC 349 (a seminar of 0 credits) in the third year.

⁵ CPSC 313, 421 and CPSC 420 are recommended.

BIOCHEMISTRY

The Department of Biochemistry and Molecular Biology (www.biochem.ubc.ca) offers opportunities for study leading to bachelor's, master's and doctoral degrees. For information on graduate degrees, see *Biochemistry and Molecular Biology*, p. 235, in the Graduate Studies section.

The Major program provides a strong background in biochemistry and is sufficiently flexible for students to develop their interests in allied fields (e.g., microbiology, food science, and chemistry). It is also appropriate for students who anticipate a professional career in the health sciences. The Honours program is the recommended route for students interested in graduate studies in biochemistry or related disciplines. However, students enrolled in a major program with a strong academic record may also apply for graduate studies. For more information, see the Biochemistry website (www.biochem.ubc.ca).

Internship Education Program

The department offers an optional Internship (Co-op) Education Program (Honours and Majors). The program is open to interested and qualified students and is intended to provide additional practical and technical biochemical and molecular biological experience in

academic and industrial research laboratories. This is normally achieved through a period of 12 to 15 months of approved work placement under the supervision of practicing professionals. A faculty advisor will be assigned to each internship student. Acceptance into the program is based upon academic standing and general suitability to perform in a technical research environment. The first phase is a placement for three or four months (summer following third year) in an academic research or industrial laboratory (either at UBC or at an off-campus site). This is normally followed by placement in off-site laboratories for three consecutive, four-month terms. Placements are arranged by mutual agreement of the student, employer and faculty advisor through the Office of Co-operative Education. Students participating in the internship program must register for off-site placements by using BIOC 398, 399, 498 and, where appropriate, 499, and pay the co-op education program fee for each course. After completion of the work terms, students return to the University for completion of the normal fourth year major or honours academic requirements. This program requires five years and is not a requirement for admission to the graduate program in Biochemistry and Molecular Biology. Enrolment in the internship program is limited; continuation in the program is contingent on the availability of suitable work placements. For more information, see the Biochemistry undergraduate programs (www.biochem.ubc.ca/Undergrad.html) page or contact the Co-operative Education Program Office. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

Programs

MAJOR (0244): BIOCHEMISTRY (BIOC)

First Year	Credits
ENGL 100-level ¹	6
BIOL 111 ²	3-0
BIOL 121, 140	5
CHEM 121, 123 (111, 113) ³	8
MATH 100 or 102 or 104 (or 120 or 180 or 184) ⁴	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS ⁵	6
Electives ⁶	0-3
Total Credits	34(36)

Second Year

BIOL 200, 201	6
CHEM 201 and either 202 or 211	6(7)
CHEM 203, 204 ⁷	8
MATH 200	3
Electives ⁶	9
Total Credits	32(33)

Third and Fourth Years ^{8,9}

BIOC 301 ⁹	3
BIOC 303 ⁸	6
BIOC 402, 403	6
BIOC 410	3
BIOL 334 ⁸ , 335 ⁸	6

Third and Fourth Years (Continued)^{8,9}

CHEM 304, 305	6
CHEM 313, 333	7
Electives ⁶	24
Total Credits	61

Minimum Credits for Degree 127

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- If students do not have Biology 12, then they must also take BIOL 111, in addition to BIOL 121 and BIOL 140.
- If students do not have Chemistry 12, then they must take CHEM 111 and CHEM 113 in place of CHEM 121 and CHEM 123.
- Students must complete one of MATH 100, 102, 104, or 120. Alternatively, those not qualified for these courses due to lack of the calculus prerequisite can complete MATH 180 or 184.
- The requirement of 6 credits of Physics must include PHYS 101 (3) and any other PHYS course that is available for credit in the Faculty of Science. Although students with Physics 12 may defer 3 credits of Physics until second year, students are encouraged to complete this program requirement in their first year. If students do not have Physics 12, then they must take PHYS 100 as part of the required 6 credits of Physics.
- The 33 or 36 credits of electives must meet the following criteria: a) A maximum of 12 credits may be taken in a faculty other than Arts or Science; b) At least 12 credits must be in the Faculty of Arts (and in addition to the 6 credits of first-year English); c) A further 9 credits must be either Science electives outside the field of the Major or in Arts. The field of the Major for Biochemistry is defined as all Biochemistry, Biology, Chemistry, and Microbiology courses and all courses offered for Science credit by departments in the Faculty of Medicine; d) At least 12 credits must be for courses numbered 300 or higher.

⁷ CHEM 233 and 235, as well as CHEM 205 taken after the 2001/2002 academic year, are not acceptable for the Major in Biochemistry program and no credit will be given for these courses.

⁸ BIOC 303 and BIOL 334/335 are prerequisites to required fourth year courses and must be taken during the third year.

⁹ All students with a Major in Biochemistry are required to register for the laboratory course BIOC 301 in the third year of their program. Students who cannot take BIOC 301 in their third year must switch to another program. They are not eligible to continue with a biochemistry program.

HONOURS (0186): BIOCHEMISTRY (BIOC)

First Year

ENGL 100-level ¹	6
BIOL 112 ²	3
BIOL 121, 140	5
CHEM 121, 123 (111, 113) ³	8
MATH 100 or 102 or 104 (or 120 or 180 or 184) ⁴	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS ⁵	6
Total Credits	34(36)

Second Year

BIOL 200, 201	6
CHEM 203, 204 ⁶	8
CHEM 201 and either 202 or 211	6(7)
MATH 200	3
MICB 202	3

Second Year (Continued)

Electives ⁷	12
Total Credits	38(39)

Third Year

BIOC 303	6
BIOC 301	3
BIOL 334, 335	6
CHEM 313, 333	7
CHEM 304, 305	6
Electives ⁷	6
Total Credits	34

Fourth Year

BIOC 402, 403	6
BIOC 404	3
BIOC 410	3
BIOC 420	3
BIOC 421 and/or 449	3-6-9
Biochemistry and Molecular Biology Electives ⁸	9-6-6
Electives ⁷	6-6-3
Total Credits	33
<i>Minimum Credits for Degree</i>	139

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² If students do not have the prerequisites for BIOL 112, then they must take BIOL 111 in the first year and BIOL 112 in the 1st term of the second year. Students who have credit for Biology 12 may defer BIOL 112 to the 1st term of the second year, allowing 3 credits of electives in the first year.

³ If students do not have Chemistry 12, then they must take CHEM 111 and CHEM 113 in place of CHEM 121 and CHEM 123.

⁴ Students must complete one of MATH 100, 102, 104, or 120. Alternatively, those not qualified for these courses due to lack of the calculus prerequisite can complete MATH 180 or 184.

⁵ The requirement of 6 credits of Physics must include PHYS 101 (3) and any other PHYS course that is available for credit in the Faculty of Science. Although students with Physics 12 may defer 3 credits of Physics until second year, students are encouraged to complete this program requirement in their first year. If students do not have Physics 12, then they must take PHYS 100 as part of the required 6 credits of Physics.

⁶ CHEM 233 and 235, as well as CHEM 205 taken after the 2001/2002 academic year, are not acceptable for the Honours in Biochemistry program and no credit will be given for these courses.

⁷ Electives must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of first-year English). Students are encouraged to complete the Arts requirements by the end of the third year. A total of 9 to 12 credits of electives is available in the third and fourth years.

⁸ A total of 6 or 9 credits of Biochemistry and Molecular Biology electives is required in the third and fourth year from the following list: BIOC 435 (3); 3 credits of 300- or 400-level Chemistry courses; 3 credits of Microbiology courses from MICB 302, 306, 405 or 409; PHYL 301(6). Select 9 credits from these courses if only 3 credits were chosen from BIOC 421/449. Select 6 credits if 6 or 9 credits were chosen from the advanced laboratory courses of BIOC 421/449. Note: Only one course may be selected from each of the four groups above to fulfill this program requirement.

COMBINED HONOURS (0565):
BIOCHEMISTRY AND CHEMISTRY (BIOC, CHEM)

First Year	
ENGL 100-level ¹	6
BIOL 111 ²	3-0
BIOL 121,140	5
CHEM 121, 123 (111, 113) ³	8
MATH 100 or 102 or 104 (or 120 or 180 or 184) ⁴	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS ⁵	6
Electives ⁶	0-3
Total Credits	34(36)

Second Year	
BIOL 200, 201	6
CHEM 201, 202	6
CHEM 203, 204 ⁷	8
CHEM 211	4
MATH 200	3
Electives ^{6,8}	11
Total Credits	38

Third Year	
BIOC 303	6
BIOC 301	3
BIOL 334, 335	6
CHEM 304	3
CHEM 305 (307)	3
CHEM 311	4
CHEM 313	4
CHEM 333	3
Electives ^{6,8}	3
Total Credits	35

Fourth Year	
BIOC 402, 403, 404, 410	12
CHEM 309, 310	6
CHEM 312	3
CHEM 449 or BIOC 420, 421, or 449	6
Electives ^{6,8}	6
Total Credits	33

Minimum Credits for Degree 140

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² If students do not have Biology 12, then they must also take BIOL 111, in addition to BIOL 121 and BIOL 140.

³ If students do not have Chemistry 12, then they must take CHEM 111 and CHEM 113 in place of CHEM 121 and CHEM 123.

⁴ Students must complete one of MATH 100, 102, 104, or 120. Alternatively, those not qualified for these courses due to lack of the calculus prerequisite can complete MATH 180 or 184.

⁵ The requirement of 6 credits of Physics must include PHYS 101 (3) and any other PHYS course that is available for credit in the Faculty of Science. Although students with Physics 12 may defer 3 credits of Physics until second year, students are encouraged to complete this program requirement in their first year. If students do not have Physics 12, then they must take PHYS 100 as part of the required 6 credits of Physics.

⁶ Electives must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of first year English).

⁷ CHEM 233 and 235, as well as CHEM 205 taken after the 2001/2002 academic year, are not acceptable for the Combined Honours program and no credit will be given for these courses.

⁸ Students are encouraged to complete the Arts requirement early in their program.

BIOLOGY

The Departments of Botany (www.botany.ubc.ca) and Zoology (www.zoology.ubc.ca) jointly offer one undergraduate degree, that is a degree in Biology. For information on graduate programs in Biology, see *Botany*, p. 236, and *Zoology*, p. 286, in the Graduate Studies section. Students wishing to undertake a graduate program in Biology should contact the life science departments most appropriate to the field of specialization.

There are several undergraduate degree options leading to a Major or Honours in Biology or combined Honours in Biology and Chemistry or Biology and Oceanography. It is also possible to obtain a Minor in Arts or Commerce together with a Major in Biology. Students planning to enter a majors or honours degree option should register in General Biology in their second year in preparation for selecting one of the options in their third year. See the *Biology Program Guide* (www.zoology.ubc.ca/bpg) for details.

Certain courses in marine science are offered by the Western Canadian Universities Marine Biological Society at the Bamfield Marine Station on Vancouver Island. Up to 12 credits may be taken at the Bamfield Marine Station in the spring or summer period preceding registration for the fourth year. For details, please consult the Departments of Botany and Zoology.

Co-operative Education Program

This optional program integrates academic study and supervised work experience. Enrolment is limited. Admissibility to the third-year Biology Bachelor of Science program is prerequisite for admission. Detailed information is available from the Biology Program Office, Room 2521, Biological Sciences Building, or the Co-operative Education Program Office, Room 170, Chemistry/Physics Building, The University of British Columbia, 6221 University Boulevard, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

First-Year Course Options

BIOL 121 is prerequisite to all Biology courses, except BIOL 153, 343, 344, 345, 346, 445, and 446.

BIOL 112, 121, and 140 are prerequisites for admission to Major or Honours options in the Biology program. Students who have completed Biology 12 may enter these courses directly. Students with no high school biology will need to take BIOL 111 prior to registering in these courses. Students who have grade 11 biology may enter BIOL 112 if they have taken Chemistry 12, and they may use BIOL 112 as the only prerequisite to BIOL 121 and BIOL 140.

Students interested in meeting the entrance requirements of the Faculties or Schools of Agricultural Sciences, Dentistry, Forestry, Medicine, Pharmaceutical Sciences, Human Kinetics, and Rehabilitation Sciences should consult the appropriate office to determine the first-year biology requirement.

Second-Year Standing in Biology

Enrolment in the Biology Program is limited. Preferred access to the required biology and chemistry courses will be given to students accepted to the second year General Biology Program. You can apply on-line (www.zoology.ubc.ca/bpg) for entry into General Biology year 2. Admission is based on academic performance and completion of first year program requirements. Applications will be accepted in January and April. Students transferring from other institutions into the Biology Program second-year and who have completed the prerequisite courses may submit late applications as needed. For further information see the Biology Program website above.

Third-Year Standing in Biology

Enrolment in Biology Programs is limited. All students must apply on-line (www.zoology.ubc.ca/bpg) for entry to majors or honours programs at the third-year level. Admission and continuation to the third-year programs is based on academic performance and completion of second-year program requirements. Applications for entry into the Biology Program will be accepted during the months of January and April. For further information on our programs and admission process, please see the Biology Program website above. Students transferring from other institutions into the third-year Biology Program and who have completed the prerequisite courses may submit late applications as needed.

Biology Honours Programs

Students wishing to enter a Biology Honours program must have a 75% average in courses taken during the previous Winter Session.

First-Year Requirements

The following first-year requirements apply to all Biology Majors and Honours options.

MAJOR AND HONOURS: BIOLOGY (BIOL)

First Year	
ENGL 100-level ¹	6
BIOL 111 ²	3-0
BIOL 112	3
BIOL 121 ²	3
BIOL 140	2
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 ³ (121)	6-3
Elective ^{2,3}	3-0
Total Credits	34

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students with Biology 12 are not required to take BIOL 111 and instead are encouraged to take 3 credits of 100-level Arts or Science elective courses or 200-level BIOL courses. BIOL 112, 121, and 140 are required of all students.

³ Students without credit for Physics 12 will be required to replace 3 credits of elective with PHYS 100 prior to PHYS 101.

Programs

MAJOR (0149): ANIMAL BIOLOGY (ANIM)

Second Year

BIOL 200, 201	6
BIOL 204, 205	6
BIOL 240 ¹	1
CHEM 233, 235, 205	7
Electives ²	12
Total Credits	32

Third and Fourth Years

BIOL 300	3
BIOL 302, 303	6
BIOL 334	3
BIOL 335 or 336	3
BIOL 361, BIOL 363, BIOL 364	7
Animal Biology Electives	18
Electives ²	21
Total Credits	61

Minimum Credits for Degree 127

¹ BIOL 240 is optional in 2005/06.

² Electives must be taken to ensure that all Faculty of Science requirements are met: a) At least 12 credits in addition to the English requirement must be from Arts to satisfy the Arts requirement of 18 credits; b) An additional 9 credits must be from Arts or Science outside of the field of the Major to satisfy the breadth requirement. The field of the Major for all Biology Major programs is Life Sciences which includes all courses in Biochemistry, Biology, Microbiology, and Marine Sciences. Also included are EOSC 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306 and courses numbered 60 or higher in the last two digits; and courses in the Faculties of Medicine and Agricultural Sciences that have Science credit. c) 18 credits may be from any Faculty but students must ensure that they have at least 48 upper-level credits including at least 30 credits from the Faculty of Science.

³ Must be taken in third year. Students are not permitted to take more than one of BIOL 351, BIOL 360, or BIOL 363.

HONOURS (0054): ANIMAL BIOLOGY (ANIM)

Second Year

BIOL 200, 201	6
BIOL 204, 205	6
BIOL 240 ¹	1
CHEM 233, 235, 205	7
Science Electives	6
Arts Electives	6
Total Credits	32

Third and Fourth Years

BIOL 300	3
BIOL 302, 303	6
BIOL 334	3
BIOL 335 or 336	3
All of BIOL 361, 363, 364 ²	7
BIOL 331	3
BIOL 447	3

Third and Fourth Years (Continued)

BIOL 449	6
Arts Elective	6
Animal Biology Electives	21
Electives ³	12
Total Credits	73
<i>Minimum Credits for Degree</i>	139

¹ BIOL 240 is optional in 2005/06.

² Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

³ BIOL 347 is recommended. Consult a Biology adviser before choosing electives.

ANIMAL BIOLOGY ELECTIVES

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

MAJOR (0572): BIOLOGY (GENB)

Second Year

BIOL 200, 201	6
BIOL 240 ¹	1
Two of BIOL 204, 205, 209, 210, and MICB 202	6(7)
CHEM 233, 235, 205	7
Electives ²	12
Total Credits	32(33)

Third and Fourth Years

BIOL 300	3
6 credits from BIOL 302, 303 and BIOC 302	6
BIOL 334	3
BIOL 335 or 336	3
All of BIOL 360, 361, 362; or all of BIOL 361, 363, 364; or all of BIOL 351, 352 ³	7
BIOL courses numbered 300 or above	12
Electives ²	27
Total Credits	61

Minimum Credits for Degree 127

¹ BIOL 240 is optional in 2005/06.

² Electives must be taken to ensure that all Faculty of Science requirements are met: a) At least 12 credits in addition to the English requirement must be from Arts to satisfy the Arts requirement of 18 credits; b) An additional 9 credits must be from Arts or Science outside of the field of the Major to satisfy the breadth requirement. The field of the Major for all Biology Major programs is Life Sciences which includes all courses in Biochemistry, Biology, Microbiology, and Marine Science. Also included are EOSC 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306, and courses numbered 60 or higher in the last two digits; and courses in the Faculties of Medicine and Agricultural Sciences that have Science credit; c) 18 credits may be from any Faculty but students must ensure that they have at least 48 upper-level credits including at least 30 credits from the Faculty of Science; d) Of the 33 credits defined so far, at least 15 must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits; e) 12 credits may be in any faculty.

³ Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

MAJOR (0633): CELL BIOLOGY AND GENETICS (CGBI)

Second Year

BIOL 200, 201	6
BIOL 240 ¹	1
Two of BIOL 204, 205, 209, 210 or MICB 202	6(7)

Second Year (Continued)

CHEM 233, 235, 205 ²	7
Electives ²	12
Total Credits	33

Third and Fourth Years

BIOL 300	3
BIOL 302 or 303	3
BIOL 334, 335	6
All of BIOL 360, 361, 362; or all of BIOL 361, 363 and 364; or all of BIOL 351, 352 ³	7
BIOC 302 or 303 ⁴	3(6)
Cell Biology and Genetics Electives ^{4,5}	18(15)
Electives ²	21
Total Credits	61
<i>Minimum Credits for Degree</i>	128

¹ BIOL 240 is optional in 2005/06.

² Electives must be taken to ensure that all Faculty of Science requirements are met: a) At least 12 credits in addition to the English requirement must be from Arts to satisfy Arts requirement of 18 credits; b) An additional 9 credits must be from Arts or Science outside the field of the major to satisfy the breadth requirement. The field of the major for all Biology students is Life Sciences, which includes all courses in Biochemistry, Biology, Microbiology, and Marine Sciences. Also included are EOSC 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306, and courses numbered 30 or higher in the last two digits; and courses in the Faculties of Medicine and Agricultural Sciences that have Science credit; c) 18 credits may be from any Faculty but students must ensure that they have at least 48 upper-level credits including at least 30 credits from the Faculty of Science.

³ Must be taken in third year. BIOL 360 plus BIOL 361 and BIOL 362 is recommended. Students are not permitted to take more than one of BIOL 351, BIOL 360, or BIOL 363.

⁴ The required CGBI elective credit is only 15 credits if BIOC 303 (6) is taken instead of BIOC 302 (3).

⁵ Cell Biology and Genetics Electives. See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

CELL BIOLOGY AND GENETICS

ELECTIVES

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

HONOURS (0405): CELL AND DEVELOPMENTAL BIOLOGY (CELL)

Second Year

BIOL 200, 201	6
Two of BIOL 204, 205, 209, 210 or MICB 202	6(7)
BIOL 240 ¹	1
CHEM 233, 235, 205	7
Arts Elective	6
Elective	6
Total Credits	32(33)

¹ BIOL 240 is optional in 2005/06.

Third and Fourth Years

BIOL 300	3
BIOL 302 or 303	3
BIOL 331 or 352	3
BIOL 334, 335	6
All of BIOL 360, 361, 362 ²	7
BIOC 303	6
BIOL 431	3

Third and Fourth Years (Continued)

BIOL 447	3
BIOL 449	6
Cell and Development Electives	15
Arts Electives	6
Electives ³	12
Total Credits	73
<i>Minimum Credits for Degree</i>	139

² Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360 and 363.

³ BIOL 347 is recommended. Consult a Biology advisor before choosing electives.

CELL AND DEVELOPMENT ELECTIVES
See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

COMBINED MAJOR (1370):
COMPUTER SCIENCE AND BIOLOGY

First Year	
ENGL 100-level ¹	6
CPSC 111, 121 ²	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
BIOL 112, 121, 140 ³	7
CHEM 121, 123	8
Total Credits	35(37)

Second Year	
CPSC 211, 213, 221	12
BIOL 200, 201, 240	7
Elective ⁴	3
CHEM 233, 235 ⁴	4
MATH 200 or 221	3
Arts elective	3
Total Credits	32

Third Year	
One of BIOL 204, 205, 209, 210	4
BIOL 300	3
All of BIOL 360, 361, 362; or all of BIOL 361, 363, 364; or all of BIOL 351 and 352 ⁵	7
CPSC 310 and 320	7
BIOL 301	3
BIOL 334	3
One of BIOL 302, 303, 335, 336, or BIOC 302	3
Total Credits	30

Fourth Year	
CPSC 313	3
Other CPSC courses numbered 300 or above ⁶	6
Arts electives	9
Electives ^{7,8}	3
CPSC courses numbered 400 or above ⁶	6
BIOL 400 level	3
Total Credits	30

Minimum Credits for Degree 127

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students pursuing a Co-op program in Computer Science are advised to also take CPSC 211 in their

first year or in the summer following their first year. Co-op students will then be in a position to take one or both of CPSC 211 and CPSC 213 in term one of second year before going out on a Co-op work term.

³ Students lacking high school Biology or Chemistry 12 must take BIOL 111 before taking BIOL 112 or 121. Students with Chemistry 12 and either Biology 11 or Biology 12 may take BIOL 112.

⁴ CHEM 205 is a prerequisite for all Biochemistry courses. Students lacking Physics 12 must take PHYS 100 to meet the lower-level course requirements for a B.Sc.

⁵ Must be taken in third year.

⁶ Suggested courses for those interested in Bioinformatics are CPSC 304, 404, and 445.

⁷ It is strongly recommended that students take at least 2 of BIOL 204, 205, 209, 210. Students interested in phylogenetics should also take upper-level organismal courses. MATH/STATS 302 and BIOC 402 or 404 and MICRO 405 are recommended for those interested in bioinformatics. MATH 361 and 462 are recommended for those interested in modeling biological processes.

⁸ At least 48 credits in total must be upper level (300+).

Students must contact a Computer Science Advisor for entry into this program. *Combined Honours: Computer Science and Biology*, p. 403, is also offered.

MAJOR (0582): CONSERVATION BIOLOGY (CONS)

Second Year	
BIOL 200, 201	6
BIOL 240 ¹	1
One of BIOL 204, 205	4
One of BIOL 209, 210, 320, 321, 322, 323, 324	3-4
CHEM 233, 235, 205	7
Electives ²	12
Total Credits	34

Third and Fourth Years	
BIOL 300, 301	6
BIOL 302, 303	6
BIOL 334, 336	6
All of BIOL 361, 363 and 364; or all of BIOL 351 ³	7/3
BIOL 416	3
Conservation Electives	6/9
Systematics/Evolution Electives	6
Electives ²	21
Total Credits	60/61

Minimum Credits for Degree 127

¹ BIOL 240 is optional in 2005/06.

² Electives must be taken to ensure that all Faculty of Science requirements are met: a) At least 12 credits in addition to the English requirement must be from Arts to satisfy the Arts requirement of 18 credits; b) An additional 9 credits must be from Arts or Science outside of the field of the Major to satisfy the breadth requirement. The field of the Major for all Biology Major programs is Life Sciences which includes all courses in Biochemistry, Biology, Microbiology, and Marine Sciences. Also included are EOSC 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306 and courses numbered 60 or higher in the last two digits; and courses in the Faculties of Medicine and Agricultural Sciences that have Science credit; c) 18 credits may be from any Faculty but students must ensure that they have at least 48 upper-level credits including at least 30 credits from the Faculty of Science.

³ Must be taken in third year. Students are not per-

mitted to take more than one of BIOL 351, 360, and 363.

HONOURS (0583): CONSERVATION BIOLOGY (CONS)

Second Year	
BIOL 200, 201	6
One of BIOL 204, 205	3
BIOL 240 ¹	1
One of BIOL 209, 210, 320, 321, 322, 323, 324	3(4)
CHEM 233, 235, 205	7
Science Electives ²	6
Arts Electives	6
Total Credits	32(33)

Third and Fourth Years	
BIOL 300, 301	6
BIOL 302, 303	6
BIOL 334, 336	6
All of BIOL 361, 363 and 364; or all of BIOL 351 ³	7(3)
BIOL 415	3
BIOL 416	3
BIOL 447	3
BIOL 449	6
Conservation Electives	12
Systematics/Evolution Electives	12
Arts Electives	6
Electives ⁴	3-6
Total Credits	73

Minimum Credits for Degree 139

¹ BIOL 240 is optional in 2005/06.

² Choose second year courses that are prerequisites for desired upper-level electives.

³ Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360 and 363.

⁴ BIOL 347 is recommended. Consult a Biology advisor before choosing electives.

CONSERVATION ELECTIVES
See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

EVOLUTION AND SYSTEMATICS ELECTIVES
See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

MAJOR (0289): ECOLOGY AND ENVIRONMENTAL BIOLOGY (ECOL)

Second Year	
BIOL 200, 201	6
BIOL 240 ¹	1
One of BIOL 204, 205	4
One of BIOL 209, 210	4
CHEM 233, 235, 205	7
Electives ²	12
Total Credits	34

Third and Fourth Years	
BIOL 300	3
BIOL 302, 303	6
BIOL 334	3
All of BIOL 351 and 352; or all of 361, 364, and one of BIOL 363, 404 or 409	7

Third and Fourth Years (Continued)

BIOL 336 or 335	3
Ecology Electives	18
Electives ²	21
Total Credits	61
<i>Minimum Credits for Degree</i>	128

¹ BIOL 240 is optional in 2005/06.

² Electives must be taken to ensure that all Faculty of Science requirements are met: a) At least 12 credits in addition to the English requirement must be from Arts to satisfy the Arts requirement of 18 credits; b) An additional 9 credits must be from Arts or Science outside of the field of the Major to satisfy the breadth requirement. The field of the Major for all Biology Major programs is Life Sciences which includes all courses in Biochemistry, Biology, Microbiology, and Marine Sciences. Also included are EOSC 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306, and courses numbered 60 or higher in the last two digits, and courses in the Faculties of Medicine and Agricultural Sciences that have Science credit; c) 18 credits may be from any Faculty but students must ensure that they have at least 48 upper-level credits including at least 30 credits from the Faculty of Science.

³ Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

HONOURS (0045): ECOLOGY AND ENVIRONMENTAL BIOLOGY (ECOL)

Second Year

BIOL 200, 201	6
One of BIOL 204, 205	3
One of BIOL 209, 210	3(4)
BIOL 240 ¹	1
CHEM 233, 235, 205	7
Science Electives	6
Arts Electives	6
Total Credits	32(33)

Third and Fourth Years

BIOL 300	3
BIOL 302, 303	6
BIOL 334	3
BIOL 336 or 335	3
BIOL 351 and 352, or 353 ²	7
BIOL 415	3
BIOL 447	3
BIOL 449	6
Ecology Electives	21
Arts Elective	6
Electives ²	12
Total Credits	73

Minimum Credits for Degree 139(140)

¹ BIOL 240 is optional in 2005/06.

² Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351, and 353.

ECOLOGY ELECTIVES

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

HONOURS (0983): EVOLUTIONARY BIOLOGY (EVOL)

Second Year

BIOL 200, 201	6
BIOL 240 ¹	1

Second Year (Continued)

6 (7) credits from BIOL 204, 205, 209, 210, or BIOL 320–324	6(7)
CHEM 233, 235, 205	7
Science Electives ²	6
Arts Electives	6
Total Credits	32(33)

Third and Fourth Years

BIOL 300, 301	6
BIOL 302, 303	6
All of BIOL 351, 352; or all of BIOL 361, 363, 364 ³	6
All of BIOL 351 and 352; or all of BIOL 361, 364, and one of BIOL 363, 404, 409. ³	7
BIOL 415	3
BIOL 447	3
BIOL 449	6
EOSC 326	3
Evolution and Systematics Electives	21
Arts Elective	6
Electives ⁴	6
Total Credits	73

Minimum Credits for Degree 139

¹ BIOL 240 is optional in 2005/06.

² Electives from Mathematics and Geology recommended.

³ Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

⁴ BIOL 347 recommended.

EVOLUTION AND SYSTEMATICS**ELECTIVES**

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

MAJOR IN CELL BIOLOGY AND GENETICS
See *Major (0633): Cell Biology and Genetics (CGBI)* for a Majors program.

HONOURS (0415): GENETICS (GENE)

Second Year

BIOL 200, 201	6
BIOL 240 ¹	1
Two of BIOL 204, 205, 209, 210 or MICB 202	7(8)
CHEM 233, 235, 205	7
Elective	6
Arts Electives	6
Total Credits	34

Third and Fourth Years

BIOL 300	3
BIOL 302 or 303	3
BIOL 334, 335	6
BIOL 337 or 433	3
BIOL 303	6
BIOL 360, 361, 362 ²	7
BIOL 447	3
BIOL 449	6
Genetics Electives	15
Arts Electives	6
Electives ³	15

Third and Fourth Years (Continued)

Total Credits	73
<i>Minimum Credits for Degree</i>	140

¹ BIOL 240 is optional in 2005/06.

² Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

³ BIOL 347 is recommended. Consult a Biology advisor before choosing electives.

GENETICS ELECTIVES

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

MAJOR (0248): MARINE BIOLOGY (MRNB)

Second Year

BIOL 200, 201	6
BIOL 240 ¹	1
BIOL 205, 209	6
CHEM 233, 235, 205	7
Electives ²	12
Total Credits	33

Third and Fourth Years

BIOL 300	3
BIOL 302, 303	6
BIOL 320	3
BIOL 334	3
BIOL 335 or 336	3
All of BIOL 351, 352; or all of BIOL 361, 363, 364 ³	7
Marine Biology Electives	12
Electives ²	21
Total Credits	58

Minimum Credits for Degree 125

¹ BIOL 240 is optional in 2005/06.

² Electives must be taken to ensure that all Faculty of Science requirements are met: a) At least 12 credits in addition to the English requirement must be from Arts to satisfy the Arts requirement of 18 credits; b) An additional 9 credits must be from Arts or Science outside of the field of the Major to satisfy the breadth requirement. The field of the Major for all Biology Major programs is Life Sciences which includes all courses in Biochemistry, Biology, Microbiology, and Marine Sciences. Also included are EOSC 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306 and courses numbered 60 or higher in the last two digits, and courses in the Faculties of Medicine and Agricultural Sciences that have Science credit. c) 18 credits may be from any Faculty but students must ensure that they have at least 48 upper-level credits including at least 30 credits from the Faculty of Science; d) Of the 27 credits defined so far, at least 9 must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits; e) 12 credits may be in any faculty.

³ Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

HONOURS (0518): MARINE BIOLOGY (MRNB)

Second Year

BIOL 200, 201	6
BIOL 205, 209	6
BIOL 240 ¹	1
CHEM 233, 235, 205	7
Science Electives	6
Arts Electives	6
Total Credits	32

Third and Fourth Years

BIOL 300	3
BIOL 302, 303	6
BIOL 320	3
BIOL 334	3
BIOL 335 or 336	3
All of BIOL 351, 352; or all of BIOL 361, 363, 364 ²	7
BIOL 447	3
BIOL 449	6
Marine Biology Electives ³	21
Arts Electives	6
Electives ⁴	9
Total Credits	70

Minimum Credits for Degree 136

¹ BIOL 240 is optional in 2005/06.

² Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

³ At least 3 credits must be taken at a marine station such as the Bamfield Marine Sciences Centre. This requirement usually will be fulfilled in the summer prior to fourth year.

⁴ BIOL 347 is recommended. Consult a Biology adviser before selecting electives.

MARINE BIOLOGY ELECTIVES

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

MAJOR (0305): PLANT BIOLOGY (PLTB)

Second Year

BIOL 200, 201	6
BIOL 240 ¹	1
BIOL 209, 210	7
CHEM 233, 235, 205	7
Electives ²	12
Total Credits	33

Third and Fourth Years

BIOL 300 ³	3
BIOL 324	3
BIOL 302, 303	6
BIOL 334	3
BIOL 335 or 336	3
BIOL 351, 352 ⁴	7
BIOL 415	3
Plant Biology Electives	12
Electives ²	21
Total Credits	61

Minimum Credits for Degree 128

¹ BIOL 240 is optional in 2005/06.

² The 36 credits of electives have the following requirements: At least 12 credits of Arts; A further 9 credits in Arts or in Science outside of the field of the Major. The field of all Biology Major programs is Life Sciences and includes all courses in Biochemistry, Biology, Microbiology, and Marine Sciences. Also included are EOSC 170, 371, 470, 471, 474, 475, 476, 478; PSYC 304, 306, and courses numbered 60 or higher in the last two digits; and courses in the Faculties of Medicine and Land and Food Systems that have Science credit. A further 6 credits of Arts or Science courses (may include courses listed under *Plant Biology Electives*, p. 402); Of the 27 credits defined so far, 9 must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits; 12 credits may be in any faculty. Courses in Plant Science, Forestry, and Soil Science may be useful;

Consult an advisor.

³ An equivalent statistics course may be taken with permission of the head of Botany.

⁴ Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351, and 353.

HONOURS (0372): PLANT BIOLOGY (PTLB)

Second Year

BIOL 200, 201	6
BIOL 209, 210	7
BIOL 240 ¹	1
CHEM 233, 235, 205	7
Science Electives ²	6
Arts Electives	6
Total Credits	33

Third and Fourth Years

BIOL 300 ³	3
BIOL 324	3
BIOL 302, 303	6
BIOL 334	3
BIOL 335 or 336	3
BIOL 351, 352 ⁴	7
BIOL 415	3
Two of BIOL 320, 321, 322, 323	6
Two of BIOL 433, 443, 462	6
BIOL 447	3
BIOL 449	6
Plant Biology Electives	12
Electives ⁵	6
Arts Elective	6
Total Credits	73

Minimum Credits for Degree 140

¹ BIOL 240 is optional in 2005/06.

² BIOL 204 or 205 is recommended.

³ An equivalent statistics course may be taken with permission of the head of Botany.

⁴ Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.

⁵ BIOL 347 is recommended. Consult a Biology adviser before selecting electives.

PLANT BIOLOGY ELECTIVES

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

SCIENCE, LAND AND FOOD SYSTEMS, AND FORESTRY ELECTIVES

See the *Biology Program Guide* (www.zoology.ubc.ca/bpg/) for the list of program electives.

Combined Honours

COMBINED HONOURS (0057): BIOLOGY AND CHEMISTRY (BIOL, CHEM)

First Year

ENGL 100-level ¹	6
BIOL 111 ²	0-3
BIOL 112	3
BIOL 121	3
BIOL 140	2
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)

First Year (Continued)

MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 100- or 200-level	3
Elective ^{2,3}	3-0
Total Credits	34(36)

Second Year

BIOL 200, 201	6
BIOL 240 ⁴	1
CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	3
MATH 200	3
PHYS 100- or 200-level	3
Arts Elective	6
Total Credits	36

Third Year

BIOL 334, 335	6
All of BIOL 360, 361, 362 ⁵	7
CHEM 304, 305 (307)	6
CHEM 312	3
CHEM 313	4
CHEM 333	3
BIOL Electives ⁶	3(4)
Arts Elective	6
Total Credits	38(39)

Fourth Year

BIOL 303	6
BIOL Electives ⁷	6
BIOL or CHEM 449	6
CHEM 309, 310	6
CHEM 311	4
CHEM Elective ⁸	3
Total Credits	31

Minimum Credit for Degree 139

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of English may be deferred until second year.

² Students must take BIOL 111 as an elective if they lack the prerequisites for either BIOL 112 or 121. BIOL 112 can be used as a prerequisite to BIOL 121 if students have Chemistry 12 and Biology 11 or 12. Students who do not need BIOL 111 are encouraged to take 3 credits of 100-level Arts or Science courses or 200-level BIOL courses. BIOL 112, 121, and 140 are required of all students.

³ Chosen from 100-level Arts or Science courses or 200-level BIOL courses.

⁴ BIOL 240 is optional in 2005/06.

⁵ Must be taken in third year. Students are not permitted to take more than one of BIOL 351, 360, and 363.

⁶ Organismal: 3 or 4 credits from: BIOL 204, 205, 209, 210, MICB 202, BIOL 317-324, and 332.

⁷ Biology courses pertaining to organisms suggested.

⁸ To be chosen from 400-level CHEM lecture courses.

COMBINED HONOURS: BIOLOGY AND OCEANOGRAPHY
See *Oceanography*, p. 413.

COMBINED HONOURS (1460):
COMPUTER SCIENCE AND BIOLOGY

First Year	
BIOL 112, 140	5
CHEM 121, 123	8
CPSC 111, 121	8
ENGL 1**	6
MATH 120 or 100 or 102 or 104 or 180 or 184	3(4)
MATH 121 or 101 or 103 or 105	3(4)
Electives ¹	3
Total Credits	36(38)

Second Year	
BIOL 200, 201, 240	7
CHEM 205, 233, 235 ^{2,3}	7
CPSC 211, 213 ² , 221	12
MATH 200 ²	3
STAT 200 or BIOL 300	3
Arts Electives	3
Total Credits	35

Third Year	
BIOC 302 or BIOL 336	3
BIOL 334, 335	6
CPSC 310, 320	7
STAT 302	3

Third or Fourth Year	
BIOL 449 or CPSC 449 ⁴	6
CPSC 445	3
MICB 405	3
One of CPSC 304, 313, 420, 421 ⁵	3
CPSC 3** or above	6
12 credits ⁶ from BIOC 302, 402, BIOL 301, 331, 336, 337, 347, 350, 431, 433, 434, 435, 447 ⁷	12
Bioinformatics Electives ⁸	6
Arts Electives	9
Total Credits for Third and Fourth Years	67

Minimum Credits for Degree 138

¹ BIOL 121 is required for several upper-level biology electives. Students lacking Physics 12 must take PHYS 100 to meet the lower-level course requirements for a B.Sc.

² One of CHEM 235, CPSC 213, or MATH 200 can be deferred to third year.

³ CHEM 203 and 204 are also acceptable.

⁴ Taken in fourth year; the thesis topic must be related to Bioinformatics. Students intending to take CPSC 449 must take CPSC 349 in their third year.

⁵ We recommend that at least one of the remaining courses should be taken as part of the 6 credits of CPSC courses numbered 300 or above.

⁶ It is possible to replace some of these credits by a Life Science course not on this list, as long as the replacement is approved by a Biology program advisor.

⁷ Required for students intending to take BIOL 449.

⁸ Bioinformatics electives can be upper-level BIOC, BIOL, CPSC, MATH, MICB, or STAT courses.

BIOTECHNOLOGY

The Department of Microbiology and Immunology (www.microbiology.ubc.ca) at the University of British Columbia and the Biotechnology Program at the British Columbia

Institute of Technology (BCIT) offer a five-year joint degree Co-operative Education Program that integrates academic study at both institutions with related and supervised work experience. Enrolment is limited. Entry into the program is at the second-year level and requires completion of the first-year prerequisites listed below with at least the minimum admission average set by the UBC Faculty of Science for transfer into second year. Applicants will also be judged on suitability for cooperative work experience by the UBC and BCIT Co-operative Education coordinators.

A special application is required. Information is available from either the Department of Microbiology and Immunology, The University of British Columbia, 300–6174 University Boulevard, Vancouver, BC, V6T 1Z3; telephone 604-822-3308, or the BCIT Biotechnology Program, 3700 Willingdon Avenue, Burnaby, BC, V5G 3H2; telephone 604-432-8324. The deadline for applications to UBC Enrolment Services is February 28. Late applications and transfers will be considered if space is available. See the application details (www.bcit.ca/study/programs/8950bsc) (mid-April).

The first year of the program is a first-year science program that can be taken at UBC or another institution. The second and third years (taken at the BCIT campus) include two four-month work terms along with academic and technical studies. The fourth and fifth years (taken at the UBC campus) include two four-month work terms and advanced studies. Students must meet the Faculty of Science requirement to continue in this Honours program (see the *Honours program*, p. 389, requirements for the Faculty of Science). Completion of the requirements for the first three years of the program earns a Diploma of Technology in Biotechnology.

Completion of the requirements for the entire five-year program earns an Honours Bachelor of Science in Biotechnology. The credentials are awarded jointly by UBC and BCIT. Students who fail to maintain the Honours program requirements in their fourth or fifth year could ask to have their BCIT courses evaluated on a course-by-course basis for potential UBC credit in the Microbiology and Immunology major.

HONOURS (1136): BIOTECHNOLOGY

First year ¹	
ENGL 100-level ²	6
Two of BIOL 111, 112, 121 ^{1,3}	6
MATH 102 (or 100 or 104 or 120 or 180 or 184) ¹	3(4)
MATH 103 (or 101 or 105 of 121) ¹	3(4)
PHYS 101, 102 or 100, 101 ¹	6
CHEM 121, (or 111) ^{1,4}	4
CHEM 123 (or 113) ^{1,4}	4
Total Credits¹	32(34)

Second Year at BCIT Campus

BIOT 201	0
BIOT 203	2
BIOT 205, 206	6
BIOT 207, 208	5

Second Year at BCIT Campus (Continued)

BIOT 210	3
BIOT 221, 222	6
BIOT 231, 232	5
BIOT 241	0
BIOT 242	3
BIOT 398 ⁵	3
Total Credits⁵	30

Third Year at BCIT Campus

BIOT 306	2
BIOT 307, 308	6
BIOT 309, 310	4
BIOT 311, 312	6
BIOT 313	3
BIOT 323, 324	4
BIOT 331	3
BIOT 351	0
BIOT 352	2
BIOT 361	3
BIOT 399 ⁵	3
Total Credits⁵	33

Fourth and Fifth Years^{5,6}

Select from MICB 306, 324, 402, 403, 410, 418, or BIOC 435	9
MICB 409 or BIOC 410	3
MICB 404 or 406 or 412 or 430	3
MICB 405, 419, 447	9
BIOC 402, 403	6
COMM 457, 465	6
MICB 398, 399, 498, 499 ⁵	6
Arts Elective ⁷	3
Electives	6
Total Credits⁵	45

Minimum Credits for Degree¹ 140

¹ The credits in Science at UBC are weighted differently than credits at some other colleges and universities because labs and extra work are credited separately. Where possible, applicants from colleges or other universities should take the first year equivalents of the listed UBC courses. If the equivalent courses taken elsewhere are listed as three credit courses, the total credits will be 30 credits rather than 33 credits. 3 credits of PHYS may be deferred until year four or five if an elective is substituted in first year.

² ENGL 112 is recommended.

³ Students without Biology 11 or 12 must take BIOL 111. Applicants from other universities and colleges may substitute 6 credits of introductory biology courses for two BIOL 111, 112, 121. Students should be aware that BIOL 140 is a prerequisite for many upper-level BIOL courses at UBC. To maintain flexibility in their ability to study at UBC, students should consider including BIOL 140 in their first year at UBC even though this course is not required in the Biotechnology program.

⁴ Applicants from other universities and colleges may substitute 6 credits of introductory chemistry courses that include labs for the combination of CHEM 111, 113 or 121, 123.

⁵ The credit for the work terms is not included in the academic credits needed for the degree or the totals for the academic year. Students must take at least one work term as either a Fall work term or a Winter work term. The remaining work term may be done as either a Fall, Winter, or Summer work term. The program must end with a final study term.

⁶ Some courses only fit particular timetables. Plan schedules to have a minimum of 15 credits in each academic term of year four and five.

⁷ The program must have a minimum of 12 credits of Arts. The BCIT credits include 9 credits that are considered as Arts. If you have other Arts credits then the corresponding number of Arts electives can be used as free electives to take any course available for credit in Science.

Co-operative Education Program: Biotechnology in Microbiology and Immunology

See the *Microbiology and Immunology*, p. 421.

BOTANY

The Department of Botany (www.botany.ubc.ca) offers programs of study jointly with the Department of Zoology leading to the Bachelor of Science in Biology.

The Department of Botany offers programs leading to the master's and doctoral degrees in a wide range of contemporary plant studies, including phytogeography, ecology (including ecophysiology), ethnobotany, systematics (including chemotaxonomy), morphology and plant development, cytology, membrane biochemistry and physiology, chemical ecology, and molecular genetics. For information on graduate degrees, see *Botany*, p. 236, in the Graduate Studies section and the Department of Botany's Graduate Brochure, available in the Botany Office.

CHEMISTRY

The Department of Chemistry (www.chem.ubc.ca) offers opportunities for study leading to bachelor's, master's and doctoral degrees. For information regarding facilities for graduate study and graduate degrees, see *Chemistry*, p. 238, in the Graduate Studies section. It is assumed that all students entering courses of the Department have passed Chemistry 11 or the equivalent; those who have not must consult the Department before registering.

Students entering second-year Chemistry programs who meet program requirements (see *Honours and Combined Honours Program*, p. 389, under Bachelor of Science, Degree Requirements) may simply register in either Major, Honours, or Combined Honours using the appropriate program descriptions. The progress of continuing Chemistry students will be reviewed at the end of each academic year. Students making satisfactory progress do not require annual program approval. Students with unsatisfactory standing in Honours or Combined Honours will be contacted by the Department. Students in the General Science program are invited to consult a departmental advisor concerning appropriate courses.

Co-operative Education Program

Co-operative Education is a process of education which integrates academic study with related and supervised work experience in co-operating employer organizations.

A Co-operative Education program is available for students in Chemistry. The program is intended to help prepare interested and quali-

fied students for research careers in industry with sixteen months of work placement supervised by practising professionals. Faculty advisors also visit students at their place of work and provide advice on technical reports required of all students in the Program.

To be eligible, students must be admissible into the third-year Chemistry B.Sc. program with second-class standing. Admission is by application to the Co-op Office in February prior to third year (transfer students may be considered later). Selection of students will be based on academic performance and general suitability to the work environment as determined by resumé and interview. The total enrolment will be subject to the availability of appropriate work placements and faculty advisors. The work placements are arranged by mutual agreement between students and employing organizations. Participating students register for CHEM 398, 399, 498, or 499 as appropriate, and pay the Co-operative Education Program Fee per course (see *Program and Course Fees*, p. 28, in this Calendar).

Graduation in the Co-operative Education program requires a student to complete each of CHEM 398, 399, 498, 499, in addition to the normal academic requirements. Students will have each satisfactorily completed course noted on their academic record. Detailed information on the program may be obtained from the Department of Chemistry or from Science Co-op Programs, Room A170, Chemistry/Physics Building, The University of British Columbia, 6221 University Boulevard, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

Courses

PRIMARILY FOR FIRST-YEAR STUDENTS
CHEM 111, 113 or CHEM 121, 123 is the normal prerequisite for admission to chemistry programs. The difference between the two lies in the background of the student: those students with credit for Chemistry 11 only take CHEM 111, 113, whereas those with credit for Chemistry 12 take CHEM 121, 123.

PRIMARILY FOR SECOND-YEAR STUDENTS

Students who have not taken a first-year Chemistry course at the University of British Columbia are assumed to have read *General Chemistry*, Petrucci, Harwood, Herring, 8th Ed., Prentice-Hall, 2002.

PRIMARILY FOR THIRD-YEAR STUDENTS
It is recommended that students taking BIOL 201 (or BIOC 300) should have completed a university-level biology course with cell biology content (e.g. BIOL 111, BIOL 112).

Honours and Major students are required to take CHEM 304, 309, 310, 311, and 312 prior to CHEM 425. This should be done in third year.

PRIMARILY FOR FOURTH-YEAR STUDENTS

It is recommended that students taking BIOL 201 (or BIOC 300) should have completed a university-level biology course with cell biology content (e.g. BIOL 111, BIOL 112).

Major students are required to take the integrated laboratory course CHEM 425, or, with permission, CHEM 449. Honours students are required to take CHEM 449.

Co-op Major students take CHEM 415 plus an additional 3xx/4xx CHEM elective or, with permission, CHEM 449 instead of CHEM 425.

LABORATORY AND TUTORIAL COURSES
Students taking any course which has an associated laboratory and/or tutorial must register in these secondary activities in addition to the lecture portion of the course. No exception will be made. Students who believe they may qualify for an exemption from a laboratory (e.g., if repeating the course, or have transfer credit from another institution) are advised to contact the appropriate laboratory instructor directly. Students who miss the first laboratory meeting of a course without having made prior arrangements with the instructor concerned risk having their registration in the course cancelled and their space reallocated to another student.

Programs

MAJOR (0409): CHEMISTRY (CHEM)

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 100- or 200-level	6
BIOL ²	3
Electives ³	3
Total Credits	32(34)
Second Year	
CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 200	3
MATH 221	3
Electives ^{3,4}	9
Total Credits	33
Third and Fourth Years	
BIOL 201 ⁴ (BIOC 300) ⁵	3(6)
CHEM 304 ⁶	3
CHEM 309 ⁶ , 310 ⁶	6
CHEM 311 ⁶	4
CHEM 312 ⁶	3
CHEM 330 (313)	4
CHEM 425 ^{7,8}	6
CHEM Electives ^{7,8,9}	6
Electives ^{3,5}	27(24)
Total Credits	62
<i>Minimum Credits for Degree</i>	<i>127</i>

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- ² Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC, or Science credits GEOG or PSYC.
- ³ At least 12 additional credits must be in the Faculty of Arts. A further 9 elective credits must be in Arts or in Science electives outside the field of the Major (which is defined as all Chemistry, Physics, and Biochemistry courses). A further 18 elective credits may be taken in any faculty. Possible electives might include Computer Science courses and/or another Science and/or ENGL 301. Enough elective credits must be numbered 300 or higher so that the total of 300 or higher level courses in the program, including specified courses, are at least 48 credits; at least 36 of these 48 credits must be in the Faculty of Arts or Science.
- ⁴ The preferred prerequisite for this course is BIOL 200, but Chemistry majors students with third or fourth year standing are allowed to register without it.
- ⁵ Students who take BIOC 300 reduce the electives required in third/fourth year to 24 credits.
- ⁶ Must be taken in third year.
- ⁷ With permission, CHEM 449 may be substituted for CHEM 425.
- ⁸ Students registered in the Co-op program must substitute CHEM 415 (to be taken entirely in one term) for CHEM 425. In this case, 9 credits of Chemistry electives are required. With permission, Co-op students may substitute CHEM 449 for CHEM 415 and 3 credits of Chemistry electives.
- ⁹ Chosen from 300- and 400- level CHEM courses.

MAJOR (2995): ENVIRONMENTAL OPTION

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 100- or 200-level	6
Earth Science courses ²	6
Total Credits	32(34)
Second Year	
BIOL ³	3
CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 200	3
Electives ^{4,5,6}	9
Total Credits	33
Third and Fourth Years	
CHEM 301, 302	6
CHEM 304 ⁷	3
CHEM 309, 310 ⁷	6
CHEM 311 ⁷	4
CHEM 312 ⁷	3
CHEM 330 (313)	4
CHEM 425 ^{8,9}	6
STAT 200 or 241	3
Electives ^{4,5,6}	27
Total Credits	62

Minimum Credits for Degree 127

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

- ² Selected from EOSC 110; GEOG 102, 103, 200, 205, 207. Students are discouraged from taking both GEOG 102 and 200. The most suitable GEOG courses for first-year students are 102, 103.
- ³ Chosen from BIOL 111, 112, 121, 140, in keeping with prescribed prerequisites.
- ⁴ At least 12 further credits must be in the Faculty of Arts. A further 9 credits must be either Science electives outside the field of the Major or in Arts. The field of the Major in Chemistry (Environmental Option) is defined as all Chemistry, Biochemistry, and Physics courses. A further 18 elective credits may be taken in any faculty.
- ⁵ 3 elective credits must be from BIOL 112, 302, 303; GEOG 200, 205, 207 (if not already taken as part of the Earth Science requirement); ECON 101/102 or 310/311; EOSC 329, 370, 371, 429, 430, 431, 475; SOIL 200 or other environmentally directed courses from outside Chemistry, approved by a Chemistry Department adviser. Suggested general electives include Computer Science courses, and/or ENGL 301 and/or further courses from the list above.
- ⁶ Enough credits must be numbered 300 or higher so that the total of 300- or higher-level Arts and Science courses, including specified courses, is at least 48 credits; at least 36 of these 48 credits must be in the Faculty of Arts or Science.
- ⁷ Must be taken in third year.
- ⁸ With permission, CHEM 449 may be substituted for CHEM 425.
- ⁹ Students registered in the Co-op program must substitute CHEM 415 (to be taken entirely in one term) for CHEM 425. In this case, 3 credits of Chemistry electives are required. With permission, Co-op students may substitute CHEM 449 for CHEM 415 and 3 credits of Chemistry electives.

MAJOR (1377): MATERIALS CHEMISTRY OPTION

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3 (4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101, 102 (107, 108, 109)	6(7)
BIOL ²	3
Electives ³	3
Total Credits	32(35)
Second Year	
CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 200	3
MATH 221	3
Electives ^{3,4}	9
Total Credits	33
Third and Fourth Years	
CHEM 304 ⁵ , 307 ⁵	6
CHEM 309 ⁵ , 310 ⁵	6
CHEM 311 ⁵	4
CHEM 312 ⁵	3
CHEM 330 (313)	4
CHEM 425 ^{6,7}	6
CHEM 427	3
6 credits from CHEM 402, 406, 410	6
Electives ^{3,4,7}	24
Total Credits	62

Third and Fourth Years

CHEM 304 ⁵ , 307 ⁵	6
CHEM 309 ⁵ , 310 ⁵	6
CHEM 311 ⁵	4
CHEM 312 ⁵	3
CHEM 330 (313)	4
CHEM 425 ^{6,7}	6
CHEM 427	3
6 credits from CHEM 402, 406, 410	6
Electives ^{3,4,7}	24
Total Credits	62

Minimum Credits for Degree 127

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- ² Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC or Science credits GEOG or PSYC.
- ³ At least 12 further credits must be in the Faculty of Arts. A further 9 credits must be in Arts or Science electives outside the field of the Major (which is defined as all Chemistry, Physics, and Biochemistry courses). A further 18 elective credits may be taken in any Faculty. Suggested electives are MATH 215 and PHYS 315, APSC 278, MTRL 365.
- ⁴ Enough credits must be numbered 300 or higher so that the total of 300 – or higher-level courses including specified courses, is at least 48 credits.
- ⁵ Must be taken in third year.
- ⁶ With permission, CHEM 449 may be substituted for CHEM 425.
- ⁷ Students registered in the Co-op Program must substitute CHEM 415 (to be taken entirely in term two) for CHEM 425. In this case 3 credits of Chemistry electives are required. With permission, Co-op students may substitute CHEM 449 for CHEM 415 and 3 credits of Chemistry electives.

HONOURS (0213): CHEMISTRY (CHEM)

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 100- or 200-level	6
BIOL ²	3
Elective ³	3
Total Credits	32(34)
Second Year	
CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 200	3
MATH 221	3
Electives ³	15
Total Credits	39
Third Year	
BIOL 201 ⁴ (BIOC 300) ⁵	3(6)
CHEM 304	3
CHEM 307 (305)	3
CHEM 309, 310	6
CHEM 311	4
CHEM 312, 320	6
CHEM 330 (313)	4
CHEM 333	3
Electives ^{3,5}	9
Total Credits	38
Fourth Year	
CHEM 449	6
CHEM electives ⁶	9
Electives ³	15
Total Credits	30

Minimum Credits for Degree 139

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

- ² Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC, or Science credits GEOG or PSYC.
- ³ At least 12 further credits must be in the Faculty of Arts. Recommended non-CHEM electives include courses in Computer Science, and/or another Science, and/or ENGL 301. Breadth in the choice of electives is encouraged.
- ⁴ The preferred prerequisite for this course is BIOL 200, but Chemistry honours students with third/ fourth year are allowed to register without it.
- ⁵ Students who take BIOC 300 reduce the electives required in third year to 3 credits.
- ⁶ Chosen from 400-level Chemistry courses.

HONOURS (0677): ENVIRONMENTAL OPTION

First Year	
ENGL 100-level ¹	6
BIOL ²	6
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 100- or 200-level	6
Total Credits	32(34)

Second Year

CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 200	3
MATH 221	3
STAT 200	3
Earth Science courses ³	6
Electives ⁴	6
Total Credits	39

Third Year

CHEM 301, 302	6
CHEM 304	3
CHEM 307 (305)	3
CHEM 309, 310	6
CHEM 311	4
CHEM 312, 320	6
CHEM 330 (313)	4
CHEM 333	3
Electives ^{4,5}	3
Total Credits	38

Fourth Year

CHEM 449	6
ECON 310, 311 (101, 102)	6
Electives ^{4,5,6}	18
Total Credits	30

Minimum Credits for Degree 139

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- ² Chosen from BIOL 111, 112, 121, 140, in keeping with prescribed prerequisites.
- ³ Selected from EOSC 110; GEOG 102, 103, 200, 205, 207. Students are discouraged from taking both GEOG 102 and 200. The most suitable GEOG courses for second-year students are 200, 205, 207.
- ⁴ A total of 18 credits of Arts must be taken. These include first year English, ECON 310/311 or 101/ 102, and 6 further credits.

- ⁵ 12 elective credits must be from BIOL 112, 302, 303; GEOG 200, 205, 207 (if not taken as part of the Earth Science requirement); EOSC 329, 370, 371, 429, 430, 431; SOIL 200 or other environmentally directed courses from outside Chemistry, approved by a Chemistry Department adviser. Suggested general electives include courses in Computer Science and/or ENGL 301.

- ⁶ Must include at least one 400-level Chemistry course. CHEM 417 is suggested.

HONOURS (1378): MATERIALS CHEMISTRY OPTION

First Year

ENGL 100 level ¹	6
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101, or 103 or 105 (or 121)	3(4)
PHYS 101, 102 (107, 108, 109)	6(7)
BIOL ²	3
Electives ³	3
Total Credits	32(35)

Second Year

CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 200, 215, 221	9
Electives ³	12
Total Credits	39

Third Year

CHEM 304, 307	6
CHEM 309, 310	6
CHEM 311	4
CHEM 312, 320	6
CHEM 330 (313)	4
CHEM 333	3
PHYS 315	3
Electives ³	6
Total Credits	38

Fourth Year

CHEM 401	3
CHEM 427	3
CHEM 449	6
Six credits from CHEM 402, 406, 410	6
Electives ³	12
Total Credits	30

Minimum Credits for Degree 139

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- ² Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC or Science credits GEOG or PSYC.
- ³ At least 12 further credits must be in the Faculty of Arts. Electives might include APSC 278, MTRL 365.

COMBINED HONOURS (0206): CHEMISTRY AND MATHEMATICS (CHEM, MATH)

First Year

ENGL 100-level ¹	6
CHEM 121, 123 (111, 113)	8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	4(3)

First Year (Continued)

MATH 121 (or 101 or 103 or 105)	4(3)
PHYS 100-level	6
BIOL ²	3
Elective ^{3,4}	3
Total Credits	34(32)

Second Year

CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 223 (221)	3
MATH 226, 227, (200, 317)	6
Electives ^{3,5}	12
Total Credits	39

Third Year

CHEM 304	3
CHEM 309	3
CHEM 307 (305) or 310	3
CHEM 311	4
CHEM 312, 320	6
MATH 320, 321	6
9 credits from MATH 300, 301, 316, 322, 331	9
Elective ^{4,5}	3
Total Credits	37

Fourth Year

CHEM 401	3
CHEM 415	3
CHEM elective	3
12 credits from MATH 318, 400-405, 416-429, 433-440, 449	12
Electives ⁴	9
Total Credits	30
<i>Minimum Credits for Degree</i>	<i>138</i>

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC, or Science credits GEOG or PSYC.

³ CPSC 124/CPSC 126 is recommended.

⁴ Electives must include 12 credits of Arts.

⁵ PHYS 206 is recommended.

Honours: Chemical Engineering – Chemistry Honours

Chemical Engineering-Chemistry Honours is a program jointly administered by the Departments of Chemical and Biological Engineering and Chemistry. Enquiries regarding the program and student advising should be made to the faculty advisors in either department. The completion of the Bachelor of Applied Science in Chemical Engineering-Chemistry Honours will normally take five years of university study. Entry to the program is normally from first year Applied Science. To obtain permission to enter the program students must consult the faculty advisors in the Departments of Chemical and Biological Engineering and Chemistry. For details of the program, see *Chemical Engineering –*

Chemistry Honours, p. 99, under Faculty of Applied Science, Bachelor of Applied Science. To complete the program satisfactorily, students must obtain a minimum overall second-class average in their Chemistry courses numbered 300 and higher.

Other Combined Honours Programs

Combined Honours in Biochemistry and Chemistry, see *Biochemistry*, p. 396.

Combined Honours in Biology and Chemistry, see *Biology*, p. 398.

Combined Honours in Chemistry and Oceanography, see *Oceanography*, p. 413.

Chemical Physics Combined Honours, see *Physics*, p. 423.

COMBINED HONOURS: CHEMISTRY AND ANOTHER SUBJECT

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 100- or 200-level	6
BIOL ²	3
Elective ³	3
Total Credits	32(34)

Second Year	
CHEM 201, 202	6
CHEM 203, 204	8
CHEM 211	4
MATH 200	3
Additional credits in consultation with other department	12
Electives ^{3,4}	6
Total Credits	39

Third Year	
CHEM 304	3
CHEM 309, 310	6
CHEM 312	3
CHEM 307 (305) and 320 ⁴ or CHEM 330 (313) and 333 ⁵	6(7)
Additional credits in other department	12
Credits chosen in consultation with other department	6
Total Credits	36(37)

Fourth Year	
CHEM 311	4
Chemistry electives numbered 300 or above ⁶	6
Additional credits in other department	12
Elective ³	3
CHEM 449 ⁷	6
Total Credits	31

Minimum Credits for Degree 138

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC, or Science credits GEOG or PSYC.

³ Electives must include at least 12 credits in the Faculty of Arts.

⁴ Students intending to take CHEM 320 must take MATH 221 as a prerequisite.

⁵ The choice between 307 (305), 320 and 330 (313), 333 will depend on the other subject.

⁶ Must include at least 3 credits numbered 400 and above.

⁷ This may be substituted by an equivalent thesis course in the other department.

COGNITIVE SYSTEMS

For information on the B.Sc. Major in Cognitive Systems: Cognition and Brain, see the listing under *Psychology*, p. 428.

COGNITIVE SYSTEMS: COMPUTATIONAL INTELLIGENCE AND DESIGN

For information on the B.Sc. in Cognitive Systems: Computational Intelligence and Design, see the listing under *Computer Science*, p. 411.

COMPUTER SCIENCE

The Department of Computer Science (www.cs.ubc.ca) offers opportunities for study leading to bachelor's, master's, and doctoral degrees. For information on the Bachelor of Arts in Computer Science, see the upcoming Computer Science entry in the Arts section. For information on graduate degrees, see *Computer Science*, p. 240, in the Faculty of Graduate Studies section. All students who intend to take Honours in Computer Science must consult the head of the Department.

High school or college transfer students can apply directly to the Computer Science degree program when they apply for admission to UBC by selecting the Bachelor of Science, Computer Science major as their choice of program on the UBC application form. The Department of Computer Science accepts applications year-round from current UBC Science students. For application forms and information regarding admission and continuation requirements, students are advised to review the Department of Computer Science undergraduate website (www.cs.ubc.ca/ugrad).

Admission to a degree program in Computer Science is a prerequisite for receiving a B.Sc. in Computer Science.

Co-operative Education Program

Co-operative Education is a process of education which integrates academic study with related and supervised work experience in co-operating employer organizations.

A year-round Co-operative Education program is available for students in Computer Science. The program is intended to help prepare interested and qualified students for careers in the computing industry with a minimum of 17.5 months of work placement supervised by practicing professionals. Faculty advisors also visit students at their place of work and provide advice on technical reports required of all students in the program.

To be eligible, students must be admitted to the second year of the Bachelor of Science program in Computer Science. Selection of students will be based on academic performance and general suitability to the work environment as determined by resumé and interview. The total enrolment will be subject to the availability of appropriate work placements and faculty advisors. The work placements are arranged by mutual agreement between students and employing organizations. Participating students register for CPSC 298, 299, 398, 399, or 499 as appropriate, and pay the Co-operative Education program fee for each course (see *Program and Course Fees*, p. 28, in this Calendar). Graduation in the program requires a student to complete each of CPSC 298, 299, 398, 399 and 499, in addition to the normal academic requirements. Students who complete less than five courses will have each satisfactorily completed course noted on their academic record.

Detailed information on the program may be obtained from the Department of Computer Science or from the Co-operative Education Program Office, Room 309, Hennings Building, The University of British Columbia, 6224 Agricultural Road, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.science-coop.ubc.ca).

Admission and Continuation Requirements for Honours and Combined Honours

Students who wish to register in an Honours or Combined Honours program in Computer Science, must seek approval from the Department Honours advisor prior to registering for second year.

To be admitted to an Honours or Combined Honours program in Computer Science, students must:

- 1) Complete all courses attempted, including at least 30 credits in the Winter Session of the first year; and
- 2) Obtain a minimum average of 76%. Achievement of this minimum does not guarantee admission.

To be permitted to continue in an Honours or Combined Honours program in Computer Science, students must:

- 1) Complete all courses attempted, including at least 30 credits in the previous Winter Session (or at least 15 credits per academic term, for Co-op students); and
- 2) Obtain an average of 72% or higher.

Electives

The following courses have a great overlap with some of the first or second-year Computer Science courses and cannot be used as electives in any degree or combined degree program in Computer Science:

- CSED 402, 420, 422, 424, 450
- EECE 314
- COMM 337, 432

Programs

MAJOR (0376) AND HONOURS (0154):
COMPUTER SCIENCE (CPSC)

First Year

ENGL 100-level ¹	6
CPSC 111, 121 ²	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 ³ , (or PHYS 107 ⁴)	3(4)
CHEM 121 ⁵ or PHYS 102 (or PHYS 108 ⁴)	3(4)
BIOL ⁶ or ASTR or EOSC or Science credit GEOG or PSYC ⁷	3
Electives	3
Total Credits	32(34)

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students pursuing a Co-op program in Computer Science are advised to also take CPSC 211 in their first year or in the summer following their first year. Co-op students will then be in a position to take one or both of CPSC 221 and CPSC 213 in term 1 of second year before going out on a Co-op work term.

³ Students without credit for Physics 12 must complete PHYS 100 in addition.

⁴ Students who chose to take PHYS 107 and/or PHYS 108 may need to take PHYS 109 or other lab courses to complete the Laboratory Science requirements of the Faculty of Science.

⁵ Students without credit for Chemistry 12 must take CHEM 111 and one of CHEM 113 and PHYS 102. These students may delay 3 credits of CHEM or PHYS until second year. Students without credit for Chemistry 12 must take CHEM 111 and one of CHEM 113 and PHYS 102. These students may delay 3 credits of CHEM or PHYS until second year.

⁶ Students without credit for Biology 11 or 12 must take 3 credits of 100-level BIOL.

⁷ These credits may be deferred until second year.

MAJOR (0376): COMPUTER SCIENCE (CPSC)

Second Year

CPSC 211, 213, 221	12
MATH 200, 221	6
STAT 241 ¹	3
Electives ²	12
Total Credits	33

Third and Fourth Years

CPSC 310, 313, 320	10
Other CPSC courses numbered 300 or above	9
Further CPSC courses numbered 400 or above	9
MATH or STAT courses numbered 300 or above ³	6
Electives ²	27
Total Credits	61

Minimum Credits for Degree

126

¹ May be replaced by STAT 200 provided MATH/STAT 302 is included as one of the required MATH or STAT courses in third and fourth year. This alternative is recommended for students with an interest in further STAT courses.

² Electives (42 credits, including 3 credits in first year) must include the following: a) At least 12 credits must be in the Faculty of Arts (Arts Electives); b) Of the remaining 30 credits of electives (i.e., other than the Arts Electives), at least 9 credits must be in either Science courses outside the

field of the Major or in Arts. The field of the Major in Computer Science is defined as Computer Science, Mathematics and Statistics; c) Of the remaining 21 credits, up to 18 credits may be in any faculty; d) The remaining 3 credits must be from the Faculties of Arts or Science; e) At least 15 of the 42 elective credits must be in courses numbered 300 or higher.

³ Mathematics courses in analysis, applied mathematics, linear algebra, differential equations, and probability and statistics courses are recommended.

HONOURS (0154): COMPUTER SCIENCE (CPSC)

Second Year

CPSC 211, 213, 221	12
MATH 200 or 226	3
MATH 215, 223	6
STAT 200	3
Arts Elective	6
Electives ¹	6
Total Credits	36

Third and Fourth Years

CPSC 310, 313, 320	10
CPSC 302 or 303 ²	3
CPSC 349 ³	0
CPSC 449 ⁴	6
STAT 302	3
MATH or STAT courses numbered 300 or above ⁵	12
Other CPSC courses numbered 300 or above	9
Other CPSC courses numbered 400 or above ⁶	9
Arts Elective	6
Electives ⁵	12
Total Credits	70

Minimum Credits for Degree

138

¹ Courses in logic and foundations of mathematics are recommended.

² It is recommended that the other be taken as one of the 'Other CPSC course numbered 300 or above'.

³ Taken in third year.

⁴ Taken in fourth year.

⁵ Mathematics courses in analysis, applied mathematics, linear algebra, probability, and differential equations and statistics courses are recommended.

⁶ One of CPSC 421 and CPSC 420 is recommended.

COMBINED MAJOR: COMPUTER SCIENCE AND ANOTHER SCIENCE SUBJECT

First Year

ENGL 100-level ¹	6
CPSC 111, 121 ²	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
Other subject area credits or Electives ^{3,4}	12(14)
Total Credits	32(36)

Second Year

CPSC 211, 213, 221	12
At least 6 credits from MATH 200, 221, STAT 200, 241 ⁵	6
Other subject area credits ³	12
Electives ^{3,4,6}	3
Total Credits	33

Third and Fourth Years

CPSC 310, 313, 320	10
Other CPSC courses numbered 300 or above	6
Further CPSC courses numbered 400 or above	6
Courses in other subject area numbered 300 or above ³	21
Electives ⁵	18
Total Credits	61

Minimum Credits for Degree

126

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students pursuing a Co-op program in Computer Science are advised to also take CPSC 211 in their first year or in the summer following their first year. Co-op students will then be in a position to take one or both of CPSC 221 and CPSC 213 in term 1 of second year before going out on a Co-op work term.

³ Courses in these entries are selected with consultation of an advisor of the other subject.

⁴ Students should note that the courses taken in the first and second year must satisfy the B.Sc. requirements listed in the Lower-Level Requirements section of the Faculty of Science degree requirements.

⁵ 3 of these 6 credits may be deferred to third year. In some cases BIOL 300 may substitute for a STAT selection.

⁶ Electives (21 credits or more) must include the following: a) At least 12 credits must be in the Faculty of Arts (Arts Electives); b) If the other subject is Mathematics or Statistics, the remaining 9 elective credits (i.e. other than the Arts electives), must be either in Arts or in Science courses other than Computer Science, Mathematics, and Statistics; c) If the other subject is other than Mathematics and Statistics, the remaining 9 credits may be in any faculty; d) At least 6 or the 21 elective credits must be in courses numbered 300 or higher.

COMBINED MAJOR (1370): COMPUTER SCIENCE AND BIOLOGY
See *Biology*, p. 400.

COMBINED MAJOR (1429): COMPUTER SCIENCE AND MATHEMATICS
See *Mathematics*, p. 420.

COMBINED MAJOR (1371): COMPUTER SCIENCE & MICROBIOLOGY AND IMMUNOLOGY
See *Microbiology and Immunology*, p. 421.

COMBINED MAJOR (1391): COMPUTER SCIENCE AND PHYSICS

First Year

ENGL 100-level ¹	6
CPSC 111, 121 ²	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107, 108, 109 (101, 102) ³	7(6)
BIOL ⁴ or ASTR or EOSC or Science Credit GEOG or PSYC	3
Electives ^{5,6}	3
Total Credits	32(35)

Second Year

CPSC 211, 213, 221	12
MATH 200 ⁷ , 215, 221	9
PHYS 200, 209, 216	9

Second Year (Continued)	
PHYS 258	2
Total Credits	32
Third and Fourth Years	
CPSC 310, 313, 320	10
CPSC 303 (or 302)	3
Other CPSC courses numbered 300 or above ⁸	3
Further CPSC courses numbered 400 or above ⁸	6
MATH 317 ⁷	3
PHYS 301 or 354	3
PHYS 312, 313, 319, 412	12
PHYS 349 or 409 or 420 ⁹	3
Additional PHYS courses numbered 300 or above ⁸	3
Electives ⁵	15
Total Credits	61
Minimum Credits for Degree	125

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students pursuing a Co-op program in Computer Science are advised to also take CPSC 211 in their first year or in the summer following their first year. Co-op students will then be in a position to take one or both CPSC 221 and CPSC 213 in term 1 of second year before going out on a Co-op work term.

³ Students without Physics 12 must normally take PHYS 100 prior to PHYS 101 or 107, such students should seek academic advice before registering. Qualified students are encouraged to take PHYS 107/108/109.

⁴ Students without credit for Biology 11 or 12 must take 3 credits of 100-level BIOL.

⁵ Students without credit for Chemistry 12 must take CHEM 111 as an elective. This CHEM requirement may be delayed until second year.

⁶ Electives (18 credits) must satisfy the following: a) At least 12 credits must be in the Faculty of Arts (Arts Electives); b) The remaining 6 credits may be in any faculty. At least 2 of the 18 elective credits must be in courses numbered 300 or higher.

⁷ Students with sufficiently high grades in first-year MATH may replace MATH 200 and 317 with MATH 217 and 2 credits of electives, in consultation with an advisor.

⁸ Students interested in computer modeling and simulation should take both CPSC 302, 303 and at least one of CPSC 402, 403, PHYS 410.

⁹ Students who have taken CPSC 319 may replace this requirement with any upper-level PHYS course.

COMBINED MAJOR (1375): COMPUTER SCIENCE AND STATISTICS

First Year	
ENGL 100-level ¹	6
CPSC 111, 121 ²	8
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS or CHEM 100-level, beyond PHYS 100 and CHEM 111 ³	6-8
BIOL or ASTR or EOOSC or Science Credit GEOG or PSYC ⁴	3
Electives ⁵	3
Total Credits	32(34)

Second Year	
CPSC 211, 213, 221	12
MATH 200, 221	6
STAT 200, STAT/MATH 302	6
Electives ⁵	6
Total Credits	30

Third and Fourth Years	
CPSC 310, 313, 320	10
CPSC courses numbered 300 or above ⁶	6
CPSC courses numbered 400 or above ⁶	6
MATH 303, 307	6
STAT 305, 306	6
STAT courses numbered 300 or above ⁶	6
STAT courses numbered 400 or above ⁶	6
Electives ⁵	15
Total Credits	61

Minimum Credits for Degree 123

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students pursuing a Co-op program in Computer Science are advised to also take CPSC 211 in their first year or in the summer following their first year. Co-op students will then be in a position to take one or both of CPSC 211 and CPSC 213 in term one of second year before going out on a Co-op work term.

³ Students should note that they need to satisfy the Lab Requirements listed in the Lower-Level Requirements section of the Faculty of Science degree requirements.

⁴ Students without credit for Biology 11 or 12 must take 3 credits of 100-level BIOL. These credits may be deferred until second year.

⁵ Electives (24 credits) must include the following: a) At least 12 credits must be in the Faculty of Arts (Arts Electives); b) At least 9 credits of the remaining 12 credits of electives (i.e., other than the Arts Electives), must be either in Arts or in Science courses other than Computer Science, Mathematics, and Statistics. The remaining 3 credits may be in any faculty; c) At least 3 of the 24 elective credits must be in courses numbered 300 or higher.

⁶ Courses in databases, graphics, visualization and machine learning, data analysis, knowledge discovery, and data modeling are strongly recommended.

Admission to this program must be approved by both Departments. Contact Computer Science for information.

COMBINED HONOURS (1372): ATMOSPHERIC SCIENCE AND COMPUTER SCIENCE
See *Atmospheric Science*, p. 495.

COMBINED HONOURS (1460): COMPUTER SCIENCE AND BIOLOGY
See *Biology*, p. 403.

COMBINED HONOURS (0021): COMPUTER SCIENCE AND MATHEMATICS (CPSC, MATH)

First Year	
ENGL 100-level ¹	6
CHEM 121 ²	3
CPSC 111, 121	8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	(4)3
MATH 121 (or 101 or 103 or 105)	(4)3
PHYS 107, 108, 109 (or 6 credits of 100-level PHYS courses) ³	(7)6

First Year (Continued)	
BIOL ⁴ or ASTR or EOOSC or Science credit GEOG or PSYC	3
Total Credits	32(35)

Second Year	
CPSC 211, 213, 221	12
MATH 215, 223 ⁵ , 226, 227	12
Arts Elective	6
Electives	3
Total Credits	33

Third Year	
CPSC 302 or 303 ⁶	3
CPSC 310, 313, 320	10
MATH 316, 320, 321	9
6 credits from MATH 300, 301, 322, 331	6
Electives	9
Total Credits	37

Fourth Year	
CPSC 420 or 421	3
CPSC courses numbered 300 and above	9
12 credits from MATH 400-405, 412, 416-429, 433-440, 440, 449, CPSC 402, 403	12
Arts Elective	6
Elective	3
Total Credits	33
Minimum Credits for Degree	135

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students without Chemistry 12 must complete CHEM 111, 113. CHEM 113 may be delayed to second year.

³ Credits in PHYS/CHEM courses must include at least 6 credits beyond PHYS 100 and CHEM 111.

⁴ Students without credit for Biology 11 or 12 must take 3 credits of 100-level BIOL.

⁵ May be replaced by MATH 221.

⁶ May be deferred to the following year.

COMBINED HONOURS (1373): COMPUTER SCIENCE & MICROBIOLOGY AND IMMUNOLOGY
See *Microbiology and Immunology*, p. 421.

COMBINED HONOURS (0138): COMPUTER SCIENCE AND PHYSICS (CPSC, PHYS)

First Year	
ENGL 100-level ¹	6
CHEM 121 (111)	4
CPSC 111, 121	8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	4(3)
MATH 121 (or 101 or 103 or 105)	4(3)
PHYS 107, 108, 109 (101, 102) ²	6-7
BIOL or ASTR or EOOSC, or Science Credit GEOG, or PSYC ³	3
Total Credits	33(36)

Second Year	
CPSC 211, 213, 221	12
MATH 215, 217 ⁴ , 223	10
PHYS 200, 203, 206, 209	12

Second Year (Continued)

Arts Elective	3
Total Credits	37

Third Year

6 credits from CPSC 302, 303, 313	6
CPSC 310, 320	7
MATH 316	3
PHYS 301, 304, 319	9
Arts Elective	6
Elective	3
Total Credits	34

Fourth Year

PHYS 403	3
9 credits from 4th year PHYS electives ⁵	9
Additional CPSC courses numbered 300 or above	6
PHYS 449 or CPSC 449 ⁶	6
6 Credits from CPSC 402, 403 MATH 300, 307, 318, 345, 400	6
Arts Elective	3
Total Credits	33
<i>Minimum Credits for Degree</i>	137

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students without Physics 12 should consult a departmental adviser as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 107.

³ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and 6 credits from the Faculty of Science. Students without Biology 11 or Biology 12 must take 3 credits of 100-level BIOL. Students interested in senior chemistry courses or who are planning to enter a career in teaching are reminded that they should take a second course of introductory chemistry.

⁴ May be replaced with MATH 200 and MATH 317 (using 3 elective credits).

⁵ Fourth-year PHYS electives are ASTR 402, 403, 404; EECE 480; MATH 345, 401, 402, 405, 418, 420, 450; PHYS 400, 401, 402, 405, 407, 410, 437, 447, 473, 474. Qualified students are encouraged to take 500-level Physics courses for which they must have permission of the Faculty of Science and the Dean of the Faculty of Graduate Studies.

⁶ Students who elect to take CPSC 449 must take CPSC 349 in their third year.

COMBINED HONOURS (1376): COMPUTER SCIENCE AND STATISTICS (CPSC, STAT)

First Year

ENGL 100-level ¹	6
CPSC 111, 121 ²	8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	4(3)
MATH 121 (or 101 or 103 or 105)	4(3)
PHYS 101 (or 107)	3
CHEM 121 ³ or PHYS 102 (or PHYS 108 ⁴)	3-4
BIOL or ASTR or EOSC or Science Credit GEOG or PSYC ⁵	3
Electives	3
Total Credits	32(35)

Second Year

CPSC 211, 213, 221	12
MATH 220 ⁶ , 223 (or 221)	6
MATH 226 ⁶ , 227 (or 200, or 317)	6
STAT 200, STAT/MATH 302	6
Arts Elective	3
Total Credits	33

Third Year

CPSC 302, 303, 304, 310, 320	16
MATH 303 ⁷ , 307, 320	9
STAT 306	3
Statistics courses numbered 300 or above	3
Arts Elective	3
Total Credits	34

Fourth Year

CPSC 402 ⁸	3
CPSC courses numbered 300 and above ⁹	3
CPSC courses numbered 400 and above ⁹	6
STAT 460, 461	6
STAT courses numbered 400 and above	6
6 credits from CPSC 340, 404, 420, MATH 418, 419, 420, 421 or further Statistics courses numbered 400 or above	6
Arts Elective	6
Total Credits	36
<i>Minimum Credits for Degree</i>	135

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students pursuing a Co-op program in Computer Science are advised to also take CPSC 211 in their first year or in the summer following their first year. Co-op students will then be in a position to take one or both of CPSC 211 and CPSC 213 in term one of second year before going out on a Co-op work term.

³ Students without credit for Chemistry 12 must take CHEM 111 and one of CHEM 113 and PHYS 102. These students may delay 3 credits of CHEM or PHYS until second year.

⁴ Students who chose to take PHYS 107 and/or PHYS 108 may need to take PHYS 109 or other lab courses to complete the Laboratory Science requirements of the Faculty of Science.

⁵ Students without credit for Biology 11 or 12 must take 3 credits of 100-level BIOL. These credits may be deferred until second year. Students lacking Physics 12 must take PHYS 100 to meet the lower-level course requirements for a B.Sc. Students lacking Chemistry 12 must take CHEM 111 to meet the lower-level course requirements for a B.Sc. Students require 6 credits of PHYS or CHEM beyond the basic requirement.

⁶ Students obtaining 68% or higher in MATH 226 may replace MATH 220 with 3 elective credits.

⁷ May be replaced by MATH 419 in fourth year.

⁸ CPSC 402 is offered every other year; students should take it in their third or fourth year, when it is offered.

⁹ Courses in Databases are recommended.

Software Engineering Option

Admission into the Software Engineering option is limited and based on academic performance. Students who wish to enter the option have to apply to the Department of Computer Science before the end of their second year. More information may be obtained from the

Department of Computer Science website (www.cs.ubc.ca).

The program leads to a Bachelor of Science degree. It is not a CEAB accredited engineering degree program leading to the designation Professional Engineer (P.Eng.).

MAJOR (1200): COMPUTER SCIENCE AND SOFTWARE ENGINEERING

First Year

Same as Major and Honours Computer Science

Second Year

CPSC 211, 213, 221	12
MATH 200, 221	6
STAT 241 ¹	3
Electives ²	12
Total Credits	33

Third and Fourth Years

CPSC 310, 311, 313, 319, 320	17
CPSC 410, 411, 421	9
One of CPSC 304, 317, 344	3
One of CPSC 415, 416, 417, 444, EECE 494 ³	3
One more of CPSC 304, 317, 344, 415, 416, 417, 444, EECE 494 ³	3
MATH or STAT courses numbered 300 or above ⁴	6
Electives ²	21
Total Credits	62
<i>Minimum Credits for Degree</i>	127

¹ May be replaced by STAT 200 provided MATH/STAT 302 is included as one of the required MATH or STAT courses in third and fourth year. This alternative is recommended for students with an interest in further STAT courses.

² Electives (36 credits, including 3 credits in first year) must include the following; a) At least 12 credits must be in the Faculty of Arts (Arts Electives.); b) Of the remaining 24 credits of electives (i.e., other than the Arts Electives), at least 9 credits must be in either Science courses outside the field of the Major or in Arts. The field of the Major in Computer Science is defined as Computer Science, Mathematics, or Statistics; c) The remaining 15 credits may be in any faculty; d) At least 9 of the 36 elective credits must be in courses numbered 300 or higher.

³ It is suggested that the rest of the courses in this group be taken as electives.

⁴ Mathematics courses in analysis, applied mathematics, linear algebra, differential equations, and probability and statistics courses are recommended.

HONOURS (1201): COMPUTER SCIENCE AND SOFTWARE ENGINEERING

First and Second Year

Same as in the regular Honours program.

Third and Fourth Years

CPSC 310, 311, 313, 319, 320	17
CPSC 302 or 303	3
CPSC 349 ¹	0
CPSC 410, 411, 421	9
One of CPSC 304, 317, 344	3
One of CPSC 415, 416, 417, 444, EECE 494 ²	3
One more of CPSC 304, 317, 344, 415, 416, 417, 444, EECE 494 ²	3
CPSC 449 ³	6
MATH 302 or STAT 302	3

Third and Fourth Years (Continued)

MATH or STAT courses numbered 300 or above ⁴	12
Arts Electives	6
Electives	6
Total Credits	71
<i>Minimum Credits for Degree</i>	<i>139</i>

- ¹ Taken in third year.
- ² It is recommended that the rest of the courses in this group be taken as electives.
- ³ Taken in fourth year. It is strongly recommended that students select a thesis topic in one of the following areas: software engineering, programming languages, or systems.
- ⁴ Mathematics courses in analysis, applied mathematics, linear algebra, differential equations, and probability and statistics courses are recommended.

MAJOR IN MATHEMATICAL SCIENCES
See *Mathematics*, p. 418, under Bachelor of Science.

B.S.C. MAJOR IN COGNITIVE SYSTEMS:
COMPUTATIONAL INTELLIGENCE AND DESIGN

First Year

ENGL 100-level ¹	6
CPSC 111, 121 ²	8
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 ³ (or 107 ⁴)	3
CHEM 121 ⁵ (or PHYS 102 or PHYS 108 ⁸)	4(3)
BIOL ⁶ or ASTR or EOSC or Science credit GEOG or PSYC ⁷	3
Electives ^{8,9}	3
Total Credits	32(34)

Second Year

COGS 200	3
CPSC 211, 221	8
PHIL 220 (or PHIL 320 ¹⁰)	3
Other non-CPSC module courses numbered 200 or above ^{11,12}	3
STAT 200 or 241 ¹³	3
Electives ^{8,9}	12
Total Credits	32

Third and Fourth Years

COGS 300	3
COGS 401, 402	6
CPSC 312, 320, 322	9
Other CPSC module courses numbered 300 or above ¹²	3
Other CPSC module courses numbered 400 or above ¹²	3
PHIL 451	3
Other non-CPSC module courses numbered 300 or above ^{12,14}	12
Electives ^{8,15}	21
Total Credits	60

Minimum Credits for Degree 124

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- ² Students pursuing a Co-op program are advised to also take CPSC 211 in their first year or in the

summer following their first year. Co-op students will then be in a position to take CPSC 221 in term 1 of second year before going out on a Co-op work term.

- ³ All B.Sc. programs must include two terms of laboratory science. These may be stand-alone labs or parts of lecture-lab courses included in the other requirements listed above. Details are given at *Lower-Level Requirements*, p. 389.
- ⁴ Students without credit for Chemistry 12 must complete CHEM 111 and either CHEM 113 or PHYS 102 (or PHYS 108). These students may delay 3 credits of CHEM or PHYS until 2nd year.
- ⁵ Students without credit in Biology 11 or Biology 12 must take 3 credits of 100-level biology.
- ⁶ B.Sc. requires 72 Science credits.
- ⁷ These credits may be deferred until second year.
- ⁸ Students should consider the following when selecting elective credits: a) B.Sc. requires 72 credits Science courses; b) At least 12 credits must be Arts electives; c) A Cognitive Systems major must select nine credits of Arts or Science electives outside their field of major, that is, outside the core departments of Computer Science, Linguistics, Philosophy, and Psychology.
- ⁹ It is recommended that first-year courses of modules be selected for these electives.
- ¹⁰ The prerequisite PHIL 220 may be waived for PHIL 320 with the consent of the instructor.
- ¹¹ It is recommended that students take some of the first-year courses shown in these modules as elective courses.
- ¹² For the list of courses in each module, see the Cognitive Systems website (www.cogsys.ubc.ca/students/modules.htm). Courses explicitly required will not be credited as module courses.
- ¹³ Students must achieve a grade of greater than 72% in this course, or else must take another 3 credits of MATH or STAT in order to be admitted to CPSC 320. Students interested in further STAT courses must take STAT 200, as STAT 241 does not serve as a prerequisite for higher level STAT courses.
- ¹⁴ PSYC 465 cannot be used for credit.
- ¹⁵ At least 48 credits of 300 or above courses are required for the B.Sc. degree, of which at least 30 must be Science credits.

EARTH AND OCEAN SCIENCES

The Department of Earth and Ocean Sciences (www.eos.ubc.ca) concerns itself with Earth history and the structure and properties of the Earth, from core to atmosphere. The Department of Earth and Ocean Sciences is built from the former departments of Geological Sciences and Oceanography, the Geophysics part of the former Department of Geophysics and Astronomy, and the interdepartmental Atmospheric Sciences program.

The Major program in Earth and Ocean Sciences is available for students who have a general interest in the earth sciences. For students intending to pursue a professional career in geological sciences, geophysics or oceanography, Honours programs are preferred. For details of the programs available see *Geological Sciences*, p. 412, *Geophysics*, p. 412, and *Oceanography*, p. 413. However, with careful course selection students may still use an EOSC Majors degree towards professional registration as a geoscientist. See Majors advisor for more details.

The Department also offers several non-laboratory general courses for students from other faculties (EOSC 310, 311, 312, 314, and 315). These courses are not for credit in the Faculties

of Science and Applied Science. EOSC 326 is restricted to students who have Biology 100 level and third-year standing in Science. EOSC 370 and 371 are offered to students who have completed first-year Science. For more information, contact the Department of Earth and Ocean Sciences, 604-822-2449 or visit the departmental website (www.eos.ubc.ca).

Earth and Ocean Sciences Program

MAJOR (1223): EARTH AND OCEAN SCIENCES

First Year

ENGL 100-level ¹	6
PHYS 101 or 107 ²	3
CHEM 121, 123 (or 111, 113)	8
EOSC 100-level ³	6
EOSC 111	1
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
Electives ⁴	3
Total Credits	33(35)

Second Year

EOSC or ATSC courses numbered 200 or above ^{5,6}	12
Electives ⁷	18
Total Credits	30

Third and Fourth Years

EOSC or ATSC courses numbered 300 or above ⁸	30
Electives ⁷	30
Total Credits	60
<i>Minimum Credits for Degree</i> ⁹	<i>123</i>

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred to second year.
- ² Students without Physics 12 must normally take PHYS 100 before 101. Qualified students are encouraged to take PHYS 107.
- ³ 3 credits may be deferred until second year. The requirement for these courses may be waived if a student has completed upper-level courses in each of the solid and fluid earth sciences.
- ⁴ Students without Biology 11 or 12 must take 3 credits of 100-level BIOL.
- ⁵ 6 credits may be delayed to third year if 300-level or higher courses are used for this requirement. See advisor.
- ⁶ If EOSC 211 is not chosen as 3 of the EOSC/ATSC 200 level credits, an additional 3 credits from MATH, CPSC, or STAT are required before the end of third year.
- ⁷ The 48 credits of electives in years two and above must include 12 credits in Arts, an additional 9 credits in Science, and an additional 9 credits in Arts or Science outside the field of the major (defined as EOSC and ATSC). 18 credits may be in any faculty.
- ⁸ A maximum of 6 credits may be replaced by credits from (BIOL 302, BIOL 303, CHEM 301, CHEM 302, GEOG 300, or GEOG 304).
- ⁹ Note that 48 of the 123 credits must be 300-level or above.

Atmospheric Science Programs

See *Atmospheric Science*, p. 395, in this section for information on major, honours, and combined honours programs available.

Geological Sciences Programs

The Department of Earth and Ocean Sciences (www.eos.ubc.ca) offers two undergraduate programs in Geology: Bachelor of Science with Honours, and Bachelor of Applied Science. For information on graduate degrees, see *Geological Sciences*, p. 254, under the Faculty of Graduate Studies. The Honours program is recommended for students who wish to undertake graduate studies or pursue a professional career in the geological sciences. Normally, students enter the Honours program before the beginning of the third year. The Majors program in *Earth and Ocean Sciences*, p. 411, is available for students who have a broad interest in the Earth Sciences as it relates to geology. Those who wish to pursue a professional career in the discipline are encouraged to enrol in the Honours Geology program. The Geological Engineering program leads to the Bachelor of Applied Science and is a professional program in engineering. For further information on the Bachelor of Applied Science program see *Geological Engineering*, p. 103, under the Faculty of Applied Science, Bachelor of Applied Science. Students who desire to register as Professional Geoscientists after graduating should contact the Association of Professional Engineers and Geoscientists of British Columbia to ascertain course and other requirements. Students interested in environmental science may pursue this within Geology Honours or in Combined Honours program such as Geology-Oceanography or Geology-Chemistry.

Elective courses in Geological Sciences are arranged in four streams:

- 1) environmental geology;
- 2) sedimentary geology and geobiology;
- 3) crustal and mantle processes; and
- 4) mineral deposits.

Students should consult the *Geological Sciences Program Guide* (available from the Earth and Ocean Sciences Office) and obtain guidance from a Geological Sciences advisor when formulating their program.

Students taking Geology courses may be required to participate in field trips.

CO-OPERATIVE EDUCATION PROGRAM

This optional program integrates academic study and supervised work experience. Enrolment is limited. Admissibility to Honours Geological Sciences or Combined Honours Geology and another subject is prerequisite for admission. Detailed information is available from the main office of the Department of Earth and Ocean Sciences (www.eos.ubc.ca) or the Co-operative Education Program Office, Room 309, Hennings Building, the University of British Columbia, 6224 Agricultural Road, Vancouver, BC V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

HONOURS PROGRAMS

HONOURS (0462): GEOLOGICAL SCIENCES

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (or 111, 113)	8
EOSC 110 or 112 or 114 or 116	3
EOSC 111	1
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107 (or 101) ²	3
PHYS 108, 109 (or 102)	4(3)
Arts Elective	3
Total Credits	33(36)

Second Year	
CHEM 201 or 205	3
EOSC 211, 212, 220, 221, 222, 223 ³	18
MATH 200	3
MATH 221 or STAT 200	3
Arts Elective	3
Electives ⁴	6
Total Credits	36

Third and Fourth Years	
Two of EOSC 320, 321, 322	6
One of EOSC 327, 333	3
EOSC 323, 328 ⁵ , 329	9
EOSC 330, 332, 449	12
EOSC 250 or 350	3
Additional EOSC 300-level	3
Additional EOSC 400-level	6
Arts Electives	6
Electives ⁶	18
Total Credits	66

Minimum credits for degree 135

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. Three credits of first-year English may be deferred to second year.

² Students without Physics 12 must normally take PHYS 100 before 101. Qualified students are encouraged to take PHYS 107/108/109.

³ Includes a field school in May of second year (extra fee to be paid).

⁴ Students without Biology 11 or 12 must take 100-level Biology.

⁵ Field School in May after third year (extra fee to be paid).

⁶ At least 48 total credits must be numbered 300 or above. At least 42 total science credits must be numbered 300 or above.

COMBINED HONOURS: GEOLOGY AND ANOTHER SUBJECT (GEOL)

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (or 111, 113)	8
EOSC 110 or 112 or 114 or 116	3
EOSC 111	1
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 (or 107) ³	3
PHYS 102 (or 108, 109) or BIOL 121, 140 ²	3(5)

First Year (Continued)

Arts Elective	3
Total Credits ²	33(37)

Second Year

EOSC 211, 212, 220, 221, 222, 223	18
MATH 200	3
Credits required by other discipline	12
Total Credits	33

Third and Fourth Years

Geology courses numbered 300 and above ⁴	21
EOSC 328	3
Credits required by other discipline	24
Electives	6
EOSC 449 or other department 449	6
Arts Electives	9
Total Credits	69
<i>Minimum Credits for Degree</i>	135

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred to second year.

² Students without Biology 11 or 12 must take 3 credits of 100-level BIOL.

³ Students without Physics 12 must normally take PHYS 100 before 101.

⁴ EOSC courses numbered 320 to 329, 330 to 339, 340 to 349.

Timetabling and other problems may not permit programs in Geology and certain other departments. Students planning careers in Geological Sciences should consult the departmental advisor for elective courses appropriate to their interests.

COMBINED HONOURS: GEOLOGY AND GEOGRAPHY
See *Geography*, p. 416.

Geophysics Programs

The Department of Earth and Ocean Sciences (www.eos.ubc.ca) offers Honours and Combined Honours programs in geophysics. The major program in *Earth and Ocean Sciences*, p. 411, is available for students who have a broad interest in the Earth Sciences as it relates to geophysics. Those who wish to pursue a professional career in the discipline are encouraged to enrol in the Honours Geophysics program. For information on graduate degrees see *Geophysics*, p. 255, under the Faculty of Graduate Studies.

CO-OPERATIVE EDUCATION PROGRAM

This optional program integrates academic study and supervised work experience. Enrolment is limited. Admissibility to Honours Geophysics or Combined Honours Geophysics and another subject is prerequisite for admission. Detailed information is available from the main office of the Department of Earth and Ocean Sciences of the Co-operative Education Program Office, Room 309, Hennings Building, the University of British Columbia, 6224 Agricultural Road, Vancouver, BC V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

HONOURS PROGRAMS

Geophysics is an interdisciplinary physical science concerned with the nature of the earth and its environment and as such seeks to apply the knowledge and techniques of physics, mathematics, and chemistry to understand the structure and dynamic behaviour of the earth and its environment. The required sequence of Mathematics, Physics, and Geophysics courses is designed to provide a basic structure on which to build a coherent honours program with science electives normally selected from Geophysics, Geology, Astronomy, Oceanography, Mathematics, Physics, and Chemistry courses.

HONOURS (0380): GEOPHYSICS (GEOP)

First Year

ENGL 100-level ¹	6
CHEM 121, 123, (or 111, 113)	8
EOSC 110 or 112 or 114 or 116	3
EOSC 111	1
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107 (or 101) ²	3
PHYS 108, 109 (or 102) ²	4(3)
Elective ³	3
Total Credits	33(36)

Second Year

EOSC 211, 212	6
EOSC 222, 250	6
MATH 200, 221, 215	9
PHYS 203 or 313	3
Electives ⁴	12
Total Credits	36

Third and Fourth Years

EOSC 352, 353, 354	9
EOSC 450, 453, 454	10
EOSC 449	6
MATH 316 (or PHYS 312)	3
MATH 317	3
PHYS 301 or 354	3
Electives ⁴	30
Total Credits	64

Minimum Credits for Degree 134

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred to second year.

² Students without Physics 12 must normally take PHYS 100 before 101. Qualified students are encouraged to take PHYS 107/108/109.

³ Students without Biology 11 or 12 must take 100-level Biology.

⁴ The electives must contain 12 credits of Arts and 6 credits of Geology.

COMBINED HONOURS: GEOPHYSICS AND ANOTHER SCIENCE SUBJECT¹

First Year

ENGL 100-level ²	6
CHEM 121, 123 (or 111, 113)	8
EOSC 110 or 112 or 114 or 116	3
EOSC 111	1

First Year (Continued)

MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107 (or 101) ³	3
PHYS 108, 109 (or 102) ³	4(3)
Elective ^{3,4}	3
Total Credits	34(36)

Second Year

EOSC 211, 212, 222, 250	12
MATH 200, 221, 215	9
Electives ⁵	15
Total Credits	36

Third and Fourth Years

EOSC 352, 353, 354	9
EOSC 450, 453, 454	10
MATH 316 or PHYS 312	3
MATH 317	3
PHYS 301 or 354	3
EOSC 449 (or thesis in other discipline)	6
Electives ⁵	30
Total Credits	64

Minimum Credits for Degree 134

¹ Combined honours programs must be approved by advisors from both disciplines at the time that the program is declared. Not all disciplines offer combined honours programs. Example programs for combined honours geophysics and other subjects are listed at www.eos.ubc.ca.

² ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred to second year.

³ Students without Physics 12 must normally take PHYS 100 before 101. Qualified students are encouraged to take PHYS 107/108/109.

⁴ Students without Biology 11 or 12 must take 100-level Biology.

⁵ Within the specified electives all students must meet the requirements of the other program. The available elective credit in each of the different years may be adjusted to allow for specific program combinations as long as there is a minimum of 134 total credits and a maximum of 140 specified total credits within the framework for Honours Programs in the Faculty of Science. The framework for Honours Programs specifies that there must be at least 30 credits in each Winter Session, four terms must have five-or-fewer lecture course equivalents and four terms must have six-or-fewer lecture course equivalents. In all programs there must be at least 12 credits of Arts and 9 credits of calculation courses. If less than 18 additional credits are specified by the other program, further courses must be selected in consultation with the program advisors.

Oceanography Programs

The Department of Earth and Ocean Sciences (www.eos.ubc.ca) offers oceanography degree programs in Honours Fisheries Oceanography, Combined Honours Oceanography and Biology, and Combined Honours Oceanography and Another Subject. The Major program in *Earth and Ocean Sciences*, p. 411, is available for students who have a broad interest in earth science as it relates to Oceanography. Those who wish to pursue a professional career in the discipline are encouraged to enrol in one

of the Combined Honours programs in Oceanography and another subject. Example programs in Combined Honours include Oceanography and Chemistry, Oceanography and Geology, Oceanography and Geophysics, and Oceanography and Physics. See www.eos.ubc.ca for example programs. For information on graduate degrees, see *Oceanography*, p. 271, under the Faculty of Graduate Studies.

Formal program approval must be obtained from both departmental advisors before registering in second, third, and fourth years of the Combined Honours programs. Enrolment in all combined Oceanography Honours and the Fisheries Oceanography Honours programs requires an academic average of 72%.

A general first-year course, EOSC 112, is offered. Non-laboratory general courses, EOSC 314 and EOSC 315, are offered to students who are not in Science or Applied Science, while EOSC 370 and 371 are offered to students who have completed first-year Science. Students intending to register for an undergraduate Oceanography program can undertake the Major program, a Combined Honours program with another science, or the Fisheries Oceanography Honours program. Formal program approval must be obtained from both departmental advisors before registering in second, third, and fourth years of the Combined Honours programs. Enrolment in all combined Oceanography Honours and the Fisheries Oceanography Honours programs requires an academic average of 72%. All Oceanography (OCGY) courses have been renumbered as EOSC courses, with the conversion described on the Earth and Ocean Sciences website (www.eos.ubc.ca).

HONOURS PROGRAMS

HONOURS (0577): FISHERIES OCEANOGRAPHY

First Year

ENGL 100-level ¹	6
BIOL 112, 121, 140 ²	8
CHEM 121, 123 (or 111, 113)	8
EOSC 110, 112, 114 or 116	3
EOSC 111	1
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 (or 107) ^{3,4}	3
Total Credits	35(37)

Second Year

BIOL 200, 201	6
BIOL 204, 205	8
CHEM 233, 235	4
ECON 101	3
EOSC 211, 212, 222	9
Electives ⁴	6
Total Credits	36

Third and Fourth Years

BIOL 300, 301, 303	9
BIOL 408, 465, 466	12

Third and Fourth Years (Continued)

EOSC 370, 371	6
EOSC 470, 472, 473, 478	12
EOSC 449	6
LAW 356	3
Electives ^{4,5}	18
Total Credits	66

Minimum Credits for Degree 137

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred to second year.

² The prerequisite for BIOL 112 is Chemistry 12 and either Biology 11 of Biology 12. Students lacking the prerequisites must take BIOL 111 before attempting either BIOL 112 or BIOL 121 or BIOL 140.

³ Students without Physics 12 must normally take PHYS 100 before 101.

⁴ Total program electives must include 12 credits in Arts. MATH 200 and MICB 202 are recommended in second or third year.

⁵ Select 3 credits from the following: EOSC 471, 475; BIOC 302; BIOL 302, 320, 325, 326, 332, 334, 353, 402, 403, 404, 405, 428, 429, 434, 435, 445; MICB 300. Some of these courses may require prerequisites that are not prescribed in the program.

COMBINED HONOURS: OCEANOGRAPHY AND ANOTHER SCIENCE SUBJECT¹

First Year	
ENGL 100-Level	6
CHEM 121 (or 111)	4
EOSC 110 or 112 or 114 or 116	3
EOSC 111	1
MATH 100 or 102 or 104 (or 180 or 184 or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107 (or 101)	3
Electives ^{2,3}	9
Total Credits	32(34)

Second Year	
EOSC 211 ⁴ , 212, 222	9
Electives ^{2,5}	24
Total Credits ⁵	33

Third and Fourth Years	
EOSC 370, 371, 473 ⁶	9
EOSC 472	3
EOSC or ATSC 400 level	6
One of EOSC 470, 471, 475, 477, 478	6
EOSC 449 ⁷	3
Electives ²	42
Total Credits	69

Minimum Credits for Degree 134

¹ Combined honours programs must be approved by advisors from both disciplines at the time that the program is declared. Not all disciplines offer combined honours programs. Example programs for combined honours oceanography and other subjects are listed at www.eos.ubc.ca

² Within the specified electives students must meet the requirements of the other program. The available elective credit in the different years may be adjusted to allow for specific program combinations as long as there is a minimum of 134 total credits and a maximum of 140 total credits within the framework for Honours Programs in the Faculty of Science. The framework for Honours Programs specifies that there must be at least 30 credits in each winter session, four terms must

have five-or-fewer lecture course equivalents and four terms must have six-or-fewer lecture course equivalents. In all programs there must be at least 12 credits of Arts and 9 credits of calculation courses. If the other program specifies less than 48 additional credits, further courses must be selected in consultation with the program advisors.

- ³ Students without Physics 12 must normally take PHYS 100 before 101. Students without Biology 11 or 12 must take 100-level Biology.
- ⁴ Or equivalent as specified by other discipline with permission of advisor.
- ⁵ Some credits can be deferred to years 3 or 4, but each Winter Session must have at least 30 credits.
- ⁶ Recommended to be taken in third year.
- ⁷ Or a thesis course in the other discipline.

COMBINED HONOURS (0535): OCEANOGRAPHY AND BIOLOGY (OCGY, BIOL)

First Year	
ENGL 100-level ¹	6
BIOL 112 ²	3
BIOL 121, 140 ²	5
CHEM 121, 123 (or 111, 113)	8
EOSC 110 or 112 or 114 or 116	3
EOSC 111	1
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 (or 107) ³	3
Total Credits	35(37)

Second Year	
BIOL 200, 201	6
CHEM 233, 235	4
EOSC 211, 212, 222	9
Science Electives ^{4,5}	15
Arts Elective	3
Total Credits	37

Third and Fourth Years	
BIOL 300, 334 and 335 or 336	9
BIOL 302, 303	6
Other BIOL courses numbered 300 or higher	6
EOSC 370, 371, 470, 472, 473 ⁶	15
EOSC 449 or BIOL 449 ⁷	6
EOSC Electives ⁷	3-9
Additional upper level Science Electives	6-0
Arts Elective	9
Additional Science Electives	6
Total Credits	66

Minimum Credits for Degree 137

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred to second year.
- ² The prerequisite for BIOL 112 is Chemistry 12 and either Biology 11 of Biology 12. Students lacking the prerequisites must take BIOL 111 before attempting either BIOL 112 or BIOL 121 or BIOL 140.
- ³ Students without Physics 12 must normally take PHYS 100 before 101.
- ⁴ Choose at least 12 credits from BIOL 204, 205, 209, 210; CHEM 201, 202, 205, MATH 200, 317; MICB 202. These choices must include at least 6 credits of courses on organisms, e.g., BIOL 204, 205, 209, 310, or MICB 202. Additional EOSC courses may be taken as electives in third and fourth years. 3 credits of PHYS may be deferred until second year to create elective space in first year.

- ⁵ MATH 200 is recommended in second or third year.
- ⁶ Recommended that this course be taken in third year.
- ⁷ If BIOL 449 is taken, an additional 6 credits of EOSC courses must be chosen as part of the upper level science electives.

ENVIRONMENTAL SCIENCES

The Bachelor of Science program in Environmental Sciences is designed to give students a broad perspective on the environment. The program concentrates on understanding the major environmental issues facing human societies and it adopts an integrative cross-disciplinary approach to the study of these issues. The program provides a significant background in chemistry, earth and ocean sciences, life sciences, and social sciences. The core courses, ENVR 200, 300, and 449, examine environmental issues through seminars and student projects. Students are required to select an Area of Concentration that includes required and elective courses.

Both Major and Honours programs are offered. Admission is based on academic performance and an essay submitted with the application for admission. For the Honours program, Students require a minimum 72% average in prior courses for admission, and must maintain at least a 68% average for continuation in the program. Students normally apply to the Major or Honours program after first year. For additional information, see the Environmental Sciences website (www.science.ubc.ca/envsc).

Programs

MAJOR (1263): ENVIRONMENTAL SCIENCES (ENSC)

First Year¹	
ENGL 100-level ²	6
BIOL 121, 140	4
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 or 180 or 184 (or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101	3
Electives ^{3,4}	6-0
Total Credits	33(35)

Second Year	
GEOG 200	3
BIOL 302	3
BIOL 303	3
CHEM 202, 201 (205)	6
ENVR 200	3
Elective ^{5,6,7}	12
Total Credits	30

Third and Fourth Years	
ENVR 300 ⁸	3
EOSC 370 or 371	3
GEOG 205	3
MATH 200	3
STAT 200 or BIOL 300 ⁹	3
Electives ^{5,10}	30
Area of Concentration ⁷	15

Third and Fourth Years (Continued)

Total Credits	60
Minimum Credits for Degree	123

- Students eligible to enrol in Science One are encouraged to do so. Students with credit for Science One and BIOL 140 have met all first-year Biology, Chemistry, Mathematics, and Physics requirements for programs in the Faculty of Science and satisfy the lower-level requirements for physical sciences, other sciences, and laboratory science and 6 of the required 9 credits in computational science.
- ENGL 112 is recommended. Qualified students are encouraged to consider 120 and/or 121. 3 credits of English may be deferred until second year.
- Students without Biology 12 must replace 3 credits of electives with BIOL 111 before taking 121. Students with Biology 12 are encouraged to take a 3-credit elective. One of EOSC 110, 112, or GEOG 102, 103 is recommended.
- Students without Physics 12 must replace 3 credits of electives with PHYS 100 before taking PHYS 101. Students may defer taking PHYS 101 to second year.
- Electives must be chosen so that along with required courses, the program minimum total of 123 credits includes a minimum of 72 Science credits, 18 Arts credits, 9 credits in fields outside the Area of Concentration (see below), and 48 upper-level credits of which 30 must be in Science. For information on which Geography courses count as Arts or Science (or neither), see the course listing in the Calendar.
- Students interested in the Life Sciences concentration should consider one of BIOL 204, 205, 209, or 210 in second year.
- See *Areas of Concentration*, p. 415, below.
- Must be taken before ENVR 449 (see footnote 10)
- Students should consider which statistics course will fulfil prerequisites for upper-level courses they intend to take. Should be taken in third year. STAT 200 does not fulfil an upper-level credit requirement.
- ENVR 449 is a recommended elective for fourth year. Students in the Major program must obtain permission from the program Director to take the course.

HONOURS (0589): ENVIRONMENTAL SCIENCES (ENSC)**First Year¹**

ENGL 100-level ²	6
BIOL 121, 140	4
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 or 180 or 184 (or 120)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101	3
Electives ^{3,4}	6-0
Total Credits	33(35)

Second Year

GEOG 200	3
BIOL 302	3
BIOL 303	3
CHEM 202, 201 (205)	6
ENVR 200	3
Electives ^{5,6,7}	18
Total Credits	36

Third and Fourth Years

CHEM 301	3
ENVR 300 ⁸	3

Third and Fourth Years (Continued)

ENVR 449 ⁹	6
EOSC 370 or 371	3
GEOG 205	3
MATH 200	3
SOIL 200	3
STAT 200 or BIOL 300 ¹⁰	3
Electives ⁵	24
Area of Concentration ⁷	15
Total Credits	66
Minimum Credits for Degree	135

- Students eligible to enrol in Science One are encouraged to do so. Students with credit for Science One and BIOL 140 have met all first-year Biology, Chemistry, Mathematics, and Physics requirements for programs in the Faculty of Science and satisfy the lower-level requirements for physical sciences, other sciences, and laboratory science and 6 of the required 9 credits in computational science.
- ENGL 112 is recommended. Qualified students are encouraged to consider 120 and/or 121. 3 credits of English may be deferred until second year.
- Students without Biology 12 must replace 3 credits of electives with BIOL 111 before taking 121. Students with Biology 12 are encouraged to take a 3-credit elective. One of EOSC 110, 112, or GEOG 102, 103 is recommended.
- Students without Physics 12 must replace 3 credits of electives with PHYS 100 before taking PHYS 101. Students may defer taking PHYS 101 to second year.
- Electives must be chosen so that along with required courses, the program minimum total of 135 credits includes a minimum of 72 Science credits, 18 Arts credits, and 48 upper-level credits, of which 42 must be in Science. For information on which Geography courses count as Arts or Science (or neither), see the course listing in the Calendar.
- Students interested in the Life Sciences concentration should consider one of BIOL 204, 205, 209, or 210 in second year.
- See *Areas of Concentration*, p. 415, below.
- Must be taken before ENVR 449.
- Must be taken in fourth year.
- Students should consider which statistics course will fulfil prerequisites for upper-level courses they intend to take. Should be taken in third year. STAT 200 does not fulfil an upper-level credit requirement.

MAJOR OR HONOURS: AREAS OF CONCENTRATION

Students must select one of the following AOCs. A minimum of 15 science credits must be taken from the AOC, and these cannot be used to fulfil any other requirements of the program. Required courses are listed for the AOC. For electives, see the program Director or the Environmental Sciences website (www.science.ubc.ca/envsc). For the Major program, the field inside the AOC is defined.

- Chemical analysis of the environment: CHEM 301, 302; EOSC 220, 327, 430. The field includes courses in Chemistry, and Earth and Ocean Sciences.
- Physical analysis of the environment: EOSC 250, 350; GEOG 270, 300. The field includes courses in Earth and Ocean Sciences and courses in Geography that have Science credit.

- The atmosphere and water: CHEM 301, 302; EOSC 329, 370; GEOG 300. The field includes courses in Earth and Ocean Sciences and courses in Geography that have Science credit.
- Life Sciences: Systematics: One of BIOL 204, 205, 209, or 210. The field includes courses in Biology, and Microbiology and Immunology.
- Life Sciences: Ecology: one of BIOL 204, 205, or 209 or 210; two of BIOL 301, 402, 404, 405, 407, 408, 409, 411, 416, or 418. The field includes courses in Biology, and Microbiology and Immunology.
- Life Sciences: Conservation Biology: BIOL 204, 205, 209 or 210; two of BIOL 301, 402, 404, 405, 407, 408, 409, 411, 416, or 418. The field includes courses in Biology, and Microbiology and Immunology.
- Computer Modelling: CPSC 111, 121, 211, 221; STAT 241. The field includes courses in Computer Science, Mathematics, and Statistics.

GENERAL SCIENCE PROGRAM

The General Science program recognizes five designated subject areas of the Faculty of Science. These areas are:

- Chemistry (CHEM 0081);
- Earth Science (Atmospheric Science, Geography courses for Science credit except for GEOG 307, 407, Earth and Ocean Science except for EOSC 310, 311, 312, 314, 315, 371, 470, 471, 474, 475, 478) (ERSC 0225);
- Life Science (ANAT 390, 391, Biochemistry, Biology, GEOG 307, 407, Marine Science, Medical Genetics, Microbiology, Pharmacology, Physiology, Psychology courses for Science credit and EOSC 371, 470, 471, 474, 475, 478) (LFSC 0440);
- Mathematical Science (Computer Science, Mathematics, Statistics) (MASC 0029); and
- Physics and Astronomy (PHYS 0271).

For first-year requirements for entry into the General Science program, see *Lower-Level Requirements*, p. 389, under Bachelor of Science, Degree Requirements. Students must register in the courses that are prerequisite to the courses of their proposed areas of concentration.

All degree requirements must be fulfilled in accordance with Faculty of Science requirements. Students may, with the approval of a senior faculty advisor, undertake an optional Minor program in Arts or Commerce in conjunction with the General Science program. See *Minor Programs*, p. 393, under Bachelor of Science, Co-op, and Minor Options.

To satisfy the requirement of at least 30 credits of Science courses numbered 300 and above, the student may select one of two routes within the General Science program:

- Route A. At least 18 credits numbered 300 or higher must be selected from one of the five subject areas specified above and 12

credits numbered 300 or higher from another of these five areas. Students in Route A will register in both areas of specialization.

- Route B. At least 18 credits must be selected from courses numbered 300 or higher in one of the five subject areas listed above plus at least 6 credits in courses selected from each of two other subject areas for a total of 30 credits in three subject areas. Students in route B will register in the 18-credit major area of specialization only.

Courses selected must be acceptable for Major or Honours programs in the specific areas of concentration.

Students who successfully complete the B.Sc. General Science program will have recorded on their transcript the area or areas of concentration.

GEOGRAPHY

The Department of Geography (www.geog.ubc.ca) offers opportunities for study leading to bachelor's, master's, and doctoral degrees. For information on the Bachelor of Arts, see *Geography*, p. 135, under the Bachelor of Arts in the Faculty of Arts section. For information on graduate degrees, see *Geography*, p. 253, in the Faculty of Graduate Studies section.

Students entering the major, honours, or a combined honours program must consult the science advisor of the Department of Geography. Students in the upper years of a Major program must choose a concentration in at least *two* topic areas (Biogeography, Climatology, Geomorphology, Hydrology) and select their courses accordingly (see Department of Geography Undergraduate Guide).

Students registered in the Bachelor of Science Geography program must take at least 6 credits of Arts courses outside the Department of Geography in addition to 100-level English.

The following Geography courses may be used as free electives, with due regard to prerequisites. They may not be used for either Science or Arts 'designated' credit: GEOG 210, 310, 311, 312, 315, 316, 317, 318, 319, 371, 374, 375, 410, 412.

Programs

MAJOR (0216): PHYSICAL GEOGRAPHY (PGEO)

First Year

ENGL 100-level ¹	6
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
CHEM 121, 123 (111, 113)	8
PHYS 101 (107) ²	3
GEOG 102 or 103 ³	3
Science Elective ⁴	6
Total Credits	32(34)

Second Year

GEOG 200, 205, 207, SOIL 200	12
One of GEOG 210, 290	3

Second Year (Continued)

One of STAT 200, FRST 231	3
One of MATH 200, 221 or CPSC 100-level	3
Science Electives	6
Arts Elective	3
Total Credits	30

Third Year

GEOG 306, 309 ⁵ , 310, and EOSC 211	12
Two of GEOG 300, 307, 308, EOSC 329	6
GEOG 373 or 376	3
Arts Elective ⁷	6
Electives ⁷	6
Total Credits	30

Fourth Year

Two of GEOG 318, 319, 404, 410, 412	6
Four of ATSC 301, 303, GEOG 304, 401, 402, 403, 405, 406, 407, 408, 409, EOSC 350 ⁷ , 429, BIOL 324	12
Arts elective	3
Electives ⁷	9
Total Credits	30

Minimum Credits for Degree 122

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students without Physics 12 must take PHYS 100 prior to PHYS 101 or 107.

³ Special arrangements may be made for students unable to take this course in first year.

⁵ Prerequisite MATH 200.

⁴ PHYS 102 (108) or EOSC 2505 recommended. Students who take PHYS 107 and 108 should strongly consider PHYS 109. Students without BIOL 11 or 12 must take 3 credits of Biology.

⁶ Field Course taken in May; extra fee to be paid.

⁷ Enough elective credits must be numbered 300 or higher that the total 300-level or higher courses in the program, including specified courses, is at least 48 credits; at least 9 credits must be outside the field of Major, the field of Major comprising all courses in Geography.

⁸ Selected to satisfy the requirements for two areas of concentration. See the Department of Geography Undergraduate Course Guide.

HONOURS (0568): CLIMATOLOGY (CLIM)

First Year

ENGL 100-level ¹	6
CHEM 121, 123 (111, 113)	8
GEOG 102 ²	3
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107 (101) ³	3
Science Electives ⁴	4
Total Credits	30(32)

Second Year

GEOG 200, ATSC 201	6
CPSC 100-level	3
EOSC 250	3
GEOG 205	3
MATH 200, 221	6
Arts Electives	6

Second Year (Continued)

Science Elective	3
Total Credits	30

Third Year

EOSC 370	3
GEOG 300, ATSC 301, 303	9
GEOG 309 ⁵ , 310	6
MATH 215 and PHYS 312	6
PHYS 314 or EOSC 354	3(4)
STAT 200	3
Elective	3
Arts Elective ⁶	3
Total Credits	36(37)

Fourth Year

GEOG 304, 401, 402	9
GEOG 449	3
GEOG 376	3
Three of EOSC 477, CHEM 302 ⁷ , ATSC 404, 405	9
Arts Elective	3
Elective	9
Total Credits	36

Minimum Credits for Degree 132

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Special arrangements may be made for students unable to take this course in first year.

³ Students without Physics 12 must take PHYS 100 prior to PHYS 101 or 107.

⁴ PHYS 108 (102) recommended. Students who take PHYS 108 should strongly consider PHYS 109. Students without BIOL 11 or 12 must take 3 credits of Biology.

⁵ Field Course taken in May; extra fee to be paid.

⁶ ENGL 301 is recommended.

⁷ CHEM 201 (or 205) is prerequisite to this course.

COMBINED HONOURS (2278) GEOGRAPHY AND GEOLOGY (GEOG, GEOL)

First Year

ENGL 100-level ¹	6
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
CHEM 121, 123 (111, 113)	8
PHYS 107 (101) ²	3
EOSC 110 ³ or GEOG 103 ⁴	3
Science Electives ⁵	4
Total Credits	30(32)

Second Year

EOSC 220, 221, 222	9
EOSC 223 ⁶	3
GEOG 200, 205	6
MATH 200, 221	6
STAT 200	3
Electives	3
Total Credits	30

Third Year

EOSC 330 or GEOG 306	3
SOIL 200	3

Third Year (Continued)

EOSC 211, 329	6
GEOG 308	3
GEOG 309 ⁶	3
CHEM 201 or 205	3
GEOG 373 or 376	3
MATH 215	3
Arts Elective ⁷	6
Elective ⁷	4
Total Credits	36

Fourth Year

Two of GEOG 403, 404, 405, 406, 408	6
GEOG 449 or EOSC 449	6
EOSC 320, 323	6
EOSC 327 or 333	3
Arts Elective ⁷	6
Elective ⁷	9
Total Credits	36

Minimum Credits for Degree 132

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students without Physics 12 must take PHYS 100 prior to PHYS 101 or 107.

³ EOSC 111 is recommended to accompany this course.

⁴ Special arrangements may be made for students unable to take this course in first year.

⁵ PHYS 102 (108) recommended. Students who take PHYS 108 should strongly consider PHYS 109. Students without Biology 11 or 12 must take 3 credits of Biology.

⁶ Field Course taken in May; extra fee to be paid.

⁷ Electives in the second, third, and fourth years combined must include at least 12 credits of courses numbered 300 or above. Students should consult the course guides available from the Departments of Geography and Earth and Ocean Sciences.

INTEGRATED SCIENCES PROGRAM

The objective of the Integrated Sciences Program (ISP) is to provide a strong science education with an interdisciplinary component. The program offers flexibility in course selection to independently motivated students who have cross-disciplinary interests. The ISP may be appropriate preparation for many professional degree programs (e.g. in Health Sciences, Education, Law, Journalism, M.B.A. programs), as well as for graduate programs. Admission to graduate studies in certain fields may require additional qualifying studies. The Honours option is recommended for excellent students considering graduate studies. These students are advised to consult the appropriate graduate advisor in the department they plan to attend and plan their program accordingly.

The Integrated Sciences Program provides:

- an opportunity for students to design their own interdisciplinary course of study;
- an admission process which encourages students to develop their educational goals under an advisor's guidance; and
- Integration (ISCI) courses to guide students in developing a wider perspective of scientific concepts which cross disciplinary boundaries.

These courses aimed at developing a broad appreciation of the links between disciplines and their impact on society. The focus of these courses will be on student-initiated learning to reinforce skills in information gathering, and analysis and presentation in written, oral and visual forms.

For detailed information about the program see the ISP website (www.science.ubc.ca/~isp).

Admission

Students will be admitted to the ISP on the basis of:

- fulfilment of the requirements for promotion to third-year standing in the Faculty of Science as described under *Promotion to Third Year*, p. 390, under Bachelor of Science, Degree Requirements
- a statement of academic goals
- a proposal for the courses that will be completed for graduation
- a rationale for the choice of these courses, emphasizing the integrative nature of the program
- past academic performance and successful completion of the key prerequisites
- to enter the Honours option, a minimal overall grade average of 68% prior to joining ISP is required.

Application

Students must use the online application at www.science.ubc.ca/~isp. Students must find an ISP mentor (see ISP website for a list of ISP advisors) who guides them during the application process and approves their application. Students may submit applications at any time during the year. Students interested in taking summer courses in preparation for the ISP are encouraged to apply in their second year. In these cases, admission to the program will be granted on a conditional basis only. Students develop their own curriculum based on an overarching theme of integrating scientific disciplines of their choice. Normally, the proposed courses will contain a cluster of credits of 300- or 400-level courses bridging the scientific disciplines that the student wishes to integrate. Inclusion of several 400-level courses in a program is essential, since a good standing in these may influence the opportunities a student may have after graduation. Entry into the program commits the student to complete a specified list of upper-level Science courses. Any change in the original list of courses requires approval of the ISP. To change their course list, students must have approval from the ISP administration or from their ISP mentor.

While the ISP will strive to accommodate as many students as possible, some enrolment restrictions may apply. Students whose programs are uniquely suited to the integrative, flexible character of the program but would not be easily accommodated by departmentally based programs within the Faculty will have priority. In addition, evidence of student inde-

pendence, responsibility and past academic performance will be considered.

Information about the Integrated Sciences Program, application forms, and guidelines for preparing a program are available from the Integrated Sciences Program Office, LSK Building, 303C-6356 Agricultural Road, The University of British Columbia, Vancouver, BC, V6T 1Z4, or from the ISP website (www.science.ubc.ca/~isp).

Graduation Requirements

For the ISP degree options, the Faculty graduation requirements as stated under *Graduation Requirements*, p. 387, under Bachelor of Science, Degree Requirements apply, with the exception of the breadth requirement. The required credits in the Areas of Concentration and the Integration (ISCI) courses fulfil part of the minimum upper-level credit requirement.

Requirements for ISCI (1039): Integrated Sciences Program

- Completion of a minimum of 18 credits of 300- or 400-level courses in the areas of integration as designated in their application.
- 9 credits of Integration Courses (ISCI). An ISCI course must be taken in a student's first term in the program. Since the topics of these courses may change from year to year, students should plan their programs to select ISCI courses in which they are most interested. Registration in ISCI courses will be limited, and ISP students will be given priority.
- In addition to the 9 ISCI credits mentioned above, students must take the 1-credit seminar course ISCI 300.
- ISP students will develop a strong program of upper-level science courses, in consultation with ISP advisors. Students are expected to develop programs with 39 or more credits of upper-level science and with several 400-level courses.

Requirements for ISCI (001511): Honours Integrated Sciences Program

- 6 credits Honours thesis. Honours students in ISP write an Honours thesis that fits within the interdisciplinary mandate of the Program and the scientific disciplines that students are integrating. Students must take a 6-credit Directed Research course (449 course) in a suitable department that fits with the topic of their thesis. They may need to have certain prerequisites to take these courses. For their research thesis, students are encouraged to arrange for co-supervision by faculty members representing the disciplines that the student is integrating. If desired, ISP provides an ISP examiner (i.e., a faculty member associated with ISP) for thesis examinations of ISP Honours student.
- Completion of a minimum of 36 credits of 300- or 400-level courses in the areas of integration as designated in their application. At least 12 of those credits must be at

the 400 level. It is recommended that students take research related courses (topics courses, seminars, research methodologies) in preparation of their Honours thesis 449 course.

- 12-credits of Integration Courses (ISCI). An ISCI course must be taken in a student's first term in the program. Since the topics of these courses may change from year to year, students should plan their programs to select ISCI courses in which they are most interested. Registration in ISCI courses will be limited, and ISP students will be given priority.
- In addition to the 12 ISCI credits mentioned above, students have to take the 1-credit seminar course ISCI 300.
- In addition to the Faculty continuation and graduation requirements for Honours students, ISP Honours students need to maintain a minimum average of 75% in each term of their tenure in the Honours ISP.

Options

Options within the ISP include the following:

- Directed studies in the ISP. The Integrated Sciences Program encourages directed study experiences for undergraduate students (courses numbered 448 in ISP or Science departments). Space is usually limited and ISP advisors will assist students wishing to apply to Science departments for directed study. Directed studies credits will not count towards the required credits of ISCI Courses.
- Minor. Students may, with the approval of their ISP mentor, undertake an optional Minor program in Arts or in Commerce in conjunction with the ISP.

Co-operative Education Program

Co-operative Education is a process of education which integrates academic study with related and supervised work experience in co-operating employer organizations. An optional Co-operative Education Program is available for students in the Integrated Sciences Program.

The Program is intended to help prepare interested and qualified students for research careers in industry, university, or government settings with 16 months of work placement (i.e. four work terms) in at least two different research areas supervised by scientists in industrial, academic, or governmental positions. Faculty advisors also visit students at their place of work and provide advice on technical reports required of all students in the program.

To be eligible, students must be in the Integrated Sciences program with at least high second-class standing, and they must have completed at least one semester in this program, which includes having taken at least one Integrated Sciences core course (ISCI). Admission is by application to the Science Co-op Office in conjunction with the application to the Integrated Sciences program, or in April prior to fourth year (transfer students may be considered later). Selection of students will be

based on academic performance and general suitability to the work environment as determined by resume and interview. The total enrolment will be subjected to the availability of appropriate work placements and faculty advisors.

The work placements are arranged by mutual agreement between students and employing organizations. Participating students register for ISCI 398, 399, 498, or 499 as appropriate, and pay the Cooperative Education Program fee per course (see *Program and Course Fees*, p. 28).

Graduation in the Co-operative Education Program for Integrated Sciences requires a student to complete all of ISCI 398, 399, 498, and 499, in addition to the normal academic requirements. Students can decide the timing of their work placements upon consultation with the Co-op office and with their academic advisor in ISP.

Two examples of standard schedules are:

- 1) ISCI 398 in Winter Session (Term Two) of third year, ISCI 399 in Summer Session following third year, ISCI 498 in Summer Session following fourth year, ISCI 499 in Winter Session (Term One) of fifth year.
- 2) ISCI 398 in Summer Session following third year, ISCI 399 in Winter Session (Term One) of fourth year, ISCI 498 in Winter Session (Term Two) of fourth year, ISCI 499 in Summer Session following fourth year. Students will have each satisfactorily completed course noted on their academic record.

Detailed information on the program can be obtained from the Coordinator for the Integrated Sciences Program or from the Office of Co-operative Education in Room 170, Chemistry and Physics Building, The University of British Columbia, 6221 University Boulevard, Vancouver, B.C. V6T 1Z1.

MATHEMATICS

The Department of Mathematics (www.math.ubc.ca) offers opportunities for study leading to doctoral, master's, and bachelor's degrees. For information on the Bachelor of Arts in Mathematics, see *Mathematics*, p. 142, in the Faculty of Arts section. For information on graduate degrees, see *Mathematics*, p. 264, in the Graduate Studies section.

Students should note that the first digit in the number of a course is intended to convey the level of mathematical maturity at which the course is conducted rather than the year in which it must be taken.

Co-operative Education Program

Detailed information is available from the Mathematics Department or the Co-operative Education Program Office, Room 170, Chemistry/Physics Building, 6221 University Blvd, Vancouver, B.C., V6T 1Z1, telephone 604-822-9677, fax 604-822-9676. Information is also available through the Science Co-op website (www.sciencecoop.ubc.ca).

Major Programs

The Department offers a large selection of courses in various areas of pure and applied mathematics and requiring various levels of mathematical sophistication. The student is advised to consult a Mathematics advisor during the second year or when considering a Major in Mathematics in order to design a coherent program of study suitable to the student's interests and abilities.

MAJOR (0456): MATHEMATICS (MATH)

First Year	
ENGL 100-level ¹	6
CHEM 111 ^{2,3}	0-4
MATH 100 or 102 or 104 (or 120 or 180 or 184) ⁴	3-4
MATH 101 or 103 or 105 (or 121)	3-4
PHYS 100-level ³	6
CPSC 111/211 or CPSC 111/MATH 210 ⁵	7-8
Laboratory requirement ⁶	0-2
BIOL, ASTR, EOSC, GEOG, or PSYC ⁷	3
Electives ^{8,9}	2-5
Total Credits ¹⁰	31-36

Second Year	
MATH 200 (or 226)	3
MATH 220 ¹¹	3
MATH 221 (or 223), 215 ¹²	6
Arts Elective	6
Elective(s) ^{8,9}	12
Total Credits	30

Third and Fourth Years	
Mathematics courses numbered 300 or above	24
MATH, STAT, or CPSC courses numbered 300 or above ¹²	6
Arts Elective	6
Electives ^{8,9}	24
Total Credits	60

Minimum Credits for Degree 120

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² This requirement applies only to students without credit for Chemistry 12.

³ Total credits in PHYS/CHEM courses must include 6 from beyond PHYS 100, CHEM 111.

⁴ See *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, *p. 16

⁵ One of these sequences must be completed during the first two years. Note: MATH 210 may not be offered every year.

⁶ All B.Sc. programs must include two terms of laboratory science. These may be stand-alone labs or parts of lecture-lab courses included in the other requirements listed above. Details are given at *Lower-Level Requirements*, p. 389.

⁷ Only courses eligible for credit in the Faculty of Science may be used to satisfy this requirement. Students without credit in BIOL 11 or BIOL 12 must use BIOL. This requirement may be deferred until second year.

⁸ Electives must be chosen to ensure that the program contains at least 48 credits from courses at the 300 level or above. The program must contain at least 72 credits in Science courses.

⁹ At least 9 credits must be chosen from outside the field of the major, i.e., outside MATH, STAT, and CPSC. Non-elective credits from First Year, includ-

ing credits described in footnote 7, cannot be used toward this requirement.

¹⁰ Students who earn more than 30 credits in first year may reduce the number of unrestricted electives taken in later years.

¹¹ Students obtaining 68% or higher in MATH 226 are not required to take MATH 220.

¹² MATH 215 may be deferred until third year.

Recommendations

The Department makes the following recommendations:

- 1) Mathematically able students are encouraged to take the honours stream MATH 120, 121, 223, 226, and 227.
- 2) In second year, MATH 221 should be taken in Term 1. It is possible to take (with appropriate prerequisites) some of MATH 307, 308, 312, 317, 340, and MATH/STAT 302 (as well as MATH 300) in the second year.
- 3) Students interested in pursuing statistics to some depth should take STAT 200 and MATH/STAT 302 in the second year. This will prepare them for more advanced Statistics courses such as STAT 305, 306, 404, and 405.
- 4) Major students should consider taking some of MATH 300, 320, 322.
- 5) MATH 302 and MATH 307 are courses which are useful in many areas of mathematics.
- 6) Students interested in operations research should take MATH 340, 441, 442, and 443. They are also advised to take MATH 303, STAT 305, and 306, and some advanced Computer Science courses.
- 7) Students interested in teaching are advised to take MATH 308, 309, 312, 313, 414, 446.
- 8) Students interested in becoming actuaries can make substantial progress toward this career goal while majoring in Mathematics or Statistics. These students should consult the actuarial advisors in the Mathematics and/or Statistics Departments for detailed advice on course selection and advice on taking the Society of Actuaries' exams.
- 9) Students interested in the physical sciences should take MATH 317 which is important for MATH 300, 316.
- 10) Students interested in Economics should consider taking ECON 420 and 421, and should consult an advisor in the Economics Department for other appropriate Economics courses. A joint Major in Mathematics and Economics is available. See below.
- 11) In selecting electives, students should consider pursuing an area of application of mathematics in some depth. They should also ensure that they fulfil all the graduation requirements of the Faculty of Science.

Major in Mathematical Sciences

The Major in Mathematical Sciences is offered with Departments of Computer Science and Statistics.

MAJOR (0185): MATHEMATICAL SCIENCES (MASC)

First Year	
ENGL 100-level ¹	6
CHEM 111 ^{2,3}	0-4
CPSC 111, 121	8
MATH 100 or 102 or 104 (or 120 or 180 or 184) ⁴	3-4
MATH 101 or 103 or 105 (or 121)	3-4
PHYS 100-level ⁵	6
BIOL, ASTR, EOSC, GEOG, or PSYC ⁶	3
Laboratory Requirement ⁷	0-2
Elective	3
Total Credits ⁸	32-40

Second Year	
CPSC 211, 213, 221 ⁹	12
MATH 200 (or 226), 221 (or 223)	6
MATH 220 ¹⁰	3
MATH/STAT 302	3
STAT 200	3
Arts Electives	6
Total Credits	33

Third and Fourth Years	
MATH 303 ¹¹ , 307, 215, 340	12
Four courses from CPSC 302, 303, 310, 313, 319, 320 ⁹	12
STAT 305, 306, 404	9
Arts Elective	6
Electives ^{12,13}	21
Total Credits	60
<i>Minimum Credits for Degree</i>	125

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² This requirement applies only to students without credit for CHEM 12.

³ Total credits in PHYS/CHEM courses must include 6 from beyond PHYS 100, CHEM 111.

⁴ See *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 16.

⁵ Total credits in PHYS/CHEM courses must include 6 from beyond PHYS 100, CHEM 111.

⁶ Only courses eligible for credit in the Faculty of Science may be used to satisfy this requirement. Students without credit in one of BIOL 11 or BIOL 12 must use BIOL. This requirement may be deferred until second year.

⁷ All B.Sc. programs must include two terms of laboratory science. These may be stand-alone labs or parts of lecture-lab courses included in the other requirements listed above. Details are given at *Lower-Level Requirements*, p. 389.

⁸ Students who earn more than 30 credits in first year may reduce the number of unrestricted electives taken in later years.

⁹ Students should note that some CPSC courses have enrolment restrictions. Registration in the program does not guarantee access to these courses.

¹⁰ Students obtaining 68% or higher in MATH 226 may replace MATH 220 with 3 credits of electives.

¹¹ MATH 418 may be substituted for Math 303.

¹² Electives must be chosen to ensure that the program contains at least 48 credits from courses at the 300 level or above.

¹³ At least 9 credits must be chosen from outside the field of the major, i.e., outside MATH, STAT, and CPSC. Non-elective credits from First Year

cannot be used toward this requirement.

MAJOR (1135): MATHEMATICS AND ECONOMICS (MATH, ECON)

First Year	
ENGL 100-level ¹	6
ECON 100, 102 ²	6
MATH 104 (or one of 100, 102, 120, 180, 184) ³	3-4
MATH 105 (or one of 101, 103, 121)	3-4
PHYS 100-level ⁴	6
CHEM 111 ^{4,5}	0-4
CPSC 111/211 or CPSC 111/MATH 210 ⁷	7-8
Laboratory Requirement ⁶	0-2
Elective(s) ^{9,10}	0-6
Total Credits ¹¹	31-36

Second Year	
ECON 304, 305	6
MATH 200 (or 226), 215, 220, 221 or 223	12
BIOL, ASTR, EOSC, GEOG, or PSYC ⁸	3
Electives ^{9,10}	9
Total Credits	30

Third and Fourth Years	
ECON 306, 325 ¹² , 326, 490	12
MATH 320	3
ECON courses numbered 300 or above	3
ECON courses number 400 or above	3
MATH courses numbered 300 or above ¹³	9
Science courses numbered 300 or above	18
Elective(s) ^{9,10}	12
Total Credits	60

Minimum Credits for Degree 121

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² This requirement can also be satisfied by taking ECON 307 and 3 additional credits of Economics numbered 300 or above.

³ See *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 16.

⁴ Total credits in PHYS/CHEM courses must include 6 from beyond PHYS 100, CHEM 111.

⁵ This requirement applies only to students without credit for Chemistry 12.

⁶ All B.Sc. programs must include two terms of laboratory science. These may be stand-alone labs or parts of lecture-lab courses included in the other requirements listed above. Details are given at *Lower-Level Requirements*, p. 389.

⁷ One of these sequences must be completed during the first two years. Note: MATH 210 may not be offered every year.

⁸ All students must take 3 credits in ASTR, BIOL, EOSC, or in PSYC and GEOG courses with Science credit. Students without credit in BIOL 11 or BIOL 12 must use BIOL to satisfy this requirement. This requirement may be deferred until second year.

⁹ The program must contain at least 72 credits in Science courses. It must include 48 credits from courses numbered 300 or higher.

¹⁰ At least 9 credits must be chosen from outside the field of the major, i.e., outside MATH, STAT, and CPSC. Non-elective credits (including those described in footnote 8) cannot be used toward this requirement.

¹¹ Students who earn more than 30 credits in first year may reduce the number of unrestricted electives taken in later years.

¹² STAT 200 can substitute for ECON 325.

¹³ Suitable electives include MATH 302, 303, 321, 402, 403, 418, 419, 443.

COMBINED MAJOR (1429): COMPUTER SCIENCE AND MATHEMATICS
Students admitted to this program must satisfy the admission and continuation requirements for majors students in both the Department of Mathematics and the Department of Computer Science.

First Year

ENGL 100-level ¹	6
CHEM 111 ^{2,3}	0-3
CPSC 111, 121 ⁴	8
MATH 100 or 102 or 104 (or 120 or 180 or 184) ⁵	3-4
MATH 101 or 103 or 105 (or 121)	3-4
PHYS 100-level ³	6
Laboratory Requirement ⁶	0-2
ASTR, BIOL, EOSC, GEOG or PSYC ⁷	3
Electives ⁸	0-3
Total Credits⁹	32-36

Second Year

CPSC 211, 213, 221	12
MATH 200 (or 226 ¹⁰)	3
MATH 220 ¹⁰	3
MATH 221 (or 223), 215 ¹¹	6
Arts Electives	6
Electives ^{8,12}	3
Total Credits	33

Third and Fourth Years

CPSC 310, 313, 320	10
CPSC 302 or 303	3
One of CPSC 402, 403, 420, 421	3
CPSC courses numbered 300 or higher	3
CPSC courses numbered 400 or higher	3
MATH courses numbered 300 or higher	21
Arts Elective	6
Electives ^{8,12,13}	12
Total Credits	61
<i>Minimum Credits for Degree</i>	<i>126</i>

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until 2nd year.

² Students with credit for Chemistry 12 may replace CHEM 111 with CHEM 121 or with 3 credits of electives.

³ Total credits in PHYS and CHEM must include 6 from PHYS 100, CHEM 111.

⁴ Students pursuing a Co-op program are advised to add CPSC 211 to their course selections in first year.

⁵ See UBC-SFU-UVIC-UNBC Calculus Examination Certificate, p. 16.

⁶ All B.Sc. programs must include two terms of laboratory science. These may be stand-alone labs or parts of lecture-lab courses included in the other requirements listed above. Details are given at *Lower-Level Requirements*, p. 389.

⁷ Only courses eligible for credit in the Faculty of Science may be used to satisfy this requirement. Students without credit in BIOL 11 or BIOL 12 must use BIOL. This requirement may be deferred until 2nd year.

⁸ At least 9 elective credits must be chosen from outside the field of the major, i.e., outside MATH, STAT, and CPSC. Non-elective credits from First

Year, including credits described in footnote 7, cannot be used toward this requirement.

⁹ Students who earn more than 32 credits in first year may reduce the number of unrestricted electives taken in later years.

¹⁰ Students obtaining 68% or higher in MATH 226 may replace MATH 220 with 3 credits of electives.

¹¹ MATH 215 may be deferred until third year.

¹² STAT 200 is recommended.

¹³ Electives must be chosen to ensure that the program contains at least 48 credits from courses at or above the 300 level.

Honours Programs

Students planning to take a Bachelor of Science with Honours in Mathematics, or in Mathematics combined with another subject, should note the following:

- 1) To be admitted into an Honours Mathematics program, a student must obtain at least 68% in MATH 121 or average at least 80% in 6 credits of 100-level MATH courses. Honours degree candidates are expected to maintain an overall 68% average, complete all courses attempted, and complete at least 30 credits in every winter session.
- 2) The courses MATH 120, 121, 223, 226, and 227 provide a firmer foundation for advanced study than the alternatives shown in parentheses.
- 3) Students are encouraged to choose electives that result in studying another subject to substantial depth.
- 4) For students who plan to work in Mathematics, study in French, German, or Russian is recommended.

HONOURS (0166): MATHEMATICS (MATH)

First Year

ENGL 100-level ¹	6
CHEM 111 ^{2,3}	0-4
MATH 120 (or 100 or 102 or 104 or 180 or 184)	4(3)
MATH 121 (or 101 or 103 or 105)	4(3)
PHYS 107, 108 (or 100 level) ³	6
CPSC 111/211 or CPSC 111/MATH 210 ⁴	7-8
Laboratory Requirement ⁵	0-2
BIOL, ASTR, EOSC, GEOG, or PSYC ⁶	3
Electives	0-6
Total Credits⁷	31-36

Second Year

MATH 226 (or 200), 227 (or 317)	6
MATH 223 (or 221)	3
MATH 220 ⁸	3
MATH 215 ⁹	3
Arts Electives	6
Electives ¹⁰	15
Total Credits⁷	36

Third and Fourth Years

MATH 300, 320, 321, 322 ¹¹	12
MATH 412 or 422 ¹¹	3
15 credits ¹¹ from MATH 400-405, 412, 416-429, 433-440, 443, 449 ¹²	15
Mathematics courses numbered 300 or above	9

Third and Fourth Years (Continued)

Science courses numbered 300 or above ¹³	12
Arts Elective	6
Electives	9
Total Credits⁷	66
<i>Minimum Credits for Degree</i>	<i>132</i>

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² This requirement applies only to students without credit for Chemistry 12.

³ Total credits in PHYS/CHEM courses must include 6 from beyond PHYS 100, CHEM 111.

⁴ This requirement must be completed in the first two years. Note that MATH 210 may not be offered every year.

⁵ All B.Sc. programs must include two terms of laboratory science. These may be stand-alone labs or parts of lecture-lab courses included in the other requirements listed above. Details are given at *Lower-Level Requirements*, p. 389.

⁶ Only courses eligible for credit in the Faculty of Science may be used to satisfy this requirement. Students without credit in one of BIOL 11 or BIOL 12 must use BIOL. This requirement may be deferred until second year.

⁷ The program requires at least 30 credits in each Winter Session. Subject to this restriction, students who earn more than 30 credits in first year may reduce the number of unrestricted electives taken in later years.

⁸ Students obtaining 68% or higher in MATH 226 may replace MATH 220 with 3 credits of electives.

⁹ MATH 215 may be deferred until third year.

¹⁰ PHYS 206 is recommended.

¹¹ An overall 68% average is required in these 30 credits to obtain a Bachelor of Science with Honours.

¹² MATH 449 is recommended.

¹³ Recommended: PHYS 301, 304; CPSC 302, 303; STAT 460, 461.

COMBINED HONOURS: MATHEMATICS (MATH) WITH ANOTHER SUBJECT

First Year

Same as Mathematics Honours.

Second Year

Same as Mathematics Honours.

Third and Fourth Years

MATH 320, 321 ¹	6
9 credits ¹ from MATH 300, 301, 316, 322, 331	9
12 credits ¹ from MATH 400-405, 412, 416-429, 433-440, 443, 449	12
Arts Elective	6
Electives ²	33
Total Credits	66

¹ A 68% overall average is required in these 27 credits to obtain a Bachelor of Science with Honours in Mathematics.

² Including courses as specified by the other department, but not exceeding 30 credits in third and fourth year.

MICROBIOLOGY AND IMMUNOLOGY

The Department of Microbiology and Immunology (www.microbiology.ubc.ca) offers opportunities for study leading to doctoral, master's, and bachelor's degrees. For information on graduate degrees, see *Microbiology and Immunology*, p. 266, in the Faculty of Graduate Studies section.

The Department offers versatile major and Honours programs leading to the Bachelor of Science. All students take the same core courses but appropriate choices of selections allow students to develop training in diverse areas such as applied microbiology, environmental microbiology, immunology, medical microbiology, microbial physiology, molecular genetics, and virology. Enrolment in the MBIM Honours programs, and the combined CPSC/MBIM Honours programs, require a sustained, annual academic average above 75% in second, third, and fourth year of these programs.

Co-operative Education Program: Biotechnology in Microbiology and Immunology

This optional program integrates academic study with related and supervised work experience. The work placements are arranged by mutual agreement between the students and the employing organizations. Enrolment is limited. Admission is by application to the Science Co-op Office in February prior to third year (transfer students may be considered later). Selection will be based on previous academic performance and general suitability to the work environment as assessed by resumé and interview. Admissibility to the third-year Microbiology and Immunology Bachelor of Science program is prerequisite for admission. Graduation from the Co-op program requires completion of four work terms, the normal courses required for the program. Detailed information is available from the Department of Microbiology and Immunology (www.microbiology.ubc.ca) or the Co-operative Education Program Office, Room 170 Chemistry & Physics Building, The University of British Columbia, 6221 University Boulevard, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.science-coop.ubc.ca).

Programs

MAJOR (1153): MICROBIOLOGY AND IMMUNOLOGY

First Year	
BIOL 112	3
BIOL 121, 140 ¹	5
CHEM 121, 123 (111, 113)	8
ENGL 100-level ²	6
MATH 100 or 102 or 104 (or 180 or 184 or 120) ³	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 4,5	6(3)
Electives ^{4,5}	0(3)
Total Credits ⁵	34(36)

Second Year	
BIOL 200, 201	6
CHEM 205, 233, 235 ⁷	7
MICB 202	3
Electives ^{5,6}	15
Total Credits ⁵	31
Third Year ⁸	
BIOL 335	3
MICB 300, 302, 322, 323	12
Third or Fourth Year ⁸	
BIOC 302 ⁹	3
MICB 324 ¹⁰	3
Additional MICB selections.	9
Another MICB selection or a selection from BIOC 402, 403, 410; BIOL 316, 334, 421; CHBE 381, MEDG 421; EOSC 475	3
Electives ⁵	21
Fourth Year ⁸	
MICB 401	3
MICB 421	3
Minimum Credits for Degree ⁸	125

- Students lacking Biology 11 or Biology 12 must take BIOL 111 before taking BIOL 112.
- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- All of these courses are suitable prerequisites for later MATH courses. They differ in the expected student background and the types of examples used in the problems.
- Students require 6 credits of PHYS, including PHYS 101 in order to graduate. Students lacking Physics 12 must take PHYS 100 before taking PHYS 101, the PHYS 101 may be deferred to second year. Students with Physics 12 may take PHYS 101 as the first course in PHYS and defer the second 3 credits of PHYS until any time before they graduate. This second PHYS may be taken at any level.
- The 36 elective credits in the program must include: a) At least 12 credits numbered 300 or higher to meet the Faculty requirement for 48 credits of upper-level courses; b) At least 12 credits from the Faculty of Arts (in addition to the 6 credits of first year English); c) At least 9 credits outside the field of the major. These credits must be taken as science courses from other departments in the Faculty of Science or courses in the Faculty of Arts. The field of the major is defined as the named courses and selections in the program, all MICB and BIOL courses and all courses offered in the Faculty of Medicine for Science credit; d) At least 3 credits of either CPSC or additional MATH or STAT or BIOL 300 to meet the Faculty requirement for a program total of at least 9 credits of computational credits.
- BIOL 240 is a recommended elective.
- CHEM 201 may be substituted for CHEM 205. The combination of CHEM 203 and 204 are accepted as a substitute for CHEM 205, 233, and 235 if students have credit for CHEM 203 and 204.
- The minimum total program requirement is 125 credits. The normal course load for the program is 30 credits in each Winter Session of third or fourth year.
- BIOC 303 may be substituted for BIOC 302 by using three credits of elective space.
- Until September 2001 students were required to take MICB 409 or BIOL 334. That requirement has been replaced with MICB 324 for students entering third year on or after September 2002. The genetics courses may be taken as selections.

HONOURS (1154): MICROBIOLOGY AND IMMUNOLOGY (MBIM)

First and Second Years	
Same as for Major. ¹	65 (67)
Third Year ¹	
BIOL 335	3
MICB 300, 302, 322, 323	12
Third or Fourth Year ¹	
BIOC 302 ²	3
MICB 324 ³	3
Additional MICB	12
Another MICB course or a selection from BIOC 402, 403, 410; BIOL 316, 334, 421; CHBE 381, MEDG 421; EOSC 475	3
Electives ⁴	18
Fourth Year ¹	
At least one of MICB 404, 406, 410 or 412	3
MICB 401, 421, 430, 449	15
Minimum Credits for Degree ¹	137

- The minimum total of 137 credits must include 60 credits of upper level Science or Arts courses and a total of at least 90 credits of Science courses. The Science courses must include 3 credits of PHYS in addition to PHYS 101. The maximum number of courses permitted in a Winter Session is 36 credits and the minimum is 30 credits.
- BIOC 303 may be substituted for BIOC 302 by using 3 credits of elective space.
- Until September 2001 students were required to take MICB 409 or BIOL 334. That requirement has been replaced with MICB 324 for students entering third year on or after September 2002. The genetics courses may be taken as selections.
- The 33 elective credits in the program must include: a) At least 12 credits numbered 300 or higher; b) At least 12 credits from the Faculty of Arts (in addition to the 6 credits of first year English); c) At least 3 credits of CPSC or additional MATH or STAT or BIOL 300 to meet the Faculty requirements for a program total of at least 9 credits of computational credits.

COMBINED MAJOR (1371): COMPUTER SCIENCE & MICROBIOLOGY AND IMMUNOLOGY

First Year	
BIOL 112, 140 ¹	5
CHEM 121, 123 (111, 113)	8
CPSC 111, 121 ²	8
ENGL 100-level ³	6
MATH 100 or 102 or 104 (or 180 or 184 or 120) ⁴	3(4)
MATH 101 or 103 or 105 (or 121) ⁴	3(4)
Elective ^{5,6}	3
Total Credits	36(38)
Second Year ⁵	
BIOL 200, 201	6
CHEM 233, 235	4
CPSC 211, 213 and 221	12
MICB 202	3
At least 6 credits selected from BIOL 240 ⁶ , BIOL 300, CHEM 205 ⁷ , MATH 200, MATH 221, STAT 200, STAT 241 ⁶	6(7)
Total Credits	31(32)

Third Year ¹⁰	
BIOL 335 or BIOC 302 ⁷	3
MICB 300, 302, 322 ⁸	9
CPSC 310 and 320	7

Third or Fourth Year ¹⁰	
CPSC 313	3
MICB 324	3
MICB 323 or MICB 401	3
Additional CPSC at or above 300 level	6
Electives ^{5,6,7,9}	15

Fourth Year ¹⁰	
CPSC 445	3
MICB 405	3
Additional CPSC at 400 level	3
Additional MICB at 400 level	3
<i>Minimum Credits for Degree</i>	128

¹ Students lacking Biology 11 or Biology 12 must take BIOL 111 before taking BIOL 112.

² Students intending to pursue Co-op may include CPSC 211 in the first year in order to use the CPSC model for Co-op that starts after first year. Alternatively they may use the MICB model for Co-op that starts in third year.

³ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and ENGL 121. 3 credits of first year ENGL may be deferred to second year.

⁴ Each of these courses are suitable prerequisites for any later MATH courses. They differ in the expected student background and the types of examples used in the problems.

⁵ BIOL 121 is a mandatory requirement for all advanced BIOL courses except BIOL 200, 201, 334, and 335. Students lacking Physics 12 must take PHYS 100 to meet the lower-level course requirements for a B.Sc.

⁶ Additional MATH or STAT would be beneficial. BIOL 240 is recommended. Some of the courses in the selection list are on the credit exclusion list. Only one course on the list can count for credit. Students may substitute an elective in second year and defer 3 credits of this 6-credit selection requirement to third year.

⁷ CHEM 205 is a necessary prerequisite if students intend to choose BIOC 302 or 303 as an elective in third or fourth years.

⁸ Space in MICB 322 is limited. Availability depends on the demand by the other programs. Students must complete MICB 322 to be accepted to the program.

⁹ The calculation requirements and breadth requirements of the Faculty of Science are satisfied by the combination of programs in the combined major. However, the 18 elective credits in the program must include: a) Three credits numbered 300 or higher to meet the Faculty requirement for 48 credits of upper-level courses; b) At least 12 credits from the Faculty of Arts (in addition to the 6 credits of first year English).

¹⁰ The normal course load for the program is 30 credits in one Winter Session and 31 credits in the other Winter Session of third and fourth year.

COMBINED HONOURS (1373): COMPUTER SCIENCE & MICROBIOLOGY AND IMMUNOLOGY

First Year	
BIOL 112 ¹ , 140	5
CHEM 121, 123	8
CPSC 111, 121	8
ENGL 100-level ²	6
One of MATH 120, 100, 102, 104, 180, 184	3(4)
One of MATH 121, 101, 103, 105	3(4)
Electives ^{3,4}	3
Total Credits	36(38)

Second Year ⁵	
BIOL 200, 201	6
CHEM 205, 233, 235 ^{6,7}	7
CPSC 211, 213 ⁶ , 221	12
MATH 200 ⁶	3
MICB 202	3
Elective ⁴	3
Total Credits	34

Third Year ^{5,8}	
BIOC 302	3
BIOL 335	3
CPSC 310, 320	7
MICB 300, 302, 322 ⁹ , 324	12
STAT 200	3

Third or Fourth Year ^{5,8}	
One of CPSC 304, 313, 420, 421 ¹⁰	3
CPSC courses numbered 300 or above	6
One of MICB 323, 401 ¹⁰	3
MATH/STAT 302	3
Electives ⁴	9

Fourth Year ^{5,8}	
CPSC 445	3
MICB 405	3
One of MICB 402, 403, 404, 406, 409, 410, 412	3
CPSC 449 or MICB 449 ¹¹	6
<i>Minimum Credits for Degree</i>	137

¹ Students lacking Biology 11 or Biology 12 must take BIOL 111 before taking BIOL 112.

² ENGL 112, 120, and 121 are recommended courses.

³ BIOL 121 is required for all upper-level biology courses except BIOL 200, 201, 334, and 335.

⁴ Students lacking Physics 12 must take PHYS 100 to meet the lower-level course requirements for a B.Sc. The program requires a minimum of 12 credits of Arts courses. Students with suitable PHYS and Arts credits from other sources may substitute open electives. BIOL 240 is recommended in the second year.

⁵ To continue in the program students must maintain at least 75% average in the second, third, and fourth year.

⁶ One of CHEM 235, CPSC 213, or MATH 200 can be deferred to third year.

⁷ Transfer students with credit for CHEM 203 and CHEM 204 are exempted from the requirement for CHEM 205, 233, and 235. CHEM 201 may be substituted for CHEM 205.

⁸ Typical course loads are 15 to 18 credits per term. To be in an Honours Program students must complete a minimum of 30 credits in each Winter Session.

⁹ Space in MICB 322, 323 is limited. Students must complete MICB 322 in third year to stay in the program.

¹⁰ We recommend that at least one of the remaining courses be taken as part of the 6 credits of CPSC courses numbered 300 or above.

¹¹ The thesis topic must be related to Bioinformatics. Students intending to take CPSC 449 should take CPSC 349 in their third year.

PHARMACOLOGY

The Department of Anesthesiology, Pharmacology, and Therapeutics (www.pharmacology.ubc.ca) offers opportunities for study leading to doctoral, master's, and bachelor's degrees. For information on graduate degrees, see *Pharmacology*, p. 272, in the Graduate Studies section. For further information on other courses within the department, see the *Faculty of Medicine*, p. 321. All students who intend to take the B.Sc. in Pharmacology must consult the undergraduate advisor.

Enrolment in PCTH 300 is restricted to students in the third year of the various Pharmacology programs. Students who wish to enter Pharmacology programs need to have completed all prerequisites and obtained an average of greater than 75% in each of their first and second years.

The aim of the programs is to produce a graduate broadly trained in all aspects of pharmacology. The programs emphasize the experimental and laboratory aspects of pharmacology and students learn both whole animal and isolated tissue techniques as well as biochemical and chemical procedures. Skills that are stressed include the ability to search for information, design appropriate experiments, carry out experiments individually and as a member of a team, analyse data, and communicate and write effectively.

Co-operative Education Program

The Department offers an optional five-year Co-operative Education program (Honours and Major). In addition to classical laboratory-based university instruction, the student will receive 12 to 16 months of work placement (i.e., three to four work terms) in at least two different research areas supervised by scientists in a pharmaceutical company or equivalent. The work placements are arranged by mutual agreement among students, faculty, and employing organizations. Faculty advisors will visit students at their place of work and provide advice on technical reports. Work placement starts in May or September after the completion of third year and continues through fourth year.

Students in the Honours program will take additional credits in second, third, and fifth years and will conduct a laboratory-based research project for six months (September to March) during fifth year within the Department and present an Honours thesis (PCTH 449). Students participating in the Co-op program register for PCTH 398, 399, and 498, in addition to the normal academic requirements, and pay the Co-op Education program fee for each course (see *Program and Course Fees*, p. 28, in this Calendar). PCTH 499 is optional for stu-

dents who wish to have four work placements.

Admission

Students must apply to the Department for admission to the B.Sc. and B.Sc. Co-op program no later than March 31 prior to third year. Selection of students will be based on academic performance and suitability for pharmacological research. Detailed information on the program may be obtained from the Department of Anesthesiology, Pharmacology and Therapeutics, The University of British Columbia, 2176 Health Sciences Mall, Vancouver, BC, V6T 1Z3.

Programs

FIRST-YEAR REQUIREMENTS

First Year	
ENGL 100 level ¹	6
BIOL 112, 121 ² , 140	7
CHEM 121, 123 (111, 113)	8
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS ³	6
Total Credits	33

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² Students lacking BIOL 12 must take BIOL 111 before taking BIOL 121.

³ At least 3 credits of PHYS in addition to PHYS 101.

MAJOR (0311): PHARMACOLOGY (PCTH)

Second Year	
BIOL 200, 201	6
CHEM 201 (or 205)	3
CHEM 211	4
CHEM 233, 235 ¹	4
MICB 202	3
BIOL 300 (or STAT 200)	3
Electives ^{2,4}	9
Total Credits	32

Third and Fourth Years

BIOC 301 ³	3
BIOC 302, (303)	3-6
PCTH 300, 302, 400, 404	18
PHYL 301	6
Electives ^{2,4}	30-27
Total Credits	60

Minimum Credits for Degree 125

¹ The combination of CHEM 203 and 204 are accepted as a substitute for CHEM 233 and 235 if students have credit for CHEM 203 and 204.

² Electives include: a) Sufficient courses numbered 300 or higher in Arts or Sciences to meet the Faculty requirements for 48 credits of upper-level courses; b) At least 12 credits from the Faculty of Arts (in addition to ENGL); c) At least 9 credits must be Arts or Science electives outside field of the Major. The Field of the Major is defined as most, BIOC, BIOL, PCTH, and PHYL courses, and most courses offered for Science credit by departments in the Faculty of Medicine.

³ Must be taken in third year.

⁴ Suggested electives: ANAT 390, 391; ASTR 101,

102; BIOC 410; BIOL 331, 334, 335, 442; CPSC 122, 128 or 124, 126; EOSC 110, 120, 326, 370; MEDG 410, 419, 420; MICB 302, 403, 405; PATH 375; PCTH 448; PHIL 120, 125; PHYL 422, 423, 424, 426; PHYS 330, 405; PSYC 100, 263.

HONOURS (0019): PHARMACOLOGY (PCTH)

Second Year	
BIOL 200, 201	6
CHEM 201 (or 205)	3
CHEM 211	4
CHEM 233, 235 ¹	4
MICB 202	3
BIOL 300 (or STAT 200)	3
Electives ^{2,3}	15
Total Credits	38

Third and Fourth Years

BIOC 301, 303 ⁴	9
PCTH 300, 302	9
PCTH 400, 402, 404	15
PCTH 449	3-6
PHYL 301	6
PHYL 303 ⁵	3
PHYL 422 or 423 or 424	3
Electives ^{3,5,6}	21-15
Total Credits	66

Minimum Credits for Degree 136

¹ The combination of CHEM 203 and 204 are accepted as a substitute for CHEM 233 and 235 if students have credit for CHEM 203 and 204.

² Electives include: a) Sufficient courses numbered 300 or higher in Arts or Science to meet the Faculty requirement for 48 credits of upper-level courses; b) At least 12 credits from the Faculty of Arts (in addition to ENGL).

³ Suggested electives: ANAT 390, 391; ASTR 101, 102; BIOC 410; BIOL 331, 334, 335, 442; CPSC 122, 128 or 124, 126; EOSC 110, 120, 326, 370; MEDG 410, 419, 420; MICB 302, 403, 405; PATH 375; PCTH 448; PHIL 120, 125; PHYL 422, 423, 424, 426; PHYS 405; PSYC 100, 263.

⁴ Must be taken in third year.

⁵ Students in the Co-op program can replace PHYL 303 with a 3-credit Science elective.

⁶ Electives include: a) Sufficient courses numbered 300 or higher in Arts or Sciences to meet the Faculty requirements for 48 credits of upper-level courses; b) At least 12 credits from the Faculty of Arts (in addition to ENGL); c) At least 9 credits must be Science electives outside field of the Major. The Field of the Major is defined as most, BIOC, BIOL, PCTH, and PHYL courses, and most courses offered for Science credit by departments in the Faculty of Medicine.

PHYSICS

The Department of Physics and Astronomy (www.physics.ubc.ca) offers opportunities for study leading to bachelor's, master's, and doctoral degrees. For information on graduate degrees, see *Physics*, p. 274, in the Graduate Studies section.

Students may select their electives so as to obtain a concentration in an area of their interest. See the *Physics and Astronomy Program Guide* (www.physics.ubc.ca/undergrad/programs.php) for an outline of appropriate courses and other information. Students entering second-year Physics or Astronomy programs are encouraged (but not required) to obtain program approval before registering.

Any second-year student who meets program requirements may simply register in either Honours or Major using the appropriate program descriptions. Continuing third- and fourth-year Physics or Astronomy students making satisfactory progress do not require program approval. Students wishing to transfer into Physics or Astronomy in third year must contact the Department to obtain program approval.

Students in the General Science program are invited to consult a departmental advisor concerning appropriate courses.

Courses Primarily for First-Year Science Students

Physics 11 (BC secondary school) or equivalent is a prerequisite for all students entering the Faculty of Science. Students lacking Physics 11, but wishing to enter, should submit a special appeal to Enrolment Services with their application to take PHYS 100.

Science students with Physics 11, but not Physics 12 are required to take 3 credits of Physics. Normally this requirement is met by taking PHYS 100. PHYS 101, 102 or 107, 108, 109 constitute a standard first-year Physics program.

PHYS 100 is intended primarily for students who have completed only BC secondary school Physics 11 or its equivalent. Credit will not be given to students with credit for Physics 12.

PHYS 101 normally requires Physics 12 or PHYS 100. Students with only Physics 11 but with a good mathematics background may with permission from an advisor skip PHYS 100 and enrol in PHYS 101. They will still need to take six credits of Physics. Credit will be given for only one of PHYS 101, 107.

PHYS 107 is open to students who have obtained an 'A' in Physics 12 and Mathematics 12, and who are particularly interested in physical science and/or its application to other fields or disciplines.

Students planning to go into Physics or Applied Science (and some other programs) are required to take PHYS 102, or PHYS 108 plus PHYS 109, in addition to PHYS 101 and 107. PHYS 102 has PHYS 101 or 107 as prerequisite, while PHYS 108 requires either PHYS 107, or PHYS 101 with an 'A' standing. Admission into second-year Honours Physics generally requires PHYS 107, 108, 109, and a clear first-year pass with either overall second-class standing in 30 credits or at least 68% in each of PHYS 107, 108, 109, and MATH 100, 101 (120, 121). Students who were not eligible for PHYS 107, 108 may substitute PHYS 101, 102 provided all other minimum requirements were also met. Credit will only be given for one of PHYS 102, 108. Science One satisfies the entrance requirement for all physics programs.

Non-science students without Physics 11 may take PHYS 100 in their second or later year.

Courses for Students Not Specializing in Physics

PHYS 330 (3) is primarily for students in the Faculty of Science who are not specializing in Physics.

PHYS 340 (3), 341 (3), and 343 (3) are for students not in the Faculty of Science. PHYS 317 (3) and PHYS 318 (3) are recommended for General Science, pre-architecture, and education students.

Co-operative Education Program

Co-operative education is a process of education which integrates academic study with related and supervised work experience in co-operating employer organizations.

A Co-operative Education program is available for students in Physics. The program is intended to help prepare interested and qualified students for research careers in industry with twenty months of work placement supervised by practising professionals. Faculty advisors also visit students at their place of work and provide advice on technical reports required of all students in the program.

To be eligible, students must be admissible into the second-year Physics Bachelor of Science program with second-class standing. Admission is by application to the Co-op Office in April prior to second year (transfer students may be considered later). Selection of students will be based on academic performance and general suitability to the work environment as determined by resume and interview. The total enrolment will be subject to the availability of appropriate work placements and faculty advisors. The work placements are arranged by mutual agreement between students and employing organizations. Participating students register for PHYS 298, 299, 399, 498, or 499 as appropriate, and pay the co-operative education program fee per course (see *Program and Course Fees*, p. 28, in this Calendar).

Graduation in the program requires a student to complete each of PHYS 298, 299, 399, 498 and 499, in addition to the normal academic requirements. Students will have each satisfactorily completed course noted on their academic record.

Detailed information on the program may be obtained from the Department of Physics or from the Co-operative Education Program Office, Room 309 Hennings Building, The University of British Columbia, 6224 Agricultural Road, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.sciencecoop.ubc.ca).

Programs

MAJOR (0524): PHYSICS (PHYS)

First Year

ENGL 100-level ¹	6
CHEM 121 (111)	4
MATH 100 level ²	6-8
PHYS 107, 108, 109 (101, 102) ³	7(6)
Electives ⁴	6-8
Total Credits	30-33

Second Year⁵	
MATH 200 ⁶	3
MATH 215, 221	6
PHYS 200 ⁷ , 216 ⁷	6
PHYS 209	3
Electives ⁴	12
Total Credits	30

Third Year⁸	
MATH 317 ⁶	3
PHYS 309 or 319	3
PHYS 312	3
PHYS 313, 412 ⁹	6
PHYS/ASTR Elective ¹⁰	3
Electives ^{4,7}	12
Total Credits	30

Fourth Year¹¹	
PHYS 301 or 354	3
PHYS 308	3
PHYS 349, 409 or 420	3
PHYS/ASTR Electives ¹⁰	6
Electives ⁴	15
Total Credits	30

Minimum Credits for Degree 120

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. Three credits of first-year English may be deferred to second year.

² One of MATH 100, 102, 104, 180, 184, or 120 and one of MATH 101, 103, 105, or 121.

³ Students without Physics 12 must normally take PHYS 100 prior to PHYS 101 or 107, such students should seek academic advice before registering. Qualified students are encouraged to take PHYS 107/108/109.

⁴ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and a further 9 total elective credits in Arts or Science outside the field of the Major (Physics, Astronomy, Mathematics, are therefore excluded). Students without Biology 11 or 12 must take 3 credits of 100-level BIOL. For students with Biology 11 or 12 at least 3 credits must be a science course, ASTR, BIOL, EOSC, or Science credit GEOG, or PSYC. Up to 12 elective credits may be taken in any courses in Arts or Science, including the field of the Major. Enough elective credits in Arts of Science courses numbered 300 or higher must be taken so that the program's total number of Arts and Science credits at the 300-level or higher is at least 48, with at least 30 of these credits being in Science. A Computer Science course numbered 100 or higher is recommended. Students interested in senior chemistry courses or who are planning to enter a career in teaching are reminded that they should take a second course of introductory chemistry.

⁵ Admission requirement: overall average of 60% in first-year Physics or permission of the Department Head.

⁶ Students with sufficiently high grades in first-year MATH may take MATH 217 and 2 credits of electives instead of MATH 200 and MATH 317.

⁷ Students may opt to take PHYS 200 or PHYS 216 in third year, in exchange for an additional 3 credits of electives in second year. Qualifying students may replace PHYS 216 with PHYS 206.

⁸ Consultation with a Physics departmental advisor is recommended before entering third and fourth year.

⁹ PHYS 304 may be taken in place of, or in addition to, PHYS 412.

¹⁰ To be chosen from ASTR or PHYS courses 300-level and above. Some courses intended for Honours students require approval from appropriate instructor(s).

¹¹ PHYS 203 or the combination CHEM 201 and CHEM 304 may replace PHYS 313.

COMBINED MAJOR (1391): COMPUTER SCIENCE AND PHYSICS
See *Computer Science*, p. 408, section.

HONOURS (0344): PHYSICS (PHYS)

First Year

ENGL 100-level ¹	6
CHEM 121 (111) ²	4
MATH 120 (100 or 102 or 104 or 180 or 184) ²	4(3)
MATH 121 (101 or 103 or 105) ²	4(3)
PHYS 107, 108, 109 (101, 102) ^{2,3}	7(6)
Electives ⁴	8
Total Credits	30-33

Second Year⁵

MATH 217 ⁶ , 223 ⁷	7
MATH 215, 300	6
PHYS 200, 203	6
PHYS 209 ⁸ , 206	6
Electives ⁴	12
Total Credits	37

Third Year

MATH 316	3
MATH 302 or 318	3
PHYS 301, 401	6
PHYS 304, 402	6
PHYS 309 or 319	3
PHYS 308 ⁹	3
Electives ^{4, 10}	9
Total Credits	33

Fourth Year

MATH 400 ¹¹	3
PHYS 449 ¹²	6
PHYS 403 ¹³	3
PHYS 409	3
Electives ^{4, 14}	18
Total Credits	33

Minimum Credits for Degree 133

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred until second year.

² First-year Physics, Biology, Chemistry, and Mathematics can be replaced by Science One (25 credits).

³ Students without Physics 12 should consult departmental advisor as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 107.

⁴ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and 6 credits from the Faculty of Science. Students without Biology 11 or Biology 12 must take 3 credits of 100-level BIOL. For students with Biology 11 or 12 at least 3 credits must be a science course, ASTR, BIOL, EOSC, or Science credit GEOG, or PSYC. At least one computer science course recommended. Students interested in senior chemistry courses or who are planning to enter a career in teaching are reminded that they

should take a second course of introductory chemistry. In first year, 2 of the elective credits can be used to take the 4 credit math courses MATH 120 and 121.

⁵ Admission Requirements: A clear pass from first year with an overall standing of at least 68% in each first-year Physics and Mathematics course. An average standing of at least 68% must be obtained in each year to remain in the Honours program.

⁶ Students who are interested in taking MATH 320, 321 later in their program are advised to substitute MATH 226, 227 for MATH 217. MATH 200, 317 can also be substituted for MATH 217. Either substitution would require using 3 credits of Science elective.

⁷ MATH 221 or MATH 152 can be substituted for MATH 223 under exceptional circumstances. MATH 223 can be taken in first year.

⁸ Co-op students should replace PHYS 209 with PHYS 259 and make up an additional credit in Year 3 or Year 4 by taking PHYS 389.

⁹ PHYS 308 can be deferred to the fourth year or replaced by PHYS 458 in fourth year.

¹⁰ Students who are interested in mathematical physics are encouraged to take MATH 320 and MATH 321 as electives. At least 3 credits must be a 300- or 400-level Physics or Astronomy course.

¹¹ With permission of the head of the department, another course may replace MATH 400.

¹² Co-op students may substitute other Physics courses with the permission of the head of the department.

¹³ PHYS 403 may be replaced by PHYS 455.

¹⁴ A minimum of 6 elective credits must be at least 400-level Physics or Astronomy courses. Suggested fourth-year electives are ASTR 402, 403, 404; EECE 480; MATH 345, 401, 402, 405, 418, 420, 450; PHYS 400, 405, 407, 410, 437, 447, 473, 474. Qualified students are encouraged to take 500-level Physics courses for which they must have permission of the Faculty of Science and the Dean of the Faculty of Graduate Studies.

HONOURS (1093): BIOPHYSICS (BIOP)

First Year

ENGL 100-level ¹	6
PHYS 107, 108, 109 (101, 102) ^{2,3}	7(6)
BIOL 112, 140 ^{2,4}	4
CHEM 121, 123 (111, 113) ²	8
MATH 120 (or 100 or 102 or 104 or 180 or 184) ²	4(3)
MATH 121 (or 101, 103 or 105) ²	4(3)
Elective ⁵	3-4
Total Credits	37-33

Second Year⁶

PHYS 200, 209	6
PHYS 203 or CHEM 201 ⁷	3
PHYS 206 ⁸	3
BIOL 200, 201 (240) ⁹	6-7
CHEM 233, 235	4
MATH 217 ¹⁰	4
MATH 215	3
MATH 223 (221)	3
Elective ⁵	3
Total Credits	35(36)

Third Year

PHYS 301, 304	6
PHYS 309 or 319	3
PHYS 305	3
BIOC 302 ¹¹	3

Third Year (Continued)

MATH 300, 316	6
MATH 318	3
Bio-Science Elective ¹²	3
Electives ⁵	9
Total Credits	36

Fourth Year

PHYS 403 or 455	3
BIOC, BIOL, MICB, or PHYS 449	6
Bio-Science Electives ¹²	15
Electives ⁵	6
Total Credits	30

Minimum Credits for Degree 134

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² First-year Physics, Biology, Chemistry, and Mathematics can be replaced by Science One (25 credits).

³ Students without Physics 12 should consult departmental advisor as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 107.

⁴ BIOL 112 is the preferred prerequisite for BIOL 200. Students in Biophysics program may substitute BIOL 112 with BIOL 121. Students without Biology 11 and 12 should consult departmental advisor as early as practical. Normally they must take BIOL 111 prior to BIOL 112 or 121.

⁵ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and 6 credits from the Faculty of Science.

⁶ Admission Requirements: A clear pass from first year with an overall standing of at least 68% in each first-year Physics and Mathematics course. An average standing of at least 68% must be obtained in each year to remain in the Honours program.

⁷ Students planning to take upper-level Chemistry courses should select CHEM 201. Students entering the program prior to 2002 take CHEM 231, 323(6) rather than CHEM 233, 235(4).

⁸ PHYS 206 may be postponed to third year.

⁹ BIOL 240 is the laboratory associated with BIOL 200/201. It is not required, but students in biophysics program are encouraged to take the lab.

¹⁰ MATH 200 plus MATH 317 can replace MATH 217.

¹¹ Using 3 credits of Bio-science electives students may replace BIOC 302 by BIOC 303(6).

¹² See *Bio-Science Electives*, p. 425.

Bio-Science Electives

Of the 18 credits of bio-sciences in the third and fourth years, at least 3 credits must include a laboratory course: BIOC 301, BIOL 337, BIOL 350, BIOL 351, BIOL 352, BIOL 353, BIOL 437, MICB 322, MICB 323 are recommended. The electives should concentrate mainly on one of the following broad categories:

- 1) Molecular and Cell Biology;
- 2) Microbiology (Biology on the level of organisms); or
- 3) Applied Biology (mainly medical applications).

The student's list of electives must be approved by a Physics advisor, who will direct the student to the appropriate Life Science advisors. The program should give the student good working knowledge of one sub-field in the biological sci-

ences. Most of such electives have prerequisites; early consultation with an advisor is, therefore, recommended.

The following is a list of suggested Bio-Science electives:

- Anatomy: ANAT 390, 391
- Biochemistry: BIOC 301, 303, 402, 403, 410
- Biology: BIOL 301, 303, 320, 325, 327, 330, 331, 334, 335, 336, 337, 341, 350, 351, 352, 353, 355, 408, 414, 415, 425, 430, 433, 434, 437, 455, 458, 463, 464
- Chemistry: CHEM 304, 305, 405
- Mathematics: MATH 361
- Microbiology: MICB 202, 321, 324, 409
- Physiology: PHYL 301, 426
- Physics: PHYS 404, 405, 437

HONOURS (0009): PHYSICS AND ASTRONOMY (PHYS, ASTR)

First Year

ENGL 100-level ¹	6
CHEM 121 (111) ²	4
MATH 120 (or 100 or 102 or 104 or 180 or 184) ²	4(3)
MATH 121 (or 101 or 103 or 105) ²	4(3)
PHYS 107, 108, 109 (101, 102) ^{2,3}	6-7
Electives ^{2,4}	8
Total Credits	33(30)

Second Year

ASTR 201, 202	6
MATH 217 ⁵ , 223 ⁶	6
MATH 215, 300	6
PHYS 200, 206	6
PHYS 203, 209	6
Electives ⁴	6
Total Credits	36

Third Year

ASTR 303, 304	6
MATH 316	3
MATH 301 or 318	3
PHYS 301, 308	6
PHYS 304	3
PHYS 309 or 319	3
Electives ⁷	9
Total Credits	33

Fourth Year

ASTR 402, 404	6
ASTR 405 or PHYS 409	3
ASTR 449 or PHYS 449	6
PHYS 403, 402	6
Electives ^{7,8}	12
Total Credits	33

Minimum Credits for Degree 132

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² First-year Physics, Biology, Chemistry, and Mathematics can be replaced by Science One (25 credits).

³ Students without Physics 12 should consult a departmental advisor as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 107.

- ⁴ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and 6 credits from the Faculty of Science. Within the first 60 credits students without Biology 11 or Biology 12 must take 3 credits of 100-level BIOL. At least one Computer Science course is recommended. Students interested in senior chemistry courses or who are planning to enter a career in teaching are reminded that they should take a second course of introductory chemistry. In first year, 2 of the elective credits can be used to take the 4 credit math courses MATH 120 and 121.
- ⁵ Students who are interested in taking MATH 320, 321 are advised to substitute MATH 226, 227 for MATH 217. MATH 200, MATH 317 can also be substituted for MATH 217. Either substitution would require using 3 credits of Science elective for MATH 227 or MATH 317.
- ⁶ MATH 221 or MATH 152 can be substituted for MATH 223 under exceptional circumstances. MATH 223 can be taken in first year.
- ⁷ At least one Computer Science course is recommended. Of the elective credits available throughout the program, 12 credits must be in the Faculty of Arts. 3 of these credits must be upper level Arts or Science.
- ⁸ ASTR 403 and PHYS 407 are recommended. See Honours (0344): Physics (PHYS) table above for a suggested list of fourth-year electives. MATH 400 is recommended.

COMBINED HONOURS (0517):
CHEMICAL PHYSICS¹¹

First Year	
ENGL 100-level ¹	6
CHEM 121, 123 (111,113) ²	8
MATH 120 (or 100 or 102 or 104 or 180 or 184) ²	4(3)
MATH 121 (or 101 or 103 or 105) ²	4(3)
PHYS 107, 108, 109 (101, 102) ^{2,3}	7(6)
Electives ⁵	6
Total Credits	32–35
Second Year	
CHEM 201, 202	6
CHEM 203, 204	8
MATH 217, 223 (221), 215 ^{6,7}	10
PHYS 200, 206 ⁸	6
PHYS 209	3
Electives ⁵	3
Total Credits	36
Third Year	
CHEM 304	3
CHEM 320	3
MATH 316	3
PHYS 301, 304	6
PHYS 308 (258)	3(2)
PHYS 309 (319)	3
Electives ⁵	15
Total Credits	36(35)
Fourth Year	
CHEM 401	3
CHEM 449 or PHYS 449	6
PHYS 403	3
Additional Chemistry as per consultation ⁹	9
Additional Physics as per consultation ¹⁰	6
Electives ⁵	6

Fourth Year (Continued)

Total Credits	33
Minimum Credits for Degree	136
¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of English may be deferred until second year.	
² First-year Physics, Biology, Chemistry, and Mathematics can be replaced by Science One (25 credits).	
³ Students without Physics 12 should consult a departmental advisor as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 107.	
⁴ Students without Biology 11 or Biology 12 must take 3 credits of 100-level BIOL. Students with credit for Biology 11 or 12 may substitute 3 credits of ASTR, EOOSC, or Science credit GEOG or PSYC.	
⁵ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and 6 credits from the Faculty of Science.	
⁶ MATH 217 can be replaced by MATH 200 and 317.	
⁷ MATH 223 (221) may be taken in first year.	
⁸ PHYS 206 may be postponed to third year.	
⁹ Must include at least one CHEM course numbered 400 or higher.	
¹⁰ Recommended courses PHYS 401, 402, 410, 474.	
¹¹ Students should note that this program may lose accreditation as an Honours chemistry program since it has less chemistry requirements than currently needed for accreditation by the Canadian Society for Chemistry.	

COMBINED HONOURS: PHYSICS AND ANOTHER SCIENCE SUBJECT¹

First Year	
ENGL 100-level ²	6
CHEM 121	4
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 107 (or 101) ³	3
PHYS 108, 109 (or 102)	4(3)
Other subject credits or electives ^{4,5}	9(8)
Minimum Total Credits	32
Second Year	
MATH 215, 217 ⁶	7
MATH 221 or 223	3
PHYS 200, 203	6
PHYS 206, 209	6
Other subject credits or electives ^{4,5}	12
Arts Elective	3
Total Credits	37
Third and Fourth Years	
MATH 300, 316	6
Minimum upper-level credits required by other subject ^{4,7}	24
PHYS 301, 304, 308, 402	12
PHYS 309 or 319	3
PHYS 449 ⁷	6
Arts Electives	9
Science Electives ⁸	6
Total Credits for degree	66
Minimum Credits for Degree	135

- ¹ Proposed combinations require written approval of both departments. Some combinations are not possible.

- ² ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or ENGL 121. 3 credits of first-year English may be deferred to second year.
- ³ Students without Physics 12 must normally take PHYS 100 before 101. Qualified students are encouraged to take PHYS 107/108/109.
- ⁴ Other subject credits must be chosen in consultation with the advisor for the other subject.
- ⁵ Students without Biology 11 or 12 must take 3 credits of 100-level BIOL. Other students must take 3 credits of electives in BIOL, EOOSC, ASTR, GEOG that has Science designated credit or PSYC that has Science designated credit. CHEM 123 and CPSC courses are also recommended.
- ⁶ MATH 217 can be replaced by MATH 226 and 227 or MATH 200 and 317.
- ⁷ If the Honours thesis (449) is chosen from the other discipline replace PHYS 449(6) by PHYS 409(3) and one of PHYS 401 or PHYS 403.
- ⁸ The following courses are recommended: CPSC 302, PHYS 400, 407, 410, 473, 474; MATH 301, 318, 400.

COMBINED HONOURS PROGRAM IN PHYSICS AND MATHEMATICS
See *Mathematics*, p. 418, under the Bachelor of Science for language requirement.

COMBINED HONOURS (0014): PHYSICS AND MATHEMATICS (PHYS, MATH)

First Year	
ENGL 100-level ¹	6
CHEM 121 (111) ²	4
MATH 120 (or 100 or 102 or 104 or 180 or 184) ²	4(3)
MATH 121 (or 101 or 103 or 105) ²	4(3)
PHYS 107, 108, 109 (101, 102) ^{2,3}	7(6)
Electives ⁴	8
Total Credits	33–30
Second Year	
MATH 223, 226, 227 ⁵ , 215	12
PHYS 200, 203 ⁶	6
PHYS 206 ⁷ , 209	6
Electives ⁴	12
Total Credits	36
Third Year	
MATH 300, 301	6
MATH 316	3
MATH 320, 321	6
PHYS 301, 304	6
PHYS 308	3
PHYS 309 or 319	3
Electives ⁴	6
Total Credits	33
Fourth Year	
PHYS 403	3
6 credits from PHYS 401, 402, 407	6
PHYS 449	6
12 credits from MATH 318, 322, 400–405, 412, 416–429, 440, 449	12
Electives ⁴	6
Total Credits	33
Minimum Credits for Degree	132

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

- ² First-year Physics, Biology, Chemistry, and Mathematics can be replaced by Science One (25 credits).
- ³ Students without Physics 12 should consult a departmental adviser as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 107.
- ⁴ The elective credits taken throughout the program must include at least 12 credits in the Faculty of Arts (in addition to the 6 credits of 100-level English) and 6 credits from the Faculty of Science. Students without Biology 11 or Biology 12 must take 3 credits of 100-level BIOL. For students with Biology 11 or 12 at least 3 credits must be a Science course, ASTR, BIOL, EOSC, or Science credit GEOG, or PSYC. At least one Computer Science course is recommended. Students interested in senior chemistry courses or who are planning to enter a career in teaching are reminded that they should take a second course of introductory chemistry. In first year, 2 of the elective credits can be used to take the 4 credit math courses MATH 120 and 121.
- ⁵ MATH 200 and MATH 317 with an average of 80% or better may be substituted for MATH 226, 227. Math 223 may be taken in the first year.
- ⁶ PHYS 313 with 80% or better may be substituted for PHYS 203.
- ⁷ PHYS 206 may be postponed to third year.

PHYSIOLOGY

The Department of Cellular and Physiological Sciences (www.physiology.ubc.ca) offers opportunities for study leading to doctoral, master's, and bachelor's degrees. For information on graduate degrees, see *Physiology*, p. 275, in the Faculty of Graduate Studies section. For further information on other courses within the Department, see the *Faculty of Medicine*, p. 321.

Completion of first year program requirements and the second year organic chemistry requirement are prerequisites to all courses in Physiology.

Enrolment in PHYL 303 is restricted to Physiology and Pharmacology Honours students. First preference for entry into third Honours year will be given to those students who have completed all prerequisites and who have achieved a cumulative First class standing for their first- and second-year required courses, including First class marks in the required biology and chemistry courses, and who have completed at least 33 credits in the Winter Session of second year. Second preference will be given to those who have a cumulative average of at least 75% in first and second year, First class marks in the required biology and chemistry courses and who meet the 33-credit criterion (above). Students who meet the 75% and 33 credit criteria, but do not have a First class average, or those who do have a First class record, but do not meet the 33-credit criterion, must consult a Physiology advisor. Students may register provisionally, but could be de-registered by the department. Science requirements state that permission of the department head is required to enter each year of an Honours program, or to interrupt such a program.

Students should note that required courses must be taken in the year in which they appear in the program (e.g., BIOC 301 and 302 will be taken in the third year of a student's program, MATH 200 in the second year, etc.). Permission of the Department of Cellular and Physiological

Sciences is required to alter the progression through the program.

For students who are not in the Physiology Honours program, admission to PHYL 422, 423, 424, or 426 requires a cumulative average of 75% over at least 90 credits attempted in the first 3 years of a student's program and a minimum mark of 75% in PHYL 301 or its equivalent, or the consent of the head of the department

Students wishing to undertake directed studies at the undergraduate (PHYL 448) or graduate (PHYL 548) level must seek departmental approval prior to registration.

Honours Program

HONOURS (0266): PHYSIOLOGY (PHYL)

First Year

ENGL 100-level ¹	6
BIOL 112, 121 ² , 140	7
CHEM 121, 123 (111, 113)	8
MATH 102 or 100 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS ³	6
Total Credits	33(35)

Second Year

BIOL 200, 201	6
CHEM 205	3
CHEM 211	4
CHEM 233, 235	4
MICB 202	3
MATH 200	3
Electives ^{4,5}	15
Total Credits	38

Third Year

BIOC 301, 302	6
BIOL 300 ⁶	3
PHYL 301	6
PHYL 303	3
Electives	15
Total Credits	33

Fourth Year

PHYL 422, 423, 424, 426	12
PHYL 430 ⁷	6
PHYL 449 ⁷	6
Electives	9
Total Credits	33

*Minimum Credits for Degree*⁸ 137

¹ ENGL 112 recommended. Qualified students are encouraged to consider ENGL 120 and/or 121.

² Students lacking Biology 12 must take BIOL 111 before taking BIOL 121.

³ Student must take 3 credits of PHYS in addition to PHYS 101.

⁴ At least 12 credits must be from the Faculty of Arts in addition to ENGL.

⁵ Sufficient courses numbered 300 or higher in Arts or Science to meet Faculty requirements for upper-level courses. Suggested electives: ANAT 390, 391; ASTR 101, 102; BIOL 331, 334, 335, 442; MICB 302, 402; PCTH 305; CPSC 122, 128, or 124 or 126; PSYC 100, 201; PHIL 120, 125.

⁶ Students should note that they may obtain credit

for only one of the introductory courses in Statistics listed under *Credit Exclusion Lists*, p. 394.

⁷ Students will normally be required to take PHYL 430 and 449 in the same Winter Session.

⁸ This program requires a minimum of 137 credits for graduation.

PSYCHOLOGY

The Department of Psychology (www.psych.ubc.ca) offers opportunity for study leading to bachelor's, master's, and doctoral degrees. For information on the Bachelor of Arts, see *Psychology*, p. 147, under the Bachelor of Arts in the Faculty of Arts section. For information on graduate degrees, see *Psychology*, p. 276, in the Faculty of Graduate Studies section.

Students wanting to enter the Major or Honours program must apply online at the Psychology website (www.psych.ubc.ca/undergrad.htm) for admission to the B.Sc. PSYC Major Program.

Students registered in Psychology programs must take 15 credits of Faculty of Arts courses other than Psychology. Science electives may not be Psychology courses. In addition to PSYC 348 and 448, all Psychology courses numbered 60 or higher in the last two digits have Science credit.

Programs

MAJOR (0495): PSYCHOLOGY (PSYC)

First Year¹

ENGL 100-level	6
BIOL 111 ^{1,2} , 121, 140	7
CHEM 111 ¹ , 113 or 121, 123	8
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 ³	3
Total Credits	30(32)

Second Year

CHEM 233, 235	4
PSYC 100 ^{1,4}	6
PSYC 260	8
Two from BIOL 200 ⁵ , 201 ⁵ , 204, 205	6-8
Electives ^{5,7}	6
Total Credits	30(32)

Third Year

PSYC 360	6
PSYC 366 ⁸	8
6 credits from one of the following three lists:	6
PSYC 300, 314, 350, 401, 430	
PSYC 302, 315, 319, 320, 322, 325, 412, 413, 414	
PSYC 305, 308, 321, 403, 407, 408, 415	
Arts Elective ⁶	6
Electives ^{5,7}	6
Total Credits	32

Fourth Year

12 credits from PSYC 361, 363, 364, 365, 367, 368, 460, 461, 463, 465, 466, 467	12
Arts Elective ⁶	3
Electives ^{6,7}	15
Total Credits	30
<i>Minimum Credits for Degree</i>	<i>122</i>

- PSYC 100 is required in first year if student has credit for Biology 12 and Chemistry 12.
- Students with Biology 12 may substitute 3 credits of electives for BIOL 111.
- Students without Physics 12 must take PHYS 100 before taking PHYS 101.
- Students may substitute PSYC 101 and 102 for PSYC 100.
- The preferred prerequisite for this course is BIOL 112, but Psychology Majors students are allowed to register without it.
- General electives may be Psychology courses; Arts electives and Science electives may not.
- At least 24 credits of electives (including Arts electives and Arts Psychology electives) must be numbered 300 or above. At least 6 of these must be non-Psychology courses in the Faculty of Science. 9 credits of electives must be taken outside of the field of the major. Field of the major is defined as any course in Psychology, Biology, Physiology, Biochemistry, or Pharmacology. 12 credits of electives may be taken in any Faculty.
- PSYC 366, together with 6 credits of first year Math, satisfies the faculty computation requirement.

HONOURS (0139): PSYCHOLOGY (PSYC)

Admission to the Honours program requires at least a 76% average in second year, including at least 80% in PSYC 260. Graduation requires an average of at least 80% in 12 credits of Psychology courses numbered 300 or above.

In addition to meeting the specific department course requirements, Honours candidates are required to complete all courses attempted, including at least 30 credits in each winter session, and to maintain a minimum overall 68% average in each academic session.

First Year¹

ENGL 100-level	6
BIOL 111 ^{1,2} , 121, 140	7
CHEM 111 ¹ , 113, or 121, 123	8
MATH 100 or 102 or 104 (or 180 or 184 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 ³	3
Total Credits	30(32)

Second Year

PSYC 100 ^{1,4}	6
PSYC 260	8
CHEM 233, 235	4
Two from BIOL 200 ⁵ , 201 ⁵ , 204, 205	6-8
Electives ^{6,7}	6
Total Credits	30(32)

Third Year

PSYC 312	3
PSYC 349	6
PSYC 360	6
PSYC 366 ⁸	8

Third Year (Continued)

6 credits from one of the following 3 lists:	6
PSYC 300, 314, 350, 401, 430	
PSYC 302, 315, 319, 320, 322, 325, 412, 413, 414	
PSYC 305, 308, 321, 403, 407, 408, 415	
Electives ^{6,7}	9
Total Credits	38

Fourth Year

12 credits from PSYC 361, 363, 364, 365, 367, 368, 369, 460, 461, 463, 465, 466, 467	12
PSYC 449	6
Arts Electives ⁶	9
Electives ^{6,7}	9
Total Credits	36
<i>Minimum Credits for Degree</i>	<i>134</i>

- PSYC 100 is required in first year if student has credit for Biology 12 and Chemistry 12.
- Students with Biology 12 may substitute 3 credits of electives for BIOL 111.
- Students without Physics 12 must take PHYS 100 before taking PHYS 101.
- Students may substitute PSYC 101 and 102 for PSYC 100.
- The preferred prerequisite for this course is BIOL 112, but Psychology Majors students are allowed to register without it.
- General electives may be Psychology courses; Arts electives and Science electives may not.
- At least 24 credits of electives (including Arts electives and Arts Psychology electives) must be numbered 300 or above. At least 6 of these must be non-Psychology courses in the Faculty of Science. 9 credits of electives must be taken outside of the field of the major. Field of the major is defined as any course in Psychology, Biology, Physiology, Biochemistry, or Pharmacology. 12 credits of electives may be taken in any Faculty.
- PSYC 366, together with 6 credits of first year Math, satisfies the faculty computation requirement.

Faculty of Science Departmental Guidelines for the Minor B.Sc., Science Minor in Psychology

For a PSYC Science minor, students are required to take PSYC 100, or PSYC 101 and PSYC 102 and 18 or more credits of 300- or 400-level Psychology courses numbered 60 or higher in the last two digits.

B.Sc., Arts Minor in Psychology

For a PSYC Arts minor, students are required in First Year to take PSYC 100, or PSYC 101 and PSYC 102, in Second Year, PSYC 217 and 218, in Third and Fourth Years, at least 18 credits of 300- or 400-level Psychology courses, excluding 340, 348, 440, or 448.

B.Sc. Major in Cognitive Systems

The Cognitive Systems (COGS) Major program (B.Sc. or B.A.) provides an opportunity to concentrate on interdisciplinary studies of mental functioning, with a specialization in one of the following 3 streams: A) Cognition and the Brain, B) Language, C) Computational Intelligence and Design. Faculty of Science undergraduate majors can enrol in either the Cognition and Brain stream (whose supervisory department is Psychology), or Computational

Intelligence and Design (whose supervisory department is Computer Science). Students registered in the Faculty of Arts can enrol in either the Cognition and Brain stream (Psychology) or the Language Stream (whose supervisory department is Linguistics). Although the subject matter of Cognitive Systems is inherently interdisciplinary, the aim is to ensure that graduates of the program possess the background competence to be able to enter general graduate programs in one of the supervisory disciplines or in cognitive science itself. All students in the program are required to take a team-taught interdisciplinary course (COGS 200), background courses in both Computer Science and Philosophy, and a "capstone" fourth-year research-oriented course (COGS 400).

Admission to the Cognitive Systems program, normally at the end of the first or second year, is based on academic performance. Admission requires a minimum overall average of 68% in the preceding two years as well as a minimum grade of 68% in COGS 200; however, achievement of this minimum average does not guarantee acceptance into the program. Once admitted to the program, students must maintain at least a 68% yearly average for continuation. For additional program and admission information about the B.Sc. streams in Cognitive Science contact either the Department of Psychology or the Department of Computer Science. The web pages for these departments contain information regarding the COGS program and admissions to it.

MAJOR COGNITIVE SYSTEMS (1225): COGNITION AND BRAIN

First Year¹

CPSC 111, 121	8
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 ² or 107 ⁴	3
CHEM 113 ³ or 121	4
ENGL 100-Level	6
PSYC 100 ⁵	6
Total Credits	33 (35)

Second Year

COGS 200	3
PHIL 220	3
Arts Electives	6
Electives ^{6,7,8,9,10}	18
Total Credits	30

Third and Fourth Years

COGS 300	3
COGS 401, 402	6
PHIL 441, 451	6
PSYC 365	3
Arts Electives	6
12 credits from:	12
PSYC 304 ¹¹ , 309, 333, 334, 336, 337, 360 ¹¹ , 361, 363, 364, 367, 368, 412, 461, 463, 465	
BIOL 353 ¹¹ , 455, 458	
6 credits from:	6

Third and Fourth Years (Continued)

PHIL 320, 340, 440, 452, 461	
CPSC 303, 312, 322, 422	
LING 300, 316, 319, 427	
Electives ^{7,8,9,10,12}	18
Total Credits	60
<i>Minimum Credits for Degree</i>	<i>123</i>

- Students without Biology 11 or Biology 12 must take 3 credits of 100-level biology.
- Students without credit for Physics 12 must complete PHYS 100 in addition.
- Students without credit for Chemistry 12 must complete CHEM 111 in addition. These students may delay 3 credits of CHEM or PHYS until second year.
- Students who choose to take PHYS 107 need to take PHYS 108 or other lab courses to complete the Laboratory Science requirement.
- Students attempting to become a COGS major must take either PSYC 100 or PSYC 101,102 as early in their program as possible, taking PSYC 100 in the first year if possible. If more physics, biology or chemistry than listed must be taken, PSYC 101 or 102 can be taken in first year and the other in second year, or PSYC 100 must be taken in the second year.
- PSYC 217, 218 are highly recommended. PSYC 205 and 263 should also be considered.
- Students attempting to become a COGS major should choose electives to obtain prerequisites to appropriate third and fourth year courses.
- At least 72 credits of Science courses are required to qualify for the B.Sc. degree.
- At least 9 credits of courses outside field of major field are required to qualify for the B.Sc. degree; these 9 credits exclude PSYC, PHIL, CPSC courses.
- At least 30 credits of 300 or above Science courses and at least 48 credits of 300 or above courses are required for the B.Sc. degree.
- Credit will not be granted for more than one of PSYC 304, PSYC 360, and BIOL 353.
- Some of these may be selected from the lists of courses from which required courses are taken.

STATISTICS

The Department of Statistics (www.stat.ubc.ca) offers programs of study leading to bachelor's, master's, and doctoral degrees. For information on graduate degrees, see *Statistics*, p. 283, in the Faculty of Graduate Studies section.

Before registering for each of the second, third, and fourth years, every student who intends to commence or continue any of the programs listed below should consult an advisor in the Department.

The Statistical Consulting and Research Laboratory, operated by the Department of Statistics, is intended to provide statistical advice to the University's faculty and, with the approval of their supervisors, to graduate students working on research problems. In providing this service to the University, the Department hopes to foster interdisciplinary collaboration in research projects involving statistics. The Statistical Consulting and Research Laboratory also acts as a statistical research support unit and provides students in Statistics with opportunities for actively learning to apply statistics.

Major Programs

MAJOR (0562): STATISTICS (STAT)

First Year	
ENGL 100-level ¹	6
CHEM 111 and 113, or 121	8(4)
CPSC 111/211 or CPSC 111/MATH 210 ²	7(8)
MATH 100 or 102 or 104 (or 120 or 180 or 184)	3(4)
MATH 101 or 103 or 105 (or 121)	3(4)
PHYS 101 or 107 ³	3
Electives ^{3,4,5}	3(6)
Total Credits	32(34)

Second Year

MATH 200, 220, 221	9
STAT 200	3
STAT/MATH 302	3
Arts Elective	6
Electives ^{4,5}	9
Total Credits	30

Third and Fourth Years

In third year: STAT 305, 306 and MATH 307	9
In fourth year: STAT 404	3
MATH 303	3
Statistics courses numbered 300 or above	6
Statistics courses numbered 400 or above	6
Mathematics courses numbered 300 or above	3
Thematic concentration courses numbered 300 or above ⁶	9
Arts Elective	6
Electives ⁵	15
Total Credits	60
<i>Minimum Credits for Degree</i>	<i>122</i>

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.
- This requirement must be completed in the first two years. Note that MATH 210 may not be offered every year.
- Students without Physics 12 must replace the elective with PHYS 100 before taking PHYS 101. If students choose CHEM 121 for 4 credits then they must have 6 credits of electives.
- Students without Biology 11 or 12 must take 3 credits of 100-level BIOL. Students with Biology 12 must take at least 3 science credits labeled AS-TR, BIOL, EOSC, Science credit GEOG or PSYC. These requirements must be fulfilled before end of second year.
- For requirements, see 'Electives' below.
- These courses should be chosen from an area in which statistical ideas are relevant, and some of the courses should have clear statistical or probabilistic content. A student's choice of thematic concentration courses must be approved by a departmental adviser. More information about the thematic concentration, including some examples of course choices, can be found through the Statistics Department website (www.stat.ubc.ca).

ELECTIVES

Electives must include the following:

- at most 12 elective and thematic concentration credits may be in faculties other than Science and Arts;
- at least 6 elective credits must be for courses numbered 300 or above;

- at least 9 elective and thematic concentration credits must be in Science electives outside the field of the Major¹ or in Arts; and
- a sufficient number of elective and thematic concentration credits must be in Science, to fulfil the Faculty requirement that at least 72 of the 120 total credits for a B.Sc. degree be in Science courses.

¹ The field of the Major for Statistics is defined as all Statistics, Mathematics, and Computer Science courses.

Major in Mathematical Sciences

See *Mathematics*, p. 419.

B.Sc. Combined Major in Statistics and Economics

Admission to the program is subject to the admission restrictions and application process that currently pertains to the Major in Economics. For the *B.A. Combined Major in Economics and Statistics*, p. 132, see the listing under the Faculty of Arts.

COMBINED MAJOR (1330): STATISTICS AND ECONOMICS

First Year	
ENGL 100-level ¹	6
CPSC 111/211 or CPSC 111/MATH 210 ²	7(8)
ECON 101, 102	6
MATH 104 (or one of 100, 102, 120, 180, 184)	3 (4)
MATH 105 (or one of 101, 103, 121)	3 (4)
Science Requirements ³	6
Total Credits	31(34)

Second Year

ECON 301 (or 304 or 201 or 206), 302 (or 305 or 202 or 207)	6
ECON 325 or STAT 200 ⁴	3
MATH 200 (or 226), 220, 221 (or 223)	9
STAT 302	3
Science Requirement ³	3 (9)
Electives ^{5,6,7,8}	0 (6)
Total Credits	30

Third and Fourth Years

ECON 303 (or 306 or 307)	3
ECON 326 or STAT 306 ⁹	3
ECON 425	3
ECON 490	3
Economics courses numbered 300 and above	3
MATH 303 or 307	3
STAT 305	3
STAT 404	3
Statistics courses numbered 300 and above	3
Statistics courses numbered 400 and above	3
Electives ^{5,6,7,8}	30
Total Credits	60

Minimum Credits for Degree 122

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² This requirement must be completed in the first two years. Note that MATH 210 may not be of-

ferred every year.

³ Students take CHEM 111 if credit was not obtained for Chemistry 12 and 3 credits of 100-level PHYS (normally PHYS 100) if credit was not obtained for Physics 12. All students take 6 credits of CHEM and/or PHYS at the 100-level beyond CHEM 111 and PHYS 100. Students who do not have credit for Biology 11 or 12 take 3 credits of 100-level BIOL. Students with credit for Biology 11 or 12 take 3 credits of an ASTR BIOL, EOSC, or science-credit GEOG or PSYC lecture course. The Science Requirements must be completed by the end of second year.

⁴ If STAT 200 is selected, an additional ECON elective numbered 300 or higher must be taken at some point in the program, to ensure the total number of ECON credits is at least 30.

⁵ At least 9 elective credits must be outside the field of the Major (CPSC, ECON, MATH, STAT).

⁶ Enough elective credits must be chosen from Science, so that the total number of Science credits is at least 72, of which at least 30 must be numbered 300 or above.

⁷ Enough elective credits must be numbered 300 or above, so that the total number of credits numbered 300 or above is at least 48.

⁸ At most 12 elective credits may be in Faculties other than Science and Arts.

⁹ If STAT 306 is selected, an additional ECON elective numbered 300 or higher must be taken at some point in the program, to ensure the total number of ECON credits is at least 30.

COMBINED MAJOR (1375): COMPUTER SCIENCE AND STATISTICS
See *Computer Science*, p. 409.

Honours Programs

Students planning to take the Honours program in Statistics or a Combined Honours program in Mathematics and Statistics, should note the following:

- To be admitted to either of these programs in second year, a student must obtain at least 65% in MATH 121 or 80% in MATH 101 and an 80% average in MATH 100/101.
- Students must obtain formal program approval from a departmental advisor (from both departments for the Combined Honours program) before registration will be considered complete for second, third, and fourth years. Ideally this would be done before registration, but program approval can also be obtained in the first two weeks of the academic year.
- To continue in these programs, a student must obtain an overall 68% grade-point average in each academic year.

HONOURS (0051): STATISTICS (STAT)

First Year

ENGL 100-level ¹	6
CHEM 111 and 113 (or 121)	8-4
CPSC 111/211 or CPSC 111/MATH 210 ²	7-8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	3-4
MATH 121 (or 101 or 103 or 105)	3-4
PHYS 121 or 101 ³	3
Electives ⁴	3-6
Total Credits	32-36

Second Year

MATH 2205, 223 (or 221)	6
MATH 226 ⁵ , 227 (200, 317)	6
STAT 200	3
STAT/MATH 302	3
Arts Elective	6
Electives ⁴	9
Total Credits	33

Third and Fourth Years

In third year: STAT 305, 306 and MATH 303 ⁶ , 307, 320, 321	18
In fourth year: STAT 404, 460 and 461 and 6 credits chosen from MATH 418, 419, 420, 421 and Statistics courses numbered 400 or above	15
Statistics courses numbered 300 or above	3
Statistics courses numbered 400 or above	6
Additional courses chosen from Computer Science and Mathematics courses numbered 300 or above	6
Arts Elective	6
Electives ⁵	15
Total Credits	69

Minimum Credits for Degree 134

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² This requirement must be completed in the first two years. Note that MATH 210 may not be offered every year.

³ Students without Physics 12 must replace the elective with PHYS 100 before taking PHYS 101. If students choose CHEM 121 for 4 credits then they must have 6 credits of electives.

⁴ Students without Biology 11 or 12 must take 3 credits of 100-level BIOL. Students with Biology 12 must take at least 3 science credits labelled ASTR, BIOL, EOSC, Science credit GEOG or PSYC. These requirements must be fulfilled before end of second year.

⁵ Students obtaining 68% or higher in MATH 226 are not required to take MATH 220.

⁶ May be replaced by MATH 419 in fourth year.

COMBINED HONOURS (0550): MATHEMATICS AND STATISTICS (MATH, STAT)

First Year

ENGL 100-level ¹	6
CHEM 111 ^{2,3}	0-4
CPSC 111/211 or CPSC 111/MATH 210 ⁴	7-8
MATH 120 (or 100 or 102 or 104 or 180 or 184)	3-4
MATH 121 (or 101 or 103 or 105)	3-4
PHYS 100-level ³	6
Electives ⁵	3-6
Total Credits	31-35

Second Year

MATH 220 ⁶ , 223 (or 221)	6
MATH 226 ⁶ , 227 (200, 317)	6
MATH 215 ⁷	3
STAT 200	3
STAT/MATH 302	3
Arts Elective	6
Electives ⁵	6
Total Credits	33

Third Year

MATH 303 ⁸	3
MATH 320, 321 ⁹	6
9 credits from MATH 300, 301, 316, 322, 323, 331 ⁹	9
STAT 305, 306	6
Arts elective	6
Elective ¹⁰	3-6
Total Credits	33(36)

Fourth Year

STAT 404, 460 and 461	9
Statistics courses numbered 400 and above	3
12 credits from: MATH 400-403, 416-429, 440, 449 ⁹	12
Electives ¹⁰	9
Total Credits	33(36)

Minimum Credits for Degree 134

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. 3 credits of first-year English may be deferred until second year.

² This requirement applies only to students without credit for CHEM 12. Students with CHEM 12 take 6 credits of electives.

³ Total credits in PHYS/CHEM courses must include 6 from beyond PHYS 100, CHEM 111.

⁴ This requirement must be completed in the first two years. Note that MATH 210 might not be offered every year.

⁵ Students without Biology 11 or 12 must take 3 credits of 100-level BIOL. Students with Biology 12 must take at least 3 science credits labelled ASTR, BIOL, EOSC, Science credit GEOG or PSYC. These requirements must be fulfilled before end of second year.

⁶ Students obtaining 68% or higher in MATH 226 are not required to take MATH 220.

⁷ May be deferred until the third year.

⁸ May be replaced by MATH 419 in fourth year.

⁹ An overall 68% average is required in these 27 credits to obtain this combined Honours degree.

¹⁰ Electives in third and fourth years must include at least 6 credits selected from Statistics courses numbered 300 or above.

COMBINED HONOURS: COMPUTER SCIENCE AND STATISTICS

See the *Computer Science*, p. 410.

PROBABILITY AND STATISTICS

The following list of courses in Probability and Statistics, while not complete in the sense that there are many other courses which deal with the uses of statistics in particular fields of study, contains most of the courses in which principles and techniques of probability and statistics are discussed.

Anthropology	ANTH 418, 527, 528
Biology	BIOL 300, 301
Commerce	COMM 290, 291, 411, 581, 582, 583, 682, 684
Economics	ECON 325, 326, 425, 426, 526, 527
Educational Psychology and Special Education	EPSE 482, 483, 484, 592, 596, 597, 682
Forestry	FRST 231, 430, 431, 530, 531, 533, 539
Geography	GEOG 374

Health Care and Epidemiology	HCEP 400
Human Kinetics	HKIN 371
Mathematics	MATH 302, 303, 418, 419, 544, 545, 608
Pharmacology and Therapeutics	PCTH 404, 512
Physics	PHYS 509
Political Science	POLI 380, 381
Psychology	PSYC 218, 359, 366, 545
Rehabilitation Sciences	RHSC 402
Sociology	SOCI 418
Statistics	STAT courses
Wood Science and Industry	WOOD 335

Co-operative Education Program

This optional program integrates academic study with related and supervised work experience. Enrolment is limited. Detailed information is available from the Department of Statistics or the Co-operative Education Program Office, Room 309 Hennings Building, The University of British Columbia, 6224 Agricultural Road, Vancouver, BC, V6T 1Z1; fax 604-822-9676. Information is also available through the Co-op website (www.science-coop.ubc.ca).

VETERINARY MEDICINE

The Western College of Veterinary Medicine (W.C.V.M.) was established at the University of Saskatchewan to serve the four western provinces. A pre-veterinary program is required in preparation for admission to the four-year veterinary program at the W.C.V.M., and may be completed at UBC in the Faculty of Science or the Faculty of Land and Food Systems (formerly Agricultural Sciences).

The course requirements for admission to W.C.V.M. are:

- 1) 6 credits each of English, Biology, Biochemistry, Chemistry, Physics, and Mathematics or Statistics;
- 2) 3 credits each of genetics, organic chemistry, and introductory microbiology; and
- 3) additional electives to complete 60 credits. These prerequisites can be met in a number of departments in the Faculty of Science. However, since genetics and certain courses in Biochemistry are offered only in third year, it will normally take longer than the minimum time to meet all requirements.

Competition for admission to W.C.V.M. is severe, and although pre-veterinary requirements can be met in two years, few applicants are currently admitted with less than three years of university coursework. Therefore, pre-veterinary students who are enrolled in the Faculty of Science are advised to follow a program that also satisfies the requirements of a Bachelor of Science program at UBC. Further information regarding entrance to Veterinary Medicine may be obtained from the Dean's Office, Faculty of Land and Food Systems, UBC; or directly from the University of Saskatchewan.

ZOOLOGY

The Department of Zoology (www.zoology.ubc.ca) offers programs of study jointly with the Department of Botany leading to a bachelor's degree in Biology. There is no undergraduate degree in Zoology.

The Department of Zoology also offers programs leading to the master's and doctoral degree. For information on graduate degrees, see *Zoology*, p. 286, in the Faculty of Graduate Studies section.

Facilities are available for advanced study and research in the following areas: aquaculture, biological oceanography, comparative physiology, developmental and cell biology, ecology, entomology, ethology, fish biology and fisheries, genetics, ichthyology and limnology, marine biology, parasitology, vertebrate and invertebrate zoology, and zoogeography. Attention is directed to the following applied fields.

Ecology

The Ecology Group in the Department of Zoology offers research opportunities at the local, national, and international level in aquatic, evolutionary, mathematical, population, and resource ecology.

Entomology

Courses of study are offered through the Department of Zoology and the Faculties of Forestry and Land and Food Systems. Zoology offers introductory and advanced courses in entomology and maintains a museum collection and specialized library. Forestry has courses in insect ecology and in the special problems of forest entomology and forest protection. In the Faculty of Land and Food Systems, the Department of Plant Science offers courses in economic entomology, biometeorology, insect physiology, pesticides, biological control, and plant-disease vectors.

At the graduate level, there is research guidance in problems relating to the classification, structure, function and bionomics of insects, as well as in special areas, such as biological control, biochemical genetics, and plant-insect relationships.

Fish Biology and Fisheries

The Fish Biology and Fisheries Group maintains a strong tradition in fish-oriented research at the University of British Columbia. Studies range from physiology, ethology, biomechanics, systematics and evolution, through marine and freshwater ecology, to fisheries oceanography and management (population modelling, and fisheries economics).

In addition to facilities on campus, federal and provincial agencies encourage research in cooperation with government scientists, many of whom serve on students' research advisory committees. Wildlife management courses of study permitting a student to enter this field of applied zoology can be obtained either through the Bachelor of Science (B.Sc.), the Bachelor of Science in Agroecology (B.Sc. [Agro.]), or the Bachelor of Science in Forestry (B.S.F.). In each

instance the master's degree is essential and students should not attempt to enter the field unless they can meet the academic requirements for it.

BACHELOR OF COMPUTER SCIENCE

INTEGRATED COMPUTER SCIENCE

The Integrated Computer Science (ICS) program is designed particularly for students who wish to complement their previous studies and experience with advanced study in computer science. The program offers opportunities for study leading to a second bachelor's degree, the B.C.S. degree.

Prerequisites

Candidates for admission must have completed a recognized bachelor's degree in a field that does not overlap with computer science. The following high school and university-level courses are required. BC high school and UBC courses are listed; the equivalents from any recognized high school or post-secondary institution will be accepted.

- 1) BC Principles of Mathematics 12;
- 2) English, 3 credits (Any one of ENGL 110, 111, 112, 120, 121);
- 3) CPSC 100 (or equivalent knowledge of computer usage).

Applicants with a strong academic record who have not completed all prerequisite courses are encouraged to apply.

Admission

Admission is based on a selection process that strives to enrol the most highly qualified applicants. Not every qualified applicant will be offered admission. Applicants are evaluated on the following criteria:

- 1) Academic criteria at the time of application, including:
 - (a) Overall academic record, based on the average of all university-level courses attempted. Consideration is given to trends in grades from year to year;
 - (b) Most recent 60-credit average. A minimum of a B average is required.
- 2) Non-academic criteria, including motivation, maturity, integrity, realistic self-appraisal, creativity, scientific and intellectual curiosity, attitude toward lifelong learning, problem-solving and decision-making aptitude, ability to communicate verbally and in writing, and capacity to understand and cooperate with others. Evaluation of these non-academic criteria is based on:
 - (a) two confidential letters of reference, and a statement of interest submitted by the applicant;
 - (b) a self-assessment of the applicant's work history;
 - (c) a personal interview with members of the selection committee.

The interview is a critical component of the admission process. Not all applicants will be invited for an interview. Applicants selected for an interview will be contacted by the B.C.S. selection committee, prior to the end of April.

Application Procedure

Applications should be made through the central Enrolment Services, Undergraduate Admissions Office of UBC. Documents for the evaluation of non-academic criteria (e.g., letters of reference, statement of interest, self-assessment of work history) must be submitted to the ICS Director, Department of Computer Science. Forms, instructions, and deadlines are available on the Department's website (www.cs.ubc.ca).

Degree Requirements

Third Year

CPSC 111 ¹ , 121, 211, 221, 213	20
ENGL 100-level ²	3
ENGL 301 ³	3
MATH 180 (or 100 or 102 or 104 or 184 or 120) ¹	4(3)
STAT 203 ¹	3
Upper-level Electives ⁴	3
Total Credits	36(35)

Fourth Year

CPSC 310, 313, 320	10
CPSC courses numbered 300 or above	6
CPSC courses numbered 400 or above	6
Upper-level Electives ⁴	12
Total Credits	34

Minimum Credits for Degree

69

¹ Requirements completed prior to commencement of the degree may not be repeated and must be replaced after consultation with an advisor.

² ENGL 112 is recommended for the first-term English requirements.

³ ENGL 301 may be deferred to a later term.

⁴ Upper-level elective credits must be approved by an advisor. These credits should be either additional credits in the previous degree area or in another area the student wishes to combine with computer science.

Co-operative Education Option

A co-operative education option is also available for this degree. Since this is a special second degree program, the co-op option requires a minimum of two work terms. To graduate in the co-op option, students are required to complete CPSC 298 and 299 work terms in addition to the normal academic requirements. Normally, the two work placements are scheduled after the completion of the first academic year. A complete schedule and additional information on the program can be obtained from the Computer Science department and its website (www.cs.ubc.ca).

Promotion Requirements

Students are normally admitted into third year. Promotion to fourth year requires the completion of the following:

- CPSC 111, 121;
- 3 credits of ENGL 100;
- MATH 180 or equivalent;

- 3 credits of upper-level electives.

Academic Regulations

Same as those for the Bachelor of Science degree.

DIPLOMA IN COMPUTER SCIENCE

The Department of Computer Science offers a Diploma in Computer Science. The program is designed for students without previous experience in programming and for mature students whose knowledge of programming is no longer current. The program provides students with the opportunity to acquire the specific skills and work experience needed to start a career in information technology. A Diploma in Computer Science will be awarded to candidates upon successful completion of the program.

The diploma program provides an opportunity for individuals with skills and expertise in areas outside traditional computer science to acquire the specific technical skills and work experience needed to start a career in information technology.

The program is an internship program that combines university courses (46 credits) and supervised work experience (6 or 9 credits). The program normally takes 24 to 28 months to complete. The program includes four academic terms, an eight-month internship (i.e., work term) after the third academic term, and an optional four-month work term in the summer prior to the third academic term.

Applicants must possess a bachelor's degree and have a strong academic record. The bachelor's degree must not be in a computer science related area (unless the applicant's knowledge is out of date).

Students are selected based on academic background, work history, letters of reference, and an interview. Excellent communication skills are required for acceptance into the program.

Contact the Department of Computer Science (www.cs.ubc.ca) for application material. There will be a preliminary application fee of CAD\$100.00. Once admitted to the program, students are assigned a student number and are given eligibility to register.

DIPLOMA IN METEOROLOGY

The Diploma in Meteorology offers an intensive one-year program in theoretical and applied meteorology. It is designed for students with little or no background in meteorology who wish to direct their experience to environmental applications or to gain employment as a meteorologist.

Admission is based on an acceptable academic record (usually a bachelor's degree in physics, applied mathematics, engineering, or similar disciplines). Typically this should include about 27 credits of Mathematics (up to introduction to partial differential equations) and Computer

Science (including some numerical analysis), and 21 credits of Physics.

The diploma program requires a minimum of 30 credits of coursework in Atmospheric Science. Each student will plan an individual program in consultation with the Associate Chair of the Atmospheric Science program. For those with sufficient mathematics and physics but no meteorology a typical program would include: ATSC 404, 405; ATSC/GEOG 300, 301, 303, 304 plus 12 credits from CHEM 302, EOSC 370, GEOG 401, 402, 403, MECH 482, PHYS 314, SOIL 314. An exemption of up to 12 credits for courses already taken will be allowed. Students granted exemptions will be required to add electives of appropriate undergraduate or graduate courses. Additional courses may be added or substituted by the Associate Chair to make up the mathematics or physics background of the student. The total load is not to exceed 36 credits.

ACADEMIC STAFF

DEPARTMENT OF BOTANY

C. J. Douglas, Head

Honorary Professors

R. J. Bandoni, B.S. (Nevada), M.S., Ph.D. (Iowa), Curator of the Mycological Collections; T. Bisalputra, M.Sc. (New Engl.), Ph.D. (Calif., Davis); B. A. Bohm, B.A. (Alfred), M.S., Ph.D. (Rhode Island); R. E. Foreman, B.A. (Colorado), Ph.D. (Calif.); G. C. Hughes, B.S. (Georgia Southern), M.S., Ph.D. (Flor. State); J. R. Maze, B.A. (Humboldt), M.S. (Wash.), Ph.D. (Calif., Davis); K. M. Patel, B.Sc. (Sardar Patel, India), M.S. (Calif., Davis); G. E. Rouse, B.A., M.Sc., Ph.D. (McM.), F.L.S.; R. F. Scagel, M.A. (Br.Col.), Ph.D. (Calif.), F.R.S.C., F.L.S., Curator of the Phycological Collections; W. B. Schofield, B.A. (Acadia), M.A. (Stan.), Ph.D. (Duke), D.Sc. (Acadia), Curator of the Bryophyte Collections; F. J. R. Taylor, B.Sc., Ph.D. (Cape T.), F.R.S.C.

Professors

R. E. DeWreede, B.A. (W. Mich.), Ph.D. (Hawaii); C. J. Douglas, B.A. (Lewis and Clark), M.S., Ph.D. (Wash.); F. R. Ganders, B.A., B.S. (Wash. State), M.A., Ph.D. (Calif.), F.L.S.; G. W. Haughn, B.Sc. (Dal.), Ph.D. (C'nell.); W. Maddison, B.Sc. (Tor.), Ph.D. (Harv.); L. Rieseberg, B.A. (Southern College, Chattanooga), M.S. (Tennessee), Ph.D. (Wash.); C. Suttle, B.Sc., Ph.D. (Br.Col.); R. Turkington, B.Sc. (Ulster, Coleraine), Ph.D. (N. Wales, Bangor); G. Wasteneys, B.Sc. (Car.), Ph.D. (Aust. Ntl.).

Associate Professors

M. L. Berbee, B.S. (Minn.), M.S., Ph.D. (Calif., Davis); J. Bohlmann, Diplom, Ph.D. (Tech. U. Braunschweig); G. E. Bradfield, B.Sc., M.Sc. (W.Ont.), Ph.D. (Monash); P. G. Harrison, B.Sc. (Br.Col.), Ph.D. (Dal.); R. Jetter, Diplom (Munich), Ph.D. (Kaiserslautern); P. J. Keeling, B.Sc. (W.Ont.), Ph.D. (Dal.); L. Kunst, B.Sc., M.Sc. (Zagreb), Ph.D. (Mich.); L. Oliveira, B.Sc., M.Sc. (Porto), Ph.D. (Br.Col.); J. Whitton, B.Sc. (McG.), M.S., Ph.D. (Conn.).

Assistant Professors

K. Adams, Ph.D. (Indiana); J-G Chen, B.S., M.S., Ph.D. (Nanjing Agricultural China); N. Fast, B.Sc. (Br.Col.), Ph.D. (Dal.); S. Graham, B.Sc. (St.And., Scotland), M.Sc., Ph.D. (Tor.); B. Leander, B.S., M.A. (Humboldt State), Ph.D. (Georgia); X. Li, Ph.D.

(Oklahoma State); **L. Samuels**, B.Sc. (McG.), Ph.D. (Br.Col.); **P. D. Tortell**, B.Sc. (McG.), Ph.D. (Prin.); **M. Vellend**, Ph.D. (C'Nell).

Senior Instructors

C. A. Borden, B.Sc. (Mass.), M.Sc. (Br.Col.); **T. J. Crawford**, B.Sc. (Vic.B.C.), M.Sc., Ph.D. (Wash.); **M. W. Hawkes**, B.Sc., Ph.D. (Br.Col.); **E. Rosenberg**, B.Sc. (S.Fraser); **S. Singh**, B.Sc. (Punj.), M.Sc. (Punj. Agri.), Ph.D. (A.N.U.).

Instructors

C. Berezowsky, B.Sc., M.Sc. (Sask.), Ph.D. (Guelph); **S. Ellis**, B.Sc., M.Sc. (Br.Col.); **K. Nomme**, B.Sc., M.Sc. (Br.Col.).

Research Associates

S. Chowrira, B.Sc., M.Sc. (U. Agricultural Sciences, Bangalore), Ph.D. (Wash.); **E. Gilchrist**, B.A. (Dal.), B.Sc., Ph.D. (Br.Col.); **H. Kennedy**, B.S., M.S., Ph.D. (Calif., Davis).

Postdoctoral Fellows

I. Agnarrson, Ph.D. (George Wash.); **D. Bird**, Ph.D. (Calg.); **L. Burri**, Ph.D. (Lausanne); **K. Carpenter**, Ph.D. (Calif., Davis); **G. Dean**, Ph.D. (Durh.); **S. Greer**, Ph.D. (Alabama); **B. Hamberger**, Ph.D. (Max Planck Inst.); **T. Hooker**, Ph.D. (Br.Col.); **M. Hoppenrath**, Ph.D. (Hamburg); **A. Kotzer**, Ph.D. (Oxf. Brookes); **W. Li**, Ph.D. (South China); **Z. Liu**, Ph.D. (Northeast Normal); **M. Oudot**, Ph.D. (Rennes I); **N. Patron**, Ph.D. (E. Anglia); **J. Sambatti**, Ph.D. (Calif., Davis); **C. Slamovits**, Ph.D. (Buenos Aires); **K. M. (C.) Tsui**, Ph.D. (H.K.); **S. Wang**, Ph.D. (Nanjing Agricultural); **Y. Wang**, Ph.D. (China Agricultural Univ.); **B. Williams**, Ph.D. (Lond.); **X. Wu**, Ph.D. (Sing.); **H. Zheng**, Ph.D. (Oxford Brookes).

Adjunct Professors

G. Bakkeren, B.Sc., M.Sc., Ph.D. (Basel); **C. J. French**, B.Sc., Ph.D. (Manc.); **M. D. Jones**, B.Sc. (Calg.), Ph.D. (Tor.); **S. Lindstrom**, B.A. (Reed), M.Sc., Ph.D. (Br.Col.); **H. Sanfanon**, D.E.C., B.Sc., Ph.D. (Laval); **T. Tomascik**, B.Sc. (Tor.), Ph.D. (McG.).

Associate Members

S. M. Berch, B.Sc., M.Sc. (Wat.), Ph.D. (Laval); **Q. Cronk**, UBC Botanical Garden and Centre for Plant Research; **B. Ellis**, Agricultural Sciences; **T. Goward**, B.A. (Mt.All.) Curator of Lichens; **R. Guy**, Forest Sciences; **L. Harrison**, Chemistry; **D. Justice**, UBC Botanical Garden and Centre for Plant Research; **S. Lund**, Wine Research Centre; **S. Otto**, Zoology; **A. Riseman**, UBC Botanical Garden and Centre for Plant Research; **K. Ritland**, Forest Sciences.

DEPARTMENT OF CHEMISTRY

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Honorary Professors

L. G. Harrison, B.Sc., Ph.D. (Liv.), F.C.I.C.; **R. Stewart**, M.A. (Br.Col.), Ph.D. (Wash.), F.C.I.C., F.R.S.C.

Professors

R. J. Andersen, B.Sc. (Alta.), M.Sc., Ph.D. (Calif., Berkeley); **M. W. Blades**, B.Sc. (St.M.), Ph.D. (Alta.); **D. E. Brooks**, M.Sc. (Br.Col.), Ph.D. (Oregon); **E. E. Burnell**, M.Sc. (Nfld.), Ph.D. (Brist.); **L. D. Burntack**, B.Sc. (Manit.), Ph.D. (Alta.); **M. Ciufolini**, B.S. (AL), Ph.D. (Mich.); **M. B. Comisarow**, B.Sc. (Alta.), Ph.D. (Case Western Reserve), F.R.S.C.; **D. H. Dolphin**, B.Sc., Ph.D. (Nott.), F.R.S.C.; **D. Douglas**, B.Sc. (McM.), Ph.D. (Tor.); **M. D. Fryzuk**, B.Sc., Ph.D. (Tor.), F.C.I.C., F.R.S.C.; **C. A. Fyfe**, B.Sc., Ph.D. (St.And.), F.R.S.C.; **M. C. L. Gerry**, B.A., M.Sc. (Br.Col.), Ph.D. (Cantab.), F.C.I.C.; **E. R. Grant**, B.S.

(Occidental Coll.), Ph.D. (Calif.); **J. W. Hepburn**, B.Sc. (Hons.) (Wat.), Ph.D. (Tor.), F.R.S.C.; **F. G. Herring**, B.Sc., Ph.D. (Lond.), F.C.I.C.; **P. Legzdins**, B.Sc. (Car.), Ph.D. (M.I.T.); **L. McIntosh**, B.Sc. (Calg.), Ph.D. (Oregon); **T. Momose**, B.Sc., M.Sc., Ph.D. (Japan); **C. Orvig**, B.Sc. (McG.), Ph.D. (M.I.T.), F.C.I.C.; **G. N. Patey**, B.Sc. (Nfld.), M.Sc., Ph.D. (Tor.), F.R.S.C.; **G. A. Sawatzky**, B.Sc., Ph.D. (Man.); **M. Shapiro**, B.Sc. (Hebrew), M.Sc. (Hebrew), Ph.D. (Hebrew); **J. Sherman**, B.A., (Haverford), Ph.D. (Calif., L.A.); **M. Tanner**, B.Sc. (Alta.), Ph.D. (Calif., L.A.); **S. G. Withers**, B.Sc., Ph.D. (Brist.), F.R.S.C.

Associate Professors

J. Barth, Ph.D. (Berlin); **G. S. Bates**, B.Sc. (W.Ont.), Ph.D. (Alta.); **D. Bizzotto**, B.Sc. (Calg.), Ph.D. (Guelph/Wat.); **D. Chen**, B.Sc. (Xiamen), Ph.D. (Alta.); **K. J. Orians**, B.A., Ph.D. (Calif., Santa Cruz); **M. Thachuk**, B.Sc. (W.Ont.), Ph.D. (Wat.); **M. Wolf**, B.Sc. (Dal.), Ph.D. (M.I.T.).

Assistant Professors

A.K. Bertram, B.Sc. (P.E.I.), Ph.D. (Wat.); **K. C. Chou**, B.S. (Taiwan), Ph.D. (Calif.); **G. Dake**, B.Sc. (Br.Col.), Ph.D. (Stan.); **D. Gates**, B.Sc. (Dal.), Ph.D. (Tor.); **R. Jetter**, Diploma (Munich), Ph.D. (Kaiserslautern), Dr. Habil (Wuerzburg); **J. Kast**, Diplom, Ph.D. (Konstanz); **P. Kennepohl**, B.Sc. (Concordia), Ph.D. (Stan.); **H. Li**, B.S. (Tianjin), Ph.D. (Munich); **J. A. Love**, B.S. (Allegheny Coll.), Ph.D. (Stan.); **W. A. MacFarlane**, B.Sc. (Vic.B.C.), Ph.D. (Br.Col.); **M. J. MacLachlan**, B.Sc. (Br.Col.), Ph.D. (Tor.); **D. M. Perrin**, B.A. (Calif., Berkeley), Ph.D. (Calif., L.A.); **L. L. Schafer**, B.Sc. (Guelph), Ph.D. (Vic.B.C.); **S. K. Straus**, B.Sc. (McG.), Ph.D. (Physikalische Chemie-Schweiz); **J. T. Stuckless**, B.Sc. (Nfld.), Ph.D. (Tor.); **Y. A. Wang**, B.Sc. (Jilin, China), Ph.D. (Indiana).

Senior Instructors

B. L. Cliff, B.Sc., Ph.D. (Br.Col.); **S. Nussbaum**, B.Sc., M.Sc., Ph.D. (Hebrew); **P. Rasmussen**, B.Sc., M.Sc. (Acadia), Ph.D. (McM.); **P. Wassell**, B.Sc. (Exc.), Ph.D. (Br.Col.); **D. Zendrowski**, B.Sc. (Trent).

Instructors

N. Burlinson, B.Sc. (Fairfield), M.Sc. (Maryland), Ph.D. (Catholic U., Wash.); **S. Iyer**, B.Sc. (Madur.), Ph.D. (Vic.B.C.).

Adjunct Professors

M. Abrams, B.A. (Bowdoin), Ph.D. (M.I.T.); **T. Q. Hu**, B.Sc. (China), M.Sc., Ph.D. (Br.Col.); **K. J. Reimer**, B.Sc., M.Sc. (Calg.), Ph.D. (W.Ont.); **R. N. Young**, B.Sc. (Vic.B.C.), Ph.D. (Br.Col.).

DEPARTMENT OF COMPUTER SCIENCE

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C. Conati, M.S. (Milan), M.S., Ph.D. (Pitts.); **A. Doucet**, M.Eng. (INT France), Ph.D. (Paris-Sud Orsay); **W. S. Evans**, B.Sc. (Yale), Ph.D. (Calif., Berkeley); **M. J. Feeley**, B.Sc., M.Sc., Ph.D. (Wash.); **W. Heidrich**, B.Sc. (Erlangen-Nurnberg), M.Math (Wat.), Ph.D. (Erlangen-Nurnberg); **H. Hoos**, B.Sc. (Darmstadt), M.Sc., Ph.D. (Darmstadt); **A. J. Hu**, B.Sc., Ph.D. (Stan.); **N. C. Hutchinson**, B.Sc. (Calg.), M.Sc., Ph.D. (Wash.); **K. MacLean**, B.S. (Stan.), M.S. (Camb.), Ph.D. (Camb.); **G. C. Murphy**, B.Sc. (Alta.), M.Sc., Ph.D. (Wash.); **R. Rensink**, B.Sc. (Wat.), M.Sc. (Br.Col.), Ph.D. (Br.Col.); **M. vande Panne**, B.A.Sc. (Calg.), M.A.Sc., Ph.D. (Tor.); **S. T. Vuong**, B.Sc. (Cal. State), M.Eng. (Car.), Ph.D. (Wat.); **A. S. Wagner**, B.Sc. (Dal.), M.Sc. (Alta.), Ph.D. (Tor.).

Assistant Professors

R. Bridson, B.Math., M.Math. (Wat.), Ph.D. (Stan.); **G. Carenini**, M.S. (Milan), Ph.D. (Pitt.); **J. F. de Freitas**, B.Sc., M.Sc. (Witw.), Ph.D. (Camb.); **K. De Volder**, M.S. (Vrije), Ph.D. (Vrije); **M. Friedlander**, B.A. (C'nell), M.S., Ph.D. (Stan.); **C. Greif**, B.Sc., M.Sc., (Tel Aviv), Ph.D. (Br.Col.); **C. Krasic**, B.Math., M.Sc. (Wat.), Ph.D. (O.H.S.U.); **K. Leyton-Brown**, B.Sc. (McM.), M.Sc., Ph.D. (Stan.); **J. McGreener**, B.Sc. (W.Ont.), M.Sc. (Br.Col.), Ph.D. (Tor.); **I. Mitchell**, B.A.Sc., M.Sc. (Br.Col.), Ph.D. (Stan.); **T. Munzner**, B.S., Ph.D. (Stan.); **K. Murphy**, B.A. (Camb.), M.Sc. (Penn.), Ph.D. (Calif., Berkeley); **R. Pottinger**, B.S. (Duke), M.S., Ph.D. (Wash.); **A. Sheffer**, B.Sc., M.Sc., Ph.D. (Jerusalem); **E. Wohlstatter**, B.S., Ph.D. (Calif., Davis).

Senior Instructors

P. Belleville, B.Sc., M.Sc. (McG.), Ph.D. (S.Fraser); **P. Carter**, B.Sc. (Sheff.), M.Sc. (Br.Col.), Ph.D. (Br.Col.); **I. A. Cavers**, B.Sc., M.Sc., Ph.D. (Br.Col.); **K. Eiseitl**, Ph.D. (Calif., Irvine); **G. Tsiknis**, B.Sc. (Patras), M.Sc., Ph.D. (Br.Col.).

Instructors

D. Acton, B.Sc., M.Sc., Ph.D. (Br.Col.); **E. Knorr**, B.Math (Wat.), M.Sc., Ph.D. (Br.Col.); **S. Wolfman**, B.S. (Duke), M.S., Ph.D. (Wash.).

Adjunct Professors

C. Bouillier, B.Sc. (Dal.), M.Sc., Ph.D. (Tor.); **B. Fisher**, B.A. (Hiram), Ph.D. (Calif.).

Associate Members

R. Anstee, Mathematics; **M. Ito**, Electrical and Computer Engineering; **P. Lawrence**, Electrical and Computer Engineering; **G. Schrack**, Electrical and Computer Engineering; **B. Wetton**, Mathematics; **C. Woo**, Commerce and Business Administration.

DEPARTMENT OF EARTH AND OCEAN SCIENCES

P. L. Smith, Head

Honorary Professors

P. M. Bradshaw, B.Sc. (Car.), Ph.D. (Dur.); **S. E. Calvert**, B.Sc. (R'dg.), Ph.D. (Calif., San Diego), F.R.S.C.; **W. M. Cameron**, B.A., M.A. (Br.Col.), Ph.D. (Calif.); **R. L. Chase**, B.Sc. (W. Aust.), Ph.D. (Prin.); **W. R. Danner**, M.Sc., Ph.D. (Wash.); **R. M. Ellis**, B.A., M.Sc. (W.Ont.), Ph.D. (Alta.); **W. K. Fletcher**, B.Sc., Ph.D. (Imperial Coll.); **P. H. Leblond**, B.A. (Laval), B.Sc. (McG.), Ph.D. (Br.Col.), D.Sc. (Nfld.), F.R.S.C.; **A. G. Lewis**, B.Sc., M.Sc. (Miami), Ph.D. (Hawaii); **G. S. Pond**, B.Sc., Ph.D. (Br.Col.); **M. Raudsepp**, B.Sc. (McM.), M.Sc., Ph.D. (Manit.); **R. D. Russell**, M.A., Ph.D. (Tor.), F.R.S.C.; **A. J. Sinclair**, B.A.Sc., M.A.Sc. (Tor.), Ph.D. (Br.Col.), P.Eng; **F. J. R. Taylor**, B.Sc.,

Ph.D. (Cape T.), F.R.S.C.; T. J. Ulyrch, B.Sc. (Lond.), M.Sc., Ph.D. (Br.Col.).

Professors

R. J. Andersen, B.Sc. (Alta.), M.Sc. (Calif., Berkeley), Ph.D. (Calif., San Diego); **N. J. Balmforth**, B.Sc., (Lond.), Ph.D. (Camb.); **M. G. Bostock**, B.Sc., M.Sc. (Qu.), Ph.D. (A.N.U.); **P.Eng.**; **R. M. Bustin**, B.Sc., M.Sc. (Calg.), Ph.D. (Br.Col.); **G. K. C. Clarke**, B.Sc. (Alta.), M.A., Ph.D. (Tor.), F.R.S.C., F.A.G.U.; **R. M. Clowes**, M.Sc., Ph.D. (Alta.), F.R.S.C. (on leave); **G. M. Dipple**, B.Sc. (Indiana), M.A., Ph.D. (Johns H.) (on leave); **R. Francois**, B.Sc., (Ecole Supérieure des Textiles, Belgium), M.Sc., (S'ton), Ph.D. (Br.Col.); **L. A. Groat**, B.Sc. (Qu.), Ph.D. (Manit.); **M. Healey**, B.Sc., M.Sc., (Br.Col.), Ph.D. (Aberd.); **W. W. Hsieh**, B.Sc., M.Sc., Ph.D. (Br.Col.); **O. Hungr**, B.A.Sc., M.Sc. (Ott.), Ph.D. (Alta.), P.Eng., P.Geog.; **R. G. Ingram**, B.Sc., M.Sc. (McG.), Ph.D. (M.I.T.; Woods Hole); **J. K. Mortensen**, B.A.Sc., M.A.Sc., (Br.Col.), Ph.D. (Calif., Santa Barbara); **D. W. Oldenburg**, B.Sc., M.Sc. (Alta.), Ph.D. (Calif.); **J. K. Russell**, B.Sc. (Manit.), M.Sc., Ph.D. (Calg.); **J. L. Smith**, B.Sc. (Alta.), Ph.D. (Br.Col.), F.R.S.C., F.A.G.U.; **P. L. Smith**, B.Sc. (Lond.), M.S. (Portland State), Ph.D. (McM.); **D. G. Steyn**, B.Sc., M.Sc. (Cape T.), Ph.D. (Br.Col.), Associate Dean (Grad. Studies); **R. B. Stull**, B.Sc., Ph.D. (Wash.); **C. Suttle**, B.Sc., Ph.D. (Br.Col.); **D. A. Weis**, B.Sc., M.S., Ph.D. (Universite Libre de Bruxelles).

Associate Professors

S. E. Allen, B.Sc. (Qu.), Ph.D. (Cantab.); **P. Austin**, B.A. (Whitman Coll.), Ph.D. (Wash.); **R. D. Beckie**, B.A.Sc. (Wat.), M.A., Ph.D. (Prin.), P.Eng.; **K. A. Grimm**, B.Sc. (Denison), M.S. (Wis.), Ph.D. (Calif., Santa Cruz); **C. L. Johnson**, B.Sc. (Hons) (Edin.), Ph.D. (U.C.S.D.); **L. Kennedy**, B.Sc., M.Sc. (New Br.), Ph.D. (Texas A and M); **K. J. Orians**, B.A., Ph.D. (Calif., Santa Cruz) (on leave); **R. Pawlowicz**, B.Sc. (Qu.), Ph.D. (M.I.T.; Woods Hole); **J. S. Scoates**, B.Sc. (Qu.), Ph.D. (Wyoming).

Assistant Professors

C. DiBacco, B.Sc., M.Sc. (Dal.), Ph.D. (Scripps Inst. of Oceanography); **E. Eberhardt**, B.Eng., M.Sc., Ph.D. (Sask.); **E. Hearn**, B.A. (Rice U. Texas), M.S. (Calif., Berkeley), Ph.D. (Oregon); **F. Herrmann**, M.Sc., Ph.D. (Delft Univ. of Tech.); **M. Jellinek**, A.B. (Hamilton Coll., NY), M.Sc. (Idaho), Ph.D. (A.N.U.); **M. Kopylova**, B.Sc., M.Sc. (Moscow), Ph.D. (Russian Acad. Sci.); **M. Maldonado**, B.A. (Smith College, USA), Ph.D. (McG.); **U. Mayer**, Dipl. Ing. (Sturt.), Ph.D. (Wat.); **E. Pakhomov**, B.Sc., M.Sc. (Kazan State U., Russia), Ph.D. (P.P. Shirov Inst. of Oceanography, Russian Academy of Sciences); **L. Pandolfo**, B.Sc. (Laval) Ph.D. (Yale); **A. Ridgwell**, B.A. (Camb.), M.Sc. (Nott.), Ph.D. (East Anglia); **S. Rowins**, B.Sc. (Qu.), M.Sc. (Ott.), Ph.D. (W. Aust.); **P. D. Tortell**, B.Sc. (McG.), Ph.D. (Prin.).

Adjunct Professors

R. G. Anderson, B.Sc.(H.) (Br.Col.), Ph.D. (Car.); **S. J. Billings**, B.Sc. (La Trobe), B.Sc. (Hons – ANU), Ph.D. (University of Sydney); **E. Carmack**, B.Sc., (Arizona State), Ph.D. (Wash.); **K. L. Denman**, B.Sc. (Calg.), Ph.D. (Br.Col.); **M. G. G. Foreman**, B.Sc. (Qu.), M.Sc. (Vic.B.C.), Ph.D. (Br.Col.); **J. Haggart**, B.S. (Arizona U.), M.S., Ph.D. (Calif., Davis); **M. Holzer**, B.Sc., Ph.D. (S.Fraser); **J. L. Jambor**, B.A., M.Sc. (Br.Col.), Ph.D. (Car.); **J. M. Journey**, B.Sc. (St. Lawrence), M.Sc., Ph.D. (Qu.); **R. L. Kirilin**, B.Sc., M.Sc., (Wyoming), Ph.D. (Utah State); **H. Melling**, B.Sc., M.Sc., Ph.D. (Tor.); **B. B. Narod**, M.Sc. Ph.D. (Br.Col.); **T. F. Pedersen**, B.Sc., (Br.Col.), Ph.D. (Edin.); **K. W. Savigny**, B.Sc. (Qu.), Ph.D. (Alta.), P.Eng., P.Geog.; **B. Scott Smith**, B.Sc., Ph.D. (Edin.); **J. F. Thompson**, B.A. (Oxon.), M.Sc., Ph.D. (Tor.); **I. Thomson**, B.Sc. (Hons.), Ph.D. (Lond.), D.I.C., (Imp. Coll., Lond); **R.**

E. Thomson, B.Sc., Ph.D. (Br.Col.); **K. Von Salzen**, M.Sc., Ph.D. (Tech. Univ. of Munich); **D. M. Ware**, B.Sc., Ph.D. (Br.Col.); **C. S. Wong**, B.Sc., M.Sc. (H.K.), Ph.D. (Calif., San Diego).

Honorary Lecturer

D. Athaide, B.Sc. (McG.), M.Sc. (Br.Col.).

Lecturers

F. Jones, B.Sc. (McG.), M.Sc. (Br.Col.), P.Eng.

Senior Instructor

M. L. Bevier, B.Sc. (Calif., Santa Cruz), M.Sc. (Br.Col.), Ph.D. (Calif., Santa Barbara).

Instructor

S. Harris, B.A. (Wesleyan U., C.T.), Ph.D. (Oregon State U.); **S. E. Sutherland**, B.Sc. (Plym.), Ph.D. (Leic.), P.G.C.E. (Sheff.).

Visiting Scientists, Scholars & Professors

G. Anderson, B.Eng. (McG.), M.A.Sc., Ph.D. (Tor.); **N. Cetin**, B.Sc., M.Sc. (Middle East Tech. U.); **C. Deyell**, B.Sc. (Qu.), Ph.D. (Br.Col.); **K. Kingdon**, M.Sc. (Br.Col.); **R. Kumar**, B.Sc. (Hons), M.Sc., Ph.D. (Osmania U.); **G. Kuscus**, B.Sc. (Middle East Tech. U., Turkey), Ph.D. (Keele U,UK); **D. Lutes**, B.Sc., M.Sc. (Manit.); **M. G. Maxwell**, B.Sc. (Royal Military Coll. Canada), M.A. (U. of Ottawa), Ph.D. (UBC); **L. K. Neil**, B.Sc. (Winn.); **R. Nissen**, B.Sc. (Br.Col.), M.Sc., Ph.D. (U. of Toronto); **M. Szczodrak**, M.Sc. (Jagiellonian U., Cracow), Ph.D. (Br.Col.); **S. Walker**, B.Sc. (Hons) (McM.), M.Sc. (Br.Col.).

Associate Members

G. Flowers, B.A. (Colorado U.), Ph.D. (Br.Col.); **B. Gladman**, Physics and Astronomy; **T. Gordon**, Geological Sciences, (Calg.); **M. T. Kelly**, Pathology and Laboratory Medicine; **G. A. Lawrence**, Civil Engineering; **G. Schubert**, B. Eng. Physics (Cornell), M. Aero. Eng. (Cornell), Ph.D. (Calif., Berkeley); **J. K. Smit**, Microbiology and Immunology.

Honorary Research Associates

T. L. Clark, B.A.Sc. (Br.Col.), M.Sc., Ph.D. (Tor.); **C. L. Johnson**, A.B. (Harvard/Radcliffe), Ph.D. (Scripps); **T. E. McCandless**, B.Sc., M.Sc. (Utah), Ph.D. (Arizona, Tucson).

Research Associates

A. Ahmad, B.Sc., M.Sc., (Karachi), Ph.D. (U. of Calif., Davis); **J. Barling**, B.Sc., (Edin.), Ph.D. (Monash); **L. Chikatamarla**, B.Eng. (Osmania), M.Eng. (I.I.T.), Ph.D. (James Cook); **K. Foster**, B.Sc. (Canberra), M.Sc. (ANU); **R. M. Friedman**, B.Sc. (N.E. Ill.), M.Sc. (Chic.), Ph.D. (Br.Col.); **Q. Geng**, B.Sc. (Nanjing), M.Sc. (Chin. Acad. of Sciences), Ph.D. (Peking); **P. Hammer**, B.Eng. (Sask.), M.Sc., Ph.D. (Calif., San Diego); **K. Hickey**, B.Sc., M.Sc. (Auck.), Ph.D. (James Cook); **B. Kieffer**, B.Sc., M.Sc. (Clermont-Ferrand), Ph.D. (Grenoble-U. Libre de Bruxelles); **I. Kuscus**, B.Sc., M.Sc., Ph.D. (Middle East Tech. U.); **H. Modzelewski**, B.Sc. (Warsaw), M.Sc. (Inst. Geop. Warsaw), Ph.D. (Br.Col.); **F. Nan**, B.S., M.S. (Beijing I.T.), M.S. (Flor.State), Ph.D. (Mich.State); **E. Pani**, B.Eng., Ph.D. (Cagliari); **N. Phillips**, B.Sc. (Col. School of Mines), M.Sc. (Br.Col.); **R. Pieters**, B.Sc., Ph.D. (Calif., Santa Barbara); **C. Schoof**, M.Sc., Ph.D. (Oxf.); **L. Song**, B. Eng., M.Eng. (Chengdu), Ph.D. (Sichuan); **R. Tosdal**, B.A. (Calif., Santa Barbara), M.Sc. (Qu.), Ph.D. (Calif., Santa Barbara); **D. E. Williams**, B.Sc. (Lond.), Ph.D. (Br.Col.); **A. Wu**, B.S., M.S., Ph.D. (Nanjing); **R. Zhang**, B.S., M.S., Ph.D. (Central South U. of Tech. China).

Post Doctoral Fellows

B. Ainslie, B.Sc. (Qu.), M.Sc., Ph.D. (Br.Col.); **A. Baig**, B.Sc., M.Sc. (Alta), M.A., Ph.D. (Prin.); **J. Brauch**, B.Sc., M.Sc. (Kiel U.), Ph.D. (Bremen U.); **S. Challa**, B.Sc. (Nagar), M.Sc. Tech. (I.I.T.Jawaharlal Nehru), Ph.D. (I.I.T.); **C. Chamberlain**, B.Sc. (Birm.), M.Sc. (Leic.), Ph.D. (Roy. School of Mines, London); **P. Duuring**, B.Sc. (Hons) (Australia), Ph.D. (Australia); **D. Giordano**, Ph.D. (I.M.P.G.Ludwig Maximilian U. Munich); **C. Gueguen**, B.Sc., M.Sc. (Western Brittany, Brest), Ph.D. (Geneva); **B. Hunt**, B.Sc., M.Sc. (Rhodes U.), Ph.D. (Tas.); **T. Ivanochko**, B.Sc., M.Sc. (Br.Col.), Ph.D. (Edin.); **C. I. Lee**, B.S., M.Sc., Ph.D. (Pykyong Nat'l. U.); **N. Lhomme**, B.Sc., M.Sc. (Joseph Fourier U.), Ph.D. (Br.Col./Joseph Fourier U.); **S. Li**, B.Sc., M.Sc., (Shandong), Ph.D. (Chin. Acad. Sciences); **J. Mair**, B.Sc., Ph.D. (W.Aust.); **F. Nauret**, M.Sc. (Universite de Bretagne Occidentale), Ph.D. (Max Planck Inst./ Gutenberg U.); **C. Pausz**, M.Sc., Ph.D. (Vienna); **W. Pretorius**, B.Sc., M.Sc. (Rands Afrikaans), Ph.D. (Qu.); **A. Rust**, B.Sc. (Tor), M.Sc. (Br.Col.), Ph.D. (Oregon); **S. Spiessl**, M.Sc. (Conn.), Ph.D. (Goettingen); **W. Williams**, B.A. (Camb.), M.S. (M.I.T./W.H.O.I.), Ph.D. (Alaska).

DEPARTMENT OF MATHEMATICS

B. Marcus, Head

Honorary Professors

F. Brauer, B.S. (Tor), M.S., Ph.D. (M.I.T.); **C. Graham**, B.A. (Harv.), Ph.D. (M.I.T.).

Professors

A. Adem, B.S.(N.Mex.), Ph.D.(Prin.); **R. Anstee**, B.Math. (Wat.), Ph.D. (Cal.Tech.); **N. J. Balmforth**, B.Sc. (King's Coll., Lond.), Mathematics Tripos Part III, Churchill Coll. U. of Camb., Ph.D. (Camb.); **M.T. Barlow**, B.A., M.A. (Cantab.), Ph.D. (Wales), F.R.S.C.; **K. Behrend**, Dipl. Math. (Bonn), M.A. (Oregon), Ph.D. (Calif., Berkeley); **G. Bluman**, B.Sc. (Br.Col.), Ph.D. (Cal.Tech.); **D. W. Boyd**, B.Sc. (Car.), M.A., Ph.D. (Tor.), F.R.S.C.; **D. C. Brydges**, B.A. (Camb.), Ph.D. (Mich.); **W. A. Casselman**, B.A. (Harv.), Ph.D. (Prin.), F.R.S.C.; **J. Chen**, B.S. (Beijing), Ph.D. (Stan.); **I. S. Ekeland**, M.Sc., Ph.D. (Paris); **J. S. Feldman**, B.Sc. (Tor.), A.M., Ph.D. (Harv.), F.R.S.C.; **J. J. F. Fournier**, B.Sc. (Tor), M.S., Ph.D. (Wis.); **J. Friedman**, B.A. (Harv.), Ph.D. (Calif., Berkeley); **R. Froese**, B.S. (Manit.), Ph.D. (Virginia); **N. Ghossoub**, Lic. Math. (Beirut), Doctorat d'état (Paris), F.R.S.C.; **U. G. Haussmann**, B.Sc. (Tor), Ph.D. (Brown); **R. Kenyon**, B.A. (Rice U.), Ph.D. (Prin.), Habil. (U. Paris-Sud); **L. Keshet**, B.Sc., M.Sc. (Dal.), Ph.D. (Weizmann Inst.); **I. Laba**, M.Sc. (Wroclaw), Ph.D. (Tor.); **P. Loewen**, B.Sc. (Alta.), M.Sc., Ph.D. (Br.Col.); **B. H. Marcus**, B.A. (Pomona Coll.), M.A., Ph.D. (Calif., Berkeley); **A. P. Peirce**, B.Sc. (O.E.S.), M.Sc. (Witw.), Ph.D. (Prin.); **E. A. Perkins**, B.Sc. (Tor), Ph.D. (Ill.), F.R.S.C.; **Z. Reichstein**, B.S. (Cal.Tech.), Ph.D. (Harv.); **D. P. Rolfen**, B.Sc. (Ill. Inst. of Tech.), M.S., Ph.D. (Wis.); **B. R. Seymour**, B.Sc. (Manc.), Ph.D. (Nott.); **D. K. Sjerpe**, B.A. (Br.Col.), Ph.D. (Calif., Berkeley); **G. Slade**, B.A.Sc., M.Sc. (Tor), Ph.D. (Br.Col.); **F.R.S.C.**; **J. Smith**, B.A. (New Coll., Sarasota, Flor.), Ph.D. (M.I.T.); **M. Ward**, B.Sc. (Br.Col.), Ph.D. (Cal.Tech.); **B. T. R. Wetton**, B.Sc., M.Sc. (Vic.B.C.), Ph.D. (Courant).

Associate Professors

M. A. Bennett, B.Sc. (Dal.), M.Sc., Ph.D. (Br.Col.); **J. Bryan**, B.S. (Stan.), M.A., Ph.D. (Harv.); **M. Doebeli**, D.M., Ph.D. (Basel); **J. J. Feng**, B.S., M.S. (Peking), Ph.D. (Minn.); **I. Frigaard**, B.Sc. (Wales) M.Sc., Ph.D. (Oxf.); **R. Gupta**, B.Math. (Wat.), Ph.D. (M.I.T.); **R. Israel**, S.B. (Chic.), Ph.D. (Prin.); **R. A. Kuske**, B.Sc. (WI, Green Bay), Ph.D. (Northwestern); **Y. -X. Li**, B.S. (H.K.), M.S. (Chinese Acad. Sci.), Ph.D. (Brussels); **G.**

Martin, B.S. (Stan.), M.S., Ph.D. (Mich.); W. Nagata, B.Sc., M.Sc. (Br.Col.), Ph.D. (Colorado State); D. H. Peterson, B.A., M.S. (Yale), Ph.D. (Harv.); T. -P. Tsai, B.Sc. (National Taiwan), Ph.D. (Minn.); V. Vatsal, B.S. (Stan.), M.A., Ph.D. (Prin.).

Assistant Professors

P. Brosnan, A.B. (Prin.), M.S., Ph.D. (Chic.); D. Coombs, B.Sc. (Sheff.), M.S., Ph.D. (Arizona); E. N. Cyttrynbaum, B.Sc. (McG.), M.S., Ph.D. (Utah); A. Fraser, B.S. (Tor.), Ph.D. (Stan.); S. J. Gustafson, B.Sc. (Br.Col.), M.Sc. (Tor.), Ph.D. (Courant); A. Holroyd, B.A. (Queen's College), Ph.D. (Camb.); U. Horst, Dipl. Math Economics (Bielefeld), Ph.D. (Berlin); K. Karu, Diploma (Tartu), M.S. (Mich. State), Ph.D. (Boston); C. W. Lamb, B.A. (Swarthmore), M.A., Ph.D. (Ill.); V. Limic, B.S. (Zagreb, Croatia), Ph.D. (Calif., Berkeley); D. Schoetzau, M.S., Ph.D. (ETH, Zurich); L. Scull, B.Sc.H. (Qu.), M.S., Ph.D. (Chic.); J. Smith, B.A. (New Coll., Sarasota, Flor.), Ph.D. (M.I.T.); J. Solymosi, M.Sc. (Eötvös), Ph.D. (Swiss Fed. Inst. of Tech., Zurich); S. Van Willigenburg, B.Sc., Ph.D. (Str. And.); O. Yilmaz, B.S. Elec. Eng., B.S. Math (Bogazici U. Istanbul), Ph.D. (Prin.).

Instructor

K. Liu, B.A. (Huazhong), M.S. (Wuhan), Ph.D. (Alta.).

Associate Member

U. Ascher, Computer Science.

DEPARTMENT OF MICROBIOLOGY AND IMMUNOLOGY

C. J. Thompson, Head

Professors Emeriti

J. J. R. Campbell, B.S.A. (Br.Col.), Ph.D. (C'nell.); J. E. Davies, B.Sc., Ph.D. (Nott.), FRS; D. G. Kilburn, B.A.Sc. (Br.Col.), Ph.D. (Lond.); J. Levy, B.A. (Br.Col.), Ph.D. (Lond.), F.R.S.C.; B. C. McBride, M.Sc. (Br.Col.), Ph.D. (Ill.); R. A. J. Warren, B.Sc. (Birm.), M.Sc. (Br.Col.), Ph.D. (Calif.).

Professors

J. T. Beatty, B.Sc. (Wash.), M.A., Ph.D. (Indiana); L. D. Eltis, B.Sc. (Tor.), Ph.D. (Br.Col.); B. B. Finlay, Ph.D. (Alta.); M. Gold, B.Sc. (Mich.), Ph.D. (Calif., Berkeley); R. E. W. Hancock, B.Sc., Ph.D. (Adel.), F.R.S.C.; W. A. Jefferies, B.Sc. (Vic.B.C.), Ph.D. (Oxon.); P. Johnson, B.Sc. (Liv.), Ph.D. (Dund.); J. W. Kronstad, B.S. (Oregon State), Ph.D. (Wash.); W. W. Mohn, B.A. (Hamilton, N.Y.), Ph.D. (Mich. State); J. K. Smit, B.A. (Calif. State Coll.), Ph.D. (Calif., Berkeley); G. B. Spiegelman, B.Sc. (Ill.), Ph.D. (Wis.); C. Suttle, B.Sc., Ph.D. (Br.Col.); H. S. Teh, B.Sc., Ph.D. (Alta.); C. J. Thompson, B.S. (Wash.; Lee U.), M.S., Ph.D. (Penn. State); G. Weeks, B.Sc., Ph.D., D.Sc. (Birm.).

Associate Professors

R. Fernandez, B.Sc. (Tor.), M.Sc., Ph.D. (Dal.); M. E. P. Murphy, B.Sc. (Alta.), Ph.D. (Br.Col.).

Assistant Professors

N. Abraham, B.Sc., (Dal.), M.Sc. (McG.), Ph.D. (Ott.); E. Gaynor, B.A., Ph.D. (Calif., San Diego); M. Horwitz, B.S., M.S. (Calif., Davis), Ph.D. (Minn.); F. Jean, B.Sc., M.Sc., Ph.D. (Montr.).

Senior Instructors

J. Benbasat, B.A.Sc. (Robert Coll., Istanbul), Ph.D. (Minn.); W. D. Ramey, B.Sc., Ph.D. (Br.Col.); W. Bingle, Ph.D. (Alta.); T. Kion, Ph.D. (Br.Col.).

Lecturers

E. Hinz, B.Sc., M.Sc. (Br.Col.); K. Smith, B.Sc. (Br.Col.); G. Sweet, B.Sc. (Alta.), Ph.D. (Vic.B.C.).

Sessional Lecturer

J. Gordon, B.Sc. (Ill.), M.Sc., Ph.D. (Wis.); J. Sibley, B.Sc., M.Sc. (Sask.).

Adjunct Professor

T. Galitski, B.Sc. (Penn.), Ph.D. (Utah); J. B. Hobbs, M.A. (Cantab.), Ph.D. (Warw.); L. Hood, B.Sc., Ph.D. (Calif. Inst. Tech.), M.D. (Johns H.).

Associate Members

Y. Av-Gay, Medicine; A. Chow, Medicine; M. Grigg, Medicine; C. Helgason, BC Cancer Agency; M. Levings, Surgery; R. McMaster, Medical Genetics; R. J. Redfield, Zoology; N. Reiner, Medicine; J. N. Saddler, Wood Science; J. Schrader, Medicine; D. P. Speert, Pediatrics; R. Stokes, Pediatrics; D. Waterfield, Oral Biological and Medical Sciences.

Research Associates

E. Bekker, Ph.D. (Moscow State); E. Dullaghan, Ph.D. (U. Coll. of Lond.); S. Farmer, Ph.D. (Br.Col.); P. Joshi, Ph.D. (Br.Col.), (Hon.) Research Assoc; N. Mookherjee, B.Sc., M.Sc., (Bom.), Ph.D. (Vic.B.C.); L. Nguyen, Ph.D. (Academy of Science, Czech Rep.); J. Nomellini, Ph.D. (Arizona State); M. Patrauchan, Ph.D. (Nat'l Academy of Science, Ukraine); J. Priatel, Ph.D. (Br.Col.); A. Rozek, Ph.D. (S.Fraser).

Postdoctoral Fellows

S. Braatsch, Ph.D. (Giessen U.); K. Brown, B.Sc. (S.Fraser), Ph.D. (Br.Col.); C. Cosseau, M.S., Ph.D. (Paul Sabatier); D. Frigon, Ph.D. (Ill.); E. Gonclaves, Ph.D. (State U. of Campinas, Sao Paulo); P. Hamill, Ph.D. (Glas.); H. Heuser, Ph.D. (Cologne); K. Hilpert, M.Sc., Ph.D. (Humboldt); H. Hirofumi, Ph.D. (Nagaoka U. of Tech., Japan); H. Jensen, Ph.D. (U. Hospital, N. Norway); S. Lewenza, Ph.D. (Calg.); A. Marr, Ph.D. (Wuerzburg, Germany); M. McLeod, B.S. (Abilene Christian), M.S., Ph.D. (Texas Hlth. Sc. Cntr. at Houston); L. Mesak, Ph.D. (Erlangen-Nuremberg U., Germany); D. Miyazawa, B.Sc. (Tokyo U. of Sc., Biol Sc. & Tech.), Ph.D. (Tokyo Inst. of Tech.); J. Overhage, Ph.D. (Westfälische Wilhelms U., Munster); K. -H. Rhee, Ph.D. (Konkuk, Seoul); D. Ringoir, Ph.D. (Aust., Griffith U. Gold Coast); M. Scott, Ph.D. (Br.Col.); S. Seredick, Ph.D. (Br.Col.); S. Veatch, Ph.D. (Wash.); H. Xu, Ph.D. (Shangdong U., P.R. China); L. Zhao, (Fudon, Shanghai), M.Sc., Ph.D. (Tokyo).

DEPARTMENT OF PHYSICS AND ASTRONOMY

J. Young, Head

Honorary Professors

G. Atkinson, B.A.Sc., M.Sc., Ph.D. (Br.Col.); W. Israel, B.Sc., M.Sc. (Cape T.), Ph.D. (Dub.); H. Lam, B.Sc. (McG.), Ph.D. (MIT); A. Ng, B.Sc. (H.K.), Ph.D. (W.Ont.); L. D. Skarsgard, B.E., M.Sc. (Sask.), Ph.D. (Tor.); E. W. Vogt, O.C., B.Sc., M.Sc. (Man.), Ph.D. (Prin.), D.Sc. (Regina), F.R.S.C.

Professors

I. Affleck, B.Sc. (Trent), A.M., Ph.D. (Harv.), F.R.S.C.; D. A. Bonn, B.Sc., Ph.D. (McM.), F.R.S.C.; J. H. Brewer, B.Sc. (Trin.Coll.Tor.), M.A., Ph.D. (Calif., Berkeley); D. Bryman, B.Sc. (Syr.), M.Sc. (Rutgers), Ph.D. (Virginia Polytech.); M. Choptuik, B.Sc. (Bran.), M.Sc., Ph.D. (Br.Col.); J. E. Eldridge, B.Sc., Ph.D. (Birm.); E. Evans, B.Sc., M.Sc. (N.Y.), Ph.D. (Calif.); G. G. Fahlan, B.Sc. (Br.Col.), M.Sc., Ph.D. (Tor.); M. Halpern, B.Sc., Ph.D. (M.I.T.); M. D. Hasinoff, B.Sc. (Man.), M.S., Ph.D. (Stan.); P. Hickson, B.Sc. (Alta.),

Ph.D. (Cal.Tech.); W. W. Hsieh, B.Sc., M.Sc., Ph.D. (Br.Col.); R. Kiefl, B.Sc. (Car.), M.Sc., Ph.D. (Br.Col.); A. MacKay, B.Sc. (Dal.), M.Sc. (Br.Col.), Ph.D. (Oxon.); W. McCutcheon, B.Sc., M.Sc. (Qu.), Ph.D. (Manc.); J. McKenna, B.Sc., (Wat.), Ph.D. (Tor.); R. Parsons, B.A.Sc., Ph.D. (Br.Col.) P.Eng; H. B. Richer, B.Sc. (McG.), M.Sc., Ph.D. (Roch.); G. Sawatzky, B.Sc., Ph.D. (Manit.); G. W. Semenov, B.Sc., Ph.D. (Alta.), F.R.S.C.; P. C. E. Stamp, B.Sc. (Sus.), M.Sc. (Lanc.), Ph.D. (Sus.); T. Tiedje, B.A.Sc. (Tor.), M.Sc., Ph.D. (Br.Col.), P.Eng, F.R.S.C.; W. G. Unruh, B.Sc. (Manit.), M.A., Ph.D. (Prin.), F.R.S.C., F.R.S.; C. E. Waltham, M.A. (Cantab.), Ph.D. (Birm.), P.Eng; L. Whitehead, B.Sc., M.Sc., Ph.D. (Br.Col.), P.Eng; J. Young, B.A.Sc. (Br.Col.), M.Sc., Ph.D. (Tor.), P.Eng; A. Zhiitnitsky, B.Sc., Ph.D. (Novosibirsk).

Associate Professors

J. Barth, Dipl. Physics (Munich), J. Barth, Dr. Rer. Nat. (Freie Universitat, Berlin); M. Franz, B.Sc. (Comenius U., Czech.), M.A., Ph.D. (Roch.); B. Gladman, B.Sc. (Alta.), M.Sc. (Qu.), M.Sc. Ph.D. (C'nell.); G. W. Hearty, B.Sc. (S.Fraser), Ph.D. (Wash.), I.P.P.; G. W. Hoffmann, B.Sc., M.Sc. (Melb.), Ph.D. (Gött.); A. Marziani, B.A.Sc. (Br.Col.), Ph.D. (Stan.), P.Eng; J. M. Matthews, B.Sc. (Tor.), M.Sc., Ph.D. (W.Ont.); T. Mattison, B.Sc., Ph.D. (M.I.T.); C. Michal, B.Sc. (Br.Col.), Ph.D. (C'nell); K. Schleich, B.A., Ph.D. (Chic.); D. Scott, B.Sc. (Edin.), Ph.D. (Cantab.); V. Sossi, Laurea (Trieste), Ph.D. (Br.Col.).

Assistant Professors

M. Berciu, B.Sc. (Bucharest), M.Sc., Ph.D. (Tor.); A. Damascelli, B.Sc. (Milan), Ph.D. (Gron.); J. Folk, B.Sc., Ph.D. (Stan.); C. Hansen, B.A.Sc. (Br.Col.), Ph.D. (Caltech); J. S. Heyl, A.B. (Prin.), M.Sc. (Camb.), Ph.D. (Calif., Santa Cruz); D. J. Jones, B.A., B.S. (Swarthmore Coll.), M.Phil. (Camb.), Ph.D. (M.I.T.); K. W. Madison, B.S.E. (Tulane), Ph.D. (Texas, Austin); S. M. Oser, B.A. (Wash., St. Louis), M.A., Ph.D. (Chic.); S. Plotkin, B.Sc. (Reinseleer Polytech.), M.Sc., Ph.D. (Ill. at Urbana); S. Rensberg, B.Sc. (Leipzig), M.Sc. (Durham), Ph.D. (Max Planck); J. Rottler, B.Sc., M.Sc. (Konstanz), Ph.D. (Johns H.); M. Rozali, B.Sc. (Tel Aviv), Ph.D. (Texas); I. Stairs, B.Sc. (McG.), M.A., Ph.D. (Prin.); M. Van Raamsdonk, B.Sc. (Br.Col.), M.A., Ph.D. (Prin.); L. Van Waerbeke, B.Sc., M.Sc., Ph.D. (Orsay University); F. Zhou, B.S. (U. of Science & Tech of China), Ph.D. (Wash.).

Senior Instructor

F. E. Bates, B.Sc. (W.Ont.), Ph.D. (Alta.); D. Witt, B.Sc., M.Sc., Ph.D. (Wis., Milwaukee).

Adjunct Professors

J. Behr, B.Sc. (Cal.Tech.), M.A., Ph.D. (Wash.); B. Clark, B.Sc. (S'ton), Ph.D. (U.K. Council Nat. Acad. Awards); P. Corkum, B.Sc. (Acad.), M.A., Ph.D. (Lehigh); J. Dilling, B.Sc., Ph.D. (Heidel.); C. Duzenli, B.Sc. (Qu.), M.A. (McG.), Ph.D. (Alta.); S. Flibotte, B.Sc., Ph.D. (Montr.); J. Iqbal, B.Sc. (Punj.), M.Sc., Ph.D. (Indiana); J. Ng, B.Sc. (Sing.), M.Sc. (Case Western), Ph.D. (Wash.); P. Olive, B.Sc. (Bishop's), M.Sc. (W.Ont.), Ph.D. (McM.); J. Wall, B.Sc. (Qu.), M.A. (Tor.), Ph.D. (A.N.U.); S. Yen, B.Sc., M.Sc., Ph.D. (Tor.); A. Zagoskin, M.Sc. (Kharkov), Ph.D. (Ukrainian Acad. of Sci.).

Associate Members

J. Aldrich, Radiology; A. Celler, Radiology; R. Durand, Pathology and Laboratory Medicine; P. Kozlowski, Radiology; C. MacAulay, Pathology and Laboratory Medicine; A. MacFarlane, Chemistry; M. Shapiro, Chemistry; A. Shotter, TRIUMF; Q. S. Xiang, Radiology; H. Zeng, Pathology.

Sessional Lecturers

E. Koster, B.Sc., M.Sc., Ph.D. (Br.Col.); A. Kotlicki, M.Sc., Ph.D. (Warsaw); P. Newbury, B.Sc. (Manit.), M.Sc., Ph.D. (Br.Col.).

Research Associates

T. Cuhadar Donszelmann, B.Sc., M.Sc., Ph.D. (Bogazici, Turkey); T. D. (Vrije, Holland); B. Klappauf, B.Sc. (Wisconsin), Ph.D. (Texas); R. Liang, B.Sc. (Tsinghua), M.Sc., Ph.D. (Tokyo Inst. of Tech.); M. Lyutikov, M.Sc. (Moscow Eng. Phys. Inst.), Ph.D. (Cal.Tech.); B. Mädlar, Diplom, Ph.D. (Dresden); M. Milner-Bolotin, M.A. (Kharkov), Ph.D. (Texas); M. Mossman, B.Sc. (Acadia), M.Sc., Ph.D. (Br.Col.); K. Okuyama, B.Sc., M.A., Ph.D. (Tokyo); G. Rieger, Diplom, Dr.rer.nat (Ruhr, Bochum); I. Tupitsyn, M.Sc. (Moscow Eng. Phys. Inst) Ph.D. (Russian Research Centre); J. Wendland, Vordiplom (TU Braunschweig), Ph.D., (S. Fraser).

Postdoctoral Fellows

Y. Abdelaziz, B.Sc. (Ain Shan), M.Sc. (New Jersey), Ph.D. (Dayton); I. Adagideli, B.Sc., M.A. (Middle East Techn. Univ.), Ph.D. (Ill. Urbana); W. Auwaerter, B.Sc., Ph.D. (Zür.); C. Blake, M.A., Ph.D. (Oxf.); E. Chapin, B.Sc. (Vic.B.C.), Ph.D. (Inst. Astrophysik, Mexico); M. Cuk, B.Sc. (Belgrade), M.Sc. (Cornell); S. Frolov, B.Sc. (Moscow), Ph.D. (Ill.); D. Hawthorn, B.Sc. (McM.), M.Sc. Ph.D. (Tor.); C. Heymans, M.Sc. (Edin.), Ph.D. (Oxf.); B. Kelleher, B.Sc., M.Sc., Ph.D. (Coll. Cork); N. Knecht, B.Sc., Ph.D. (Regina); P. Koerber, B.Sc. (Leuven), M.Sc. (Ghent), Ph.D. (Brussels); N. Laflourencie, B.Sc., M.Sc., Ph.D. (Paul Sabatier, Toulouse); A. Morello, M.A. (Politecnico of Torino), Ph.D. (Leiden); G. Patanchon, B.Sc. (Bordeaux), M.Sc., Ph.D. (Paris); A. Pattantyus-Abraham, B.Sc. (Qu.), Ph.D. (Br.Col.); A. Rosemann, B.Sc., Ph.D. (Tech. U. Berlin); M. Schechter, B.Sc. (Hebrew), M.Sc., Ph.D. (Weizmann Inst.); J. Sirker, B.Sc. (Cologne), Ph.D. (Dortmund); B. Smith, B.Sc., M.Sc., Ph.D. (McG.); M. Snajdr, B.Sc. (Comenius, Slovakia), M.Sc. (Brock), Ph.D. (Alta.); E. Sorokin, B.Sc., M.Sc., Ph.D. (Hebrew U, Jerusalem); J. Van Leeuwen, M. Sc., Ph.D. (Utrecht); A. Vankatesan, B.Sc. (Madras), M.S. (Arkansas), Ph.D. (Northeastern); G. Warner, B.Sc. (M.I.T.), Ph.D. (Ill.); N. Zangenberg, M.Sc., Ph.D. (Aarhus); J. Zibin, B.Sc. (Vic.B.C.), M.Sc. (S.Fraser), Ph.D. (Br.Col.).

Professors Emeriti

J. F. Carolan, A.B. (Prin.), Ph.D. (Maryland); W. N. Hardy, B.Sc., Ph.D. (Br.Col.), F.R.S.C.

DEPARTMENT OF STATISTICS

W. J. Welch, Head

Honorary Professor

C. van Eeden, B.Sc., M.Sc., Ph.D. (Amst.).

Professors

R. Brant, B.Math., M.Math. (Wat.), Ph.D. (Tor.); P. A. Gustafson, B.Sc., M.Sc. (Br.Col.), Ph.D. (Carnegie Mellon); N. E. Heckman, B.Sc. (Tufts), M.A., Ph.D. (Mich.); H. Joe, B.Sc. (Vic.B.C.), M.Sc. (Br.Col.), Ph.D. (Flor. State); A. J. Petkau, B.Sc. (Manit.), Ph.D. (Stan.); W. J. Welch, B.Sc., M.Sc., Ph.D. (Imperial Coll. Lond.); R. Zamar, B.Sc. (Cordoba), M.Sc. (Pernambuco), Ph.D. (Wash.).

Professor Emeritus

N. Glick, A.B. (Oberlin), M.S., Ph.D. (Stan.); A. W. Marshall, B.C. (Oregon U.), Ph.D. (Wash.); M. Schulzer, B.A., M.A., M.D. (Br.Col.), Ph.D. (Wash.); J. V. Zidek, B.Sc., M.Sc. (Alta.), Ph.D. (Stan.).

Associate Professors

B. Clarke, B.Sc. (Tor.), Ph.D. (Ill.); A. Doucet, M.Eng. (Telecom I.N.T.), Ph.D. (Paris-Sud XI Orsay); L. Wu, B.Sc. (E. China Normal), M.Sc. (Tulane), Ph.D. (Wash.).

Assistant Professors

J. Bryan, B.Sc. (Yale), Ph.D. (Calif., Berkeley); R. Gottardo, M.Sc. (Portland), French Eng. Dipl. (Sciences et Techniques de l'Ingenieur de Lyon), Ph.D. (Wash.); K. Murphy, B.A. (Camb.), M.Sc. (Penn.), Ph.D. (Calif., Berkeley); M. Salibian-Barrera, B.Sc. (Licenciado en Matematica), (Buenos Aires), Ph.D.(Br.Col.).

Associate Members

R. Altman, B.A.Sc. (Waterloo), M.S. (Cornell), Ph.D. (Br.Col.); Y. MacNab, Health Care and Epidemiology; E. Perkins, Mathematics; M. L. Puterman, Commerce; J. J. Spinelli, B.C. Cancer Agency; B. Zumbo, Education.

Adjunct Professors

H. A. Chipman, B.Sc. (Acad.), M.Math., Ph.D. (Wat.); A. J. Coldman, B.Sc. (Sus.), M.A. (W.Ont.), Ph.D. (Br.Col.); N. Le, B.Sc., M.Sc. (Br.Col.), Ph.D. (Wash.); J. Ramsay, B.Ed. (Alta.), Ph.D. (Prin.); S. S. Young, B.S., M.E.S., Ph.D. (N.C. State Univ.).

DEPARTMENT OF ZOOLOGY

W. K. Milsom, Head

Honorary Professors

D. H. Chitty, B.A. (Tor.), M.A., D.Phil. (Oxon.), F.R.S.C.; I. McT. Cowan, O.C., B.A. (Br.Col.), Ph.D. (Calif.); D.Sc. (Br.Col.); LL.D. (Alta.); S.Fraser, D.Env.Sc. (Wat.), F.R.S.C.; C. V. Finnegan, B.A. (Bates), M.S., Ph.D. (Notre D.); C. L. Gass, A.B., B.Sc. (Chico State Coll.), M.Sc., Ph.D. (Oregon); W. S. Hoar, O.C., B.A. (New Br.), M.A. (W.Ont.), Ph.D. (Boston), D.Sc. (New Br.; Nfld.; St.F.X.; W.Ont.), LL.D. (S.Fraser; Tor.), LL.D. (Mt.All.), F.R.S.C.; D. G. Holm, B.Sc. (Br.Col.), Ph.D. (Conn.); A. G. Lewis, B.Sc., M.Sc. (Miami), Ph.D. (Hawaii); N. R. Liley, M.A., D.Phil. (Oxon.); C. C. Lindsey, B.A. (Tor.), M.A. (Br.Col.), Ph.D. (Cantab.), F.R.S.C.; D. Ludwig, Ph.D. (Calif.); J. D. McPhail, M.Sc. (Br.Col.), Ph.D. (McG.); H. C. Nordan, B.S.A., M.A. (Br.Col.), Ph.D. (Oregon State); T. G. Northcote, M.A., Ph.D. (Br.Col.); T. R. Parsons, M.Sc., Ph.D. (McG.), F.R.S.C.; A. M. Perks, M.A. (Cantab.; Oxon.), Ph.D., D.Sc. (St.And.), F.R.S. (Med.) (Lond.); J. E. Phillips, M.Sc. (Dal.), Ph.D. (Cantab.), F.R.S.C.; G. G. E. Scudder, B.Sc. (Wales), D.Phil. (Oxon.), F.R.E.S., F.E.S.C., F.R.S.C.; D. Suzuki, O.C., B.A. (Amherst), Ph.D. (Chic.), LL.D. (P.E.I.), D.Sc. (Acadia), F.R.S.C.; C. F. Wehrhahn, M.Sc. (Alta.), Ph.D. (Calif.).

Professors

M. L. Adamson, B.Sc., Ph.D. (Guelph); J. D. Berger, A.B., A.M., Ph.D. (Indiana); R. W. Blake, B.Sc. (Brist.), Ph.D. (Cantab.); H. W. Brock, B.Sc. (Br.Col.), D.Phil. (Oxon.); A. P. Farrell, B.Sc. (Bath), Ph.D. (Br. Col.); J. M. Gosline, B.A. (Calif.), Ph.D. (Duke), F.R.S.C.; T. A. Grigliatti, B.S. (Calif., Santa Clara), M.A. (San Fran. State), Ph.D. (Br.Col.); D. R. Jones, B.Sc. (Ston.), Ph.D. (E. Anglia), F.R.S.C., C.M.; W. Maddison, B.Sc. (Tor.), Ph.D. (Harv.), Curator of the Spencer Entomological Museum; W. K. Milsom, B.Sc. (Alta.), M.Sc. (Wash.), Ph.D. (Br.Col.); D. G. Moerman, B.Sc., Ph.D. (S.Fraser); J. H. Myers, B.Sc. (Chatham Coll.), M.Sc. (Tufts), Ph.D. (Indiana); S. Otto, B.Sc., Ph.D. (Stan.); D. Pauly, M.Sc., Ph.D. (Kiel), F.R.S.C.; T. J. Pitcher, B.A., M.A., D.Phil. (Oxon.); D. Schluter, B.Sc. (Guelph), Ph.D. (Mich.), F.R.S., F.R.S.C.; A. R. E. Sinclair, B.Sc., Ph.D. (Oxon.), F.R.S.C.; T. P. Snutch, B.Sc., Ph.D. (S.Fraser), F.R.S.C.; J. D. Steeves, B.Sc.,

Ph.D. (Manit.); E. B. Taylor, B.Sc. (Qu.), M.Sc., Ph.D. (Br. Col.), Curator of the Ichthyological Museum; W. Tetzlaff, M.D., Ph.D. (Calg.), Man-in-Motion Spinal Cord Chair; C. J. Walters, B.S. (Humboldt State), M.S., Ph.D. (Colorado State), F.R.S.C.; M. Whitlock, B.Sc. (Baylor), Ph.D. (Vanderbilt).

Associate Professors

V. J. Auld, B.Sc. (Br. Col.), Ph.D. (Tor.); L. Aviles, Lic. Biol. Sci. (P.U.C. Equador), M.Sc., Ph.D. (Harv.); M. Doebeli, Ph.D. (Basel); L. Matsuuchi, A.B. (Barnard Coll.), M.A., M.Phil., Ph.D. (Col.); R. Redfield, B.Sc. (Monash), M.Sc. (McM.), Ph.D. (Stan.); J. Roskams, B.Sc. (Swansea), M.Dip. (Idaho), Ph.D. (Penn State); P. Schulte, B.Sc., M.Sc. (Br. Col.), Ph.D. (Stanford).

Assistant Professors

N. Abraham, B.Sc. (Dal.), M.Sc. (McG.), Ph.D. (Ott.); C. Brauner, B.Sc., M.Sc., Ph.D. (Br. Col.); C. D. G. Harley, B.S. (Brown), Ph.D. (Wash.); D. E. Irwin, B.S. (Stan.), Ph.D. (Calif., San Diego), Curator of Cowan Vertebrate Museum; B. S. Leander, B.S. (Calif. Polytec. State U.), B.S., M.A. (Humboldt), Ph.D. (Georgia); N. Panté, B.A. (Simon Bolivar), M.Sc. (Venezuelan Inst. for Scientific Research), Ph.D. (Brandeis); M. Ramer, B.Sc., Ph.D. (Qu.); J. G. Richards, B.Sc. (W.Laur.), M.Sc. (Wat.), Ph.D. (McM.); J. B. Shurin, B.A. (Macalester Coll.), M.S. (Wisc.), Ph.D. (Chic.); D. Srivastava, B.Sc. (Dal.), M.Sc. (Tor.), Ph.D. (Imperial Coll., London).

Senior Instructors

T. Crawford, B.Sc. (Vic.B.C.), M.Sc., Ph.D. (Wash.); A. M. A. Lacombe, B.Sc., M.Sc. (Bretagne Occidentale), D.E.A. (C.R.S.), Ph.D. (Br.Col.); S. Millen, B.Sc. (Vic.B.C.), M.Sc. (S.Fraser); C. Pollock, B.Sc., M.Sc. (Manit.), Ph.D. (Br.Col.); E. Rosenberg, B.Sc., M.Sc. (S.Fraser).

Instructors

C. Berezowsky, B.Sc., M.Sc. (Sask.), Ph.D. (Guelph); K. M. Nomme, B.Sc., M.Sc. (Br.Col.).

Lecturers

G. Bole, B.S. (William & Mary Coll.), Ph.D. (S.U.N.Y.); A. Cassidy, B.Sc. (Vic.B.C.), M.Sc. (McG.), Ph.D. (Br.Col.); W. Goodey, B.Sc., M.Sc. (Br.Col.), Ph.D. (Monash); R. Harris, B.Sc., M.Sc. (Alta.), Ph.D. (Br.Col.); J. Klenz, B.S.A. (Sask), Ph.D. (Univ. of Mass., Amherst); A. Mattenley, B.Sc. (Br.Col.); K. Needham, B.Sc., M.Sc. (Br.Col.); L. F. Norman, B.Sc., M.Sc. (Vic.B.C.); M. Pineda-Krch, M.Sc., Ph.D. (Lund); C. Sun., B.S. (Nat'l. Taiwan), M.S. (Minn.), Ph.D. (Wisc.).

Adjunct Professors

L. Barrett-Lennard, B.Sc. (Guelph), M.Sc., Ph.D. (Br.Col.); R. Devlin, B.Sc., Ph.D. (Br.Col.); D. Theilmann, B.Sc., M.Sc. (Qu.), Ph.D. (Texas A and M); C. Wood, B.Sc., MSc (Br.Col.), Ph.D. (E. Anglia).

Research Associates

P. E. Axelrood, B.Sc., M.Sc. (Oregon), Ph.D. (Calif.); M. Evelyn, B.Sc. (Br.Col.), Ph.D. (Stan.); H. N. Feldman, B.Sc. (Br.Col.), Ph.D. (Oxon.); L. Fidler, B.Sc. (Penn State), M.Sc. Ph.D. (Br.Col.); M. M. Gilbert, B.A. (Scripps), M.Sc. (Oregon), Ph.D. (Br.Col.); P. A. Guerette, B.Sc. (St.F.X.), Ph.D. (Br.Col.); R. E. Gullison, B.Sc. (Br.Col.), Ph.D. (Prin.); D. G. Harper, B.Sc. (Br.Col.), M.Sc. (Alta.), Ph.D. (Br.Col.); J. W. N. Hodgson, B.Sc. (Sci. and Tech., Kumasi), Ph.D. (N.I.M.R., Lond.); E. C. Humphrey, B.Sc. (Bangor), M.Sc., Ph.D. (Ston); C. Levings, B.Sc. (Hon.), M.Sc. (Br.Col.), Ph.D. (Dal.); M. A. Lillie, B.Sc., M.Sc. (Qu.), Ph.D. (W.Ont.); M. E. MacKay, B.Sc., M.Sc. (Br.Col.), Ph.D. (Dal.); A. Martin, B.Sc., M.Sc. (Queensland); S. Mdma, B.Sc., M.Sc. (Dar-es-Salaam), Ph.D. (Br.Col.); P. Midford, B.S. (Harvey Mudd), M.S. (Yale), Ph.D. (Wis.); R. Mottus, B.Sc.,

M.Sc., LL.B., Ph.D. (Br.Col.); S. Ner, B.Sc., Ph.D. (S'ton); T. A. Pfeifer, B.Sc. (Br.Col.), M.Sc., Ph.D. (Sask.); T. Rogalski, B.Sc., Ph.D. (S.Fraser); M. P. Rosin, B.Sc. (Sask.), Ph.D. (Tor.); R. Suarez, M.Sc. (Philippines), Ph.D. (Br.Col.); M. Taitt, B.Sc. (Lond.), M.Sc. (Durh.), Ph.D. (Br.Col.); A. Tautz, M.Sc., Ph.D. (Br.Col.); I. R. Walker, B.Sc. (Mt.All.), M.Sc. (Wat.), Ph.D. (S.Fraser).

Postdoctoral Fellows

D. Andrade, B.Sc., M.Sc., Ph.D. (U.N.E.S.P. Sao Paulo); H. J. Blok, B.Sc., M.Sc., Ph.D. (Br.Col.); C. Darveau, B.Sc. (Que. Rimouski), Ph.D. (Br.Col.); T. Elmhirst, B.Sc. (Hon.), (Keele), M.Sc., Ph.D. (Warw.); A. Fahlman, B.Sc. (Hawaii Pacific), Ph.D. (Carleton); J. Fletcher, B.S. (Oregon), M.S., Ph.D. (Portland); M. Gardner, B.Sc., M.Sc. (Arlington), Ph.D. (Br.Col.); E. R. Guillaume, Diploma, Ph.D. (Lausanne); L. Harmon, B.S. (Iowa State), Ph.D. (Wash.); L. Kuchel, B.Sc. (Hon.) (W.Aust.), Ph.D. (Q'ld.); H. Marks, M.Sc., Ph.D. (Wageningen); J. E. McLean, B.Sc., M.Sc., (Br.Col.), Ph.D. (Wash.); W. M. Megill, B.Sc. (McG.), Ph.D. (Br.Col.); B. Meisner, B.S. (Oregon), M.S., Ph.D. (Portland); K. Metzger, B.S. (Oregon), M.S., Ph.D. (Colorado); J. Pan, B.Sc., Ph.D. (Ocean Univ, China); L. Prugh, B.A. (Earlham Coll.), Ph.D. (Br.Col.); A. Somasiri, B.Sc., M.Sc., Ph.D. (Br.Col.); C. Spencer, B.A. (Earlham Col.), M.S. (Louisiana), Ph.D. (Georgia); R. Svanback, M.Sc., Ph.D. (Umea); T. H. Vines, B.Sc., Ph.D. (Edin.); J. Witt, B.Sc., M.Sc., Ph.D. (Guelph); W. Wu, B.Sc., Ph.D. (Br.Col.).

Associate Members

V. Christensen, Fisheries Centre, Graduate Studies; M. Healey, Earth and Ocean Sciences; S. Hinch, Forestry, Fisheries Centre, Forestry; W. Jefferies, Biotechnology and Microbiology; B. Kwon, Orthopaedics, Medicine; S. Martell, Fisheries Centre, Graduate Studies; T. O'Connor, Anatomy; J. Richardson, Forestry; K. Soma, Psychology; A. W. Trites, Fisheries, Graduate Studies; A. Vincent, Fisheries Centre, Graduate Studies; T. Zwimpfer, Surgery.

DEAN'S OFFICE

Senior Faculty Advisor: Nanci Martin; Janet Beddoes, Student Development Coordinator; Susan Peters, International Student Coordinator; Cooperative Education Program: M. Javed Iqbal, Director; Sharon Chan, Gwen Litchfield, Cynthia Wickstrom, Lisa Wolfe, Milah Woo, Coordinators; Audrey Davison, Office Administrator; Haydee Iglesias, Office Assistant; Shelley Hall, Program Assistant; Shosha Ji, Marketing Program Assistant; Industry Liaison: Chrissy English, Development Coordinator.

2006-07

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A SCHOOL WITHIN THE FACULTY OF ARTS

Director's Office

Graham Riches, Director

2080 West Mall

Vancouver, BC V6T 1Z2

Telephone: 604-822-0782

Fax: 604-822-8656

Social Work and Family Studies Website
(www.swfs.ubc.ca)

The School of Social Work and Family Studies offers undergraduate programs leading to the Bachelor of Social Work, the first professional degree in Social Work and the Bachelor of Arts in Family Studies. The School also offers graduate programs leading to a Master of Social Work for persons with a Bachelor of Social Work or equivalent or a Master of Arts in Family Studies; see *Social Work*, p. 280, or *Family Studies*, p. 249, in the Graduate programs section of the website. Refer to the School of Social Work and Family Studies website (www.swfs.ubc.ca) for detailed information regarding admissions, degree requirements, etc.

The School also offers a Ph.D. in Social Work and Family Studies, as well as participating in a doctoral program of individual Interdisciplinary Studies which is offered by the Faculty of Graduate Studies. Applicants to the program must hold a master's degree (or equivalent) from a recognized graduate program in social work or family studies (or a closely related field). Information on graduate programs, requirements, and application procedures is available from the School's admissions office or its website. The School is a member of the Canadian Association of Schools of Social Work (CASSW), the policy and standard-setting body for social work education in Canada. The School's Social Work degree programs are accredited by the CASSW.

BACHELOR OF SOCIAL WORK

The School of Social Work and Family Studies offers a Bachelor of Social Work degree that is accredited by the Canadian Association of Schools of Social Work (CASSW). The educational objective of the B.S.W. curriculum is to provide students with the knowledge, values, and skills necessary for an initial level of professional practice focusing on the interface

between personal problems and public issues. It addresses issues of power and issues of discrimination based on age, race, gender, sexual orientation, class, and culture. The program trains students in generalist social work practice and aims to provide competency in a wide variety of areas, including preparation to work in systems of any size. Critical thinking and structural analysis are, therefore, central to the learning experience offered by the School and to the promotion of social justice and human well-being.

The Bachelor of Social Work degree is a single, integrated program that can be completed in two years on a full-time basis or in three years on a part-time basis. The curriculum includes courses on theory, policy, research, and practice.

ACADEMIC ADVISING

Degree, program, and course advising is provided through the School of Social Work and Family Studies. For further information, call 604-822-2255.

ADMISSION

Admission to the Bachelor of Social Work program is open to:

- persons with a minimum of 60 credits of course work in the Bachelor of Arts program; or,
- persons holding a Bachelor of Arts (or equivalent).

An overall average of at least 68% on the last 60 credits preceding admission is required. Pre-admission studies must include:

- SOWK 200 (a prerequisite to SOWK 201) and SOWK 201 with a minimum average grade of 76% in both courses;
- 6 credits of first-year English;
- 18 credits of course work in the social sciences and humanities. Courses dealing with the Canadian political system, the history of Canada, and First Nations issues are recommended.

Letters of reference and an account of all relevant volunteer and/or paid work experience are required. Assessment of professional suitability is determined by members of the School's faculty through an interview process, which will include a written component. The quality of the applicant's writing skills will be considered in the overall assessment.

Admission is based on the applicant's academic standing and suitability for a career in social work. Special consideration is given to qualified applicants of First Nations ancestry, members of a visible minority, or persons with disabilities.

Interviews are conducted in Stage II following the initial evaluation. Successful applicants completing Stage II will be required to submit a criminal record check.

The program has a limited enrolment, and admission is competitive. Fulfilment of the minimum requirements for admission is not a guarantee of acceptance.

Persons considering application to the program must visit the School's website (www.swfs.ubc.ca). Required application forms with instructions and detailed program information are available to download from the website.

The deadline for application to the program is January 31.

ACADEMIC REGULATIONS

Advancement

Although satisfactory academic performance is prerequisite to advancement, it is not the sole criterion in the consideration of the suitability of a student for promotion or graduation. The School reserves the right to require a student to withdraw from Social Work programs if the student is considered unsuited to proceed with the study or practice of social work.

DEGREE REQUIREMENTS

The Bachelor of Social Work program is comprised of 60 credits of course work for students entering with a bachelor's degree, and 66 credits for those entering the program after completing 60 credits (or more) in the Faculty of Arts. The program integrates academic work with supervised social work practice in a social agency. Academic work includes study of social work practice methods; social policies; human behaviour in individuals, families, groups, and communities; research methods in social work. (The following program curriculum is currently under review and therefore subject to change.)

BACHELOR OF SOCIAL WORK

First or Second Year Prerequisites

SOWK 200	3
SOWK 201	3

Third Year¹

SOWK 305	6
SOWK 310	3
SOWK 315	6
SOWK 316	3
SOWK 320	3
SOWK 335	6
SOWK 337	3
Total Credits	30

Fourth Year

SOWK 400	3
SOWK 405	3
SOWK 415	6
SOWK 416	3
SOWK 425	3
SOWK 440	3

Electives: SOWK440 courses or courses offered in the Faculty of Arts, preferably in the Social Sciences and Humanities² 9/15

Total Credits 30/36

- 1 Third and fourth year SOWK courses are open to B.S.W. students only.
- 2 IHHS 400 level courses are also recommended as electives for B.S.W. students.

Interprofessional Electives

Under the auspices of the Council, the *College of Health Disciplines*, p. 291, is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Social Work. For more information see Courses (www.students.ubc.ca/calendar/courses.cfm) (IHHS), or visit the website (www.health-disciplines.ubc.ca).

BACHELOR OF ARTS FAMILY STUDIES MAJOR/MINOR

The School of Social Work and Family Studies offers students in the Faculty of Arts the Family Studies Major, an academic program in social science leading to the Bachelor of Arts. See the the School of Social Work and Family Studies website (www.swfs.ubc.ca). The School also offers a Master of Arts program in Family Studies, a Bachelor of Social Work, a Master of Social Work and a Ph.D. in Social Work and Family Studies. For information on graduate programs in Family Studies, see *Family Studies*, p. 249, in the Graduate Studies section.

Family Studies is a multidisciplinary area of study and incorporates three sub-areas: family development and interaction, human development in the family context, and family resource management. Graduates of the Family Studies program may pursue advanced degrees or be employed in government or the private sector in positions related to family research or programs.

ACADEMIC ADVISING

Degree, program, and course advising is provided through the Faculty of Arts Academic Advising Office and the School of Social Work and Family Studies. For further information, see *Academic Advising*, p. 117, as listed under the Bachelor of Arts in the Faculty of Arts chapter of this Calendar, or call 604-822-2255.

ADMISSION

Students interested in the area of Family Studies must first apply for admission to the Faculty of Arts. After completing at least 54 credits of undergraduate course work (but before completing 75), a major in Family Studies can be declared.

ACADEMIC REGULATIONS

The University regulations concerning examination and advancement as listed in the chapter *Academic Regulations*, p. 45, in this Calendar apply. Students registered in the Bachelor of Arts Family Studies Major/Minor must satisfy the requirements of the Faculty of Arts.

DEGREE REQUIREMENTS

Students must satisfy the Faculty of Arts requirements: *English Requirement*, p. 120, *Language Requirement*, p. 121, *Science Requirement*, p. 121, and *Literature Requirement*, p. 122 as listed in Degree Requirements under the Bachelor of Arts in the Faculty of Arts section.

Satisfactory completion of the Language Proficiency Index (LPI) Examination is prerequisite to all first-year English courses at UBC. For further information regarding this Examination, see *Language Proficiency Index Requirement for First-Year English*, p. 120. Students in the Family Studies Major must satisfy the continuation requirements of the Faculty of Arts. See *Continuation Requirements*, p. 119, in Academic Regulations under the Bachelor of Arts in the Faculty of Arts section.

Requirements for the Major

The Family Studies Program (Bachelor of Arts) offers a life-course perspective to understanding families and other intimate relationships as they develop over time. This incorporates both the study of family dynamics in diverse contexts and the predictable ways families change. The program takes a research-based multidisciplinary approach that extends from the individual to interactional processes to cultural influences. Rooted in the curiosity driven inquiry of the liberal arts, the program provides theoretical foundations and research skills for understanding relationships and families, while valuing the application of social science knowledge gained from the study of families.

FIRST AND SECOND YEARS

During the first two years of study, students should complete the general requirements of the Faculty of Arts including English composition, Science, Literature and Language, as well as introductory courses in Family Studies. Students must take:

- FMST 200, FMST 210, FMST 238, and STAT 203.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- FMST 323 and FMST 420.

The remaining 24 credits required to complete a Major in Family Studies may be selected from any Family Studies (FMST) courses.

Students must earn a mark of 55% or better in all of their Family Studies courses.

Minor in Family Studies

Students take at least 30 credits from Family Studies courses which must include 18 credits numbered 300 or above. The credits must include FMST 200, 210, 238, and 420. The remaining 21 credits required for the Minor may be selected from any Family Studies course.

Preparation for Certification in Family Life Education

The Family Studies program is an approved program for providing training for the Certificate in Family Life Education (CFLE) from the National Council on Family Relations. Students interested in this program should contact the Family Studies Undergraduate Coordinator for details on the appropriate choice of courses and the practicum (FMST 415).

GRADUATE PROGRAMS

Information on Social Work and Family Studies master's degree programs and Ph.D. program(s) are described in the "Faculty of Graduate Studies" section under *Family Studies*, p. 249, *Social Work*, p. 280, and *Social Work and Family Studies*, p. 280.

ACADEMIC STAFF

Professors

Anne Martin-Matthews, B.A. (Nfld.), M.A., Ph.D. (McM.); Daniel Perlman, A.B. (Bard Coll.), M.A., Ph.D. (Claremont Grad. School); Graham Riches, M.A. (Cantab.); Mary Russell, B.A., B.S.W., M.S.W. (Br.Col.), M.A., Ph.D. (S.Fraser); James White, B.A. (Colorado Coll.), M.A. (Calg.), Ph.D. (Alta.).

Associate Professors

Phyllis J. Johnson, B.S., M.S. (Kansas State), Ph.D. (Ohio State); Edward A. Kruk, B.A., M.S.W. (Tor.), Ph.D. (Edin.); Sheila Marshall, B.A.Sc., M.A., Ph.D. (Guelph); Paule McNicoll, B.A., B.S.W. (Laval), M.S.W., Ph.D. (Wash.); Deborah O'Connor, B.S.W. (Windsor), M.S.W. (Tor.), D.S.W. (W.Laur.); Brian O'Neill, M.S.W. (Car.), D.S.W. (W.Laur.); James Ponzetti, B.S. (Calif., San Francisco), M.S., Ph.D. (Oregon State); Tim Stainton, B.Sc. (W.Ont.), M.S.W. (Tor.), Ph.D. (Lond.); T. Richard Sullivan, B.A. (Windsor), M.A. (Calg.), Ph.D. (Calif., Berkeley); Frank Tester, B.Sc. (W.Ont.), M.E.Des., M.S.W. (Calg.), D.Phil. (Waikato); Richard Vedan, B.A. (W.Ont.), M.S.W. (Br.Col.), Ph.D. (S.Fraser).

Assistant Professors

Susan Cadell, B.A. (Wat.), M.S.W., Ph.D. (W.Laur.);
Grant Charles, B.S.W. (W.Ont.), M.S.W. (Calg.), Ph.D. (Vic.B.C.); **Nathanael Lauster**, B.A. (Purdue), M.A. (Wash.State), Ph.D. (Brown); **Pilar Riaño-Alcalá**, B.A. (National U. of Colombia, Bogota, Colombia), M.A. (S.Fraser), Ph.D. (Br.Col.); **Margaret Wright**, B.A., M.S.W., Ph.D. (Tor.); **Miu Chung Yan**, Dipl.S.W., B.S.W. (H.K. Polytechnic) M.Sc. (Lond.), (M.S.W. (York), Ph.D. (Tor.); **Carrie Yodanis**, B.S. (Penn.), M.A., Ph.D. (New Hampshire).

Instructor

Elizabeth Robinson (P/T), H.Dept. SSWFS; B.A., B.S.W., M.S.W. (Br.Col.), Dip. Foundation Program in Management for Women (S.Fraser).

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X Alternative Study Options

ALTERNATIVE DEGREE CREDIT

CO-OPERATIVE EDUCATION PROGRAMS

Co-operative Education integrates academic study with relevant, supervised, paid work experience. It is based on the principle that relevant work experience, combined with academic programs, plays an important part in the effective professional and personal development of students. Students alternate periods of academic study with periods of applicable work experience. Please contact the appropriate faculty for details. Further information is available at the Co-op Programs website (www.coop.ubc.ca).

Co-operative Education programs are available currently in Applied Science, Arts, Forestry, Commerce and Business Administration, and Science. The Co-operative Education offices in these faculties help in securing potential employers, arranging interviews, supervising work terms, and generally managing the work placement process.

Admission

Admission to a Co-op program is based on academic performance and employment suitability which is usually determined by an application and interview process. Students wishing to enrol must meet all the requirements of their department and faculty. Enrolment is subject to the availability of appropriate work placements.

Courses and Fees

Students admitted to a program must register in, and pay Co-op fees for, a Co-operative Education course for each work term. Co-op courses marked "Pass/Fail" are recorded on student transcripts. All students accepted to a Co-op program must also pay a Co-op workshop fee.

Employment

Although every effort is made to find work-term positions for students enrolled in Co-op programs, no guarantee of employment can be made. The employment process is competitive and a student's academic performance, skill set, attitude, motivation, maturity, and potential all influence employment offers.

Graduation from Co-op Programs

To graduate with a "Co-operative Education" designation noted on the transcript, a student must successfully complete the minimum number of work terms required for the respec-

tive program and obtain a grade of Pass ("P") for each work term.

International Students

Co-operative Education programs are available to international students. Admission criteria for international students are the same as for Canadian students. International students are responsible for ensuring that their student work visas are in good standing during their Co-op work terms.

Transfer Students

Students transferring from another institution may receive credit for Co-op placements at their former institutions. This decision is made through the appropriate Co-operative Education office at UBC. Students must do at least one-half of their Co-op placement courses at UBC.

DISTANCE EDUCATION AND TECHNOLOGY COURSES

For more than fifty years, Distance Education and Technology (DE&T) has collaborated with UBC faculties to develop and provide innovative distance education courses. In 2004, DE&T merged with the Office of Learning Technologies. This has enhanced our ability to integrate new approaches in our course design and online resource development in support of distance learners.

Online and print-based courses are designed for students who are unable to attend scheduled classes on campus, or who want to experience distance learning as part of their program. These courses carry full credit toward degree or certificate programs, in accordance with the requirements of the UBC Faculty concerned.

DE&T offers flexible learning through print-based materials, audio tapes, video and teleconferencing, CD-ROM, and the Internet.

Standards in the final examinations are the same as those for on-campus students.

To learn more about DE&T, course information, course schedules and registration information, visit the Distance Education and Technology website (det.ubc.ca).

GO GLOBAL: STUDENT MOBILITY PROGRAMS

Going Global means getting out there. Being adaptable, learning another language, or living another academic perspective. Connecting with cultures and making friends. Immerse yourself in another world as you study, work, or volunteer. Going Global gives you a unique and meaningful opportunity to help you discover your potential.

Go Global: Student Mobility Programs offer hundreds of opportunities to study, work, and volunteer at partner universities and organizations around the world. UBC students can remain registered at UBC while they attend one of 135 partner universities in 35 countries, complete an international co-op placement, or volunteer at one of 300 charities in 14 countries for up to two consecutive terms.

Exchange Programs

Go Global's student exchange programs offer UBC students from both campuses the opportunity to study at one of 135 partner universities, in over 35 countries abroad and in Canada. Student exchange also makes it possible for students from the partner universities to study at UBC as part of their degree program. Student exchange programs are Senate-approved, reciprocal exchange programs based on institution-to-institution agreements with partner universities, both international and Canadian. UBC students selected to participate remain registered at UBC, pay tuition or program fees and student fees to UBC, and remain eligible for UBC awards, scholarships, and financial aid. Students pursue academic programs that are planned in consultation with their faculties.

To be eligible to apply for a student exchange program, applicants must be registered full-time in a degree program at UBC, and have at least a 70% average for all courses completed during the year in which they are applying. Undergraduate students are eligible to go on exchange in second, third, and fourth year, although some restrictions may apply for students in certain programs. Students must return to UBC for at least one term after their exchange.

Students transferring from a college to a full-time degree program at UBC are also eligible for the program after completing one year at UBC. Students should contact Go Global about applying in the Fall of their first term at UBC.

Graduate students are eligible for exchange and should consult Go Global Graduate Students website (www.students.ubc.ca/global/ubc.cfm?page=grad) for specific information. Commerce graduate exchange is managed through the Master's Program Office of the Faculty of Commerce and Business Administration (Sauder School of Business).

Information sessions are held throughout the first term at both campuses. Partner information (including academic calendars) is available online at the Go Global website (www.students.ubc.ca/global). The website also links to partner universities and explains the selection and application process. Paper copies of partner university materials are located at International

House. Applications are due in December and/or January each year. Please check the Go Global website for the exact dates.

Contact Information:

Go Global: Student Mobility Programs
International House (top floor)
1783 West Mall
Tel: 604-822-0942
Fax: 604-822-9885
Email: student.exchange@ubc.ca
Web: www.students.ubc.ca/global

Other Opportunities

STUDY ABROAD

In addition to exchange programs, UBC students can participate in packaged study abroad programs to Latin America, Europe, and Asia through Go Global. These programs are often group-based and include field trips and accommodation in their program fees. In some programs, UBC professors teach UBC courses. A study abroad program can be discipline-based (the Latin American program in Chiapas Mexico, The European Union Study Tour, or the Shanghai Summer Business Program) or may offer a broad course selection of courses (DIS in Copenhagen or the U21 Summer School). To find out more about these options, please visit the Go Global website.

CO-OP ABROAD

Explore your career options in an international co-op placement and gain international experience highly valued by many employers. You must be registered in UBC's co-op program to be eligible. If you are interested in a co-op opportunity abroad you first need to contact your Faculty's co-op office (www.coop.ubc.ca).

VOLUNTEER ABROAD

Volunteering overseas gives you a unique and meaningful opportunity to help you discover your potential. Volunteering for a charity in another country combines the adventure of travelling and making a difference in the global community with gaining experience invaluable to your educational and career goals back in Canada. YouLead will individually match you, your skill set, and your career goals with a charity and provide you with the training you need to make a positive impact on the world. Volunteer opportunities in 14 countries are available in education, medical, caring, environmental, and community fields. Placements can last from two weeks to 12 months. To learn more about international service, or starting your own international project, please visit the YouLead website (www.youlead.org).

INTERNATIONAL STUDY CENTRE AT HERSTMONCEUX CASTLE, ENGLAND
As members of the Canadian University Study Abroad Program (CUSAP), UBC students are eligible for participation at Queen's University International Study Centre at Herstmonceux Castle in East Sussex, England. The program at the International Study Centre includes a First-Year Abroad Option in the Social Sciences and Humanities, and one-term programs in European Studies and International Business

and Law for upper-year students. First-year students must have a minimum 80% average or equivalent; upper-year students must meet UBC's requirement for Student Exchange. Students interested in the First-Year program should consult the Office of the Associate Dean of Arts. Students interested in the Upper-Year program must apply through the UBC Go Global website (www.students.ubc.ca/global). More information on both programs can be found at the Queen's University International Study Centre website (www.queensu.ca/isc).

Programs Not Sponsored by UBC

Students can also choose to study, work, or volunteer in programs sponsored by institutions and organizations other than UBC. These students must make all necessary arrangements on their own. There is an International Opportunities Area at International House, where students can research these options. Before enrolling in any program, students should consult departmental advisors concerning the transferability of course work, degree requirements, and procedures for readmission. Students planning to obtain transfer credit must obtain a *Letter of Permission* from the Faculty in which they are enrolled before leaving UBC (see *Letter of Permission to Study at Another Institution*, p. 50, in the chapter "Academic Regulations").

KOREA-UBC JOINT ACADEMIC PROGRAM

The Korea University-UBC Joint Academic Program started in 2001 with the goal of facilitating cultural exchanges and enhancing academic cooperation between the two institutions. It enriches the educational experience of students by providing an environment that enables participants to take regular credit courses offered by the Faculties of UBC, while enjoying the cultural diversity on campus.

Korea University uses a strict selection process, based on the applicants' English ability and academic performance, to choose 100 student participants every year. The participants can take any regular credit courses (minimum 24 credits per year) offered by the UBC Faculties of Arts, Commerce, Agricultural Sciences, and Science.

The participants arrive at the end of August for UBC's International Students Orientation and stay until the end of school year. Some remain and take summer session courses, while others return to Korea after completion of the program. On completion, students receive the program certificate, and course credits are transferred to the home university.

While at UBC, the students live in campus residences, and actively participate in inter-cultural activities and events offered at each residence. As a part of the program, the KU-UBC House officially opened in October 2002, housing 200 international and domestic students. This is a jointly-financed venture between the two universities. It is located in the Place Vanier residence complex, and includes a traditional Korean garden.

A Korea University professor resides on campus to liaise between the two universities and can be reached via email: kudirector@mail.arts.ubc.ca

For program options please visit the KU-UBC website (www.ku.ubc.ca) or contact:

Eunsook Park
KU-UBC Program Coordinator
The University of British Columbia
375 Buchanan Block C, 1866 Main Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-5981
Fax: 604-822-0586
email: eunsook.park@ubc.ca

TEC DE MONTERREY-UBC JOINT ACADEMIC PROGRAM

UBC is one of Canada's leading institutions for global learning and international growth. Our goal of strengthening connections with Latin America has led to a special partnership with Mexico's Instituto Tecnológico y de Estudios Superiores de Monterrey (ITESM), or Tec de Monterrey (Tec).

Through the Joint Academic Program, Tec students can spend up to one year at UBC and take undergraduate courses in the Faculties of Arts, Commerce, or Agricultural Sciences. Certificates are also available for students who want to specialize in a field of study. Likewise, UBC students can participate in the Study in Mexico program available through Go Global: Student Mobility Programs.

These programs encourage students to engage in cross-cultural learning and develop a greater understanding of the world outside their own country. The Tec de Monterrey-UBC House residence opened September 2003, with the mission of furthering interaction among domestic and international students. All UBC students, and Tec students who intend to study at UBC, are encouraged to apply for residence in Tec de Monterrey-UBC House.

For program options, including a complete list of certificates offered, visit the Tec de Monterrey-UBC website (www.tec.ubc.ca) or contact:

Ms. Silvia Martinez
Director, Tec de Monterrey-UBC Joint Academic Program
Buchanan C373, 1866 Main Mall
Tel: 604-822-0266
Fax: 604-822-2268
Email: silviam@interchange.ubc.ca

To be eligible for the Study in Mexico program, UBC students must first apply to become an exchange student. Access the Go Global website (www.students.ubc.ca/global) for more information.

UBC-RITSUMEIKAN ACADEMIC EXCHANGE PROGRAM

UBC is involved in a unique and exciting academic and cultural initiative with Ritsumeikan University in Kyoto, Japan. The program brings 100 Japanese students to UBC every year to live and study in an integrated academic and social environment. It also provides UBC students with an opportunity to gain international and intercultural experience and insight

by living at “Rits House” or taking specially-designed, integrated courses.

Ritsumeikan-UBC House

Ritsumeikan-UBC House opened in March 1992. The residence provides more than 150 UBC students every year with a unique international living experience. Two or three UBC students are assigned to each four-bedroom unit with one or two students from Ritsumeikan. Each apartment has four private bedrooms, two bathrooms, and shared kitchen, dining, and living areas. Each bedroom has a ResNet connection, Ethernet connection to UBC’s computer network and the entire building is set up for wireless access. The residence provides recreation and support facilities, such as a Japanese-style tatami room, TV lounge and recreation room, laundry, and storage. Rits House is equipped with seminar rooms and RitsLab, a multi-media lab with 22 workstations, each containing a Macintosh computer. The lab is available to all House residents, enabling those who do not have their own computers to access the Internet or their campus Interchange or Netinfo accounts.

Residence programs are offered to encourage residents’ personal and social growth and to facilitate the exchange of ideas and values between cultures. UBC students studying Japanese language and culture, planning to work in or visit Japan, or any student interested in international business, international relations, or cross-cultural communication should consider this one-of-a-kind residential experience.

Academic Program

The UBC-Ritsumeikan Academic Exchange Program offers a number of 3-credit courses in the first and second term that are also open to UBC students. LLED 206A is an introduction to research in the social sciences. LLED 206B is an introduction to sociolinguistics. LLED 226A explores intercultural communication in a variety of settings. LLED 226B is an introduction to new media across the curriculum. The courses are of particular relevance to students who are interested in exploring issues related to language and society.

The program offers two credit courses in the second term, in conjunction with the Faculty of Arts. Arts Studies (ASTU) 201 and 202 are available to both UBC and Ritsumeikan students. Both ASTU 201 (Intercultural Communication) and ASTU 202 (Pacific Rim Studies) were jointly developed by faculty members from both universities and are team-taught. ASTU 202 is cross-listed with Geography (GEOG) 281. The goal of the Arts Studies program is to provide students from both schools with an opportunity to interact in the classroom, to their mutual academic enrichment and benefit.

For further information please contact:

UBC-Ritsumeikan Academic Exchange Program
The University of British Columbia
333-6460 Agronomy Road
Vancouver, BC, Canada, V6T 1W9
Tel: 604-822-8604 (Executive Director)
Tel: 604-822-9511 (Administrative Coordinator)
Fax: 604-822-9515

Information can also be obtained from the Ritslab website (www.ritslab.ubc.ca).

ACCESS STUDIES

Access Studies is a program that offers flexible post-secondary learning options to people of all ages and backgrounds. Through Access Studies, professionals, distance learners, and people with varied academic curiosities have a new opportunity to pursue knowledge. Access Studies students can enrol in university-level courses without registering in a degree program or undergoing the standard admissions process. Students take up to 24 credits in courses in areas of interest. These credits may be later applied to other programs of study. For further information please visit the Access Studies website (www.students.ubc.ca/accessstudies).

OTHER STUDY OPTIONS

CONTINUING STUDIES

Introduction

With approximately 16,000 registrations annually, UBC Continuing Studies offers a wide range of courses and certificate programs for daytime, evening, weekend, or online learning. Programs provide flexible and innovative educational opportunities for individuals who wish to upgrade their skills for career reasons, or explore topics out of general interest. For more information, visit the Continuing Studies website (www.cstudies.ubc.ca) or call 604-822-1444.

Arts, Humanities and Public Affairs

With daytime and evening courses to choose from, these non-credit offerings are your gateway to exploring new interests or investigating favourite topics in more depth. Most of our courses take place in downtown Vancouver at UBC Robson Square and include subject areas such as:

- Art and Architecture;
- Critical Thinking;
- History and Culture;
- Literature;
- Music and Performing Arts ;
- Philosophy and Sociology; and
- World Events, Politics and Health.

For more information, visit the Arts, Humanities and Public Affairs website (www.cstudies.ubc.ca/ahp) or call 604-822-1444.

Centre for Intercultural Communication

UBC Continuing Studies’ Centre for Intercultural Communication provides unique solutions to the cross-cultural challenges that organizations face in today’s global economy. Providing international relocation programs, customized international education programs, and professional development courses, among other services, the Centre collaborates with clients to enhance the performance of individuals, teams, and organizations. For further information on the programs available, call 604-822-1444, email (intercultural.studies@cstudies.ubc.ca), or visit our website (cic.cstudies.ubc.ca).

Computers, Media and Technology Studies

UBC Continuing Studies’ Division of Applied Technology offers daytime, evening, and weekend classes at UBC Robson Square and UBC Point Grey, and are available in part-time, full-time, or online formats. A wide range of courses and certificate programs focus on the Internet, business systems analysis, web analytics, project management, integrated marketing, multimedia, entertainment administration, IT, industry certification, information systems, and software development. For more information, visit our website (www.tech.ubc.ca) or call 604-822-1420.

English Language Institute

The UBC English Language Institute offers courses in English as a second language for adult students who wish to build their competence and confidence in using English. A 12 week (10 weeks in summer) Intensive English Program (IEP) is available year-round at elementary to advanced levels. Successful completion of the IEP Level 600 UBC Certificate in English Language is accepted as proof of English language proficiency for UBC undergraduate admission. Short programs of three or four weeks are also available throughout the year.

For further information, write or telephone the English Language Institute: Continuing Studies, 2121 West Mall, Vancouver, BC, V6T 1Z4; Tel: 604-822-1555; Fax: 604-822-1579; Email (esl@eli.ubc.ca) us; or visit our Website (www.eli.ubc.ca).

French Centre

The French Centre of the Academic Performance Division of UBC Continuing Studies includes programs funded by Heritage Canada and administered by the French Programs Unit of the BC Ministry of Education.

Institut de Français, UBC à Québec: A residential program in a private college situated in the historic setting of Les Plaines d’Abraham gives participants the opportunity to walk to *la vieille ville* while enjoying the magnificent view of the St. Lawrence River from a park setting. This program is specifically designed for FSL and French Immersion teachers, but non-teachers are also welcome.

Explore, Programme de bourses d'été de langues à UBC:

Explore is a five-week program offered in May and June. This unique program offers international students a chance to learn about Canada while studying English or French alongside French- or English-speaking Canadians. It offers Canadians the opportunity to study and speak English or French with students from around the world. This program is part of the Canadian government-sponsored Explore Program (formerly known as Summer Language Bursary Program or SLBP/PBEL).

For information on these and other programs, email (french.centre@ubc.ca) or visit the French Centre website (www.frenchcentre.ubc.ca). If you are looking for non-credit, day, evening, and weekend French classes, please see *Languages, Cultures and Travel*, p. 446, for more information.

Languages, Cultures and Travel

Language Programs and Services offers non-credit courses in 15 languages (French, Spanish, Italian, Japanese, Mandarin, Arabic, Danish, Dutch, German, Punjabi, Russian, Swedish, Thai, Ukrainian, Latin) as part-time weekday, evening, or Saturday morning programs, or as Spring or Summer intensive programs. Courses emphasize oral conversation and cultural acquisition.

Travel programs featuring language immersion are offered throughout the year to destinations such as France, Italy, Mexico, and other Latin American countries. Special programs include immersion weekends at UBC, the Summer Language Bursary Program for university students, the French Institute in Quebec City for BC, and Alberta Teachers and Certificates in French, Spanish, and Italian.

For more information, telephone 604-822-0800 or visit our website (www.languages.ubc.ca).

Life and Career Centre

The UBC Life and Career Centre (LCC), located at UBC's Robson Square Campus, offers programs and services to support the career and life development needs of men and women. Open to the public, LCC services include drop-in counselling for personal and career issues, personality and career testing, and referrals to community resources and agencies. Short courses in areas of life skills, interpersonal communications, and career development help individuals cultivate knowledge and skills for their personal and professional lives.

Certificate programs in Peer Counselling, Diversity in the Helping Relationship, and Working with an Aging Population are offered in flexible formats. Many certificate courses can be taken independently for personal interest. Telephone 604-822-8585 or visit our website (www.lifeandcareer.ubc.ca) for more details.

Opened in August 2005, the LCC builds on the experience, knowledge, and innovation of the UBC Women's Resources Centre (1973–2005), and UBC Career Connections, a collaborative

initiative of UBC Continuing Studies and UBC Career Services.

MATH 098/099 and CALC 001/002

In consultation with the Mathematics Department at UBC, Continuing Studies offers two non-credit pre-calculus courses (MATH 098 and 099) and two non-credit calculus courses (CALC 001 and 002) designed to help students refresh their basic math skills or prepare for first-year calculus credit courses at UBC. Classes are "user-friendly," offer individual attention, and are taught by Continuing Studies instructors.

MATH 099 (Pre-Calculus): Topics include composite, inverse, polynomial, rational, trigonometric, exponential, and logarithmic functions; sequences and series; and analytic geometry. MATH 099 is intended primarily for regular UBC students who need to refresh their basic math skills or who need MATH 099 as a prerequisite for a UBC calculus course (a grade of C+ in Principles of Mathematics 12 is required for MATH 180 and 184). Non-UBC students who have completed high school Math 11 are also welcome. Prerequisite: MATH 098 or a minimum of a "B" in Principles of Math 11.

CALC 001 (Differential Calculus Part 1): Topics include review of piecewise and composite functions; evaluating limits analytically, graphically, and numerically; and using a variety of techniques to determine the derivatives of elementary functions.

CALC 002 (Differential Calculus Part 2): Topics include applications of the derivative, including graphing, optimization problems, and related rates; Newton's method; and recognizing antidifferentiation as the reverse of the differentiation process.

CALC 001 and CALC 002 are intended for students who have passed Principles of Math 12 or MATH 099 with a C+ or B and who would like to be introduced to calculus in a non-threatening environment in which classes are small and individual attention is available. A moderate pace allows students to monitor their progress and gain confidence in the subject. Although CALC 001 and CALC 002 are non-credit courses, students who wish to use the courses as prerequisites to other courses are required to pass several tests and a final exam. Prerequisite: Math 12 or MATH 099.

UBC students enrol in MATH 098, MATH 099, CALC 001, and CALC 002 using the Student Service Centre (www.students.ubc.ca/ssc). The course schedule is listed under the Mathematics Department section. Non-UBC students can register online through the Student Service Centre as Access Studies (www.students.ubc.ca/accesstudies) students. Please note that course fees and withdrawal procedures for MATH 098, MATH 099, CALC 001, and CALC 002 may differ from those of regular credit courses. For more information, phone Continuing Studies at 604-822-9564 or visit our website (www.cstudies.ubc.ca/math).

Non-Credit Programs

Continuing Studies offers over 1,000 non-credit courses each year to increase knowledge of the arts, humanities, and sciences, to improve communication and language skills, and to enhance personal and career development. Certificate programs are offered in a wide variety of topics. Customized training programs for organizations are also available.

Most courses have no prerequisites and many courses take place at UBC Point Grey or in downtown Vancouver at UBC Robson Square. Seasonal course calendars are published in April, September, and January. Please call to receive a free calendar, or view our website (www.cstudies.ubc.ca) for more information. Continuing Studies is located at 410–5950 University Boulevard, 4th Floor, Vancouver, BC, V6T 1Z3; Tel: 604-822-1444; Fax: 604-822-1599; email (information@cstudies.ubc.ca).

Third Age Partners in Learning

The Third Age Partners in Learning program provides a unique learning experience for retired or soon-to-retire people who enjoy reading, learning, and engaging with kindred minds about new ideas and the issues of the day. Study/discussion groups meet weekly at UBC Point Grey and UBC Robson Square (800 Robson St., Vancouver, BC, V6Z 3B7) from September to April. Telephone 604-822-1462 or view the Third Age Partners in Learning website (www.cstudies.ubc.ca/tas).

AGELESS PURSUITS SPRING LECTURE SERIES

For close to three decades, Continuing Studies has been offering the Ageless Pursuits Spring Lecture Series, an intellectually stimulating program featuring morning lectures on topics such as art, archaeology, literature, political science, and history. Participants can join for one, two, three, or all four weeks. Special rates apply for those who are 55 or over. Telephone 604-822-1444 or view the Ageless Pursuits website (www.cstudies.ubc.ca/ageless).

Writing Centre

The Writing Centre offers Writing 098 (WRIT 098), a one-term non-credit course for students who wish to enrol in first-year English courses, but who have yet to achieve a level 5 or 6 on the *Language Proficiency Index (LPI)*, p. 120. The purpose of this course is twofold: to assist students in developing the language and composition skills needed to improve their score on the LPI, and to enable them to prepare for the writing tasks they will face in first-year English and in many other credit courses that require students to write essays and reports. Writing Centre students receive an extended LPI deadline and have priority on waiting lists for first-year English courses.

The Writing Centre offers Writing 099, a one-term non-credit course for students who wish to generate, structure, and expand thought-provoking academic arguments while improving their syntax, grammar, and word selection. Through class discussions, selected

readings, and writing assignments, students learn how to shape personal experiences and opinions into compelling essays, develop awareness of what constitutes effective academic writing, and evaluate their own work critically and systematically.

UBC students enrol in Writing 098 and 099 using the Student Service Centre (www.students.ubc.ca/ssc). Non-UBC students should register through UBC Access Studies (www.writingcentre.ubc.ca/academic/w098_access_studies_reg.html) to receive (at no additional cost) benefits that are not available to students who register through Continuing Studies. The course schedule is listed under WRIT, “University Writing Centre Courses”. Online registration is also available through UBC Continuing Studies (reg.cstudies.ubc.ca/courses.cfm?groupid=AW&description=Writing%20Centre) for those who want to register for the course only. An online section of Writing 098 is available for students who cannot attend courses on campus. Telephone 604-822-9564 for information.

Specialized non-credit courses in intermediate and advanced composition for undergraduate and graduate students, grammar, report and business writing, scientific writing, and English tutor training are also offered by the Writing Centre. Services offered include free tutoring for UBC students, as well as a free online writers’ workshop with an email text submission tool.

Please note that course fees and withdrawal procedures for WRIT 098 and 099 and *MATH 098 and 099*, p. 446, courses may differ from those of regular credit courses.

For more information on Writing Centre courses and services, including writing workshops and tutorial services, telephone 604-822-9564 or visit the Writing Centre website (www.writingcentre.ubc.ca).

HUMANITIES 101

Humanities 101, the cornerstone in UBC’s educational outreach in Vancouver’s Downtown Eastside, is a barrier-free non-credit course provided through the Faculty of Arts to students who have been unable to pursue post-secondary education for financial reasons. With the help of UBC faculty and students, who volunteer their time as lecturers and tutors, Humanities 101 offers an intensive survey of a variety of subjects in the liberal arts and social sciences, including Literature, Film, Philosophy, Social Theory, Gender Studies, Film, and Architecture. Each year we accept 25–30 students, providing them with course materials, bus transportation to and from Point Grey campus, meal tickets, and child care if required. Our students receive full access to all university facilities, including the UBC Libraries. Humanities 101 also operates an adjunct program, Writing 101, organizes Community Reading and Writing Groups in the Downtown Eastside, and holds regular Free Public Lectures at the Carnegie Community Centre in the Downtown Eastside. Admission information is available from the Director. See contact details below:

Peter Babiak, Director
1866 Main Mall, Buchanan C378
University of British Columbia
Vancouver, BC, V6T 1Z1
Tel: 604-822-0028
Email: hum101@interchange.ubc.ca
Web: humanities101.arts.ubc.ca

SCIENCE 101

Science 101 is a four month, non-credit, barrier-free course offered to residents of Vancouver’s Downtown Eastside and other inner-city communities. This course provides an introductory science education in physics, astronomy, chemistry, earth and ocean science, and biology and is taught by University of British Columbia professors and graduate students. Science 101 is available to individuals that have historically had difficulty accessing a university education. There is no fee for the course and no pre-requisite knowledge is required. For more information contact the Science 101 Coordinator, Kim MacDonald (science101@canada.com); telephone 604-649-4565; or visit “Outreach” under the Faculty of Science website (www.science.ubc.ca).

UBC LEARNING EXCHANGE

UBC’s Learning Exchange is a community engagement initiative based in the Downtown Eastside area of Vancouver. The Learning Exchange is an expression of the commitment to community made in Trek 2010 (www.trek2000.ubc.ca), UBC’s strategic plan for the future.

Through its Trek Program, the Learning Exchange brings volunteers from the UBC community – students, staff, faculty, and alumni – to inner-city schools and non-profit organizations where they contribute to community programs while learning about inner-city issues. As much as possible, the volunteer work of students is integrated into academic course work, an approach called Community Service Learning that is new to Canada.

Through its Storefront Programs, the Learning Exchange offers free learning opportunities and resources to people who live and work in the Downtown Eastside and other inner-city neighbourhoods. The storefront programs include opportunities to learn how to use computers and the Internet, an innovative ESL program, and other programs and events designed to inspire people to become life-long learners.

The UBC Learning Exchange (www.learningexchange.ubc.ca) may be reached by telephone at 604-408-5164, or by fax at 604-408-5192.

Other Courses and Educational Events

Check the UBC Learning Exchange website (www.learningexchange.ubc.ca) for up-to-date news of other courses and events.

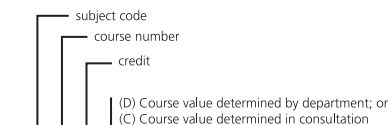
WRITING CENTRE

See *Writing Centre*, p. 446, in this chapter.

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XI Course Descriptions

Note: This section contains descriptions of all regular courses offered by the University. Some common notations found on course descriptions are illustrated below. Please refer to headings on this page for details.



CHEM 415 (3/6) D CHEMISTRY LABORATORY I. Integrated laboratory course designed to illustrate principles of modern analytical, inorganic, organic and physical chemistry. Prerequisite: All of CHEM 304, CHEM 310, CHEM 311, CHEM 312 and 1 of CHEM 313, CHEM 330. [0-8*-0; 0-8*-0]

HOURS:

First Digit	Lectures
Second Digit	Lab
Third Digit	Discussion or Tutorial or Assigned Problem
*	Alternate weeks
;	Separates terms

COURSE NUMBERING

In most faculties the courses numbered 100 to 199 are primarily for first-year students, those numbered 200 to 299 are primarily for second-year students; similarly 300 to 399 for third-year students and 400 to 499 for fourth-year students. Courses numbered 500 and above are considered graduate-level, and are only available to undergraduates by permission of the department. Where faculties have a different style of classification of courses the level of study is indicated in the description of their study programs.

CREDIT

In the course descriptions the credit value of a course, where given, is shown in parentheses following the course number. In general one credit represents one hour of instruction or two to three hours of laboratory work per week throughout one term of a Winter Session (September to December or January to May). A credit is approximately one semester hour.

COURSES WITH VARIABLE CREDITS

Some courses are listed with a choice of credit value; the form: (2-6) implies that the course may be given for any number of credits from 2 to 6 inclusive; the form: (2/6) implies that the course will be given either for 2 credits or 6 credits.

Where the parentheses are followed immediately by “C”, the credit value of the course will be determined by the student in consultation with the department. Where the parentheses are followed immediately by “D”, the credit value of the course in any particular session will be determined by the department.

In all cases, the maximum credit value is that which may be obtained by a student during the complete program of study (i.e., it is not the maximum for a given year).

PREREQUISITES & COREQUISITES

If specific studies are required as background to a certain course they are notated as such in the course description. A prerequisite is a course that the student must have completed prior to registering for the selected course. A corequisite is a course that the student must take prior to or concurrently with the selected course. In some instances prerequisites and corequisites may be waived at the discretion of the instructor. General prerequisites that apply to all courses in a list are frequently given just before the list. In a dispute over the adequacy of prerequisites, the course instructor will make the decision. In all cases where prerequisites are indicated, the implication is “or the equivalent” and “or the consent of the instructor”.

EQUIVALENTS

An equivalent course indicates that it is a duplicate of the course selected.

HOURS

The number of hours assigned each week to lectures (first digit) and to laboratories (second digit) are shown in square brackets at the end of a course description. Where a third digit appears it refers to periods where discussions, tutorials or assigned problems are done. An asterisk (*) indicates alternate weeks. The first set of digits refers to the first term (September to December) and the second set to the second term (January to May); when only one set is given it means either term. Graduate courses and courses in some faculties are not so designated.

COURSES OFFERED

Not all courses listed are offered each year. Most courses offered in a Winter Session, as well as places and times of class meeting and names of instructors, appear in the online Course Schedule (www.students.ubc.ca/courses). For those

courses not so listed, contact the department concerned.

COURSES LISTED BY SUBJECT CODE

ADHE	Adult & Higher Education
AGEC	Agricultural Economics
AGRO	Agroecology
AGSC	Agricultural Sciences
ANAE	Anesthesia
ANAT	Anatomy
ANSC	Animal Science
ANTH	Anthropology
APSC	Applied Science
ARBC	Arabic Studies
ARCH	Architecture
ARST	Archival Studies
ARTE	Art Education
ARTH	Art History
ARTS	Arts One Program
ASIA	Asian Studies
ASLA	Asian Languages
ASTR	Astronomy
ASTU	Arts Studies
ATSC	Atmospheric Science
AUDI	Audiology And Speech Sciences
BA	Business Administration–Core
BAAC	Business Administration: Accounting
BABS	Business Administration: Business Statistics
BAEN	Business Administration: Entrepreneurship
BAFI	Business Administration: Finance
BAHR	Business Administration: Human Resources Management
BAIM	Business Administration: International Management
BAIT	Business Administration: Information Technology M
BALA	Business Administration: Law
BAMA	Business Administration: Marketing
BAMS	Business Administration: Management Science
BAPA	Business Administration: Policy Analysis
BASC	Business Administration: Supply Chain
BASM	Business Administration: Strategic Management
BATL	Business Administration: Transportation And Logist
BATM	Business Administration: Technology Management
BAUL	Business Administration: Urban Land Economics

BIOC	Biochemistry	FNH	Food, Nutrition And Health	NEST	Near Eastern Studies
BIOE	Bio-resource Engineering	FNLG	First Nations Languages	NEUR	Neurosurgery
BIOL	Biology	FNSP	First Nations Studies Program	NRSC	Neuroscience
BIOT	Biotechnology	FOOD	Food Science	NURS	Nursing
BOTA	Botany	FOPR	Forest Operations	OBMS	Oral Biological Medical Sciences
BRDG	Bridge Program	FRE	Food And Resource Economics	OBST	Obstetrics And Gynaecology
BUED	Business Education	FREN	French	OCCH	Occupational And Environmental Hygiene
BUSI	Business	FRST	Forestry	OHS	Oral Health Sciences
CCFI	Centre For Cross-faculty Inquiry	GENE	Genetics	ONCO	Oncology
CCST	Critical And Curatorial Studies	GEOG	Geography	OPHT	Ophthalmology
CDST	Canadian Studies	GERM	German	ORNT	Orientation To Medical School
CENS	Central, Eastern And Northern European Studies	GREK	Greek	ORPA	Orthopaedics
CHBE	Chemical And Biological Engineering	GRS	Global Resource Systems	PAED	Paediatrics
CHEM	Chemistry	HCEC	Health Care And Epidemiology And Commerce	PATH	Pathology
CHIL	Children's Literature	HCEP	Health Care And Epidemiology	PCTH	Pharmacology And Therapeutics
CHIN	Chinese	HEBR	Hebrew	PETE	Physical Education – Teacher Education
CICS	Computing Information And Cognitive Systems	HECO	Human Ecology	PHAR	Pharmaceutical Sciences
CIVL	Civil Engineering	HESO	Health & Society	PHIL	Philosophy
CLST	Classical Studies	HINU	Hindi-urdu	PHYL	Physiology
CNPS	Counselling Psychology	HIST	History	PHYS	Physics
CNRS	Classical, Near Eastern And Religious Studies	HKIN	Human Kinetics	PLAN	Community And Regional Planning
COGS	Cognitive Systems Program	HMEC	Home Economics	PLAS	Plastic Surgery
COML	Comparative Literature	HMED	Home Economics Education	PLNT	Plant Science
COMM	Commerce	HUNU	Human Nutrition	POLI	Political Science
CONS	Natural Resources Conservation	IAR	Asian Research	POLS	Polish
CPSC	Computer Science	IAEST	European Studies	PORT	Portuguese
CRWR	Creative Writing	IHHS	Interprofessional Health & Human Service	PRIN	Principles Of Human Biology
CSED	Computing Studies Education	INDE	Interdepartmental Medicine	PSYC	Psychology
CSIS	Critical Studies In Sexuality	INDO	Indonesian	PSYT	Psychiatry
CSPW	Coordinated Science Program Workshop	INDS	Interdisciplinary Studies	PUNJ	Punjabi
CUST	Curriculum Studies	ISCI	Integrated Sciences	RADI	Radiology
DENT	Dentistry	ITAL	Italian	RELG	Religious Studies
DERM	Clinical Dermatology	ITST	Italian Studies	RGLA	Religion, Literature And The Arts
DHYG	Dental Hygiene	JAPN	Japanese	RHSC	Rehabilitation Sciences
DPAS	Doctor/dentist, Patient & Society	JRNL	Journalism	RMES	Resource Management And Environmental Studies
DRAM	Drama	KORN	Korean	RMST	Romance Studies
EADM	Educational Administration	LARC	Landscape Architecture	RSOT	Occupational Therapy
ECED	Early Childhood Education	LAST	Latin American Studies	RSPT	Physical Therapy
ECON	Economics	LATN	Latin	RUSS	Russian
EDST	Educational Studies	LAW	Law	SANS	Sanskrit
EDUC	Education	LIBE	Teacher Librarianship	SCAN	Scandinavian
EECE	Electrical & Computer Engineering	LIBR	Library And Information Studies	SCED	Science Education
EMER	Emergency Medicine	LING	Linguistics	SCIE	Science One
ENDS	Environmental Design	LLED	Language And Literacy Education	SEAL	Southeast Asian Languages
ENGL	English	MAED	Mathematics And Science Education	SLAV	Slavic Studies
ENVR	Environmental Studies	MATH	Mathematics	SOAL	South Asian Languages
EOSC	Earth And Ocean Sciences	MDVL	Medieval Studies	SOCI	Sociology
EPSE	Educational Psychology And Special Education	MECH	Mechanical Engineering	SOIL	Soil Science
ETEC	Educational Technology	MEDG	Medical Genetics	SOWK	Social Work
FDNS	Foundations Program	MEDI	Medicine	SPAN	Spanish
FILM	Film	MICB	Microbiology	SSED	Social Studies Education
FISH	Fisheries Research	MIDW	Midwifery	STAT	Statistics
FMED	Foundations Of Medicine	MINE	Mining Engineering	SURG	Surgery
FMPR	Family Practice	MRNE	Marine Science	SWFS	Social Work And Family Studies
FMST	Family Studies	MTRL	Materials Engineering	THTR	Theatre
		MUED	Music Education	TSED	Technology Studies Education
		MUSC	Music		

UKRN	Ukrainian
UROL	Urological Surgery
URST	Urban Studies
VISA	Visual Arts
VRHC	Vocational Rehabilitation Counselling
VURS	Visiting Undergraduate Research Students
WMST	Women's Studies & Gender Relations
WOOD	Wood Products Processing
WRIT	University Writing Centre Courses
ZOOL	Zoology

ADHE — ADULT & HIGHER EDUCATION FACULTY OF EDUCATION

ADHE 313 (6) ORGANIZATION OF ADULT BASIC EDUCATION PROGRAMS. Rationale, structures, and functions of basic education completion. Equivalency: ADED 313. [3-0-0; 3-0-0]

ADHE 314 (6) ADULT CORRECTIONAL EDUCATION. Planning prison education; methods and techniques as they are affected by historical, philosophical, structural, and organizational contexts of penal institutions. Equivalency: ADED 314. [3-0-0; 3-0-0]

ADHE 327 (3) TEACHING ADULTS. Planning, conducting and evaluating instruction for adults. Consideration is given to different beliefs and ways of thinking about teaching. Equivalency: ADED 327. [3-0-0]

ADHE 328 (3) INSTITUTIONS OF ADULT EDUCATION. The history, roles, and activities of institutions in the field of adult education. Institutions in Canada, Great Britain, and the United States are emphasized, and some experiences in other countries are examined. Equivalency: ADED 328. [3-0-0]

ADHE 329 (3) DEVELOPING SHORT COURSES, WORKSHOPS AND SEMINARS. Organization and administration of adult education events such as short courses, seminars, workshops, conferences and institutes. Equivalency: ADED 329. [3-0-0]

ADHE 330 (3) THE COMMUNITY PRACTICE OF ADULT EDUCATION. Community based adult education with particular emphasis on the application of knowledge of the social, economic, cultural and political environment in developing and conducting adult education programs with an for individuals and groups. Equivalency: ADED 330. [2-3-0]

ADHE 375 (6) DIPLOMA SEMINAR AND INTERNSHIP IN ADULT EDUCATION. Equivalency: ADED 375. [2-3-0]

ADHE 412 (3) AN OVERVIEW OF ADULT EDUCATION. Survey of adult education theory and practice in Canada and the world. The focus is on the purpose and participation in, adult education, characteristics of learners, and the training of adult educators. Equivalency: ADED 412. [3-0-0; 3-0-0]

ADHE 493 (3) POST SECONDARY EDUCATION: CANADA AND BRITISH COLUMBIA. An overview of post-secondary education in Canada and British Columbia, emphasizing current issues such as diversity of offerings, enrolment, accessibility, and the role that secondary and post-secondary personnel play in facilitating access and retention of students. Equivalency: ADED 493. [3-0-0]

ADHE 500 (3) FOUNDATIONS OF ADULT EDUCATION. Equivalency: ADED 500.

ADHE 501 (3) ADULT EDUCATION AND COMMUNITY. Equivalency: ADED 501.

ADHE 502 (3) HISTORY OF CANADIAN ADULT EDUCATION. Equivalency: ADED 502.

ADHE 505 (3) PERSPECTIVES ON ADULT EDUCATION PRACTICE. Equivalency: ADED 505.

ADHE 508 (3-12) C REVIEW OF RESEARCH IN ADULT AND HIGHER EDUCATION. Equivalency: ADED 508.

ADHE 509 (3) FOUNDATIONS OF HIGHER EDUCATION. Equivalency: HIED 510.

ADHE 510 (3) ADULT EDUCATION RESEARCH TRADITIONS. Equivalency: ADED 510.

ADHE 511 (3) ORGANIZATION AND ADMINISTRATION OF POST-SECONDARY EDUCATION AND TRAINING. Equivalency: HIED 511.

ADHE 513 (3) CURRENT ISSUES IN POST-SECONDARY EDUCATION AND TRAINING. Equivalency: HIED 513.

ADHE 514 (3) ADULT EDUCATION PROGRAM PLANNING THEORY. Equivalency: ADED 514.

ADHE 515 (3) ADULT EDUCATION PROGRAM PLANNING AND EVALUATION PRACTICE. Equivalency: ADED 515.

ADHE 516 (3) ADMINISTRATION OF ADULT EDUCATION AGENCIES. Equivalency: ADED 516.

ADHE 517 (3) PROGRAM EVALUATION IN ADULT AND COMMUNITY EDUCATION. Equivalency: ADED 517.

ADHE 518 (3) THEORY AND RESEARCH ON ADULT LEARNING. Equivalency: ADED 518.

ADHE 519 (3) THEORY AND RESEARCH ON ADULT INSTRUCTION. Equivalency: ADED 519.

ADHE 525 (3/6) D EDUCATIONAL GERONTOLOGY. Equivalency: ADED 525.

ADHE 535 (3) COMPARATIVE AND INTERNATIONAL ADULT AND HIGHER EDUCATION. Equivalency: HIED 535.

ADHE 536 (3) THE COMMUNITY COLLEGE CONCEPT. Equivalency: HIED 540.

ADHE 540 (3/6) D LOCATING ONESELF IN GLOBAL LEARNING. Equivalency: ADED 540.

ADHE 541 (3) ADULT LEARNING: CONTEXTS AND PERSPECTIVES. Equivalency: ADED 541.

ADHE 542 (3) FOSTERING LEARNING IN PRACTICE. Equivalency: ADED 542.

ADHE 543 (3) UNDERSTANDING RESEARCH. Equivalency: ADED 543.

ADHE 544 (3) GLOBAL/LOCAL LEARNING. Equivalency: ADED 544.

ADHE 560 (3) INSTITUTIONAL ANALYSIS AND PLANNING IN POST-SECONDARY INSTITUTIONS. Equivalency: HIED 560.

ADHE 561 (3-12) D PRACTICUM IN ADULT AND HIGHER EDUCATION. Equivalency: ADED 561.

ADHE 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Equivalency: ADED 565.

ADHE 580 (3-12) C DIRECTED STUDY. Equivalency: ADED 580.

ADHE 583 (3/6) D ADVANCED SEMINAR IN ADULT EDUCATION. Equivalency: ADED 583.

ADHE 590 (3) GRADUATING PROJECT. Equivalency: ADED 590.

ADHE 598 (3-12) D FIELD EXPERIENCES. Equivalency: ADED 598.

ADHE 599 (6/12) C MASTER'S THESIS. Equivalency: ADED 599.

ADHE 699 (0) DOCTORAL THESIS. Pass/Fail. Equivalency: ADED 699.

AGEC — AGRICULTURAL ECONOMICS FACULTY OF LAND AND FOOD SYSTEMS

Undergraduate courses have been re-named as Food and Resource Economics (FRE). Please see that section.

AGEC 500 (2-6) C GRADUATE SEMINAR.

AGEC 501 (3) APPLIED DEMAND ANALYSIS. Prerequisite: Permission of instructor is required.

AGEC 502 (3) TOPICS IN FOOD MARKET ANALYSIS. Prerequisite: Permission of instructor is required.

AGEC 503 (3) POLICY ANALYSIS FOR FOOD, ENVIRONMENT AND RESOURCES.

AGEC 508 (3) ADVANCED PRODUCTION ANALYSIS.

AGEC 520 (3) TOPICS IN LAND AND FOREST RESOURCE ECONOMICS. Equivalency: FRST 520.

AGEC 521 (3) TOPICS IN AGRICULTURAL ECONOMICS.

AGEC 530 (2-6) C DIRECTED STUDIES.

AGEC 540 (3) INTERNATIONAL AGRICULTURAL DEVELOPMENT.

AGEC 548 (0) MAJOR ESSAY.

AGEC 549 (12) MASTER'S THESIS.

AGRO — AGROECOLOGY FACULTY OF LAND AND FOOD SYSTEMS

BIOL 121 and 140 are prerequisites for AGRO 326, 327, and 328.

AGRO 215 (3) ANIMALS AND SOCIETY. The place of animals in human culture; contemporary use of animals for food production, biomedical research, entertainment and companionship; social and ethical issues raised by human use of animals; protection of animals by society and the law. Prerequisite: At least second-year standing.

AGRO 244 (4) FOREST AND AGRICULTURAL CLIMATOLOGY. An introduction to the basic principles and processes of climatology. Energy and water balance concepts. Atmospheric motion. Microclimate modification and air pollution. Climate classification and land capability. Equivalency: GEOG 204. [3-2-0]

AGRO 260 (6) AGROECOLOGY I. Introduction to the biophysical and socioeconomic factors affecting systems management and production in selected agroecosystems. A fee will be assessed each student to cover field trip costs. Prerequisite: AGSC 250. [1-3-6]

AGRO 311 (3) ANIMAL PHYSIOLOGY I. Physiological principles in animals, including vital life support systems, cellular communication, growth and development. Prerequisite: BIOL 201. [1-0-3]

AGRO 312 (3) ANIMAL PHYSIOLOGY II. Physiological systems of importance to animal production and wildlife management. digestion, reproduction, lactation and environmental adaptation. Prerequisite: AGRO 311. [1-0-3]

AGRO 315 (3) ANIMAL WELFARE AND THE ETHICS OF ANIMAL USE. Scientific assessment of animal well-being, ethical concepts applied to animal use, and animal welfare issues arising in agriculture, biomedical research and other areas. Prerequisite: A minimum of third-year standing in any faculty. [1-0-3]

AGRO 316 (3) EQUINE BIOLOGY, HEALTH AND NUTRITION. Physiology, growth and reproduction of the horse; nutrition, diet formulation and feeding practices; common diseases, their prevention and treatment. Prerequisite: Permission of instructor [3-0]

AGRO 322 (3) HORTICULTURAL TECHNIQUES. An introduction to horticultural practice in an experiential learning format. Plant identification, seeding, propagation, pruning, cultivation media, pesticide application and safety are examined in the context of integrated crop management. An additional fee may be required for the pesticide certification examination. [0-3-3]

AGRO 324 (4) PLANT PHYSIOLOGY. Mechanisms and regulation of functional processes contributing to the assimilation, transport and utilization of water, mineral nutrients and carbon by plants. Prerequisite: BIOL 121 and either (a) CHEM 123 or (b) all of CHEM 111, CHEM 113. CHEM 233 is recommended. Equivalency: BIOL 351, FRST 311. [3-3-0]

AGRO 326 (4) INTRODUCTORY PLANT PATHOLOGY. Study of the ecology of plant pathogenic organisms; principles of disease

development and control. Equivalency: BIOL 316. [3-2-0]

AGRO 327 (3) INTRODUCTION TO ENTOMOLOGY. A survey of the structure, classification and biology of insects; ecology and life-histories of insects; insect-plant relations. Prerequisite: BIOL 121. Equivalency: BIOL 327. [2-3-0]

AGRO 328 (4) WEED SCIENCE. Importance, identification, dissemination and biology of weeds; preventive, cultural, biological and chemical methods of control. Equivalency: BIOL 317. [3-2-0]

AGRO 342 (3) SOIL BIOLOGY. The diversity of soil organisms (bacteria, protozoa, fungi, animals, plants) in natural and managed ecosystems; roles in primary production, nutrient cycling, decomposition and reclamation; interactions between soil organisms; responses to environmental change. Prerequisite: BIOL 121. Equivalency: FRST 310. [2-3-0]

AGRO 360 (3) AGROECOLOGY II. Animals and Plants as Components of Agricultural Ecosystems. This second course in the agroecology core uses a systems approach to investigate the functions and interactions of plants and animals in agricultural systems. A fee will be assessed each student to cover field trip costs. Prerequisite: AGRO 260. [1-0-3]

AGRO 361 (3) KEY INDICATORS OF AGROECOSYSTEM SUSTAINABILITY. This course builds on the foundation of agroecosystems in AGRO 260 and AGRO 360, and the key indicators of sustainability in the faculty core (AGSC 350) with a detailed exploration of biophysical, economic and social ecosystem sustainability indicators for primary production subsystems. [1-0-3]

AGRO 401 (3) SOIL PROCESSES. Integration of soil physics, chemistry and biology in understanding essential soil processes. [3-0-0]

AGRO 402 (3) SUSTAINABLE SOIL MANAGEMENT. Application of fundamental, unifying, soil science principles in sustainable ecosystem management. [1-0-3]

AGRO 403 (3) FIELD AND LABORATORY METHODS IN SOIL SCIENCE. [1-3-0]

AGRO 411 (3) REPRODUCTIVE PHYSIOLOGY AND TECHNOLOGY. A comparative overview of reproductive physiology and reproductive technologies in domesticated and laboratory animals. Prerequisite: AGRO 312. [1-0-3]

AGRO 414 (3) PRINCIPLES OF ANIMAL BREEDING. The basic principles and tools used in animal breeding and genetics in birds, fish, and mammals. Prerequisite: AGSC 350. BIOL 334 or FRST 302 are recommended. [1-0-3]

AGRO 418 (3) INTENSIVE FISH PRODUCTION. Management of fin fish throughout the life cycle; broodstock, egg, larvae and juvenile. Control of environmental factors, including pathogens, for maximum productivity at all life stages. Prerequisite: AGRO 312. [3-2]

AGRO 419 (3) FISH DISEASES. Common diseases of fish. Epidemiology, zoonotic

potential, prevention and treatment of diseases. Prerequisite: Either (a) all of AGRO 311, AGRO 312 or (b) BIOL 353. AGRO 418 is strongly recommended.

AGRO 420 (3) GREENHOUSE HORTICULTURE SYSTEMS. Integrated crop management in controlled environment systems. The primary focus of the course will be on greenhouse vegetable and floriculture production systems. [0-3-3]

AGRO 421 (3) INTEGRATED CROP MANAGEMENT. Development and implementation of an integrated crop management program in horticulture. The course focuses on the linkages between crop production and protection in the management of a horticultural ecosystem. Prerequisite: All of AGRO 260, AGRO 360. [0-3-3]

AGRO 423 (3) ECOPHYSIOLOGY AND HORTICULTURE. Ecophysiological processes in horticultural production systems. Transformations of energy and matter by horticultural crops. Regulation of crop development and performance by biotic and abiotic environmental factors. [1-0-3]

AGRO 424 (4) PLANT BREEDING AND BIOTECHNOLOGY. Genetic Basis and methodology of breeding for improved crop and ornamental plants. Application of tissue culture and molecular biology to plan improvement. Prerequisite: BIOL 201 and one of BIOL 334, FRST 302. Equivalency: BIOL 443. [3-0-2]

AGRO 426 (3) PLANT-MICROBE INTERACTIONS. Biology and physiology of selected plant-microbe relationships. Impacts of plant-microbe relationships on society. Prerequisite: BIOL 201. Equivalency: BIOL 421. [3-2-0]

AGRO 427 (3) INSECT ECOLOGY. Behavioural, population and community ecology of insects. Interaction between insects and plants and the application of the principals of insect ecology to biological control of insects and weeds. Prerequisite: Either (a) BIOL 205 or (b) all of BIOL 327, AGRO 327. Equivalency: BIOL 411. [3-0]

AGRO 428 (3) INTEGRATED PEST MANAGEMENT. Development and implementation of multi-disciplinary pest management programs in agricultural crops. Prerequisite: BIOL 121. [3-2]

AGRO 444 (3) AGROFORESTRY. An introduction to the application of knowledge and principles of agroecology and forest ecology to global agroforestry systems. The course includes a one-weekend field trip that requires a supplemental fee. Prerequisite: An undergraduate course in ecology or equivalent. Equivalency: FRST 444. [1-0-3]

AGRO 460 (3) ADVANCED AGROECOLOGY. Focuses on the relationship between biological diversity and sustainability for the management of agroecosystems. It builds on the core agroecology courses and emphasises ecological interactions between natural ecosystems and agroecosystems, including connections between agroecology and conservation biology. A fee

will be assessed each student to cover field trip costs. Prerequisite: AGRO 360 or equivalent. [1-0-3]

AGRO 461 (3) APPLIED AGROECOLOGY.

Analysis and solution of problems in agricultural production systems through the integration and application of agroecological knowledge and principles. [1-0-3]

AGRO 490 (3) TOPICS IN AGROECOLOGY.

Analysis and interpretation of current issues in agroecology. Prior to registration, students should consult with Student Services in the Faculty of Land and Food Systems. [0-0-3]

AGRO 497 (2-6) D DIRECTED STUDIES.

AGRO 498 (3) UNDERGRADUATE ESSAY. Preparation of a comprehensive and analytical review of an approved topic under the supervision of a faculty member. Consultation with a program adviser is required.

AGRO 499 (6) UNDERGRADUATE THESIS.

Design and execution of an experimental/analytical research project leading to the preparation of a thesis. Prerequisite: Approval of a program adviser; consult before the end of classes in third year.

**AGSC — AGRICULTURAL SCIENCES
FACULTY OF LAND AND FOOD SYSTEMS**

AGSC 100 (1) INTRODUCTION TO LAND, FOOD AND COMMUNITY. Orientation to the programs, learning environment and core values of the Faculty of Land and Food Systems; career programs; survey of professional opportunities and requirements. [1-0-0]

AGSC 250 (6) LAND, FOOD AND COMMUNITY I. Introduction to managed systems and concepts of sustainability; economic, ecological and social components; managed landscapes, agri-food systems, and communities; urban and rural systems; the land, food, nutrition and human health continuum. [4-0-4]

AGSC 301 (3) AQUACULTURE FIELD STUDIES. An orientation to the aquaculture system in BC. Given jointly with Malaspina University-College. Participating students are assessed a fee.

AGSC 302 (3/6) D INTERNATIONAL FIELD STUDIES. Field studies carried out abroad under staff direction. Participating students are assessed a fee.

AGSC 350 (6) LAND, FOOD, AND COMMUNITY II. Introduction to tools and skills required to assess the economic, ecological, social, and technological components of managed landscapes, agrifood systems and communities comprising the land, food, nutrition and health continuum. Prerequisite: AGSC 250. [1-0-6]

AGSC 450 (3) LAND, FOOD, AND COMMUNITY III. Capstone course. Problem-based analysis of complex case studies selected from the land, food and community continuum. Cases are specifically designed to require development of integrated disciplinary and inter-disciplinary analysis. Prerequisite: AGSC 350 and fourth year standing [1-0-3]

AGSC 490 (3) TOPICS IN AGRICULTURAL SCIENCES. Analysis and interpretation of current issues in agricultural sciences. Prior to registration students should consult with Student Services in the Faculty of Land and Food Systems.

AGSC 496 (3) CAREER DEVELOPMENT INTERNSHIP. Supervised technical work experience appropriate to students career goals. Critical thinking, self-analysis of performance in the work environment, and evaluation with mentor and course coordinator. Prerequisites: AGSC 250 and at least third year standing. Enrolment subject to competition and availability of work placements. Prerequisite: AGSC 250 and at least 3rd year standing and permission.

AGSC 500 (3) TUTORING IN PROBLEM-BASED LEARNING. Pass/fail. [0-0-3]

AGSC 501 (3) PARTICIPATORY RESEARCH METHODOLOGIES IN AGRICULTURAL SCIENCES.

AGSC 504 (3) RESEARCH METHODOLOGY IN AGRICULTURAL SCIENCES.

ANAE — ANESTHESIA FACULTY OF MEDICINE

ANAE 430 (2) INTRODUCTION TO ANESTHESIA. Patient assessment and preparation for surgery, conduct of general and regional anesthesia and airway management.

ANAT — ANATOMY FACULTY OF MEDICINE

ANAT 390 (3) INTRODUCTION TO MICROSCOPIC HUMAN ANATOMY. Organ system development, structure and function at the microscopic level. Prerequisite: One of BIOL 120, BIOL 121. BIOL 200 is recommended. [3-0-0]

ANAT 391 (3) INTRODUCTION TO GROSS HUMAN ANATOMY. Structure and function of body regions at the macroscopic level. Prerequisite: ANAT 390. Permission of the instructor is also acceptable. [3-0-0]

ANAT 392 (4) GROSS ANATOMY OF THE LIMBS AND TRUNK. Lectures and laboratory sessions on the human gross and functional anatomy of the limbs and trunk. The course includes the study of pre-dissected specimens. For credit only in the School of Rehabilitation Sciences.

ANAT 393 (4) HUMAN ANATOMY FOR PHYSICAL THERAPY STUDENTS. Microscopic systems anatomy and regional anatomy of the nervous system. Prerequisite: Registration in Rehabilitation Sciences (RSPT) is required. [3-0-0]

ANAT 400 (16) HUMAN ANATOMY. A correlated course of study for medical and dental students of the structure of the human body including gross and radiological anatomy and embryology. Clinics are held in cooperation with the Departments of Medicine, Orthopaedics, Surgery and Family Practice. Both terms.

ANAT 401 (8) MICROSCOPIC HUMAN ANATOMY. A survey course for medical and dental students of the microscopic structure of the human body as studied by light and electron microscopy. Lectures and laboratory sessions. Both terms.

ANAT 425 (4) ELEMENTS OF NEUROANATOMY. An introduction to the structure of the human nervous system. Given only in conjunction with PHYL 425. (Open to Medical and Dental students only.)

ANAT 448 (1-6) D DIRECTED STUDIES IN ANATOMY. Permission of the Head and supervisor required.

ANAT 500 (12) GROSS HUMAN ANATOMY. An advanced laboratory course in the structure of the human body.

ANAT 501 (6) MICROSCOPIC HUMAN ANATOMY. An advanced lecture and laboratory course in the microscopic structure of the human body.

ANAT 502 (8) MICROSCOPIC ANATOMY. The microscopic anatomy of tissues and organs in man. Prerequisite: ANAT 401.

ANAT 504 (3) CELL STRUCTURE AND FUNCTION. Seminar discussions of current topics in vertebrate cell biology.

ANAT 505 (6) GENERAL CYTOLOGICAL BIOPHYSICS. An examination of selected properties of the cell and underlying mechanisms based on the ultrastructure of the cell and on the physical chemistry of open systems.

ANAT 510 (4) NEUROANATOMY. The gross and microscopic study of the nervous system in man.

ANAT 511 (3) FUNDAMENTALS OF BODY DESIGN: BASIC PRINCIPLES IN HUMAN ANATOMY AS ILLUSTRATED BY THE ORGANIZATION OF THE BACK AND UPPER LIMB.

ANAT 512 (3) FUNCTIONAL HUMAN ANATOMY OF HEAD AND NECK SYSTEMS.

ANAT 513 (3) FUNCTIONAL HUMAN ANATOMY OF THE RESPIRATORY, CARDIOVASCULAR AND GASTROINTESTINAL SYSTEMS OF THE THORAX AND ABDOMEN.

ANAT 514 (3) FUNCTIONAL HUMAN ANATOMY OF THE UROGENITAL SYSTEMS: PELVIS AND PERINEUM.

ANAT 515 (3) FUNCTIONAL HUMAN ANATOMY OF THE MUSCULOSKELETAL SYSTEMS: BACK, LIMBS AND JOINTS.

ANAT 516 (3) FUNCTIONAL HUMAN NEUROANATOMY: CENTRAL NERVOUS SYSTEM.

ANAT 517 (3) FUNCTIONAL HUMAN MICROSCOPIC ANATOMY: BASIC TISSUES, ORGANS AND SYSTEMS.

ANAT 527 (3) MUSCLE BIOPHYSICS. Selected topics in muscle contraction at an advanced level. Permission of Head required. Equivalency: PHYL 530.

ANAT 548 (2-6) C DIRECTED STUDIES IN ANATOMY & CELL BIOLOGY.

ANAT 549 (12) M.Sc. THESIS.

ANAT 550 (3) CURRENT TOPICS IN THE MORPHOLOGICAL SCIENCES. Lectures, demonstrations, discussions and student seminars on selected and current topics in cell biology and the anatomical sciences. Attendance is required of all M.Sc. and Ph.D. students in Anatomy & Cell Biology. Prerequisite: Students must be registered in graduate-level studies in Anatomy & Cell Biology. [1-0-0]

ANAT 590 (6) INTRODUCTION TO FUNCTIONAL HUMAN ANATOMY: SURVEY OF MICROSCOPIC ANATOMY, NEUROANATOMY AND GROSS ANATOMY.

ANAT 649 (0) PH.D. THESIS.

ANSC — ANIMAL SCIENCE FACULTY OF LAND AND FOOD SYSTEMS

Most of the undergraduate courses have been re-named as Agroecology (AGRO). Please see this section. The following ANSC courses have credit in the Faculty of Science: 425, 480, 481, 482.

ANSC 500 (3) GRADUATE SEMINAR. Participation in this course is compulsory for all graduate students in Animal Science. [2-0]

ANSC 514 (3-6) D CURRENT TOPICS IN ANIMAL GENETICS. [3-0; 3-0]

ANSC 515 (3) ANIMAL WELFARE AND ANIMAL ETHICS. Prerequisite: Standing as a graduate student. Credit will be added for only one of AGRO 315, ANSC 515.

ANSC 520 (3) NUTRITIONAL PHYSIOLOGY OF DOMESTIC ANIMALS. Current topics in the study of nutrient metabolism in domestic animals; metabolic disorders. Not offered every year.

ANSC 522 (3) PROTEIN METABOLISM AND NUTRITION IN DOMESTIC ANIMALS. Recent advances in the metabolism, utilization and requirements of proteins and amino acids in animals. Credit will not be given for both ANSC 522 and HUNU 511. Not offered every year.

ANSC 524 (2-6) D ADVANCED TOPICS IN ANIMAL NUTRITION. [0-0-3]

ANSC 530 (2-6) C DIRECTED STUDIES.

ANSC 549 (12) MASTER'S THESIS.

ANSC 550 (3) TOPICS IN ANIMAL WELFARE. Prerequisite: AGRO 315. (May be taken as a co-requisite).

ANSC 551 (3) TUTORIALS IN ANIMAL WELFARE RESEARCH.

ANSC 580 (3) ADVANCED TOPICS IN FISH CULTURE. An interdisciplinary seminar course, involving disciplines of importance to fish culturists.

ANSC 649 (0) PH.D. THESIS.

ANTH — ANTHROPOLOGY FACULTY OF ARTS

ANTH 100, 103, 140, 201, 202, 204, 205, 206, 213, 214, 215, 217, 218, 220, 221, 222, 225, 231, 232 and 329 are general courses open to all students. ANTH 100 is a prerequisite to all other third- and fourth-year courses, unless permission of the instructor is obtained. Some courses have additional prerequisites, as listed in the descriptions. For details of current listings, consult the departmental website at www.anso.ubc.ca.

ANTH 100 (3) INTRODUCTION TO CULTURAL ANTHROPOLOGY. Basic concepts and methods of anthropology; culture and race; comparative study of social systems, religion, symbolism, art, and other institutions. Examples are drawn from a variety of cultures.

ANTH 103 (3) INTRODUCTION TO ANTHROPOLOGICAL ARCHAEOLOGY.

Survey of world prehistory, from the emergence of humankind to the beginning of civilizations, set in a framework of the principles of anthropological archaeology and cultural-historical research.

ANTH 140 (3) INTRODUCTION TO BIOLOGICAL ANTHROPOLOGY. A survey of the sub-discipline with discussions of major issues in each area.

ANTH 200 (3) INTRODUCTION TO PROBLEMS IN METHOD AND THEORY IN ANTHROPOLOGY. A survey of basic concepts and procedures in the cross-cultural study of human societies. Prerequisite: ANTH 100.

ANTH 201 (3/6) D ETHNIC RELATIONS. An introduction to the study of the relations between ethnic groups and of the interplay between ethnicity and other social factors. The course examines such concepts as: ethnicity, racism, prejudice, discrimination, assimilation, and multiculturalism. Ordinarily the course deals with ethnic groups in British Columbia, and students are expected to carry out elementary research projects. Equivalency: SOCI 201.

ANTH 202 (3/6) D CONTEMPORARY SOCIAL PROBLEMS. Cultural background to contemporary events; problems of nationalism and regional conflicts, economic and social development, gender, religion and social change. Course may stress a different region of the world in different years.

ANTH 213 (3/6) D WOMEN IN COMPARATIVE PERSPECTIVE. An exploration of topics from Anthropology and/or Sociology focusing on explanations, in current and historical perspective, for variations in the situation of women. Equivalency: SOCI 213.

ANTH 214 (3/6) D THE FAMILY IN CROSS-CULTURAL PERSPECTIVE. A cross-cultural comparison of family and kinship to provide an understanding of variations in the structure and meaning of marriage relations; forms of domestic organization; and the sexual division of labour, property, and inheritance. Equivalency: SOCI 214.

ANTH 215 (3/6) D INTRODUCTION TO JAPANESE SOCIETY. Survey of contemporary Japanese life, with a focus on social organization and cultural patterns. Topics may include family, kinship, rural and urban conditions, economic organization, class and other inequalities, ethnic relations, and introduction of Western culture and value systems. Equivalency: SOCI 215.

ANTH 217 (3) CULTURE AND COMMUNICATION. The study of communication; the relation between communication and its cultural context with emphasis on verbal and non-verbal communication, cross-cultural communication, and cultural differences in the use of oral, literate, and electronic media.

ANTH 220 (3) FIRST NATIONS OF BRITISH COLUMBIA. The cultures, languages, and resources of First Nations, with anthropological perspectives on colonization and development. Prerequisite: ANTH 100.

ANTH 221 (3) CONTEMPORARY FIRST NATIONS CULTURAL EXPRESSIONS. Forms and styles of indigenous expressive arts, and their current place in the lives of British Columbia First Nations. Prerequisite: ANTH 220 is recommended.

ANTH 222 (3) CURRENT FIRST NATIONS ISSUES IN BRITISH COLUMBIA. Anthropological perspectives on current issues of public policy, law, and political activity, as they affect the place of First Nations people in British Columbia. Prerequisite: ANTH 220 is recommended.

ANTH 225 (3) HUMAN ORIGINS. The origin and evolution of the human lineage.

ANTH 227 (3) CULTURE, HEALTH & ILLNESS. Health, illness, sickness and disease in their social and cultural contexts; a cross-cultural examination.

ANTH 231 (3) ANCIENT NORTH AMERICA. Introductory survey of North American archaeology comparing the ancient cultures from all major regions of Canada and the US.

ANTH 232 (3) ANCIENT LATIN AMERICA. The archaeology of ancient Mexico, Central and South America, highlighting recent discoveries about the emergence and growth of civilizations such as the Aztecs, Maya, Zapotec, Inca, Chimor and their ancestors.

ANTH 300 (3/6) D ANTHROPOLOGICAL THEORY. Models of society and culture in anthropology. Prerequisite: ANTH 200.

ANTH 302 (3/6) D ETHNOGRAPHY OF SOUTH ASIA. A specialized study of ethnographic and theoretical problems relating to South Asia.

ANTH 303 (3/6) D ETHNOGRAPHY OF SPECIAL AREAS. A specialized study of ethnographic and theoretical problems in one area. Different culture areas or regions may be selected each term. Consult the Department for this year's offerings.

ANTH 304 (3/6) D ETHNOGRAPHY OF THE NORTHWEST COAST. Specialized study of ethnographic and theoretical problems of the region.

ANTH 305 (6) THEORY IN ARCHAEOLOGY. Explores models of culture change and culture used by prehistorians, with emphasis on formulation of research designs in order to work on specific problems in culture history, settlement, ecology, evolution, and technological change. The course views archaeological theory in relation to anthropological theory in general. Prerequisite: ANTH 103.

ANTH 306 (6) SUMMER FIELD TRAINING IN ARCHAEOLOGY. Intensive training in excavation techniques and interpretation, including mapping procedures, recording, preliminary analysis, and reporting. Students will participate in an excavation for the Summer Session and will use this excavation as a basis for lectures, discussions and reports. Additional Field Trip Fees are charged for this course.

ANTH 312 (3/6) D GENDER RELATIONS. The nature of gender relations, their social and cultural expression, and theories of gender inequality drawn from anthropological or sociological research. Equivalency: SOCI 312.

ANTH 315 (3/6) D JAPANESE CULTURE AND SOCIETY. An intensive examination of modern industrial Japan, including such topics as: demographic characteristics, class structure and inequality, industrial organization, political structure and conflict, ethnic relations, value systems, urban and rural traditions and cultural background of current events. Major theories of Japanese culture and economic development will be studied. Equivalency: SOCI 315.

ANTH 316 (3/6) D POLITICAL ANTHROPOLOGY. Comparative study of political organization; leadership and non-centralized and centralized political systems.

ANTH 317 (3/6) D LINGUISTIC ANTHROPOLOGY. A survey of the ethnographic uses of language data and the techniques of linguistic analysis.

ANTH 318 (3) OLD WORLD PALAEOLITHIC ARCHAEOLOGY. The archaeology of early human evolution, spanning the period from the emergence of the first tool-using hominids to the end of the Upper Palaeolithic and Mesolithic periods. Topics to be covered include: Lower and Middle Palaeolithic archaeology, adaptations of early hominids, emergence and spread of modern humans, Upper Palaeolithic technology and symbolism.

ANTH 319 (3) THE EMERGENCE OF OLD WORLD CIVILIZATIONS. A survey of the archaeological evidence and theories for the origins and spread of settled village life, food production systems, and complex social and political organization Begins with the Early Neolithic period and continues through to the appearance of the old world civilizations.

ANTH 321 (3) THE CANADIAN FAR WEST IN PREHISTORY. A survey of prehistoric archaeology west of the Rocky Mountains. Reconstruction of prehistoric cultural developments from the earliest migrations up to histor-

ical contact. Prerequisite: ANTH 103. Permission of the instructor is also acceptable.

ANTH 322 (3) ARCHAEOLOGICAL FOUNDATIONS OF EAST AND SOUTHEAST ASIA. Survey of the archaeology of East and Southeast Asia, with an emphasis on the beginnings of the economic, social, political, and artistic traditions and systems of the great civilizations, and the conditions in which they arose. Theories of cultural development emphasizing Neolithic and state-level societies will be discussed. Prerequisite: ANTH 103. Permission of the instructor is also acceptable.

ANTH 323 (3) ARCHAEOLOGICAL FOUNDATIONS OF MesoAMERICAN CIVILIZATIONS. A survey of the archaeology of Mesoamerica, concentrating on the origins and development of complex society. Theories on the evolution of civilization will be compared with the archaeological evidence. Prerequisite: ANTH 103. Permission of the instructor is also acceptable.

ANTH 324 (3) PRIMATE EVOLUTION. Primate evolution over the past 65 million years. Compares fossil with modern primates, and considers key issues and theories in primate evolution. Prerequisite: One of ANTH 140, ANTH 225.

ANTH 325 (3/6) D PALEOANTHROPOLOGY. Origin and development of the hominids. The hominid fossil record, and theories relating to hominid evolution. Prerequisite: One of ANTH 140, ANTH 225.

ANTH 326 (3) PRIMATE BEHAVIOUR AND ECOLOGY. A comprehensive survey of the living primates, with emphasis on ecology, social organization, social behaviour and field studies.

ANTH 329 (3/6) D ANTHROPOLOGY AND FIRST NATIONS OF CANADA. Anthropological perspectives on current First Nations issues in Canada. Specific topics will be selected each year. Consult Department for current description. Not for credit in the Major in Anthropology.

ANTH 330 (3) ANTHROPOLOGY OF RURAL PEOPLES AND THE GLOBAL ECONOMY. A comparative study of rural peoples (such as small-scale horticulturists, artisans and craft workers, peasants, fisherfolk, or industrial/manufacturing workers) in the global economy.

ANTH 331 (3/6) D ANTHROPOLOGY OF ART. Anthropological perspectives on artifacts and symbolic forms: their production, use, and function in relation to technology, ecology, social organization, and cognitive structures.

ANTH 332 (3/6) D ORAL TRADITION. An ethnographic perspective on the dynamics of oral tradition in various oral and literate cultures; the characteristics and roles of oral genres including folktales, genealogy, oral history, autobiography, and myth in these societies; and the relationship between orality and literacy.

ANTH 341 (3/6) D AN INTRODUCTION TO MUSEUM ANTHROPOLOGY. The development of anthropology in museums from the late

19th century to the present day; material culture research; the study of museums as social institutions. The course is a prerequisite for ANTH 431 and 432.

ANTH 350 (3/6) D ETHNOGRAPHY OF THE PACIFIC ISLANDS: POLYNESIA AND MICRONESIA. Major cultural groupings in Polynesia and Micronesia, emphasizing both traditional cultures and the incorporation of the region into modern international institutions.

ANTH 351 (3/6) D ETHNOGRAPHY OF THE PACIFIC ISLANDS: MELANESIA. Major cultural groupings in Melanesia, emphasizing both traditional cultures and the incorporation of the region into modern international institutions.

ANTH 353 (3) ETHNOGRAPHY OF LATIN AMERICA. Indigenous peoples of Latin America, emphasizing both pre-Columbian cultural traditions and socioeconomic and cultural changes from the Colonial period to the present.

ANTH 360 (3) INTRODUCTION TO ECOLOGICAL ANTHROPOLOGY. Analysis of the relations between human societies and the ecological aspects of their environment (including technology, society, and ideology). Previously ANTH 460.

ANTH 400 (3/6) D HISTORY OF ANTHROPOLOGY. The development of anthropological theory and practice in institutional contexts. Prerequisite: ANTH 300.

ANTH 401 (3/6) D FIRST PEOPLES OF NORTH AMERICA. A survey of indigenous cultures and ethnographic literature of North America. Consult Department for current description.

ANTH 402 (3/6) D ETHNOGRAPHY OF CHINA. Advanced studies in the ethnography of China, premodern and contemporary. Topics may include kinship, rural and urban social structure, stratification and mobility, religion, national power structures, and social change in Chinese society.

ANTH 403 (3/6) D ETHNOGRAPHY OF SPECIAL AREAS. An advanced study of ethnographic and theoretical problems. A different region may be studied each term.

ANTH 404 (3/6) D ETHNOGRAPHY IN CIRCUMPOLAR NORTH: COMPARATIVE PERSPECTIVES. An examination of relationships between indigenous people and nation states in Greenland, Canada, Alaska and Siberia, using ethnographic methods.

ANTH 406 (3/6) D ANALYTICAL TECHNIQUES IN ARCHAEOLOGY. A survey of methods and techniques in the interpretation of archaeological data; practical experience in processing and analyzing archaeological materials by means of a research project. Students will prepare manuscripts, drawings and photographs for publication and will learn the basics of lithic and faunal analyses. Prerequisite: ANTH 305. Permission of the instructor is also acceptable.

ANTH 407 (3) PRINCIPLES OF FIELD WORK. An examination of field work as the basic setting for ethnographic research. Research

design; relationships with study participants, field techniques, and data analysis and presentation.

ANTH 408 (3) FIELD METHODS. Intensive examination and application of selected methods of ethnographic data-collection, e.g., visual anthropology, anthropological interviewing, genealogies, ethnographic semantics, life histories, oral traditions. Consult department for current description.

ANTH 409 (3/6) D TOPICS IN APPLIED ANTHROPOLOGY. Advanced study of the theory and practice of applied, action, and consultancy anthropology. Topics may include the application of anthropology to questions of aboriginal rights and title, education, medicine, development, women and development, tourism, and other social issues.

ANTH 410 (3/6) D PREHISTORY OF A SPECIAL AREA IN ASIA OR OCEANIA. Analysis of the prehistory of a selected area, including a summary of the literature and the discussion of relevant problems. The course will provide background for students in area studies such as Oceania and the Far East. Prerequisite: One of ANTH 305, ANTH 321. Permission of the instructor is also acceptable.

ANTH 411 (3/6) D PREHISTORY OF A SPECIAL AREA IN THE NEW WORLD. Analysis of the prehistory of a selected New World area, including a summary of the literature and discussion of relevant problems. The course will provide background for students in North, Central, and South American area studies. Typical offerings include the prehistory of Mesoamerica, the Southwest, North America and the Mayan areas. Prerequisite: One of ANTH 305, ANTH 321. Permission of the instructor is also acceptable.

ANTH 413 (3/6) D FAMILY AND KINSHIP. A cross-cultural survey of ways of defining family relationships and kinship organizations, including theoretical analysis as well as case studies. Equivalency: SOCI 413.

ANTH 415 (3/6) D RELIGION AND SOCIETY. Comparative study of religious beliefs, practices, and movements; relations between religious, social, and political institutions; religion as a force for stability and change; anthropological/sociological theories of religion.

ANTH 416 (3/6) D THE ETHNOGRAPHY OF JAPAN. Through an analysis of contemporary ethnographic accounts of Japan, this course addresses the interplay of cultural predispositions with modern organizational structure, differences in rural/urban lifestyles, family relationships, gender roles, health, aging and Japan's international role. Same as SOCI 416. Prerequisite: One of ANTH 215, SOCI 215, ANTH 315, SOCI 315. Permission of the instructor is also acceptable. Equivalency: SOCI 416.

ANTH 417 (3/6) D LANGUAGE, CULTURE, AND COGNITION. The relationships between linguistic and cultural phenomena; how language affects normative and cognitive systems of thought and behaviour. Prerequisite:

One of ANTH 100, LING 200. May be taken as co-requisites.

ANTH 418 (3/6) D SOCIAL STATISTICS. Primary emphasis on applications of statistical techniques to quantitative and qualitative data in both Anthropology and Sociology. Prerequisite: STAT 203. Permission of the instructor is also acceptable. Equivalency: SOCI 418.

ANTH 420 (3/6) D ARCHAEOLOGY OF BRITISH COLUMBIA. An advanced study of the prehistoric archaeology of coastal and interior Native Peoples. A critical analysis of the archaeological evidence and interpretations of prehistoric cultural developments from the earliest migrations up to historical contact. Prerequisite: One of ANTH 305, ANTH 321. Permission of the instructor is also acceptable.

ANTH 422 (3) MODES OF SUBSISTENCE. The nature of subsistence systems antedating or alternative to modern commercial systems. Introductory survey with basic readings; focus on problems such as the development of complex cultures without agriculture, the ambiguity of hunting and gathering, agricultural and other "intensification", "orchestration" of the use of adjacent microenvironments. Of interest to students of archaeology, anthropology and cultural geography.

ANTH 424 (3/6) D APPLIED ARCHAEOLOGY. A review of the history and current practices of cultural heritage resource management. Includes legislative background and governmental organization as well as current practices in resource assessment and in salvage archaeology. The relationships between governments, consultants, sponsors and Native Peoples bands are explored with emphasis on recent developments. Prerequisite: ANTH 305. Permission of the instructor is also acceptable.

ANTH 427 (3) TOPICS IN MEDICAL ANTHROPOLOGY. Anthropological perspectives on health, illness, and disability as represented by classic and contemporary research in selected topics in medical anthropology including disease and human evolution, illness and human ecology, culture and epidemiology, ethnomedical systems, the relationship between folk and biomedicine and the cultural construction and social organization of health care, illness and disability. Specific content will vary from year to year. Consult the Department brochure. Prerequisite: One of ANTH 100, SOCI 100.

ANTH 431 (3/6) D STUDIES IN MUSEUM ANTHROPOLOGY. Issues concerning management of museum collections and their public presentation, addressing questions of access, collaboration and appropriate use of cultural property. Museum of Anthropology facilities are used. Prerequisite: ANTH 341.

ANTH 432 (3/6) D THE ANTHROPOLOGY OF PUBLIC REPRESENTATION. The public presentation and interpretation of anthropological concepts and materials utilizing the programs and facilities of the Museum of Anthropology. Prerequisite: ANTH 341. Permission of the department is also acceptable.

ANTH 433 (3/6) D DIRECTED STUDIES. General reading and/or a research undertaking, with the agreement, and under the supervision, of a Department faculty member selected by the student. No more than 6 credits of Directed Studies may be taken for credit toward the Major or Honours program.

ANTH 449 (6/12) D HONOURS TUTORIAL. Will usually require the presentation of at least one research paper.

ANTH 451 (3/6) D CONSERVATION OF ORGANIC MATERIALS. Principles and elementary techniques for conserving organic ethnological and archaeological materials. Recommended for students intending to work with cultural materials. Open to Major and Honours students; other students by permission of the instructor.

ANTH 452 (3) CONSERVATION OF INORGANIC MATERIALS. Principles and elementary techniques for conserving inorganic ethnological and archaeological materials. Recommended for students intending to work with cultural materials. Open to Major and Honours students; other students by permission of the instructor.

ANTH 461 (3) ANTHROPOLOGICAL STUDY OF LOCAL ECOLOGICAL KNOWLEDGE. Analysis of the concepts of ecological anthropology via the medium of local ecological knowledge. ANTH 360 is recommended as background.

ANTH 462 (3) SPECIAL TOPICS IN ECOLOGICAL ANTHROPOLOGY. May include environmental discourse and social movements, anthropological contributions to ecological management systems, or examination of emerging issues in the field. ANTH 360 is recommended as background.

ANTH 470 (3/6) D TOPICS IN CONTEMPORARY THEORY. Selected topics in contemporary social and cultural theory which contribute to anthropological analyses. Topics may include Marxist anthropology, critical theory, theories of culture, phenomenology, behavioural ecology, structuralism, hermeneutics, formal theory and examination of specific social theorists.

ANTH 471 (3) ANTHROPOLOGY OF LAW. Cross-cultural study of the operation of law within contested systems of meaning, the social organization of law, and forms of consciousness of the participants in legal/justice practices.

ANTH 495 (3/6) D ADVANCED STUDIES IN ANTHROPOLOGY. An intensive examination of selected topics in Anthropology. Consult the Department for this year's offerings.

ANTH 500 (6) HISTORY OF ANTHROPOLOGICAL THOUGHT. This course will consider various approaches to anthropology, from classical to contemporary.

ANTH 501 (2-6) D SOCIAL STRUCTURE AND KINSHIP.

ANTH 502 (2-18) D ADVANCED ETHNOGRAPHY OF A SPECIAL AREA.

ANTH 505 (2-6) D RELIGION AND SOCIETY.

ANTH 506 (3/6) D CURRENT RESEARCH IN ANTHROPOLOGY. The relationship between current theoretical issues and research methods.

ANTH 510 (3-6) C COMPARATIVE AND DEVELOPMENTAL STUDIES IN ARCHAEOLOGY.

ANTH 512 (2-6) D LANGUAGE AND CULTURE.

ANTH 513 (3-6) D ADVANCED STUDIES IN FEMINIST ANTHROPOLOGY. Feminist approaches to ethnography, theory, methodology; current issues in feminist anthropology; gender relations; feminist anthropology and postmodernism.

ANTH 515 (2-6) D CULTURAL EVOLUTION AND CULTURAL ECOLOGY.

ANTH 516 (3) QUALITATIVE METHODS IN ANTHROPOLOGY. A discussion of selected methods used to observe, describe, and interpret cultural phenomena and social organization. The course will consider such techniques as participant observation, interviewing, ethnographic semantics, life histories, componential analysis and photography. Attention will also be given to ethics in anthropological research and writing and to such analytic matters as the nature of description, conceptualization, generalization and content analysis.

ANTH 517 (3) ARCHAEOLOGICAL METHODS. A discussion of selected basic data-gathering methods in their relation to the development of ideas about the archaeological record.

ANTH 518 (3) MUSEUM METHODS. Analytical approaches to the study of museums and collections. Methods of field collecting, collections research, laboratory procedures, visitor studies, social organization of museum and related cultural industries, exhibit and program evaluation techniques and the ethics of museum research and practice. Prerequisite: ANTH 431. Permission of the instructor is also acceptable.

ANTH 519 (3/6) D SEMINAR IN MEDICAL ANTHROPOLOGY.

ANTH 520 (2-6) C ADVANCED PREHISTORY OF A SPECIAL AREA.

ANTH 527 (3) ADVANCED ARCHAEOLOGICAL METHODS. An intensive review of analytical approaches to the study of archaeological data and their applications. Includes research design; sampling strategies; analytical lab procedures; classification and typology; and multivariate analysis and other statistical procedures. Prerequisite: ANTH 517.

ANTH 528 (3) ADVANCED QUANTITATIVE METHODS. The purpose of this course is to introduce students to the anthropological application of a variety of quantitative techniques. Specifically there will be sections on sampling designs, analysis of variance and regression, multi-way contingency tables, and multivariate analysis. Topics will be presented initially in a series of lectures which will outline the logic and exhibit applications which have been made. Students will then be expected to

generate their own application and presentation. Access to data files specific to the substantive field—cultural anthropology, archaeology, physical anthropology—will be provided. Prerequisite: ANTH 418.

ANTH 530 (2-6) D SOCIAL CHANGE.

ANTH 532 (2-6) D FIELD METHODS.

ANTH 534 (2-6) D SPECIAL ADVANCED COURSES.

ANTH 540 (2-6) D ADVANCED SEMINAR.

ANTH 541 (2-6) D ADVANCED SEMINAR AND WORKSHOP ON MUSEUM STUDIES. Prerequisite: ANTH 431.

ANTH 545 (2-6) D GRADUATE RESEARCH SEMINAR.

ANTH 548 (0) MAJOR ESSAY.

ANTH 549 (6/12) C MASTER'S THESIS.

ANTH 551 (3/6) D CULTURAL STUDIES IN COMMUNICATION AND INTERPRETATION. History, theories, principles and techniques of communication and interpretation of cultural materials. Topics include examination of how various media (script, objects, film, video) are used to interpret histories, society, and culture in museums, art galleries, historic sites and related areas; and how communication programs are planned, implemented and assessed. Prerequisite: ANTH 431. Permission of the instructor is also acceptable.

ANTH 649 (0) PH.D. THESIS.

APSC — APPLIED SCIENCE FACULTY OF APPLIED SCIENCE

APSC 110 (3) CO-OPERATIVE WORK PLACEMENT. Supervised, technical work experience in an established company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program.

APSC 121 (1) SOCIETY AND THE ENGINEER. The course deals with the social and cultural context within which engineering is practiced. Specific topics may vary from year to year but typically include engineering ethics, professionalism, employment equity, multi-culturalism, gender, First Nations and environmental issues. [1-0-0]

APSC 122 (0) INTRODUCTION TO ENGINEERING. Non-credit course designed to introduce students to Engineering. Information on the Faculty, the profession and the particular skills and type of work done by practising engineers in different disciplines. [1-0-0]

APSC 150 (5) ENGINEERING CASE STUDIES. Application of scientific principles and technical knowledge to practical problems. Introduction to the engineering design process and to engineering graphics. [3-4-0]

APSC 151 (3) COMPUTER-AIDED ENGINEERING GRAPHICS. Orthographic projection, technical sketching, development of the ability to visualize in three dimensions.

Standards and conventions of engineering drawing, graphical presentation of engineering data. Micro-computer based graphics aids. Engineering geometry and the solution of space problems. [1-0-4]

APSC 160 (3) INTRODUCTION TO COMPUTATION IN ENGINEERING DESIGN. Analysis and simulation, laboratory data acquisition and processing, measurement interfaces, engineering tools, computer systems organization, programming languages. [2-2-1]

APSC 201 (3) TECHNICAL COMMUNICATION. Written and oral communication in engineering. Report preparation, business correspondence and oral presentation of technical material. Prerequisite: One of ENGL 110, ENGL 111, ENGL 112, ENGL 120, ENGL 121. [3-0-0]

APSC 210 (3) CO-OPERATIVE WORK PLACEMENT. Supervised, technical work experience in an established company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program.

APSC 211 (3) CO-OPERATIVE WORK PLACEMENT. Supervised, technical work experience in an approved company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and Co-operative Education Program.

APSC 212 (3) CO-OPERATIVE WORK PLACEMENT. Supervised, technical work experience in an approved company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and Co-operative Education Program.

APSC 230 (6) INTRODUCTION TO ENGINEERING DESIGN. Introduction to engineering design methods, problem solving, working individually and in teams, and methods of communication of results. Engineering design projects will be assigned. Restricted to students in the second year of the Integrated Engineering program. [1-4-0;1-4-0]

APSC 261 (3) TECHNOLOGY AND SOCIETY I. The course deals with the influence of technology on the social, political, economic, and environmental aspects of society. The specific subject matter varies from year to year. Examples of subjects considered include, resources, energy, nuclear power, technology, the effects of technology on the family, education, agriculture, international policy and others. [2-0-1]

APSC 262 (3) TECHNOLOGY AND SOCIETY II. The course deals with the influence of technology on the social, political, economic and environmental aspects of society. The subject matter varies from year to year and differs from APSC 261. It may be taken as a continuation of APSC 261 or taken independently. Examples of subjects considered include pollution, work place health hazards, social impact of computers, problem solving, green

revolution, technology and the third world, engineering ethics and others. [2-0-1]

APSC 278 (3) ENGINEERING MATERIALS.

Atomic bonding; crystal structures and imperfections; properties of metals, ceramics, polymers, wood, concrete and fibre composite materials; selection of materials; corrosion; mechanical testing and heat treatment. [3-0-0]

APSC 279 (1) ENGINEERING MATERIALS LABORATORY.

Atomic bonding; crystal structures and imperfections; properties of metals, ceramics, polymers, wood, concrete and fibre composite materials; selection of materials; corrosion; mechanical testing and heat treatment. Prerequisite: APSC 278. Corequisite: APSC 278 may be taken. [0-2*-0]

APSC 310 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised, technical work experience in an established company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program.

APSC 311 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised, technical work experience in an approved company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and Co-operative Education Program.

APSC 312 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised, technical work experience in an approved company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and Co-operative Education Program.

APSC 330 (6) INTERMEDIATE ENGINEERING DESIGN.

Intermediate level engineering design projects involving material in the curriculum of the Integrated Engineering program. Prerequisite: Third-year standing in the Integrated Engineering program. [1-4; 1-4]

APSC 331 (3) INTERMEDIATE ENGINEERING DESIGN I.

Intermediate level engineering design project involving material in the curriculum of the Integrated Engineering program. For students in the Co-operative Education Program. [1-4-0]

APSC 332 (3) INTERMEDIATE ENGINEERING DESIGN II.

Intermediate level engineering design project involving material in the curriculum of the Integrated Engineering program. For students in the Co-operative Education Program. [1-4-0]

APSC 380 (3) INTRODUCTION TO MICROCOMPUTERS.

An introductory course intended for potential users of microcomputers in real time or non-computational engineering applications. Topics include: perspective on applications and costs; basic microcomputer hardware; principles of microcomputer operation; introduction to microcomputer programming and software design tools; input-output devices including transducers, analog-to-digital converters, digital-to-analog converters; input-output methods and interface charac-

teristics; selected case studies such as direct digital controllers and sensor-based systems. Limited enrolment. Restricted to engineering students not taking Electrical or Computer Engineering. [2-3*-2*]

APSC 410 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised, technical work experience in an established company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and the Co-operative Education Program.

APSC 411 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised, technical work experience in an approved company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and Co-operative Education.

APSC 412 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised, technical work experience in an approved company or organization for a minimum of three months. Technical report. Restricted to students meeting the requirements of the Faculty of Applied Science and Co-operative Education Programs.

APSC 430 (6) ADVANCED ENGINEERING DESIGN PROJECTS.

Projects involving all material in the curriculum of the Integrated Engineering Program. Students will be expected to propose a project and complete the design and construction of a prototype. Restricted to students in the fourth year of the Integrated Engineering program. [1-4-0; 1-4-0]

APSC 440 (3) MANAGEMENT FUNDAMENTALS FOR TECHNOLOGY-BASED PRODUCT MARKETING AND DEVELOPMENT.

Management topics are presented from the perspective of technology-based industrial practice; project management, marketing and marketing planning, product development and commercialization, introduction to quality management, teamwork and effective individual participation. Prerequisite: Fourth-year standing in Engineering. [3-0-0]

APSC 450 (2) PROFESSIONAL ENGINEERING PRACTICE.

Legislation affecting the practice of engineering; ethical principles and responsibilities. Management of engineering enterprises; labour relations, safety and environmental legislation. Restricted to engineering undergraduate students in the final year of their program. [2-0-0]

APSC 459 (5) ENGINEERING PHYSICS PROJECT I.

Project planning, management and reporting. This course involves writing a project proposal, carrying out an open-ended Engineering project, and reporting the results both orally and in writing. Prerequisite: PHYS 352. [1-3-0; 0-6-1]

APSC 479 (4) ENGINEERING PHYSICS PROJECT II.

Projects designed to give students research development and design experience. Projects are provided by research faculty in Science and Engineering and from local industry. Prerequisite: APSC 459. [0-5-1; 0-2-1*]

APSC 480 (3) ENGINEERING PHYSICS PROJECTS III.

An optional course for those students wishing to continue their project work beyond the development in APSC 479. Prerequisite: APSC 479. [0-5-1]

APSC 486 (6) NEW VENTURE DESIGN.

Teams comprising students in APSC 486 and COMM 486 create a business plan and a prototype or engineering solution of a novel product, process, or process component. [1-4-0; 1-4-0]

APSC 496 (1-9) D INTERDISCIPLINARY ENGINEERING DESIGN PROJECT.

Projects involving students from several departments.

APSC 498 (1-6) D DIRECTED STUDIES.

Requires approval of a Department Head or Program Director.

APSC 510 (4) ADVANCED TECHNOLOGY INTERNSHIP.

Work in a technological setting on commercial and managerial aspects of an industrial project. A required internship to be taken at the end of the first year of the M.Eng. (Advanced Technology Management) program.

APSC 511 (2) ADVANCED TECHNOLOGY MANAGEMENT COLLOQUIUM.

Student reports on internship, guest speakers from industry, preparation of group projects, joint study of industrial reports. Required of students enrolled in the M.Eng. (Advanced Technology Management) program.

APSC 512 (3) INTELLECTUAL PROPERTY MANAGEMENT AND TECHNOLOGY COMMERCIALIZATION.

Nature of knowledge and intellectual property. Value creation through knowledge and competitive advantage of knowledge. Copyrights, patents, trademarks, and licenses. Negotiation of deals and contracts involving knowledge and technology transfer or commercialization. Market assessments and valuations.

APSC 530 (6) PRINCIPLES OF DESIGN OF BIOMEDICAL DEVICES.

Concepts, design, and manufacturing methods applied to biomedical devices. A supervised long-term project involving the design of a medical device for specific diagnostic or therapeutic function, and an engineering report, are required.

APSC 536 (3) FUNDAMENTALS OF INJURY BIOMECHANICS.

Introduction to injury mechanics. Anatomy. Impact experiments. Multi-body dynamic simulation and finite element analysis. Skull, face, brain, spine, eye, pelvis, abdomen, and extremity injury. Anthropomorphic test devices, seat belts, airbags, child restraints, and helmets. Credit cannot be obtained for both MECH436 and MECH536. [3-0-1]

APSC 540 (3) BUSINESS DECISIONS FOR ENGINEERING VENTURES.

Issues and case studies in creating and running engineering ventures and projects, with a particular emphasis on strategic planning, engineering economics, finance and risk.

APSC 541 (3) TECHNOLOGY ENTREPRENEURSHIP FOR ENGINEERS.

A broad introduction to the entrepreneurial process, for engineers who would like to form or grow a technology company, and those with

a general interest in the field. Key factors of new venture creation are identified and evaluated.

APSC 550 (3) BIOMEDICAL MEASUREMENTS AND BIOMATERIALS. Biocompatible materials for measurement and therapeutic purposes. Principles and technology of measuring temperature, displacement, motion, force, pressure, flow, ions, dissolved gases and bio-electric potentials in living organisms. [3-3*-0]

APSC 552 (1) BIOMEDICAL ENGINEERING SEMINAR. Presentation and discussion of current topics in biomedical engineering research and development. A required course for all graduate students in Biomedical Engineering. [0-0-1; 0-0-1]

APSC 554 (6) DIRECTED STUDIES IN BIOMEDICAL ENGINEERING. Project report on a research or design topic of specialization.

APSC 556 (3) CLINICAL AND INDUSTRIAL BIOMEDICAL ENGINEERING. Principles of professional engineering practice, the Canadian healthcare system, medical approach to diagnosis, principles and management of common medical devices, ethics and regulations for clinical trials, codes and regulations of medical devices, applications of biomedical engineering.

APSC 574 (3) MATERIALS FOR CLEAN ENERGY TECHNOLOGIES. Introduction to operation of gas turbines and fuel cells. Diffusion and migration of solids. Fundamental basis of ionic, electronic, and mixed conductivity in fuel cell materials. Thermal barrier coatings for gas turbines. Material constraints in wind turbines. Credit cannot be obtained for both MECH474 and MECH574.

APSC 598 (1-6) D TOPICS IN ENGINEERING.

APSC 599 (12) M.A. SC. THESIS.

APSC 699 (0) PH.D. THESIS.

ARBC — ARABIC STUDIES FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnrs.ubc.ca.

ARBC 300 (6) INTRODUCTION TO THE GRAMMAR AND VOCABULARY OF CLASSIC ARABIC. Open to first- and second-year students with the permission of the instructor.

ARBC 400 (6) INTERMEDIATE CLASSICAL ARABIC. Second year of Classical Arabic with extensive reading of poetry and prose drawn from religious and historical texts. Prerequisite: ARBC 300.

ARBC 420 (3-12) D SUPERVISED STUDY IN CLASSICAL ARABIC. Religious and literary Arabic texts pertaining to the early and medieval Islamic world. Prerequisite: ARBC 400.

ARCH — ARCHITECTURE SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

ARCH 403 (3) THEMES IN ARCHITECTURE AND DESIGN. Introduction to a broad range of significant themes which inform our understanding of architecture and design. Open only to B.EnD. students. Credit will be given for only one of ARCH 403, or ARCH 503.

ARCH 404 (3) ARCHITECTURAL HISTORY 1A. Origins of contemporary architectural thought. A survey of theories, technological and social changes which have influenced architecture and related fields since the 18th century. Open only to B.EnD. students. Credit will be given for only one of ARCH 404, or ARCH 504.

ARCH 405 (3) ARCHITECTURAL HISTORY 1B. Developments in modern and contemporary architectural thought. Critical analysis of the contribution of the 20th century producers of architecture, engineering, and industrial design. Open only to B.EnD. students. Credit will be given for only one of ARCH 405 or ARCH 505.

ARCH 407 (3) RESEARCH METHODS. Motivations and techniques which underpin environmental design research.

ARCH 410 (3) DESIGN METHODS. Techniques for environmental design, including architecture.

ARCH 411 (3) BUILDING TECHNOLOGY 1. An investigation of building materials and systems considering design objectives, environmental conditions, historical context, regulatory controls, and economic constraints. Emphasis on materials as used in light wood-frame Construction and building science for enclosure design. Open only to B.EnD. students. Credit will be given for only one of ARCH 411, or ARCH 511.

ARCH 437 (3) GEOMETRIC MODELING. Advanced modeling, rendering and image processing applications; the construction of geometric models, their viewing transformations, light and material attributes, mapping, rendering and animation are introduced. Open only to B.EnD. students. Credit will be given for only one of ARCH 437, ARCH 537.

ARCH 500 (9) ARCHITECTURAL DESIGN 1A. Elements of architectural design. A series of projects studied at different scales focusing on conceptual development, design synthesis, principles of typology, organization and representation. Prerequisite: ARCH 502.

ARCH 501 (9) ARCHITECTURAL DESIGN 1B. Vertical design studio. Prerequisite: ARCH 500.

ARCH 502 (2) INTRODUCTORY WORKSHOP. The engagement of environmental and architectural concerns of the West Coast through field trips, design exercises and seminars. Conducted the week prior to Labour Day. Enrolment mandatory for all incoming students. A non-refundable fee will be charged to cover expenses.

ARCH 503 (3) THEMES IN ARCHITECTURE AND DESIGN. Introduction to a broad range of significant themes which inform our

understanding of architecture and design. Corequisite: ARCH 500.

ARCH 504 (3) ARCHITECTURAL HISTORY 1A. Origins of contemporary architectural thought. A survey of the theories, technological and social changes which have influenced architecture and related fields since the 18th century.

ARCH 505 (3) ARCHITECTURAL HISTORY 1B. Debates in modern and contemporary architectural thought, including critical analysis of the contribution of the 20th century producers of architecture, engineering, and industrial design.

ARCH 511 (3) ARCHITECTURAL TECHNOLOGY 1. An investigation of building materials and systems considering design objectives, environmental conditions, historical context, regulatory controls, and economic constraints. Emphasis on materials as used in light wood-frame construction and building science for enclosure design.

ARCH 512 (3) ARCHITECTURE STRUCTURES I. Introduction to the “structural problem” through investigation of the inter-relationships between force, geometry and material and their effects on structural elements.

ARCH 513 (3) ENVIRONMENTAL SYSTEMS AND CONTROLS 1. Building form and fabric considerations to assure appropriate thermal, luminous, sonic, and atmospheric conditions within buildings.

ARCH 515 (3) DESIGN MEDIA 1. Instruction in the foundations of digital and manual design media and representation techniques including sketching, diagramming, architectural drawing and modeling. [2-1-1]

ARCH 517 (3) DESIGN MEDIA 2. Instruction in intermediate skills of digital and manual representation techniques including sketching, diagramming, architectural drawing and modeling. Prerequisite: ARCH 515.

ARCH 520 (9) ARCHITECTURAL DESIGN 2A. Vertical design studio. Prerequisite: ARCH 501.

ARCH 521 (9) ARCHITECTURAL DESIGN 2B. Comprehensive building studio. A term-long building design project that uses an integrated design process to relate conceptual exploration to detailed design and technical development. Prerequisite: ARCH 520.

ARCH 522 (3) CURRENT ISSUES IN ARCHITECTURE. A seminar examining current issues in Architecture, based on reading assignments, papers and presentations. Enrolment is limited to facilitate discussion.

ARCH 523 (3) CONTEMPORARY THEORIES IN ARCHITECTURE. An advanced lecture and discussion course exploring a range of current theoretical investigations as manifest in specific built work and relating to historical developments and intellectual elaboration. Prerequisite: All of ARCH 504, ARCH 505.

ARCH 524 (3) HISTORY OF URBAN FORM. A survey of the physical forms of cities and their relationship to the cultures with which they are

associated. Open to students outside the School.

ARCH 525 (3) WORKSHOP: HISTORY OF URBAN PLANNING. Exploration of 19th and 20th century theories of planning and urban form. The workshop format will allow students to experiment with these ideas in model form. The relevance of these theories and ideas to the form of modern cities will be evaluated. Open to students outside the School. See also School of Community and Regional Planning courses.

ARCH 526 (3) HISTORY OF THEORIES OF ARCHITECTURE. An advanced seminar in architectural history concentrating on detailed study of the literature on selected architectural theories which have had an effect on twentieth century architectural form.

ARCH 529 (3) INTRODUCTION TO FACILITIES PROGRAMMING. Examination of the pre-design process employed to clarify project objectives, define client/user requirements, test alternative organizations, generate space-planning schemata, involve users in the development of design parameters and critical environmental and technical performance criteria. Prerequisite: ARCH 541.

ARCH 530 (3) URBAN DESIGN WORKSHOP. A survey of the techniques involved in the process of architectural analysis and design at the urban scale.

ARCH 531 (3) ARCHITECTURAL TECHNOLOGY 2. An investigation of more complex building technologies in a variety of climatic conditions; selection of appropriate materials and systems in the context of realistic performance requirements. Emphasis given to design considerations and experience in detailing the building envelope. Prerequisite: ARCH 511.

ARCH 532 (3) ARCHITECTURAL STRUCTURES 2. The development of competence in the design of wood frame structures for general loading such as are found in residential construction. Quantitative investigation and comparison of wood, steel and concrete elements and structural systems with emphasis on horizontally spanning elements. Qualitative study of other structural elements such as walls, columns, foundations, etc. Introduction to earthquakes and lateral force for resisting systems. Prerequisite: ARCH 512.

ARCH 533 (3) ENVIRONMENTAL SYSTEMS AND CONTROLS 2. Mechanical and electrical services of buildings and their integration with architectural form and fabric. Prerequisite: ARCH 513.

ARCH 537 (3) COMPUTER APPLICATIONS 2. Individual investigation and development of computer applications to selected topics in architectural practice. Prerequisite: ARCH 517. Permission of the instructor is also acceptable.

ARCH 538 (3-9) D STUDY OF ARCHITECTURE ABROAD. More than one section may be taken concurrently.

ARCH 539 (9) ARCHITECTURAL DESIGN ABROAD. This program is offered alternate years. Prerequisite: All of ARCH 500, ARCH 501. Corequisite: ARCH 538.

ARCH 540 (9) ARCHITECTURAL DESIGN 3A. Vertical design studio. Prerequisite: ARCH 521 and successful completion of fourth term review.

ARCH 541 (3) PROCESS AND PRACTICE OF ARCHITECTURE I. An overview of the complex processes by which architecture is realized and the professional role of the architect within them. Prerequisite: ARCH 521.

ARCH 543 (3) CONTEMPORARY PRACTICE. Individual case studies of a range of current professional topics based on students' prior design work. Successful completion of fourth term review prerequisite. Prerequisite: ARCH 521. [0-3-0]

ARCH 544 (3/6) D ARCHITECTURAL SEMINAR. An explanation of selected topics in architecture. Enrolment is limited to facilitate discussion.

ARCH 545 (3/6) D DIRECTED STUDIES. An exploration of selected topics in Architecture. Available to individual students with the agreement of a member of the faculty available to supervise the work.

ARCH 548 (3) GRADUATION DESIGN PROJECT – PART 1: PROJECT REPORT. An in-depth exploration of a social, urban or environmental problem leading to the definition of parameters for an architectural design solution brought to resolution in the form of a major report as preparation for ARCH 549. Prerequisite: Completion of all second-year courses.

ARCH 549 (9) GRADUATION DESIGN PROJECT – PART 2. The development and resolution of the design project set out in Part 1. Prerequisite: ARCH 548 and no more than 18 credits outstanding beyond ARCH529.

ARCH 555 (3) CO-OP WORK PLACEMENT 1. Approved and supervised work experience for a minimum of 4 months. Technical report required. Restricted to students admitted to the Architecture Co-op Education Program.

ARCH 556 (3) CO-OP WORK PLACEMENT 2. Approved and supervised work experience for a minimum of 4 months. Technical report required. Restricted to students admitted to the Architecture Co-op Education Program. Prerequisite: ARCH 555.

ARCH 561 (3) TOPICS IN ARCHITECTURAL HISTORY AND THEORY. Prerequisite: All of ARCH 504, ARCH 505. [0-3-0]

ARCH 562 (3) ADVANCED THEORY. Relationship between environmental issues and issues of 'place'. How environmental issues are seen as both a responsibility, and as a powerful vehicle for redefining a sense of place. Prerequisite: ARCH 513.

ARCH 568 (3) RESEARCH METHODOLOGY IN ARCHITECTURE. Contemporary concerns and issues associated with research in architecture. Required of all MASA students. [0-3-0]

ARCH 571 (3) ADVANCED SEMINAR ON BUILDING TECHNOLOGY. Historical development of building enclosure, new materials and construction methods, design-construction process, failure evaluation, and current research issues. Prerequisite: All of ARCH 511, ARCH 531.

ARCH 572 (3) ADVANCED STRUCTURES. Explorations of historical structures, structure in current architectural theory, advanced structural technologies, and behaviour of specific structural materials and systems. Prerequisite: ARCH 512.

ARCH 573 (3-12) D ADVANCED TOPICS IN ENVIRONMENTAL STUDIES. Lectures, seminars and laboratories as appropriate in investigation of specialized environmental topics concerning theory and practice of architecture. Prerequisite: ARCH 513.

ARCH 577 (3) SEMINAR IN ADVANCED COMPUTER APPLICATIONS.

ARCH 580 (0) ARCHITECTURE SEMINAR. A forum for the exchange of ideas and presentation of papers by faculty, students and visitors.

ARCH 597 (3/6) D SPECIAL TOPICS. Individual or small group study of special topics.

ARCH 598 (12) THESIS FOR THE M.A.S.A.

ARST — ARCHIVAL STUDIES SCHOOL OF LIBRARY, ARCHIVAL & INFORMATION STUDIES

ARST 510 (3) ARCHIVAL DIPLOMATICS.

ARST 515 (3) ARRANGEMENT AND DESCRIPTION OF ARCHIVES.

ARST 516 (3) MANAGEMENT OF CURRENT RECORDS.

ARST 517 (3) RECORD KEEPING.

ARST 520 (3) SELECTION AND ACQUISITION OF ARCHIVAL DOCUMENTS.

ARST 530 (3) THE JURIDICAL CONTEXT OF CANADIAN ARCHIVES.

ARST 540 (3) ARCHIVAL PUBLIC SERVICES.

ARST 554 (3) DATABASE DESIGN.

ARST 556 (3-12) D TOPICS IN ARCHIVAL AUTOMATION.

ARST 570 (3) MANAGEMENT OF LIBRARIES AND ARCHIVES. Equivalency: LIBR 570.

ARST 573 (3) ARCHIVAL SYSTEMS AND THE PROFESSION.

ARST 575 (3-12) D TOPICS IN THE MANAGEMENT OF RECORDS.

ARST 587 (3) PRESERVATION. Equivalency: LIBR 587.

ARST 591 (3) ARCHIVAL RESEARCH AND SCHOLARSHIP.

ARST 592 (3-6) C DIRECTED RESEARCH PROJECT. Prerequisite: ARST 590.

ARST 593 (3/12) D SEMINAR.

ARST 594 (3-6) C DIRECTED STUDY.

ARST 595 (3) INTERNSHIP.

ARST 596 (3) PROFESSIONAL EXPERIENCE. Project based experience undertaken with a faculty associate occupying a minimum of ten hours a week for 12 consecutive weeks or the equivalent time. Evaluation: Pass/Fail. Prerequisite: 24 credits in the program are required.

ARST 599 (6/12) D THESIS.

ARST 600 (6) ADVANCED SEMINAR IN RESEARCH METHODS.

ARST 610 (6) THEORETICAL AND RESEARCH FOUNDATIONS OF ARCHIVAL STUDIES.

ARST 620 (6) ADVANCED STUDY IN MINOR AREA.

ARST 621 (6) ADVANCED STUDY IN MINOR AREA.

ARST 699 (0) THESIS.

ARTE — ART EDUCATION FACULTY OF EDUCATION

ARTE 300 (3) TEACHING AND LEARNING ART ACROSS THE CURRICULUM: ELEMENTARY. [3-0-0]

ARTE 303 (6) CERAMICS IN ART EDUCATION. Exploration of ceramic techniques, including hand building and basic throwing. Prerequisite: 6 credits of Introductory Art Studio or Art History courses. [1-3-0; 1-3-0]

ARTE 305 (6) DESIGN IN ART EDUCATION. Exploration of design, particularly in relation to textiles. Prerequisite: 6 credits of Introductory Art Studio or Art History courses. [1-3-0; 1-3-0]

ARTE 314 (4/5) D CURRICULUM AND INSTRUCTION IN ART: SECONDARY. Pass/Fail. Prerequisite: A concentration in Art or permission of the head.

ARTE 320 (2) CURRICULUM AND INSTRUCTION IN ART: ELEMENTARY. Curriculum organization in art; principles and methods of instruction applied to teaching art. Pass/Fail. [1-2]

ARTE 400 (2-6) D STUDIES IN AN ART EDUCATION STUDIO AREA. Directed studies in an area relevant to teaching in an elementary or secondary school. Pass/Fail.

ARTE 401 (3) TWO-DIMENSIONAL CONTENT FOR THE ART CLASSROOM. Study of two dimensional materials and processes for the art classroom with emphasis on drawing and painting. Pass/Fail.

ARTE 402 (3) GRAPHICS FOR THE ART CLASSROOM. Study of printmaking processes for the art classroom. Pass/Fail.

ARTE 403 (3) THREE-DIMENSIONAL CONTENT FOR THE ART CLASSROOM. Study of three dimensional materials and processes for the art classroom with emphasis on ceramics and sculpture. Pass/Fail.

ARTE 404 (3) DESIGN CONTENT FOR THE ART CLASSROOM. Study of design considerations in various art media for the art classroom with an emphasis on textiles. Pass/Fail.

ARTE 405 (3) COMPUTER STUDIES FOR ART EDUCATION. Use of computer technology in teaching and learning of digital imagery and technology in the art classroom. Pass/Fail.

ARTE 406 (3) PHOTOGRAPHIC PRACTICES FOR THE CLASSROOM. Photographic and related image making techniques for the art classroom. Pass/Fail. [1-2-0]

ARTE 425 (3) EXPLORATIONS IN THE TEACHING OF ART TO CHILDREN: ELEMENTARY. Laboratory-based course involving work with children. Pass/Fail. [1-3-0]

ARTE 426 (3) ART, EDUCATION AND CULTURAL DIVERSITY. Implications of cultural diversity for teaching of art in elementary and secondary schools. Pass/Fail. [3-0]

ARTE 441 (3) ART EDUCATION THEORY AND RESEARCH. Art Education theory and research is studied relative to school practice. Pass/Fail. Prerequisite: Art Education as a major or minor and completion of a practicum in Art Education. [3-0]

ARTE 508 (3-12) C REVIEW OF RESEARCH IN ART EDUCATION METHODS. Studies of recent research bearing on art education practice.

ARTE 541 (3) PERSPECTIVES, PRACTICE, AND CURRICULUM ISSUES IN CONTEMPORARY ART EDUCATION. Emphasis is placed upon the foundations and conflicting conceptions of curriculum in art education. Theory/practice issues in the development, implementation, and evaluation of art programs are explored.

ARTE 542 (3) HISTORICAL AND SOCIAL FOUNDATIONS OF ART EDUCATION. Histories of art education are examined. Social and cultural implications for art education (past and present) are explored.

ARTE 543 (3) PSYCHOLOGICAL FOUNDATIONS OF ART EDUCATION. Psychological considerations specifically related to cognitive development in art, are explored. Implications for art education theory and practice are drawn.

ARTE 561 (3-12) C C STUDIO PRACTICUM.

ARTE 565 (3/6) D SPECIAL TOPICS IN ART EDUCATION.

ARTE 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and reporting of a problem.

ARTE 590 (3) GRADUATING PAPER. Pass/Fail.

ARTE 598 (3-12) C FIELD EXPERIENCES. For those in master's, doctoral and diploma programs.

ARTE 599 (6/12) C MASTER'S THESIS.

ARTE 601 (3-12) D DOCTORAL SEMINAR. Pass/Fail.

ARTH — ART HISTORY FACULTY OF ARTS

Not every course is given every year. For details of current offerings, consult the departmental website at www.finearts.ubc.ca. Students wishing to take fourth-year seminars should

normally have had a closely related third-year course and are advised to check with the instructor in this regard. Credit will be given to either the current ARTH listing or its former FINA equivalent.

ARTH 100 (6) INTRODUCTION TO ART HISTORY. The forms, concepts, issues, and language of analysis for the understanding of art in context.

ARTH 225 (3) ART IN EUROPE TO THE SIXTEENTH CENTURY. A selective survey of painting, sculpture, and architecture. Credit will not be granted for both ARTH 125 and ARTH 225 and/or 226.

ARTH 226 (3) ART IN EUROPE AND NORTH AMERICA FROM THE SIXTEENTH CENTURY TO THE PRESENT. A selective survey of painting, sculpture, and architecture. Credit will not be granted for both ARTH 125 and ARTH 225 and/or 226.

ARTH 251 (3) ASPECTS OF ASIAN ART. The arts, excluding architecture, of the civilizations of India, China, and Japan.

ARTH 253 (3) ASPECTS OF ASIAN ARCHITECTURE. Select built forms in Asia, such as temples, tombs, palaces, cities and gardens, and their relations to cultural, social and political systems.

ARTH 261 (3) PRE-HISPANIC ARTS OF CENTRAL AND SOUTH AMERICA. The relevance of various arts to social institutions in ancient societies of Peru and Mesoamerica.

ARTH 262 (3) NATIVE ARTS OF NORTH AMERICA. Men's and women's arts produced by Aboriginal Peoples of North America from pre-contact times to the present.

ARTH 300 (3) SEMINAR ON METHODS AND APPROACHES IN ART HISTORY. Theories, problems, and literature in the study of art history. Required of all Major and Honours students in art history.

ARTH 325 (3) THE ART AND ARCHAEOLOGY OF ANCIENT EGYPT. Equivalency: NEST 304.

ARTH 327 (6) ARCHAEOLOGY OF THE ANCIENT NEAR EAST. Equivalency: NEST 302, FINA 327.

ARTH 329 (6) GREEK AND ROMAN ART. Emphasis on the architecture, sculpture, painting, and decorative arts of Greece and Rome. Equivalency: CLST 330.

ARTH 330 (3) ART AND THE CHRISTIAN TRANSFORMATION OF THE ROMAN EMPIRE. Visual culture and the rise of Christianity; social, political and religious contexts of art, including diverse viewing practices and cultural frameworks.

ARTH 331 (3) ART IN THE EARLY MEDIEVAL WEST. From pagan adornment to Christian devotion to service of Christian or Islamic rule (AD 500-1000).

ARTH 332 (3) MEDIEVAL ART IN THE AGE OF MONASTICISM. Art in Western Europe between 1000 and 1200; the role of monasteries as leading institutions and patrons of art and large scale architecture.

ARTH 333 (3) ART, CHURCH, SOCIETY AND THEIR MARGINS IN THE LATER MIDDLE AGES. Diversification of the arts and architecture with the expansion of patronage in late medieval society.

ARTH 334 (3) ITALIAN RENAISSANCE ART AND CULTURE (1400–1500). Changing roles of visual art and culture within commune, court, religious practices and private life.

ARTH 335 (3) ITALIAN RENAISSANCE ART AND CULTURE (1500–1600). Visual Art and culture within social, political and religious upheaval and fragmentation.

ARTH 336 (3) ITALIAN ART AND CULTURE (1600–1700). Rome as centre of Counter Reformation art, architecture, urban culture and new sites for visual images.

ARTH 337 (3) EUROPEAN ART AND CULTURE (1600–1700). Visual art and culture within court and official life, commerce-oriented urban centres and emergent nation states.

ARTH 338 (3) VISUAL CULTURE IN THE AGE OF ENLIGHTENMENT AND REVOLUTION (1715–1830). Art, architecture, and social space in Europe and America redefining gender, identity and nation in the era of industrialization and political change.

ARTH 339 (3) 19TH-CENTURY ART AND SOCIAL SPACE. Ideologies of gender, class, race, ethnicity, and economics in 19th-century European and American visual culture.

ARTH 340 (3) 20TH CENTURY ART AND CULTURE: THE TRIUMPH AND DEMISE OF MODERNISM. A critical survey of western art and cultural production from the turn of the century to the development of Pop Art.

ARTH 341 (3) 20TH CENTURY ART AND CULTURE: THE POSTMODERN. A critical examination of international visual art and culture from the 1950s to the present; the role of art in consumerist society and the emergence of postmodernism.

ARTH 342 (3) LATIN AMERICAN ARTMODERN AND CONTEMPORARY. Analyses of specific works and texts will emphasize visual inventions and meaning in the light of recent theoretical debates

ARTH 343 (3) ART AND PHOTOGRAPHY IN CANADA TO 1920. Art, artists, and art institutions from the establishment of the French and English colonies to the founding of the Group of Seven: issues of race, wilderness, and colonial expansion.

ARTH 344 (3) ART AND PHOTOGRAPHY IN CANADA, 1920 TO THE PRESENT. Art movements and art institutions from the landscape paintings of the Group of Seven to the photo-conceptualist practices of the Vancouver school.

ARTH 346 (3) ARCHITECTURE IN EUROPE: BUILDING THE FABRIC OF THE MODERN STATE (1715–1837). The role of architecture within the development of the modern state, A survey of broad cultural dynamics, particular building projects and design careers.

ARTH 347 (3) ARCHITECTURE IN EUROPE: MODERN PARADIGMS OF DESIGN (1837–PRESENT). An examination of new requirements imposed on architecture by the consolidation of a capitalist economy, industrialization, new technologies and scientific methods.

ARTH 348 (3) ARCHITECTURE IN NORTH AMERICA: COLONIAL PROJECTS AND DISRUPTIONS (1605–1867). The role of architecture in the imposition of European governance within North America; the modification of received conventions in relation to topographical, ethnic-religious and political factors.

ARTH 349 (3) ARCHITECTURE IN NORTH AMERICA: INDEPENDENT DESIGN IDIOMS (1867–PRESENT). The emergence of a distinctive architecture that superceded British and European agendas; the growth of private and public patronage and the establishment of modern design and practice.

ARTH 351 (3/6) D ISLAMIC ART AND ARCHAEOLOGY. A study of the artifacts of Islam as an expression of Islamic beliefs. Corequisite: RELG 341

ARTH 352 (3) HISTORIC INDIA: IMAGES, TEMPLES AND THE CONSTRUCTION OF INDIAN ART HISTORY. North and South Indian art and architecture with an emphasis on Buddhism and Hinduism.

ARTH 353 (3) NEPAL AND TIBET: ART, RITUAL AND PERFORMANCE. Art of the Himalayan region situated within social and religious practices, festivals, and performances.

ARTH 354 (3) MUGHAL INDIA: ART, ARCHITECTURE AND THE SPECTACLE OF EMPIRE. The complex relationship of Mughal imperial architecture and painting with those of the Hindu Rajput courts.

ARTH 355 (3) ARTISTIC AND CULTURAL PRACTICES IN COLONIAL AND INDEPENDENT INDIA. The development of a new Indian art during the colonial period and nationalist movement; the construction of India's contemporary visual culture.

ARTH 358 (3) THE MAKING OF EARLY CHINA: FROM ARCHAEOLOGY TO HISTORY. Close reading of visual and textual materials will elucidate chinese are and culture prior to 300 CE, as well as question the objectivity of historical reconstructions.

ARTH 359 (3) THE PURSUIT OF REALISM: FIGURATIVE PAINTING BEFORE 1400 IN CHINA. Examines the making of realistic representations that describe society, cultural practice and family relationships in China between 3000 BCE and 1400 CE.

ARTH 360 (3) THE RISE OF LITERATI PAINTING IN CHINA: 1100–1700. Chinese literati art and theory will be analyzed through careful study of relationships between visual and textual productions.

ARTH 361 (3) MODERN AND POST-MODERN ART IN CHINA. An investigation of China's varied resistance to and pursuits of modernity and post-modernity through examination of Chinese art from the 18th to 21st centuries.

ARTH 364 (3) BUDDHIST ART OF JAPAN: 6TH–12TH CENTURIES. Exoteric and esoteric Buddhist art traditions in the ancient capitals of Japan and East Asia.

ARTH 365 (3) BUDDHIST ART OF JAPAN: 13TH–16TH CENTURIES. Pure Land and Zen Buddhist art traditions in the ancient capitals of Japan and East Asia.

ARTH 366 (3) JAPANESE PAINTING TRADITIONS: 7TH–15TH CENTURIES. The development of earlier Japanese painting with a focus on landscape and narrative handscroll paintings.

ARTH 367 (3) JAPANESE PAINTING TRADITIONS: 16TH–19TH CENTURIES. Genre painting of the Momoyama and Edo periods including screens, woodblock prints and other media.

ARTH 370 (3) ARTS OF MEXICO'S EARLY PEOPLES. Pre-Aztec monumental and portable arts of the Olmec, Zapotec, Teotihuacan and Classic Veracruz peoples.

ARTH 371 (3) ARTS OF THE AZTEC PERIOD IN MEXICO. Symbolic meanings and political agendas of Aztec architecture, sculpture and manuscript illustration investigated using Spanish accounts.

ARTH 372 (3) MAYA PUBLIC RITUAL ARTS. Architecture, sculpture, costume, and visual productions associated with Maya public ritual, including the ancient ball game and modern cofradia dances.

ARTH 373 (3) MAYA OBJECTS OF IDENTITY, WEALTH AND STATUS. Elaborate visual productions, including architecture, sculpture, murals, jewelry, painted ceramics, figurines, and textiles, encompassed by Maya residences, ancient to modern.

ARTH 376 (3) ARTS OF THE NORTHWEST COAST PEOPLES: THE NORTH. The histories, historiography and cultural diversity of the Northern Northwest Coast region; persistence and innovation in the arts in communities, and in cross-cultural and market spheres.

ARTH 377 (3) ARTS OF THE NORTHWEST COAST PEOPLES: THE SOUTH. The histories, historiography and cultural diversity of the Southern Northwest Coast region; persistence and innovation in the arts in communities, and in cross-cultural and market spheres.

ARTH 397 (3/6) D DIRECTED STUDY ABROAD (SUMMER SCHOOL).

ARTH 429 (3/6) D STUDIES IN THE ART AND ARCHEOLOGY OF GREECE AND ROME. Equivalency: CLST 429.

ARTH 432 (3) SEMINAR IN THE ART OF THE MIDDLE AGES. Equivalency: ARTH 431, ARTH 433.

ARTH 436 (3) SEMINAR IN EARLY MODERN ART. Equivalency: ARTH 435, ARTH 437.

ARTH 439 (3) SEMINAR IN 18TH & 19TH-CENTURY VISUAL CULTURE. Equivalency: ARTH 438.

ARTH 440 (3/6) D SEMINAR IN MODERN AND CONTEMPORARY ART.

ARTH 442 (3) SEMINAR IN CONTEMPORARY LATIN AMERICAN ART.

ARTH 443 (3) SEMINAR IN CANADIAN ART.

ARTH 445 (3) FILM AND THE CITY. The complex interrelations between film and the city; dominant urban theories, film technologies and viewing practices and the intersections between them.

ARTH 448 (3) SEMINAR IN NORTH AMERICAN ARCHITECTURE.

ARTH 455 (3) SEMINAR IN THE ART OF INDIA AND SOUTHEAST ASIA. Equivalency: ARTH 457, ARTH 458.

ARTH 458 (3) SEMINAR IN CHINESE ART. Equivalency: ARTH 451, ARTH 452.

ARTH 459 (3) SEMINAR IN CHINESE ART. Equivalency: ARTH 451, ARTH 452.

ARTH 464 (3) SEMINAR IN JAPANESE ART. Equivalency: ARTH 453, ARTH 454.

ARTH 471 (3) SEMINAR IN PRE-HISPANIC ART. Equivalency: ARTH 463, ARTH 465.

ARTH 476 (3) SEMINAR IN NORTH AMERICAN ABORIGINAL ART. Equivalency: ARTH 469.

ARTH 499 (6) HONOURS ESSAY.

ARTH 531 (3/6) D STUDIES IN EARLY MEDIEVAL ART.

ARTH 533 (3/6) D STUDIES IN MEDIEVAL ART.

ARTH 535 (3/6) D STUDIES IN THE ART OF THE RENAISSANCE.

ARTH 537 (3/6) D STUDIES IN 17TH- AND 18TH-CENTURY ART.

ARTH 539 (3/6) D STUDIES IN 19TH-CENTURY ART.

ARTH 540 (3/6) D STUDIES IN 20TH CENTURY ART.

ARTH 543 (3/6) D STUDIES IN CANADIAN ART.

ARTH 548 (3/6) D STUDIES IN ARCHITECTURE.

ARTH 551 (3/6) D STUDIES IN CHINESE ART.

ARTH 553 (3/6) D STUDIES IN JAPANESE ART.

ARTH 555 (3/6) D STUDIES IN SOUTH AND SOUTHEAST ASIAN ART.

ARTH 561 (3/6) D STUDIES IN THE INDIGENOUS ARTS OF THE AMERICAS.

ARTH 571 (6) THE METHODOLOGY OF ART HISTORY. Required of all art history graduate students.

ARTH 577 (3/6) C DIRECTED READING.

ARTH 599 (6) MASTER'S THESIS.

ARTH 649 (0) PH.D. THESIS.

ARTS — ARTS ONE PROGRAM FACULTY OF ARTS

ARTS 1 (18) ARTS ONE.

ASIA — ASIAN STUDIES FACULTY OF ARTS

ASIA 100 (3) INTRODUCTION TO TRADITIONAL ASIA. A survey of the histories and cultures of Asia before 1600 and the coming of the Europeans. Emphasis will be given to parallel themes in the development of the civilizations of South, Southeast and East Asia.

ASIA 101 (3) INTRODUCTION TO MODERN ASIA. A survey of the emergence of modern Asia. Aims at an understanding of how the various peoples of Asia have maintained distinctive cultural identities despite centuries of political, economic, social and cultural change.

ASIA 200 (3) CULTURAL FOUNDATIONS OF EAST ASIA. A comparative survey of the beliefs, assumptions and values which have shaped the civilizations of East Asia in both traditional and modern times. Prerequisite: All of ASIA 100, ASIA 101.

ASIA 208 (3) CULTURAL FOUNDATIONS OF SOUTH ASIA. A survey of South Asian cultures, including language and literature, art, religion, polity and society, as they developed in the past and have been transformed in the modern period. Prerequisite: All of ASIA 100, ASIA 101.

ASIA 209 (3) CULTURAL FOUNDATIONS OF SOUTHEAST ASIA. A comparative survey of the different cultures found in the communities of Southeast Asia. Focus will be on language and literature, arts, religion, society and polity, ideologies and belief systems in the past as well as in modern times. Prerequisite: All of ASIA 100, ASIA 101.

ASIA 270 (6) MODERN CHINA AND THE WEST. Equivalency: HIST 270.

ASIA 300 (3) WRITING AND CULTURE IN EAST ASIA. Practical, aesthetic, historical, technological and political issues pertaining to the use of Chinese characters – hanzi (Chinese), kanji (Japanese), or hancha (Korean) – throughout the region. Prerequisite: One of first-year Chinese, Japanese, or Korean.

ASIA 308 (3) MYTHOLOGICAL LITERATURE OF ANCIENT INDIA IN TRANSLATION. Myths of creation Gods and goddesses of the Vedic pantheon. Connections with myths in other parts of the world, particularly in the Indo-European tradition. Literary representations of the myths.

ASIA 309 (3) SOUTH ASIAN BEYOND SOUTH ASIA. A history of South Asian peoples and communities that emigrated overseas, including Indo-Canadians.

ASIA 310 (3/6) D STUDIES IN THE HISTORY OF A MAJOR ASIAN CIVILIZATION. Study of an Asian culture area different from those covered in existing courses. Not given every year. Consult Department for details.

ASIA 314 (3) PREMODERN JAPAN. Japanese history (political, economic, social and cultural) to 1600.

ASIA 315 (3) JAPAN FROM FEUDAL TO MODERN STATE. Japanese history from 1600 to the Meiji Restoration. Political, economic, social and cultural forces which were involved in transforming Japan.

ASIA 317 (3) THE RISE OF KOREAN CIVILIZATION. The evolution of a distinctive Korean civilization within the East Asian cultural sphere. Primary focus on cultural, social and political development from the earliest times to the sixteenth century.

ASIA 318 (3) PREMODERN INDIA. A survey of the history and culture of India from the earliest historic period to 1200 and the coming of Islam, with emphasis on the evolution of classical Hindu civilization.

ASIA 319 (3) HISTORY OF INDONESIAN CIVILIZATION. Survey of the archipelago from the 10th century to the present. Social organization, major religions, economic and political developments from the pre-modern period, through Dutch colonial rule to independence.

ASIA 320 (3) HISTORY OF EARLY CHINA. History of China from the earliest times to the disintegration of the Tang empire. Students will acquire the analytical skills and tools to understand the origins and foundations of Chinese society. Equivalency: HIST 382 Equivalency: HIST 382.

ASIA 328 (3) MEDIEVAL INDIA. The history, culture, and social and economic organization of South Asia from the decline of the classical Hindu empires through the Sultanate period.

ASIA 329 (3) GENDER IN SOUTHEAST ASIA. A critical examination of what it means to be a woman or a man within the social and cultural context of Southeast Asia. What “masculinity” and “femininity” signify in Indonesia’s society; how these concepts are reaffirmed or challenged.

ASIA 337 (3) THE KOREAN PEOPLE IN MODERN TIMES (1600 TO THE PRESENT). The transformation of Korea from a Confucian state into an industrial nation. The rise of nationalism and modern ideologies in Korea. Cultural, social and economic changes Korea has undergone as it has entered the modern world.

ASIA 338 (3) MODERN INDIA. The history of India from the coming of the Europeans to the rise of the nationalist movement with emphasis on the social and economic impact of British imperialism.

ASIA 339 (3) THE CONSTRUCTION OF SOUTH ASIAN COMMUNITIES IN THE DIASPORA. An examination of contemporary South Asian communities in the diaspora. Topics of particular importance are family life, religious life, notions of space, communal memory, literary and visual representation. Prerequisite: ASIA 309.

ASIA 340 (3) HISTORY OF LATER IMPERIAL CHINA. History of China from the end of Tang to the eve of its modern transformation. Students will acquire the analytical skills and tools to understand the political, socio-economic, and cultural changes in imperial

China. Equivalency: HIST 381. Equivalency: HIST 381.

ASIA 341 (3) CLASSICAL CHINESE LITERATURE IN TRANSLATION. Poetry, historical and philosophic prose writings and the earliest genres of fiction in classical Chinese (ca 1100 BC–ca 750 AD).

ASIA 342 (3) CHINESE LITERATURE IN TRANSLATION: THE VERNACULAR TRADITION. Readings in drama and fiction, 800 to 1800 AD. The emergence of vernacular genres as distinct from and sometimes opposed to the existing classical genres.

ASIA 344 (3) TOPICS IN JAPANESE CULTURAL HISTORY I: ARISTOCRATS AND WARRIORS. Focuses each year on a specific topic related to the courtly or warrior culture of Japan.

ASIA 346 (3) TOPICS IN JAPANESE CULTURAL HISTORY II: THE EARLY MODERN AGE. Focuses each year on a specific topic related to the culture of early modern Japan.

ASIA 347 (3) TRADITIONAL KOREAN LITERATURE IN TRANSLATION. An introduction to Korean literature from ancient times to 1900.

ASIA 348 (3) GREAT LITERARY WORKS OF CLASSICAL INDIA IN TRANSLATION. Major Sanskrit and Prakrit literary genres as developed in the Brahmanical, Buddhist and Jaina traditions, including folktales of riddle, intrigue, etc. Ramayana, Mahabharata. Polished poems of the urbane. Plays. Learned novels and long poems.

ASIA 349 (3) SOUTHEAST ASIAN LITERATURE IN TRANSLATION. Literary works from the Malay/Indonesian-speaking world (Indonesia, Malaysia, Singapore) and some from other regions (mainland Southeast Asia, the Philippines). All readings in English translation.

ASIA 350 (3) ASIAN LITERATURE IN TRANSLATION: A COMPARATIVE APPROACH. A comparative approach to the literatures of East, South and Southeast Asia focusing on a specific theme. Required for majors in Chinese, Japanese and South Asian languages.

ASIA 351 (3) MODERN CHINESE FICTION IN TRANSLATION. Reading of selected novels and stories written between 1750 and the present.

ASIA 352 (3) TOPICS IN TRADITIONAL CHINESE VERNACULAR LITERATURE. Traditional Chinese culture as seen through reading and discussion of exemplary literary works in the vernacular language.

ASIA 354 (3) INTRODUCTION TO JAPANESE CINEMA. Students will be introduced to the work of the major directors (e.g., Ozu, Mizoguchi, Kurosawa, Itami, Oshima, Shinoda). Ideological uses of literary texts and period pieces (e.g., Ugetsu, Life of Oharu, Double Suicide). Impact of depiction of Japanese in American film.

ASIA 355 (3) CHINESE CINEMA. Introduction to the work of major directors.

ASIA 357 (3) MODERN KOREAN FICTION IN TRANSLATION. Selected novels and stories written between 1906 and the present.

ASIA 358 (3) LITERATURE OF MEDIEVAL INDIA IN TRANSLATION. Devotional, mystic, and erotic poetry of medieval Hinduism, Islam, and Sikhism.

ASIA 359 (3) GENDER RELATIONS IN SOUTHEAST ASIAN LITERATURE. Gender relations as portrayed in writings in English translation by women and men from the Malay/Indonesian-speaking world, mainland Southeast Asia, and the Philippines.

ASIA 360 (3) A SPECIFIC ASIAN LITERATURE IN TRANSLATION. Introduction to the literature of a linguistic area of Asia not covered in existing courses. Not given every year. Consult the Department for details.

ASIA 364 (3) MODERN JAPANESE LITERATURE IN TRANSLATION. An introduction to the literature and cultural history of modern Japan, with readings drawn from various literary genres, from 1868 to the present.

ASIA 367 (3) CONTEMPORARY KOREAN CULTURE. An introduction to the literature, drama, music, and art of Korea today. Particular attention will be paid to the continuing influence of traditional themes and forms.

ASIA 368 (3) MODERN LITERATURES OF SOUTH ASIA IN TRANSLATION. Fiction, drama, and poetry of modern India, Pakistan, Bangladesh, and Sri Lanka, including works in English translation and originally written in English.

ASIA 371 (3) FOUNDATIONS OF CHINESE THOUGHT. Chinese thought from its beginnings until the Han dynasty (206 BCE to 220 CE) in its historical and cultural contexts. Includes, among others: Confucius; Mo Zi; the Legalists/Authoritarians; Zhuang Zi; the Lao Zi book.

ASIA 372 (3) DEVELOPMENT OF TRADITIONAL CHINESE THOUGHT. Chinese thought from the Han dynasty (206 BCE to 220 CE) to Wang Yangming (1472–1529) in its historical and cultural contexts. Prerequisite: ASIA 371.

ASIA 377 (3) HISTORY OF KOREAN THOUGHT. An examination of Korean religious, philosophical, and scientific thought from the earliest written records to the present day, with particular focus on the interaction of Shamanism, Buddhism, Confucianism, and, in the present century, Christianity.

ASIA 378 (3) PHILOSOPHICAL WISDOM OF EARLY INDIA. Epistemological and ontological thought from the Vedic period to the period of the rise of philosophical schools or systems. Philosophy in the Mahabharata, Gita; early Buddhist and Jain views on knowledge and reality; views on language. Equivalency: PHIL 378.

ASIA 379 (6) THE SIKHS: HISTORY, RELIGION AND SOCIETY. A historical study of the social and cultural forces that helped shape Sikh religious beliefs and ritual practices over the past four centuries. In dealing with the evolution of Sikh identity, due attention will be given to Sikh ideals, social organization, religious institutions and sacred literature. Equivalency: HIST 389.

ASIA 380 (6) MODERN CHINESE HISTORY SINCE 1840. Equivalency: HIST 380.

ASIA 381 (3) DAOIST (TAOIST) RELIGION AND ITS PHILOSOPHICAL BACKGROUND. A study of the Daoist religious traditions from their beginnings in the second century CE in their cultural, intellectual and social contexts. Equivalency: RELG 365.

ASIA 382 (3) BUDDHISM IN CHINA. Buddhism in China History, thought and practices of Chinese Buddhism from its beginnings until the twentieth century. Equivalency: RELG 366.

ASIA 383 (3) COMMON RELIGIOUS TRADITIONS IN CHINA. A study of the religious practices and beliefs shared by the great majority of people in traditional Chinese culture, including ancestor worship, seasonal festivals, offerings to deities, exorcism of harmful forces.

ASIA 387 (3) JAPANESE RELIGIONS. An introduction to traditional Japanese religions including Shinto, Buddhism, Shugendo, Confucianism, new religions and folklore, and their roles in Japanese history, culture and society.

ASIA 388 (3) BUDDHIST, BRAHMANICAL AND JAIN PHILOSOPHERS IN INTERACTION. Debates on issues of epistemology, language and ontology among the philosophical schools or systems of classical India Nagarjuna, Bhartrhari, Uma-svati, Sankara and others. Equivalency: PHIL 388.

ASIA 398 (3) CLASSICAL HINDU, BUDDHIST AND JAIN MYTHS AND LEGENDS IN TRANSLATION. Stories of gods, goddesses and religious heroes from the Ramayana, Mahabharata, Puranas, Avadanas and in classical poetry and drama.

ASIA 400 (3) CHINESE CHARACTERS: SCRIPT, LANGUAGES, AND CIVILIZATIONS. Advanced study of the structure of the Chinese characters in their graphic, phonetic, and semantic aspects. Prerequisite: ASIA 300 and one of CHIN 200, JAPN 200, KORN 300.

ASIA 410 (3) INTERNATIONAL RELATIONS IN PREMODERN EAST ASIA. International relations, particularly between Korea and Japan in the premodern East Asian context, focusing on migration, trade, diplomacy, war, collective memory, mutual perceptions, and the context of the Sinocentric international order.

ASIA 411 (3) CHINESE POLITICAL THOUGHT AND INSTITUTIONS. Chinese theories and practices of government and administration from earliest times to 1949.

ASIA 418 (3) SOCIAL HISTORY OF INDIA. Fundamental institutions including family, caste and religious organizations, with emphasis on the early modern and British periods.

ASIA 422 (6) MODERN JAPANESE HISTORY SINCE 1800. Equivalency: HIST 422.

ASIA 428 (3) MUGHAL INDIA. History of the politics, economy, society, and culture of South Asia from the Great Mughals to the British conquest.

ASIA 430 (3) INTERNATIONAL RELATIONS IN MODERN EAST ASIA: KOREA AND JAPAN. Trade, diplomacy, war, imperialism, militarism, colonialism, collective memory, mutual perceptions Korean-Japanese relations are examined as an exemplary case for exploring the dimensions of international conflict and partnership.

ASIA 434 (6) HISTORY OF SOUTHEAST ASIA SINCE 1800. Equivalency: HIST 434.

ASIA 438 (3) TWENTIETH CENTURY SOUTH ASIA.

ASIA 440 (6) CULTURE AND SOCIETY IN LATE IMPERIAL CHINA. An in-depth examination of how beliefs and practices were created and transmitted in imperial China from 1500 to 1800. Equivalency: HIST 465.

ASIA 444 (3) TOPICS IN MODERN JAPANESE FICTION AND CULTURAL HISTORY. Focuses on a limited time period or particular aspect of modern Japanese literature. Prerequisite: ASIA 364. Graduate level standing is also acceptable.

ASIA 447 (3) KOREAN WOMEN'S LITERATURE. Women's voices and issues in the Korean literary tradition, from earliest times to the new millennium, in translation. Prerequisite: One of ASIA 347, ASIA 357. Permission of instructor is also acceptable.

ASIA 457 (3) THE MODERN KOREAN NOVEL. Survey of major single-volume novels, ranging from Yi Kwang-su's *Heartlessness* to Ch'oe Yun's *There a Petal Silently Falls*, in translation. Prerequisite: ASIA 357. Permission of instructor is also acceptable.

ASIA 460 (3) MODERN ASIAN WOMEN IN NARRATIVE. Experience of women in the context of a particular Asian culture, as seen through literature, popular culture, film and folklore. Narrative as a medium for the representation and constitution of gender.

ASIA 464 (3) JAPANESE WOMEN'S SELF-WRITING. Selected aspects of the more than 1000 years of self-writing (diary, autobiography, personal fiction). Theory and criticism about the use of writing as a medium of self-expression.

ASIA 480 (6) ECONOMIC AND SOCIAL HISTORY OF MODERN CHINA TO 1940. Equivalency: HIST 480.

ASIA 488 (3) RELIGION, SOCIETY AND STATE IN MODERN INDIA. History of secular and religious discourse in post-independent India. Partition, state policy of secularism, religious mobilization among Hindus and Muslims, communal violence and religious radicalism.

ASIA 501 (3/6) D RESEARCH METHODS AND SOURCE MATERIALS IN CLASSICAL CHINESE STUDIES.

ASIA 502 (3/6) D MODERN CHINESE FICTION AND WESTERN CRITICISM. Same as Comparative Literature 506A.

ASIA 503 (3/6) D PROBLEMS IN THE HISTORY OF THE CHINESE LANGUAGE.

ASIA 504 (3-18) D TEXTS IN ANCIENT CHINESE SCRIPTS.

ASIA 508 (3-18) D TOPICS IN PRE-MODERN CHINESE HISTORY AND INSTITUTIONS.

ASIA 509 (3-18) D ASPECTS OF CHINESE POPULAR THOUGHT AND RELIGION.

ASIA 511 (3-18) D READINGS IN CHINESE RELIGIOUS TEXTS. Selected readings from primary texts in Confucianism, Taoism and Buddhism, and popular religion. Prerequisite: CHIN 301. Equivalency: RELG 511.

ASIA 512 (3-18) D ADVANCED READINGS IN CLASSICAL CHINESE. Prerequisite: CHIN 400.

ASIA 513 (3/6) D TOPICS IN CLASSICAL CHINESE LITERATURE.

ASIA 514 (3-18) D TOPICS IN MODERN CHINESE LITERATURE.

ASIA 515 (3-18) D TOPICS IN EARLY VERNACULAR MODERN CHINESE LITERATURE.

ASIA 521 (3/6) D RESEARCH METHODS AND SOURCE MATERIALS IN JAPANESE STUDIES.

ASIA 522 (3/6) D READINGS IN KAMBUN KUNDOKU. Prerequisite: JAPN 312.

ASIA 523 (3-18) D TOPICS IN THE HISTORY AND STRUCTURE OF THE JAPANESE LANGUAGE.

ASIA 525 (3-18) D TOPICS IN THE SOCIAL HISTORY OF JAPANESE RELIGIONS.

ASIA 528 (3-18) D PROBLEMS OF JAPANESE INTELLECTUAL HISTORY.

ASIA 532 (3-18) D TOPICS IN TRADITIONAL JAPANESE LITERATURE.

ASIA 533 (3-18) D TOPICS IN MODERN JAPANESE LITERATURE.

ASIA 541 (3-18) D RESEARCH METHODS AND SOURCE MATERIALS IN SOUTH ASIAN STUDIES.

ASIA 543 (3-18) D TOPICS IN THE HISTORY AND STRUCTURE OF INDIAN LANGUAGES.

ASIA 546 (3-18) D TOPICS IN SOUTH ASIAN LITERATURE.

ASIA 550 (3-18) D TOPICS IN EARLY SOUTH ASIAN CIVILIZATIONS.

ASIA 561 (3-18) D PROBLEMS OF MODERNIZATION IN EASTERN AND SOUTHERN ASIA.

ASIA 570 (3/6) D APPROACHES TO ASIAN LITERATURE.

ASIA 580 (3/6) C DIRECTED READINGS.

ASIA 581 (3-18) D RESEARCH METHODS AND SOURCE MATERIALS IN KOREAN STUDIES.

ASIA 582 (3/6) D HISTORY AND STRUCTURE OF THE KOREAN LANGUAGE. Prerequisite: LING 300.

ASIA 583 (3-12) D TOPICS IN MODERN KOREAN LITERATURE.

ASIA 584 (3-12) D TOPICS IN TRADITIONAL KOREAN LITERATURE.

ASIA 599 (6/12) C MASTER'S THESIS.

ASIA 699 (0) PH.D. THESIS. In Chinese, Japanese, or South Asian Studies only.

ASLA — ASIAN LANGUAGES FACULTY OF ARTS

ASLA 300 (6) STUDIES IN AN ASIAN LANGUAGE (BASIC COURSE). Introduction to the fundamentals of an Asian language not normally taught in the Department. Not given every year. Consult the Department for details.

ASLA 400 (6) STUDIES IN AN ASIAN LANGUAGE (INTERMEDIATE COURSE). Prerequisite: ASLA 300. Permission of the instructor is also acceptable.

ASTR — ASTRONOMY FACULTY OF SCIENCE

See also Physics.

ASTR 101 (3) INTRODUCTION TO THE SOLAR SYSTEM. General principles of the celestial sphere, laws of motion and light, optics, and telescopes; current knowledge of the Sun and Solar System. Astronomy 201/202 rather than ASTR 101/102 are recommended for students who intend to pursue studies in Astronomy. Prerequisite: All of PHYS 11, MATH 12. [3-2*-0]

ASTR 102 (3) INTRODUCTION TO STARS AND GALAXIES. Modern stellar and extragalactic astronomy. Stars and stellar evolution from protostars to black holes; galaxies and quasars; cosmology. Astronomy 201/202 rather than 101/102 are recommended for students who intend to pursue studies in Astronomy. Prerequisite: All of PHYS 11, MATH 12. [3-2*-0]

ASTR 201 (3) STELLAR ASTROPHYSICS. Observed characteristics of stars, radiation and stellar spectra, the interior structure of stars, nuclear reactions and stellar evolution, white dwarfs, neutron stars and black holes. Prerequisite: One of PHYS 101, PHYS 107, PHYS 153, SCIE 001. [3-0-0]

ASTR 202 (3) GALACTIC ASTRONOMY. Basic properties of the Milky Way Galaxy, kinematics of stars, star clusters and stellar evolution, stellar populations and the formation of the Galaxy, rotation and mass of the Galaxy, the Local Group of Galaxies. Prerequisite: One of PHYS 101, PHYS 107, PHYS 153, SCIE 001. ASTR 201 is recommended. [3-0-0]

ASTR 303 (3) EXTRAGALACTIC

ASTRONOMY. Properties of normal galaxies, elements of stellar dynamics; galactic evolution, active galaxies and quasars. Prerequisite: One of PHYS 206, PHYS 216. ASTR 102 or ASTR 202 is recommended. [3-0-0]

ASTR 304 (3) RESEARCH TOPICS IN

ASTRONOMY. This course will develop the background and present the current status of a selected topic in modern astronomy. The topic will reflect the research interests of the instructor(s) and the students will be presented with problems related to this research. Prerequisite: Permission of the department head is required. [3-0-0]

ASTR 310 (3) EXPLORING THE UNIVERSE I: THE SOLAR SYSTEM.

A survey of recent discoveries about the planets and other objects in the solar system, without the use of advanced mathematics. The Sun, the existence of planetary systems around other stars, and the search for life. Not open to first year students and not for credit in the Faculties of Science and Applied Science. [3-0-1*]

ASTR 311 (3) EXPLORING THE UNIVERSE II: STARS AND GALAXIES.

A survey of recent discoveries in modern astronomy without the use of advanced mathematics. Stars, pulsars, black holes, galaxies, quasars and the origin and evolution of the Universe. Not open to first year students and not for credit in the Faculties of Science and Applied Science. [3-0-1*]

ASTR 402 (3) FUNDAMENTALS OF

ASTROPHYSICS. The interaction of radiation with matter (radiative transfer, bremsstrahlung, synchrotron radiation, Compton scattering), atomic/molecular physics, astrophysical hydrodynamics; supernova remnants, masers, pulsars, gamma-ray bursts and accretion flows. Prerequisite: All of PHYS 203, PHYS 301. [3-0-0]

ASTR 403 (3) COSMOLOGY. Introduction to the study of the Universe as a whole. Foundations of the Hot Big Bang model, the early Universe, nucleosynthesis, the cosmic microwave background, large-scale structure, galaxy formation and quasars. Prerequisite: PHYS 200. ASTR 303 is recommended. [3-0-0]

ASTR 404 (3) ASTRONOMICAL AND ASTROPHYSICAL MEASUREMENTS.

Astronomical instrumentation and techniques for ground and space-based observations. Theory of measurement, imaging, interferometry and spectroscopy of electromagnetic radiation at optical, radio, infrared, and X-ray wavelengths. Astronomical data analysis. Prerequisite: PHYS 308 and one of PHYS 312, MATH 316. [3-0-0]

ASTR 405 (3) ASTRONOMICAL

LABORATORY. Experiments in the use of astronomical instrumentation and data analysis. Use of the 40-cm reflector, spectrograph and electronic detectors. Photometric and spectroscopic analysis of digital data. Prerequisite: ASTR 404. [0-0-3]

ASTR 449 (2-6) C DIRECTED RESEARCH IN

ASTRONOMY. The student will investigate a research problem under the direction of a staff

member. If elected for 6 credits, a thesis will be required.

ASTR 500 (3) PRINCIPLES OF MODERN

ASTRONOMY. An introduction to the physical processes occurring in the stars, the interstellar medium, and in our own and other galaxies (fourth-year Honours students in the Physics and Astronomy Department may elect this course with special permission of the Department Head).

ASTR 502 (3) ASTRONOMICAL DYNAMICS.

ASTR 503 (2-6) C OBSERVATIONAL ASTRONOMY. Critical discussion of modern ground-based and satellite borne instrumentation for astronomical observations in all spectral regions. Description of measuring engines and reduction techniques.

ASTR 504 (2-6) C STELLAR ASTRONOMY.

The study of the structure of stellar interiors and stellar atmospheres and the physical processes occurring in them; the interpretation of stellar spectra: nucleosynthesis, and related problems.

ASTR 505 (2-6) C GALACTIC ASTRONOMY.

The study of the structure, content and evolution of our own and other galaxies, including the study of the physical processes occurring in the interstellar medium and galactic nuclei.

ASTR 506 (2/3) D HIGH-ENERGY

ASTROPHYSICS.

ASTR 507 (2/3) D PLANETARY SCIENCES.**ASTR 520 (3) ASTRONOMY/ASTROPHYSICS RESEARCH SEMINAR.****ASTR 530 (2-6) C DIRECTED STUDIES IN ASTRONOMY.****ASTR 534 (2-6) C STUDIES IN STELLAR STRUCTURE.****ASTR 535 (2-6) C STUDIES IN STELLAR ATMOSPHERES.****ASTR 536 (2-6) C STUDIES OF THE INTERSTELLAR MEDIUM.****ASTR 537 (2-6) C STUDIES IN EXTRA GALACTIC ASTRONOMY.****ASTR 538 (2-6) C STUDIES IN COSMOLOGY.****ASTR 549 (12) M.SC. THESIS.****ASTR 649 (0) PH.D. THESIS.****ASTU — ARTS STUDIES FACULTY OF ARTS**

ASTU 201 (3) CANADA, JAPAN AND THE PACIFIC: CULTURAL STUDIES. An interdisciplinary introduction to the cultures of Canada and Japan, and the interrelations between them. Specific topics vary from year to year but will include themes such as constructing the past; nationalism; self-perceptions; cross-cultural perceptions; multiculturalism in Canada and Japan; images in architecture, film and literature; mythologies.

ASTU 202 (3) CANADA, JAPAN AND THE PACIFIC: POLITICAL, ECONOMIC AND GEOGRAPHICAL PERSPECTIVES. An interdisciplinary introduction to political, economic and geographical interactions between Japan and Canada, the links between these countries and other Pacific Rim nations, and the historical origins of these connections. Specific topics will vary from year to year, but will include themes such as economic integration in the Pacific region; the role of resource economies such as Canada's; security relations in the Pacific; the role of Japanese investment in the Asia-Pacific region. Equivalency: GEOG 281.

ASTU 310 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised work experience with a public or private organization for a minimum of 13 weeks full-time. Orientation workshops. Final work term report required. Restricted to students in the Arts Co-operative Education Program. Prerequisite: 6 credits first-year English or Arts I; 6 credits of science; 6 credits of literature; satisfaction of Faculty language requirement.

ASTU 311 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised work experience with a public or private organization for a minimum of 13 weeks full-time. Final work term report required. Prerequisite: ASTU 310.

ASTU 400 (3-6) D INTERDISCIPLINARY STUDIES IN ARTS. For upper-division students in the Faculty of Arts. Topics announced annually.

ASTU 401 (3-6) D SPECIAL TOPICS IN ARTS STUDIES. For upper-division students in the Faculty of Arts offered by a distinguished visitor to the campus for one or two terms.

ASTU 410 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised work experience with a public or private organization for a minimum of 13 weeks full-time. Final work term report. Prerequisite: ASTU 311.

ASTU 411 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised work experience with a public or private organization for a minimum of 13 weeks full-time. Final work term report. Prerequisite: ASTU 410.

ASTU 412 (3) CO-OPERATIVE WORK PLACEMENT V. Optional extra work placement. Approved and supervised work experience with a public or private organization for a minimum of 13 weeks full-time. Final work term report. Prerequisite: ASTU 411.

ASTU 501 (3) CO-OPERATIVE WORK PLACEMENT 1. Approved and supervised paid work experience with a public or private organization for a minimum of 13 weeks full-time. Final written report required. Restricted to Master's degree students in departments with approved co-op programs.

ASTU 502 (3) CO-OPERATIVE WORK PLACEMENT 2. Prerequisite: ASTU 501.

ASTU 503 (3) CO-OPERATIVE WORK PLACEMENT 3. Prerequisite: ASTU 502.

ATSC — ATMOSPHERIC SCIENCE
FACULTY OF SCIENCE

ATSC 201 (3) METEOROLOGY OF STORMS. Characteristics and physical processes of thunderstorms, tornadoes, lightning, hail, hurricanes, blizzards, cyclones and other storms. Prerequisite: Completion of first-year science. [3-0-0]

ATSC 301 (3) ATMOSPHERIC RADIATION AND REMOTE SENSING. Energy transfer at infrared, visible, and microwave wavelengths, measurements of atmosphere and surface from satellite. Application of techniques from linear algebra and physics to atmospheric problems. Prerequisite: One of PHYS 102, PHYS 108, PHYS 122 and one of MATH 221, MATH 223 and familiarity with a programming language. [3-0-0]

ATSC 303 (3) METHODS IN ATMOSPHERIC SCIENCE. An introduction to instrumentation used in monitoring the state of the atmosphere; a brief survey of methods of analysis of meteorological data. Prerequisite: One of EOSC 211, CPSC 111 and one of ATSC 201, GEOG 200. [2-2-0]

ATSC 398 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in the Winter Session (Term 2) in third year. Technical report required. Restricted to students admitted to Co-operative Education Program in Atmospheric Science. Prerequisite: All of ATSC 201, GEOG 300.

ATSC 399 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in the Summer Session (Terms 1 and 2) following third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Atmospheric Science. Prerequisite: ATSC 398.

ATSC 404 (3) DYNAMIC METEOROLOGY. Dynamic principles governing atmospheric motions on a rotating planet. Simplified mathematical models of atmospheric flow based on scale analysis. Application to synoptic-scale and general circulation of the troposphere. Prerequisite: One of PHYS 312, MATH 316 and one of EOSC 250, MATH 217, MATH 317. [3-0-0]

ATSC 405 (3) CLOUD PHYSICS AND CHEMISTRY. Cloud thermodynamics, chemistry and microphysics. Computer modelling of droplet growth, convection, and mixing. Application of differential equations to atmospheric problems. Prerequisite: All of PHYS 313, MATH 215. Familiarity with a programming language is required. [3-0-0]

ATSC 406 (3) OPERATIONAL METEOROLOGY. Introduction to meteorological prediction, meteorological data analysis, prognosis of weather systems, motion and development, satellite imagery, Doppler radar, numerical weather prediction, extended range

forecasting, applied laboratory exercises. Prerequisite: ATSC 201. Corequisite: GEOG 304. [2-2-0]

ATSC 409 (3) NUMERICAL TECHNIQUES FOR OCEAN, ATMOSPHERE AND EARTH SCIENTISTS. Web-based introduction to the practical numerical solution of ordinary and partial differential equations including considerations of stability and accuracy. Credit will not be granted for both ATSC 409 and ATSC 506/EOSC 511. Prerequisite: One of MATH 316, PHYS 312. Familiarity with a programming language is required [0-0-3]

ATSC 414 (3) GEOPHYSICAL FLUID DYNAMICS. The fundamental principles governing the flow of a density-stratified fluid on a rotating planet, with applications to the motions of the ocean and the atmosphere. Prerequisite: One of PHYS 312, MATH 316. [3-0-0]

ATSC 448 (3/6) D DIRECTED STUDIES. Investigation of a topic to be agreed upon by a member of the faculty and the student. Permission of the undergraduate advisor and of the supervising faculty member is required before registration.

ATSC 449 (6) HONOURS PROJECT. Honours students must submit a graduating report based on a project undertaken with the approval of the Associate Chair of the Atmospheric Science Program.

ATSC 498 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in the Summer Session (Terms 1 and 2) after fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Atmospheric Science. Prerequisite: ATSC 399 and one of ATSC 303, GEOG 304.

ATSC 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in Winter Session (Term 1) of the fifth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Atmospheric Science. Prerequisite: ATSC 498.

ATSC 500 (3) BOUNDARY-LAYER METEOROLOGY. Theoretical and empirical analysis of the atmospheric boundary layer with particular emphasis on energy and mass exchanges near the Earth's surface.

ATSC 506 (3) NUMERICAL TECHNIQUES FOR OCEAN, ATMOSPHERE AND EARTH SCIENTISTS. Credit will not be granted for both ATSC 409 and ATSC 506/EOSC 511. Equivalency: EOSC 511.

ATSC 548 (3) MASTER'S GRADUATION ESSAY.

ATSC 595 (2-6) D DIRECTED STUDIES.

ATSC 599 (12-15) D MASTER'S THESIS.

ATSC 699 (0) THESIS FOR PH.D.

AUDI — AUDIOLOGY AND SPEECH SCIENCES SCHOOL OF AUDIOLOGY AND SPEECH SCIENCES

All 600-level seminars are Ph.D. level courses and may not be offered on a regular basis. All may be taken more than once for credit.

AUDI 400 (3) INTRODUCTION TO SPEECH-LANGUAGE PATHOLOGY AND AUDIOLOGY. Frameworks from linguistics, psychology, and speech and hearing sciences as applied to communication disorders, clinical populations and practices. Prerequisite: LING 200. [3-0; 0-0]

AUDI 402 (1.5) NEUROANATOMY FOR AUDIOLOGY AND SPEECH-LANGUAGE PATHOLOGY. Prerequisite: As indicated on website www.audiospeech.bc.ca or by permission of the instructor. [0-0; 3-0]

AUDI 403 (1.5) INTRODUCTION TO NEUROLINGUISTICS. Prerequisite: All of LING 200, LING 201, AUDI 402.

AUDI 513 (1/2) ACOUSTIC AND ARTICULATORY PHONETICS.

AUDI 514 (2/3) C HEARING SCIENCE I.

AUDI 516 (1-3) D DISCOURSE ANALYSIS. May be taken more than once for credit.

AUDI 518 (3) FUNDAMENTALS OF AUDIOLOGY. Corequisite: All of AUDI 513, AUDI 514, AUDI 522. [2-2; 0-0]

AUDI 520 (3) PHONOLOGICAL DEVELOPMENT, ASSESSMENT AND INTERVENTION.

AUDI 522 (2) INTRODUCTION TO COMMUNICATION DISORDERS, ASSESSMENT AND INTERVENTION.

AUDI 523 (3) EXPERIMENTAL PHONETICS. Acoustic phonetic and acoustic prosodic features observed in speech analysis, particularly in spectrographic displays, and their relation to production and perception; experimental findings and theories pertaining to the most important of these features. Prerequisite: AUDI 513. [0-0; 3-0]

AUDI 526 (3) ACQUIRED LANGUAGE DISORDERS. Language impairment resulting from acquired brain damage; aphasia and head injury; assessment, interpretation of results, intervention planning and procedures, family/client counselling. Lab. Prerequisite: All of AUDI 402, AUDI 522. [0-0; 2-2]

AUDI 527 (1) INTRODUCTION TO DYSPHAGIA.

AUDI 528 (2) AURAL REHABILITATION I. Prerequisite: AUDI 518. [2-2; 0-0]

AUDI 529 (3) AURAL REHABILITATION II.

AUDI 530 (1-3) D RESEARCH METHODS. May be taken more than once for credit.

AUDI 545 (0) ISSUES IN CLINICAL PRACTICE. Ethics, service delivery systems, practice considerations specific to the work place.

AUDI 546 (3-9) D ADVANCED COMMUNICATION SCIENCES AND DISORDERS. May be taken for credit more than once.

AUDI 547 (1-9) C DIRECTED READING IN AUDIOLOGY AND SPEECH SCIENCES. May be taken more than once.

AUDI 548 (3) GRADUATING PAPER.

AUDI 549 (6) M.Sc. THESIS.

AUDI 550 (0.5-6) D ADVANCED TOPICS IN AUDIOLOGY. May be taken more than once for credit.

AUDI 552 (3) DIAGNOSTIC AUDIOLOGY I. Principles and procedures of audiometric testing and calibration; emphasis on basic audiologic and pediatric test procedures. Lab. Prerequisite: All of AUDI 518, AUDI 522. [2-2; 0-0]

AUDI 553 (3) DIAGNOSTIC AUDIOLOGY II.

AUDI 554 (3) C HEARING SCIENCE II.

AUDI 556 (3) AMPLIFICATION I. Prerequisite: All of AUDI 518, AUDI 522. [0-0; 2-2]

AUDI 557 (3) AMPLIFICATION II.

AUDI 558 (3) PHYSIOLOGICAL MEASUREMENT OF AUDITORY FUNCTION. Principles and procedures of physiological measures of auditory function, including evoked potentials and acoustic immittance. Lab. Prerequisite: AUDI 552. [2-2; 0-0]

AUDI 559 (2) PRACTICUM IN SPEECH-LANGUAGE PATHOLOGY FOR AUDIOLOGY MAJORS. Open only to students enrolled in the School. Prerequisite: AUDI 522.

AUDI 561 (3) AURAL REHABILITATION II.

AUDI 562 (3) PEDIATRIC AUDIOLOGY.

AUDI 563 (2) COCHLEAR IMPLANTS: AUDIOLOGICAL ASSESSMENT AND MANAGEMENT ISSUES.

AUDI 564 (2) ADVANCED HEARING SCIENCE. Consideration of critical bodies of data, current theories, and recent advances in auditory physiology and psychoacoustics. Prerequisite: AUDI 554.

AUDI 565 (1-3) D AUDIOLOGY BASIC PRACTICUM I. Prerequisite: All of AUDI 518, AUDI 552, AUDI 554, AUDI 556.

AUDI 566 (1-3) D AUDIOLOGY BASIC PRACTICUM II. Prerequisite: AUDI 565.

AUDI 567 (1.5) AUDIOLOGY ADVANCED PRACTICUM I. Prerequisite: All of AUDI 566, AUDI 528, AUDI 558, AUDI 560, AUDI 562, AUDI 564.

AUDI 568 (1.5) AUDIOLOGY ADVANCED PRACTICUM II. Prerequisite: AUDI 567.

AUDI 569 (1.5) HEARING AND AGING.

AUDI 570 (1) CASE STUDIES IN PHONOLOGICAL INTERVENTION. Prerequisite: All of AUDI 520, AUDI 522. [0-0; 2-2]

AUDI 571 (3) DEVELOPMENTAL LANGUAGE DISORDERS. Prerequisite: All of LING 451, LING 452, PSYC 302. PSYC 309 and PSYC 336 and PSYC 337 are recommended. [2-2; 0-0]

AUDI 572 (3) COGNITIVE PROCESSING AND ACQUIRED LANGUAGE DISORDERS.

History of linguistic aphasiology; analysis of current research in disturbances of the sound system, sentence production and sentence comprehension; relationships between the various levels of language disturbance in aphasia. Prerequisite: All of LING 310, LING 300, LING 311, AUDI 402. LING 301 and LING 312 are recommended. [3-0; 0-0]

AUDI 575 (3) LANGUAGE DEVELOPMENT AND DISORDERS IN THE SCHOOL YEARS. Prerequisite: All of LING 451, LING 452, AUDI 516. [3-0; 0-0]

AUDI 576 (2) TOPICS IN FLUENCY DISORDERS.

AUDI 576 (3) DISORDERS OF SPEECH PRODUCTION.

AUDI 577 (2) ADVANCED STUDIES IN ACQUIRED SPEECH AND SWALLOWING DISORDERS.

AUDI 579 (2) PRACTICUM IN AUDIOLOGY FOR SPEECH-LANGUAGE PATHOLOGY MAJORS. Open only to students enrolled in the School. Prerequisite: All of AUDI 518, AUDI 522.

AUDI 580 (1.5) SPEECH PERCEPTION AND HEARING ABILITY.

AUDI 581 (3) PERCEPTUAL, COGNITIVE, AND SOCIAL-AFFECTIVE ISSUES IN COMMUNICATION DEVELOPMENT, ASSESSMENT AND INTERVENTION.

AUDI 583 (3) ADVANCED SPEECH SCIENCE. Prerequisite: AUDI 523. [3-0; 0-0]

AUDI 585 (2) LANGUAGE DEVELOPMENT ACROSS THE LIFESPAN. Prerequisite: All of LING 451, LING 452. [0-0; 2-0]

AUDI 586 (2) ACQUIRED LANGUAGE DISORDERS II. Prerequisite: All of AUDI 526, AUDI 576. Corequisite: AUDI 572. [3-0; 0-0]

AUDI 590 (1-3) D SPEECH-LANGUAGE PATHOLOGY BASIC PRACTICUM I. Prerequisite: All of AUDI 520, AUDI 522, AUDI 571. Corequisite: AUDI 570.

AUDI 591 (1-3) D SPEECH-LANGUAGE PATHOLOGY BASIC PRACTICUM II. Prerequisite: All of AUDI 526, AUDI 527, AUDI 576, AUDI 590.

AUDI 593 (1.5) SPEECH-LANGUAGE PATHOLOGY ADVANCED PRACTICUM I. Prerequisite: AUDI 591. Corequisite: All of AUDI 577, AUDI 586.

AUDI 594 (1.5) SPEECH-LANGUAGE PATHOLOGY ADVANCED PRACTICUM II. Prerequisite: All of AUDI 593, AUDI 575, AUDI 581.

AUDI 598 (2) FUNDAMENTALS OF AUDIOLOGY FOR HEALTH AND EDUCATION. Same as AUDI 518, except does not include lab or observations. Cannot be taken for credit by students enrolled in the Audiology and Speech Sciences M.Sc. program. [2-0; 0-0]

AUDI 649 (6) PH.D. THESIS.

AUDI 660 (1-9) D SEMINAR IN HEARING SCIENCE.

AUDI 670 (1-9) D SEMINAR IN DEVELOPMENTAL PHONETICS AND PHONOLOGY. Examination of current research, roles of theories in understanding the relationship between speech sound production and comprehension/perception. Prerequisite: AUDI 580.

AUDI 672 (1-9) D SEMINAR IN LINGUISTIC APHASIOLOGY. Examination of current research, roles of linguistic theories in understanding language disturbance in aphasia; development of single-case studies. Prerequisite: AUDI 572.

AUDI 675 (1-9) D SEMINAR IN DEVELOPMENTAL LANGUAGE DISORDERS.

AUDI 685 (1-9) D SEMINAR IN LANGUAGE DEVELOPMENT.

AUDI 690 (1-9) D SEMINAR IN SPEECH SCIENCE.

BA — BUSINESS ADMINISTRATION – CORE FACULTY OF COMM (SAUDER)
BA 500 (6-20) D MBA CORE.

BA 510 (1.5) BA 520 (1.5) CAREER DEVELOPMENT.

BA 530 (6-18) D

BAAC — BUSINESS ADMINISTRATION: ACCOUNTING FACULTY OF COMM (SAUDER)

BAAC 500 (1.5) FINANCIAL REPORTING.

BAAC 501 (1.5) FINANCIAL STATEMENT ANALYSIS I. Prerequisite: BAAC 500.

BAAC 502 (1.5) FINANCIAL STATEMENT ANALYSIS II. Prerequisite: BAAC 501.

BAAC 510 (1.5) COST ANALYSIS FOR DECISION MAKING.

BAAC 511 (1.5) ACCOUNTING FOR PERFORMANCE EVALUATION.

BAAC 512 (1.5) ACCOUNTING FOR OPERATIONS MANAGEMENT.

BAAC 520 (1.5) TAXATION AND DECISION MAKING I. Prerequisite: BAFI 500.

BAAC 521 (1.5) TAXATION AND DECISION MAKING II. Prerequisite: BAFI 500.

BAAC 550 (1.5) MANAGERIAL ACCOUNTING. Not available to MBA students. Equivalency: HCEC 502.

BAAC 580 (1.5) TOPICS IN ACCOUNTING.

BAAC 590 (1.5/3) D DIRECTED STUDIES IN ACCOUNTING.

**BABS — BUSINESS ADMINISTRATION:
BUSINESS STATISTICS** FACULTY OF
COMM (SAUDER)

BABS 500 (1.5) APPLIED BUSINESS
STATISTICS I.

BABS 501 (1.5) APPLIED BUSINESS
STATISTICS II.

BABS 502 (1.5) FORECASTING FOR
MANAGEMENT. Prerequisite: BABS 500.

BABS 503 (1.5) ANALYZING MULTIVARIATE
BUSINESS DATA.

BABS 504 (1.5) SURVEY DESIGN AND
ANALYSIS.

BABS 510 (1.5) CASE STUDIES IN BUSINESS
STATISTICS.

BABS 520 (1.5) EMPIRICAL INVESTIGATIONS
IN FINANCE. Prerequisite: All of BABS 500,
BAFI 500, BAFI 511.

BABS 550 (1.5) APPLICATION OF STATISTICS
IN MANAGEMENT. Not available to MBA
students. Equivalency: HCEC 554.

BABS 580 (1.5) TOPICS IN BUSINESS
STATISTICS.

BABS 590 (1.5/3) D DIRECTED STUDIES IN
BUSINESS STATISTICS.

**BAEN — BUSINESS ADMINISTRATION:
ENTREPRENEURSHIP** FACULTY OF
COMM (SAUDER)

BAEN 500 (1.5) ENTREPRENEURSHIP AND
NEW VENTURE CREATION. Corequisite: All
of BAFI 500, BAPA 500.

BAEN 501 (1.5) CORPORATE
ENTREPRENEURSHIP.

BAEN 502 (1.5) MANAGING NEW VENTURE
GROWTH.

BAEN 503 (1.5) MANAGING RISK AND
UNCERTAINTY.

BAEN 504 (1.5) PREPARING THE BUSINESS
DEVELOPMENT PLAN. Prerequisite: BAEN
500.

BAEN 505 (1.5) VENTURE CAPITAL FINANCE
OF ENTREPRENEURSHIP.

BAEN 506 (1.5) TECHNOLOGY
ENTREPRENEURSHIP I.

BAEN 507 (1.5) TECHNOLOGY
ENTREPRENEURSHIP II. Prerequisite: BAEN
506.

BAEN 580 (1.5) TOPICS IN
ENTREPRENEURSHIP.

BAEN 590 (1.5/3) D DIRECTED STUDIES IN
ENTREPRENEURSHIP.

**BAFI — BUSINESS ADMINISTRATION:
FINANCE** FACULTY OF COMM (SAUDER)

BAFI 500 (1.5) BASIC FINANCE.

BAFI 501 (1.5) BANKING AND CAPITAL
MARKETS. Prerequisite: BAFI 500.

BAFI 502 (1.5) CAPITAL BUDGETING –
VALUATION. Prerequisite: BAFI 500.

BAFI 503 (1.5) CAPITAL BUDGETING –
ESTIMATION. Prerequisite: BAFI 502.

BAFI 504 (1.5) CAPITAL STRUCTURE AND
DIVIDEND POLICY.

BAFI 505 (1.5) FINANCIAL PLANNING.

BAFI 506 (1.5) FINANCIAL STRATEGIES.
Prerequisite: BAFI 500.

BAFI 507 (1.5) CORPORATE CONTROL.

BAFI 508 (1.5) CASES IN FINANCIAL
STRATEGY.

BAFI 509 (1.5) DEBT, FINANCIAL DISTRESS,
AND REORGANIZATION. Prerequisite: BAFI
500.

BAFI 510 (1.5) SECURITY ANALYSIS.

BAFI 511 (1.5) SECURITY PRICING.

BAFI 512 (1.5) OPTIONS AND FUTURES.
Prerequisite: BAFI 511.

BAFI 513 (1.5) RISK MANAGEMENT. Prere-
quisite: All of BAFI 511, BAFI 512.

BAFI 514 (1.5) INSTITUTIONAL
INVESTMENT. Prerequisite: All of BAFI 500,
BAFI 511, BABS 520.

BAFI 515 (1.5) DYNAMIC PORTFOLIO
STRATEGIES. Prerequisite: All of BAFI 511,
BABS 520.

BAFI 516 (1.5) FINANCIAL ENGINEERING.
Prerequisite: All of BAFI 511, BAFI 512.

BAFI 517 (1.5) OPTIONS ON REAL ASSETS.

BAFI 518 (1.5) FIXED INCOME SECURITIES.
Prerequisite: BAFI 511.

BAFI 519 (1.5) SECURITY MARKET
IMPERFECTIONS.

BAFI 521 (1.5) FOREIGN EXCHANGE RISK
MANAGEMENT.

BAFI 522 (1.5) MARKET MICROSTRUCTURE.

BAFI 580 (1.5) SPECIAL TOPICS IN FINANCE.

BAFI 590 (1.5/3) D DIRECTED STUDIES IN
FINANCE.

**BAHR — BUSINESS ADMINISTRATION:
HUMAN RESOURCES MANAGEMEN**
FACULTY OF COMM (SAUDER)

BAHR 500 (1.5) ORGANIZATIONAL
ANALYSIS.

BAHR 501 (1.5) POWER, POLITICS AND
CORPORATE CULTURE.

BAHR 502 (1.5) BUSINESS ETHICS.

BAHR 503 (1.5) REORGANIZING
CORPORATIONS.

BAHR 504 (1.5) RESTRUCTURING
CORPORATE GOVERNANCE.

BAHR 505 (1.5) LEADERSHIP.

BAHR 506 (1.5) IMPROVING TEAM
PERFORMANCE.

BAHR 507 (1.5) PRINCIPLES OF
NEGOTIATION.

BAHR 508 (1.5) MANAGING CHANGE.

BAHR 509 (1.5) MANAGING THE PRIVATELY
HELD BUSINESS.

BAHR 510 (1.5) STRATEGIC HUMAN
RESOURCE MANAGEMENT.

BAHR 511 (1.5) COMPENSATION AND
BENEFITS MANAGEMENT.

BAHR 512 (1.5) MANAGING DIVERSITY.

BAHR 513 (1.5) MOTIVATION AND
PERFORMANCE APPRAISAL.

BAHR 514 (1.5) STAFFING.

BAHR 515 (1.5) MANAGEMENT OF HEALTH
AND SAFETY.

BAHR 520 (1.5) MANAGING THE
EMPLOYMENT RELATIONSHIP.

BAHR 521 (1.5) COLLECTIVE BARGAINING.

BAHR 522 (1.5) PUBLIC SECTOR INDUSTRIAL
RELATIONS.

BAHR 523 (1.5) NEW DIRECTIONS IN
INDUSTRIAL RELATIONS.

BAHR 550 (1.5) ORGANIZATIONAL
BEHAVIOR. Not available to MBA students.
Equivalency: HCEC 521.

BAHR 580 (1.5) TOPICS IN HUMAN
RESOURCES.

BAHR 590 (1.5/3) D DIRECTED STUDIES IN
HUMAN RESOURCES.

**BAIM — BUSINESS ADMINISTRATION:
INTERNATIONAL MANAGEMENT**
FACULTY OF COMM (SAUDER)

BAIM 500 (1.5) THE INTERNATIONAL
TRADING ENVIRONMENT.

BAIM 501 (1.5) MULTINATIONAL
ENTERPRISES.

BAIM 502 (1.5) THE CULTURAL AND
POLITICAL ENVIRONMENT OF
INTERNATIONAL BUSINESS.

BAIM 503 (1.5) ISSUES IN INTERNATIONAL
TRADE POLICY.

BAIM 504 (1.5) THE LAW AND
INTERNATIONAL BUSINESS TRANSACTIONS.

BAIM 505 (1.5) INTERNATIONAL BUSINESS
IN THE PACIFIC REGION I.

BAIM 506 (1.5) INTERNATIONAL BUSINESS
IN THE PACIFIC REGION II.

BAIM 507 (1.5) INTERNATIONAL
MANAGEMENT OF TECHNOLOGY FLOWS.

BAIM 510 (1.5) INTERNATIONAL FINANCIAL
ENVIRONMENT. Prerequisite: BAFI 500.

BAIM 511 (1.5) CENTRAL BANKS AND
CAPITAL MARKETS.

BAIM 512 (1.5) INTERNATIONAL FINANCIAL
MANAGEMENT. Prerequisite: All of BAFI
500, BAPA 500.

BAIM 513 (1.5) PACIFIC REGION FINANCIAL MARKETS.

BAIM 520 (1.5) GLOBAL MARKETING CHALLENGES.

BAIM 521 (1.5) INTERNATIONAL MARKETING STRATEGY. Prerequisite: BAMA 500.

BAIM 522 (1.5) GLOBAL MANUFACTURING MANAGEMENT.

BAIM 523 (1.5) INTERNATIONAL INDUSTRIAL RELATIONS.

BAIM 524 (1.5) INTERNATIONAL HUMAN RESOURCE MANAGEMENT.

BAIM 525 (1.5) INTERNATIONAL ACCOUNTING.

BAIM 526 (1.5) INTERNATIONAL SHIPPING AND LOGISTICS.

BAIM 580 (1.5) TOPICS IN INTERNATIONAL MANAGEMENT.

BAIM 590 (1.5/3) D DIRECTED STUDIES IN INTERNATIONAL MANAGEMENT.

BAIT — BUSINESS ADMINISTRATION: INFORMATION TECHNOLOGY M
FACULTY OF COMM (SAUDER)

BAIT 500 (1.5) INFORMATION TECHNOLOGY AND THE ORGANIZATION.

BAIT 501 (1.5) SURVEY OF INFORMATION TECHNOLOGY APPLICATIONS IN BUSINESS.

BAIT 502 (1.5) FUNDAMENTALS OF E-BUSINESS TECHNOLOGY.

BAIT 503 (1.5) DEVELOPING BUSINESS INFORMATION SYSTEMS. Prerequisite: BAIT 502.

BAIT 504 (1.5) BUSINESS DATABASE TECHNOLOGY. Prerequisite: BAIT 502.

BAIT 505 (1.5) BUSINESS DATA COMMUNICATIONS TECHNOLOGY AND THE INTERNET. Prerequisite: BAIT 501.

BAIT 506 (1.5) BUSINESS MODELING FOR INFORMATION TECHNOLOGY APPLICATIONS. Prerequisite: BAIT 501.

BAIT 510 (1.5) MANAGING BUSINESS INFORMATION TECHNOLOGY PROJECTS. Prerequisite: BAIT 501.

BAIT 511 (1.5) MANAGING INFORMATION TECHNOLOGY. Prerequisite: BAIT 501.

BAIT 512 (1.5) CONTROL AND SECURITY OF INFORMATION RESOURCES. Prerequisite: BAIT 501.

BAIT 513 (1.5) IMPLEMENTING E-BUSINESS IN THE ORGANIZATION.

BAIT 514 (1.5) DEVELOPING E-BUSINESS APPLICATIONS. Prerequisite: BAIT 503. Corequisite: BAIT 504.

BAIT 515 (1.5) MANAGING BUSINESS SOFTWARE DEVELOPMENT AND QUALITY. Prerequisite: Three of BAIT 510, BAIT 511.

BAIT 516 (1.5) DESIGNING HUMAN COMPUTER INTERACTION. Prerequisite: BAIT 521.

BAIT 521 (1.5) INTRODUCTION TO BUSINESS PROGRAMMING.

BAIT 523 (1.5) BUSINESS SOFTWARE DEVELOPMENT. Prerequisite: BAIT 521.

BAIT 525 (1.5) METHODS AND TOOLS FOR DEVELOPING BUSINESS SOFTWARE. Prerequisite: All of BAIT 506, BAIT 523.

BAIT 527 (1.5) KNOWLEDGE MANAGEMENT AND SUPPORTING TECHNOLOGY. Prerequisite: All of BAIT 500, BAIT 504.

BAIT 550 (1.5) INFORMATION TECHNOLOGY FOR MANAGEMENT. Not available to MBA students. Equivalency: HCEC 543.

BAIT 580 (1.5) TOPICS IN INFORMATION TECHNOLOGY MANAGEMENT.

BAIT 590 (1.5/3) D DIRECTED STUDIES IN INFORMATION TECHNOLOGY AND MANAGEMENT.

BALA — BUSINESS ADMINISTRATION: LAW
FACULTY OF COMM (SAUDER)

BALA 500 (1.5) BUSINESS AND SECURITIES LAW.

BALA 501 (1.5) EMPLOYMENT LAW.

BALA 502 (1.5) THE LAW AND PUBLIC POLICY.

BALA 503 (1.5) COMMERCIAL LAW.

BALA 580 (1.5) TOPICS IN LAW.

BALA 590 (1.5/3) D DIRECTED STUDIES IN LAW.

BAMA — BUSINESS ADMINISTRATION: MARKETING
FACULTY OF COMM (SAUDER)

BAMA 500 (1.5) MARKETING STRATEGY. Prerequisite: BA 500.

BAMA 501 (1.5) PRICING. Prerequisite: BA 500.

BAMA 502 (1.5) RELATIONSHIP MARKETING. Prerequisite: BA 500.

BAMA 503 (1.5) PRODUCT MANAGEMENT STRATEGIES.

BAMA 504 (1.5) INTEGRATED MARKETING COMMUNICATION. Prerequisite: BA 500.

BAMA 506 (1.5) CONSUMER BEHAVIOUR. Prerequisite: BA 500.

BAMA 507 (1.5) CREATIVE MARKETING STRATEGIES. Prerequisite: BA 500.

BAMA 508 (1.5) MARKETING RESEARCH. Prerequisite: BA 500.

BAMA 510 (1.5) PUBLIC AND NONPROFIT MARKETING MANAGEMENT.

BAMA 512 (1.5) DATABASE MARKETING AND DATA MINING. Prerequisite: BA 500.

BAMA 513 (1.5) INTERNET MARKETING. Prerequisite: BA 500.

BAMA 580 (1.5) TOPICS IN MARKETING.

BAMA 590 (1.5/3) D DIRECTED STUDIES IN MARKETING.

BAMS — BUSINESS ADMINISTRATION: MANAGEMENT SCIENCE
FACULTY OF COMM (SAUDER)

BAMS 500 (1.5) MANAGEMENT SCIENCE – BEST PRACTICES. Prerequisite: BABS 500.

BAMS 501 (1.5) PROBABILISTIC MODELS FOR MANAGEMENT. Prerequisite: BABS 500.

BAMS 502 (1.5) STOCHASTIC PROCESSES. Prerequisite: BAMS 501.

BAMS 503 (1.5) SIMULATION FOR DECISION MAKING.

BAMS 504 (1.5) ADVANCED SIMULATION FOR DECISION MAKING. Prerequisite: BAMS 503.

BAMS 505 (1.5) APPLICATIONS OF GAME THEORY IN MANAGEMENT.

BAMS 506 (1.5) OPTIMIZATION MODEL.

BAMS 507 (1.5) THEORY OF OPTIMIZATION. Prerequisite: BAMS 506.

BAMS 508 (1.5) APPLICATIONS OF DISCRETE OPTIMIZATION.

BAMS 509 (1.5) THEORY OF DISCRETE OPTIMIZATION. Prerequisite: BAMS 508.

BAMS 517 (1.5) DECISION ANALYSIS.

BAMS 518 (1.5) MARKOV DECISION PROCESSES. Prerequisite: BAMS 517.

BAMS 520 (1.5) LARGE SCALE FINANCIAL PLANNING MODELS.

BAMS 550 (1.5) OPERATIONS AND LOGISTICS. Not available to MBA students. Equivalency: HCEC 542.

BAMS 580 (1.5) TOPICS IN DISCRETE OPTIMIZATION FOR MANAGEMENT.

BAMS 590 (1.5/3) D DIRECTED STUDIES IN MANAGEMENT SCIENCE.

BAPA — BUSINESS ADMINISTRATION: POLICY ANALYSIS
FACULTY OF COMM (SAUDER)

BAPA 500 (1.5) MANAGERIAL ECONOMICS.

BAPA 501 (1.5) GOVERNMENT AND BUSINESS.

BAPA 502 (1.5) PUBLIC SECTOR MANAGEMENT PROCESSES.

BAPA 503 (1.5) COST-BENEFIT ANALYSIS OF PROJECTS AND PROGRAMS.

BAPA 504 (1.5) PUBLIC PROJECT EVALUATION METHODS.

BAPA 510 (1.5) PUBLIC POLICY AND THE ENVIRONMENT.

BAPA 511 (1.5) COMPETITION POLICY.

BAPA 512 (1.5) GOVERNMENT REGULATION AND PUBLIC ENTERPRISE.

BAPA 513 (1.5) INFLUENCING PUBLIC POLICY.

BAPA 514 (1.5) PERFORMANCE MEASUREMENT IN THE PUBLIC SECTOR.

BAPA 515 (1.5) APPLIED PUBLIC POLICY ANALYSIS.

BAPA 516 (1.5) ENERGY POLICY AND MANAGEMENT.

BAPA 517 (1.5) MANAGERIAL PROBLEM SOLVING AND DECISION-MAKING.

BAPA 518 (1.5) MANAGERIAL IRRATIONALITIES.

BAPA 519 (1.5) CORPORATE ENVIRONMENTAL STRATEGY.

BAPA 550 (1.5) FOUNDATIONS OF MANAGERIAL ECONOMICS. Not available to MBA students. Equivalency: HCEC 530.

BAPA 580 (1.5) TOPICS IN POLICY ANALYSIS.

BAPA 590 (1.5/3) D DIRECTED STUDIES IN POLICY ANALYSIS.

BASC — BUSINESS ADMINISTRATION: SUPPLY CHAIN FACULTY OF COMM (SAUDER)

BASC 500 (1.5) INTRODUCTION TO LOGISTICS AND OPERATIONS MANAGEMENT.

BASC 505 (1.5) AIR TRANSPORT MANAGEMENT II.

BASC 510 (1.5) OPERATING SUPPLY CHAINS.

BASC 511 (1.5) SUPPLY CHAIN DESIGN.

BASC 512 (1.5) SUPPLY CHAIN MANAGEMENT FOR E-BUSINESS.

BASC 513 (1.5) PROCESS IMPROVEMENT AND QUALITY CONTROL.

BASC 514 (1.5) SUPPLY CHAIN MANAGEMENT.

BASC 515 (1.5) TOTAL QUALITY MANAGEMENT.

BASC 516 (1.5) MANUFACTURING AND SERVICE SYSTEMS.

BASC 517 (1.5) OPERATIONS STRATEGY.

BASC 518 (1.5) SCHEDULING AND CONTROL OF PRODUCTION AND SERVICE SYSTEMS.

BASC 519 (1.5) CURRENT ISSUES IN OPERATIONS MANAGEMENT.

BASC 520 (1.5) TOPICS IN LOGISTICS AND OPERATIONS MANAGEMENT.

BASC 580 (1.5) CURRENT ISSUES IN LOGISTICS AND OPERATIONS MANAGEMENT.

BASC 590 (1.5/3) D DIRECTED STUDY IN SUPPLY CHAIN MANAGEMENT.

BASM — BUSINESS ADMINISTRATION: STRATEGIC MANAGEMENT FACULTY OF COMM (SAUDER)

BASM 500 (1.5) STRATEGIC DECISION MAKING.

BASM 501 (1.5) BUSINESS STRATEGY. Prerequisite: All of BAPA 500, BAFI 500.

BASM 502 (1.5) CORPORATE STRATEGY. Prerequisite: BASM 501.

BASM 503 (1.5) STRATEGIC PLANNING MODELS.

BASM 504 (1.5) INTELLECTUAL PROPERTY AND BUSINESS STRATEGY.

BASM 505 (1.5) INDUSTRY AND COMPETITIVE ANALYSIS.

BASM 506 (1.5) STRATEGY IMPLEMENTATION.

BASM 507 (1.5) CREATIVE THINKING AND PROBLEM SOLVING.

BASM 508 (1.5) INCENTIVES AND BUSINESS ARRANGEMENTS.

BASM 510 (1.5) NOT-FOR-PROFIT ORGANIZATIONAL STRATEGY.

BASM 511 (1.5) STRATEGIC MANAGEMENT OF SERVICES.

BASM 512 (1.5) STRATEGIC PARTNERING.

BASM 513 (1.5) E-BUSINESS STRATEGY.

BASM 550 (1.5) STRATEGIC MANAGEMENT. Not available to MBA students. Equivalency: HCEC 561.

BASM 580 (1.5) TOPICS IN STRATEGIC MANAGEMENT.

BASM 590 (1.5/3) D DIRECTED STUDIES IN STRATEGIC MANAGEMENT.

BATL — BUSINESS ADMINISTRATION: TRANSPORTATION AND LOGIST FACULTY OF COMM (SAUDER)

BATL 500 (1.5) TRANSPORTATION SERVICES MANAGEMENT.

BATL 501 (1.5) TRANSPORTATION POLICY.

BATL 502 (1.5) APPLIED DEMAND ANALYSIS.

BATL 503 (1.5) COST AND PRODUCTIVITY ANALYSIS.

BATL 510 (1.5) INTRODUCTION TO LOGISTICS AND OPERATIONS MANAGEMENT.

BATL 520 (1.5) PROJECT MANAGEMENT.

BATL 521 (1.5) MANAGEMENT OF INFRASTRUCTURE.

BATL 580 (1.5) TOPICS IN LOGISTICS AND OPERATIONS MANAGEMENT.

BATL 590 (1.5/3) D DIRECTED STUDIES IN TRANSPORTATION AND LOGISTICS.

BATM — BUSINESS ADMINISTRATION: TECHNOLOGY MANAGEMENT FACULTY OF COMM (SAUDER)

BATM 500 (1.5) MANAGEMENT OF TECHNOLOGICAL ENTERPRISES.

BATM 501 (1.5) MARKETING HIGH TECHNOLOGY AND INDUSTRIAL PRODUCTS.

BATM 502 (1.5) COMPETING IN HIGH TECHNOLOGY INDUSTRIES.

BATM 503 (1.5) TELECOMMUNICATIONS MANAGEMENT AND POLICY.

BATM 580 (1.5) TOPICS IN TECHNOLOGY MANAGEMENT.

BATM 590 (1.5/3) D DIRECTED STUDIES IN TECHNOLOGY MANAGEMENT.

BAUL — BUSINESS ADMINISTRATION: URBAN LAND ECONOMICS FACULTY OF COMM (SAUDER)

BAUL 500 (1.5) REAL ESTATE MARKETS.

BAUL 501 (1.5) REAL ESTATE INVESTMENT ANALYSIS.

BAUL 502 (1.5) ECONOMICS OF LOCATION.

BAUL 503 (1.5) LAND DEVELOPMENT AND REAL OPTIONS.

BAUL 504 (1.5) HOUSING.

BAUL 505 (1.5) LOCAL GOVERNMENT.

BAUL 506 (1.5) LAND USE REGULATION.

BAUL 507 (1.5) MORTGAGE MARKETS. Prerequisite: All of BAFI 500, BABS 500, BAPA 500.

BAUL 508 (1.5) REAL ESTATE SECURITIZATION. Prerequisite: All of BAFI 500, BABS 500, BAPA 500.

BAUL 509 (1.5) REAL ESTATE DEVELOPMENT.

BAUL 510 (1.5) REAL ESTATE AND PORTFOLIO ANALYSIS. Prerequisite: All of BAFI 500, BABS 500, BAPA 500.

BAUL 580 (1.5) TOPICS IN URBAN LAND ECONOMICS.

BAUL 590 (1.5/3) D DIRECTED STUDIES IN URBAN LAND ECONOMICS.

BIOC — BIOCHEMISTRY FACULTY OF MEDICINE

BIOC 300 (6) PRINCIPLES OF BIOCHEMISTRY. Introduction to proteins and enzymes, the major metabolic pathways, control mechanisms and the biochemistry of gene function, with an emphasis on human biochemistry. At least 60% standing in prerequisites is recommended. Credit is given for only one of BIOL 201, or BIOC 300, and only one of BIOC 300, 302 or 303. Prerequisite: Either (a) CHEM 204 or (b) all of CHEM 233, CHEM 205 or (c) all of CHEM 233, PHAR 220. [3-0-0; 3-0-0]

BIOC 301 (3) BIOCHEMISTRY LABORATORY. Techniques by which the chemical and physical properties of fundamental components of the cell are studied. Corequisite: One of BIOC 300, BIOC 302, BIOC 303. [0-3-1; 0-3-1]

BIOC 302 (3) GENERAL BIOCHEMISTRY.

Metabolic reactions of lipids, steroids, amino acids and nucleotides; the biochemistry of replication, transcription and translation. Credit is given for only one of BIOC 300 or 302 or 303. Prerequisite: BIOL 201 and either (a) one of CHEM 204, CHEM 232 or (b) all of CHEM 233, CHEM 205. [3-0; 1]

BIOC 303 (6) MOLECULAR BIOCHEMISTRY.

Structure, function and metabolism of lipids, steroids, amino acids and nucleotides; the biochemistry and molecular biology of replication, transcription, translation and gene regulation. For students in Biochemistry and Honours programs in other life sciences. Credit is given for only one of BIOC 300 or 302 or 303. Prerequisite: BIOL 201 and either (a) one of CHEM 204, CHEM 232 or (b) all of CHEM 233, CHEM 205. [3-0; 3-0]

BIOC 398 (3) INTERNSHIP WORK

PLACEMENT I. Approved and supervised technical work experience in an industrial or academic laboratory for three or four months. Technical report required. Restricted to students admitted to the Internship Program in Biochemistry and Molecular Biology. Prerequisite: Completion of academic third year in Biochemistry major or honours program is required.

BIOC 399 (3) INTERNSHIP WORK

PLACEMENT II. Approved and supervised technical work experience in an industrial or academic research setting for four months. Technical report required. Restricted to students admitted to the Internship Program in Biochemistry and Molecular Biology. Prerequisite: BIOC 398.

BIOC 402 (3) PROTEINS: STRUCTURE AND FUNCTION.

Structural components of proteins, classification by primary, secondary and tertiary structure, protein chemistry and purification, peptide and protein synthesis by chemical means and three-dimensional structure determination using X-ray diffraction and NMR. Prerequisite: One of BIOC 300, BIOC 302, BIOC 303. A minimum standing of 65% is recommended in these courses. [3-0; 0-0]

BIOC 403 (3) ENZYMOLOGY. Kinetic analysis, catalytic mechanisms, transition state stabilization and regulation of activity, strategies for active site characterization and case studies of well-documented enzyme systems. Credit given for only 1 of BIOC 403, CHEM 413 or CHEM 569. Prerequisite: BIOC 402. A minimum standing of 65% is recommended. [0-0; 3-0]

BIOC 404 (3) BIOCHEMICAL METHODS. The theory and application of techniques used to address biochemical problems. Restricted to Honours students in biochemistry or others with permission of the instructor. [1-0; 2-0]

BIOC 410 (3) NUCLEIC ACIDS-STRUCTURE AND FUNCTION. Chemical, physical and biological properties of nucleic acids and their role in replication, transcription, translation and regulation of expression of genetic material. Credit will not be given for both

BIOC 410 and 510. Prerequisite: All of BIOC 303, BIOL 335. A minimum standing of 65% is recommended in these courses. [3-0; 0-0]

BIOC 420 (3) ADVANCED BIOCHEMICAL

TECHNIQUES. Practical experience in experiments involving cell fractionation, protein purification, spectrophotometry, electrophoresis, chromatography, and ultracentrifugation. Restricted to Honours students in Biochemistry and others with permission of the instructor. Corequisite: BIOC 404. [0-6; 0-0]

BIOC 421 (3) RECOMBINANT DNA

TECHNIQUES. Practical experience in experiments involving transposon mutagenesis, restriction enzyme mapping, DNA sequencing and use of monoclonal antibodies. Restricted to Honours students in Biochemistry and others with permission of the instructor. Prerequisite: All of BIOC 410, BIOC 420. [0-0; 0-6]

BIOC 435 (3) MOLECULAR BIOLOGY AND

SACCHAROMYCES. Molecular and genetic analysis of transcriptional regulation, cell cycle regulation, signal transduction, and developmental mechanisms using yeast (*Saccharomyces*) as a model eukaryote. Credit will not be given for both BIOC 435 and BIOC 535. Prerequisite: BIOL 335 and one of BIOC 300, BIOC 302, BIOC 303. BIOC 303 and BIOC 410 are recommended. Equivalency: BIOL 435. [0-0; 3-0]

BIOC 448 (3/6) C DIRECTED STUDIES IN

BIOCHEMISTRY. A library (3 credits) or a laboratory project with written report (three or 6 credits) allowing a student to undertake an investigation on a specific topic as agreed upon by the faculty and student. Prerequisite: Permission of the Department Head is required.

BIOC 449 (3/6) C HONOURS THESIS.

A research problem under the direction of a faculty member. Restricted to Honours students.

BIOC 490 (3) STUDENT DIRECTED

SEMINARS. Self-directed, collaborative studies, in a group-learning environment, initiated and coordinated by senior undergraduate students with the supervision of a faculty advisor. Course structure, enrolment, and delivery methods will comply with the "Handbook for Student Directed Seminars". Not given every year. Prerequisite: Third-year standing. Corequisite: One of BIOC 300, BIOC 302, BIOC 303. [3-0-0]

BIOC 498 (3) INTERNSHIP WORK

PLACEMENT III. Approved and supervised technical work experience in an industrial or academic research setting for four months. Technical report required. Restricted to students admitted to the Internship Program in Biochemistry and Molecular Biology. Prerequisite: BIOC 399.

BIOC 499 (3) INTERNSHIP WORK

PLACEMENT IV. Approved and supervised technical work experience in an industrial or academic research setting for four months. Technical report required. Restricted to students admitted to the Internship Program in

Biochemistry and Molecular Biology. Prerequisite: BIOC 498.

BIOC 501 (2-6) C ADVANCED

BIOCHEMISTRY LABORATORY. Practical applications of advanced biochemical techniques. Admission is limited and is by permission of the department head. Corequisite: BIOC 404.

BIOC 503 (2) MOLECULAR BIOCHEMISTRY.

A lecture course in molecular biology: replication, transcription, translation, gene organization, gene expression. Credit will not be given for both BIOC 303 and 503. [0-0; 3-0]

BIOC 509 (3) MEMBRANE STRUCTURE AND

FUNCTION. The physical properties and functional roles of lipids in membranes, liposomes, membrane permeability; membrane function; structure, biosynthesis and cell sorting of membrane proteins; and the structure-function relationships of channels, transporters and receptors. Given in alternate years. [3-0; 0-0]

BIOC 510 (3) NUCLEIC ACIDS: STRUCTURE

AND FUNCTION. Structure and function of nucleic acids and their role in replication, transcription, translation and expression of genetic information. Credit will not be given for both BIOC 410 and 510. [3-0; 0-0]

BIOC 511 (3) BIOCHEMICAL ASPECTS OF

CELLULAR REGULATION. A lecture and discussion course on the molecular basis of cellular regulation with special emphasis on mammalian cells. Mechanisms involved in the responses of cells to adrenergic, steroid and peptide hormones and growth factors. Regulation of the concentration and specific activity of key enzymes, transport systems and structural proteins. Given in alternate years. [3-0; 0-0]

BIOC 514 (3) ADVANCED TOPICS IN

PROTEIN CHEMISTRY. Topics will include contemporary theoretical and experimental investigation of protein structure-function relationships. Topics will vary. Given in alternate years. [0-0; 3-0]

BIOC 521 (3) ADVANCED TOPICS IN

MOLECULAR BIOLOGY. Discussions based on topics in the current literature. Prerequisite: One of BIOC 410, BIOC 510. [0-0; 3-0]

BIOC 530 (3) SEMINAR IN BIOCHEMISTRY.

Attendance is required of all graduate students in Biochemistry. Normally students will make a presentation once per year on a topic approved by their research advisor or committee or on the results of their research.

BIOC 535 (3) ADVANCED TOPICS IN

EUKARYOTIC REGULATORY SYSTEMS. Molecular regulatory mechanisms using yeast (*Saccharomyces*) as a model. Credit will not be given for both BIOC 435 and 535. Prerequisite: BIOL 335 and one of BIOC 300, BIOC 302, BIOC 303. BIOC 303 and BIOC 410 are recommended. [0-0; 3-0]

BIOC 548 (2-6) C DIRECTED STUDIES. In special cases, with approval of the department head, advanced courses may be arranged for graduate students in attendance.

BIOC 549 (12) M.S.C. THESIS.

BIOC 649 (0) PH.D. THESIS.

**BIOE — BIO-RESOURCE ENGINEERING
FACULTY OF APPLIED SCIENCE**

The Departments of Bio-Resource Engineering and Chemical Engineering have merged into a single department, the Department of Chemical and Biological Engineering. During the transition period some courses listed under Bio-Resource Engineering (BIOE) will remain open while others have been subsumed under Chemical and Biological Engineering (CHBE).

BIOE 255 (2) BIO-RESOURCE ENGINEERING LABORATORY I. Experiments, computer modelling sessions and field studies chosen to illustrate basic principles and processes underlying bio-resource engineering systems, including growth and enzyme kinetics, use of indicator organism, basic principles of fermentation, environmental assessment and toxicity testing. [0-3-1]

BIOE 285 (2) INTRODUCTION TO BIO-RESOURCE ENGINEERING SYSTEMS ANALYSIS. The tools of systems analysis with selected applications to the primary renewable resource production enterprises. Emphasis on presentation of written and oral reports. [2-0-2*]

BIOE 361 (3) SOIL AND WATER ENGINEERING. Application of engineering principles to soil and water management system planning and design. Examination of interrelations of soil-water-plant systems, and the effects of human intervention in these processes on the production environment. [2-2*-2*]

BIOE 376 (3) APPLICATIONS OF HEAT, MASS AND MOMENTUM TRANSFER. Applications in controlled environments, food processing and waste treatment. Thermal design for biological systems. Mathematical modelling and computer simulation techniques. Prerequisite: CHML 351. [2-2*-2*]

BIOE 390 (3) BIOLOGICAL WASTE SYSTEMS DESIGN AND MANAGEMENT. Analysis and design of treatment systems with emphasis on wastes from the food production and processing industries. Waste characterization, biological kinetics, attached and suspended growth systems, land application. [3-0-0]

BIOE 455 (3) PROPERTIES OF BIOMATERIALS AND ENGINEERING APPLICATIONS. Principles and techniques for measurement and evaluation of physical, biochemical and physiological properties of biomaterials. Applications of these characteristics to the design and analysis of bioprocessing and biomaterial systems. Prerequisite: CHML 251. [2-2-0]

BIOE 456 (3) BIOENVIRONMENTAL ENGINEERING. Environmental interactions of biological systems and their physical surroundings; biological responses of plants and animals; design of controlled environments to enhance health and productivity; protection of natural resources for sustainable production. Prerequisite: Fourth-year standing. [2-0-2]

BIOE 471 (3) BIOSYSTEMS ANALYSIS AND DESIGN. Applications of linear programming and optimization techniques. Analysis of dynamic systems and numerical simulation Stochastic systems, reliability, error analysis. Feedback systems and control systems. Design of hydraulic, waste treatment, food processing and biotechnology systems. Prerequisite: Fourth-year standing. [2-0-2]

BIOE 482 (3) BIOPROCESSING APPLICATION. Instrumentation and bioprocess control, product recovery, and advanced analysis of mixed microbial populations. Prerequisite: BIOE 382. [2-0-2]

BIOE 489 (2) SEMINAR. Papers, and discussions on recent bio-resource engineering developments. [0-0-2*; 0-0-2*]

BIOE 495 (3) RESEARCH PROJECT. Development of a proposal, experimentation and analysis. Prerequisite: Third- or fourth-year standing and a 75% average or better in BIOE courses. [0-2-0; 0-4-0]

BIOE 498 (2-6) C DIRECTED STUDIES. Requires approval of the Department Head.

BIOE 499 (6) THESIS. Research or design problem under the direction of a staff member. [0-2-0; 0-4-0]

BIOE 549 (12) MASTER'S THESIS. For M.Sc.

BIOL — BIOLOGY FACULTY OF SCIENCE

BIOL 121 is pre-requisite to all Biology courses, except BIOL 153, 343, 344, 345, 346, 442, 445 and 446. From 2002 on, BIOL 112 is the normal pre-requisite to BIOL 200. BIOL 121 is a pre-requisite for admission to Major or Honours options in Biology and other life science programs. In addition, BIOL 140 is a pre-requisite for admission to Biochemistry programs and both BIOL 140 and 112 are pre-requisite for admission to Biology, Microbiology, Pharmacology, and Physiology programs. Students interested in meeting the entrance requirements of the Faculties/Schools of Agricultural Sciences, Dentistry, Forestry, Medicine, Pharmaceutical Sciences, Human Kinetics, and Rehabilitation Sciences should consult the appropriate office to determine the first-year Biology requirement. Additional fees are charged for some courses.

BIOL 111 (3) CELL AND ORGANISMAL BIOLOGY. Structure and functioning of cells and multicellular organisms. Not open to students who have credit for Biology 12. Credit may be obtained for only one of BIOL 111 (110) and BIOL 115. [3-0-0]

BIOL 112 (3) BIOLOGY OF THE CELL. Introduction to biological principles using the bacterial cell and bacterial populations as paradigms. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: One of CHEM 12, CHEM 111 and one of BIOL 11, BIOL 12, BIOL 111. [3-0-1]

BIOL 121 (3) ECOLOGY, GENETICS, AND EVOLUTION. Ecological relationships in populations, mechanisms of inheritance, evidence for and mechanisms of evolution.

Recommended for science students. Prerequisite: One of BIOL 12, BIOL 111, BIOL 112, BIOL 115, BIOL 110. [3-0-0]

BIOL 140 (2) LABORATORY INVESTIGATIONS IN LIFE SCIENCE. Guided experimental investigations of biological questions. Prerequisite: One of BIOL 12, BIOL 111, BIOL 112. [1-2-0]

BIOL 141 (1) LABORATORY INVESTIGATION IN BIOLOGY. Guided experimental investigations of biological questions. Not intended for credit in the Biology program. Prerequisite: One of BIOL 12, BIOL 111, BIOL 112. [0-2-0]

BIOL 153 (7) HUMAN BIOLOGY. The principles of biology with particular reference to the human body (anatomy and physiology). Laboratories include selected experiments on organ physiology. Open only to students in the School of Nursing, Dental Hygiene and the Midwifery programs. [3-3*-0; 3-3*-0]

BIOL 155 (6) HUMAN BIOLOGY. The principles of biology with particular reference to the human body (anatomy and physiology). [3-0-0; 3-0-0]

BIOL 200 (3) CELL BIOLOGY I: STRUCTURAL BASIS. Structure and function of plant and animal cells; membrane models, cytoplasmic organelles, biological information from gene to protein, the endomembrane system, secretion, intracellular digestion, endocytosis, transport processes, cytoskeleton and cell motility. Prerequisite: Either (a) BIOL 112 and one of CHEM 123, CHEM 113; or (b) SCIE 001 or (c) 7 credits of first-year BIOL and 6 credits of first-year CHEM or (d) BIOL 121 and a CHEM 203 corequisite. [3-0-1]

BIOL 201 (3) CELL BIOLOGY II: INTRODUCTION TO BIOCHEMISTRY. Biological micro- and macromolecules, protein structure and enzyme action, energy transfer, selected metabolic sequences and their regulation. Credit given for only one of BIOL 201 or BIOC 300. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: BIOL 200 and one of CHEM 203, CHEM 233, CHEM 260. [3-0-1]

BIOL 204 (3) VERTEBRATE STRUCTURE AND FUNCTION. Introduction to the vertebrate phyla and their evolution; a comparative study of vertebrate structure and function, with dissection of representative forms. Prerequisite: All of BIOL 121, BIOL 140. [2-3-1]

BIOL 205 (3) COMPARATIVE INVERTEBRATE ZOOLOGY. An introduction to the invertebrate phyla. Prerequisite: All of BIOL 121, BIOL 140. [2-3-1]

BIOL 209 (3) NON-VASCULAR PLANTS. A study of fungi, algae, lichens and bryophytes, integrating form and function as they are related to adaptation to environment. Prerequisite: All of BIOL 121, BIOL 140. [2-3-1]

BIOL 210 (4) VASCULAR PLANTS. A comparative study of pteridophytes, gymnosperms and angiosperms, integrating form, function and ecology. Prerequisite: All of BIOL 121, BIOL 140. [3-3-0]

BIOL 240 (1) EXPERIMENTAL DESIGN IN THE LIFE SCIENCES. Students will work in groups to design their own experiments utilizing unicellular eukaryotes or prokaryotes. Techniques in microscopy and other methods used to study cells will be stressed. Prerequisite: All of BIOL 121, BIOL 140. [0-3-0]

BIOL 300 (3) BIOMETRICS. Statistical procedures for biological research; estimation, hypothesis testing, goodness of fit, analysis of variance and regression; use of computers for statistical analysis. Credit given for only one of BIOL 300, FRST 231, STAT 200, PSYC 218 or 366. Prerequisite: BIOL 121 and one of MATH 101, MATH 103, MATH 105. Third-year standing is required. [3-2-0]

BIOL 301 (3) BIOMATHEMATICS. Introduction to uses of mathematics in the biological sciences; experimental design and modelling of biological processes. Credit given for only one of BIOL 301, FRST 430, or STAT 305. Prerequisite: BIOL 300. [3-0-2]

BIOL 302 (3) COMMUNITY AND ECOSYSTEM BIOLOGY. Introduction to the principles of ecology at the community and ecosystem levels of integration. Topics include community structure and dynamics, productivity, decomposition, and mineral cycling. Prerequisite: BIOL 121. BIOL 303 is recommended. [3-0-1*]

BIOL 303 (3) POPULATION BIOLOGY. Introduction to the study of plant and animal populations and their physical and biological environments. Topics include natural selection and microevolution, demography, population dynamics, competition and predation. Prerequisite: BIOL 121. [3-0-1*]

BIOL 305 (3) INTRODUCTION TO BIOLOGICAL AND GEOLOGICAL OCEANOGRAPHY. Organisms in the sea and their relation to the physical and chemical environment; marine sediments and their relationships to biological and physical processes. Prerequisite: EOSC 370 is recommended. Equivalency: EOSC 371.

BIOL 310 (3) INTRODUCTION TO ANIMAL BEHAVIOUR. The ethological approach to the study of animal behaviour: social behaviour, physiological mechanisms underlying behaviour. Students are expected to carry out a short project in the laboratory or field (see also BIOL 410). Prerequisite: BIOL 121. Third-year standing is required. [3-0-2]

BIOL 316 (4) INTRODUCTORY PLANT PATHOLOGY. Study of the ecology of plant pathogenic organisms; principles of disease development and control. Equivalency: AGRO 326. [3-2-0]

BIOL 317 (4) WEED SCIENCE. Importance, identification, dissemination and biology of weeds; preventative, cultural, biological and chemical methods of control. Equivalency: AGRO 328. [3-2-0]

BIOL 320 (4) D SURVEY OF ALGAE. A survey of the algae, considering their morphology, life history, classification, and ecology. Prerequisite: BIOL 121. [3-3-0]

BIOL 321 (3) STRUCTURE AND EVOLUTION OF THE BRYOPHYTES. A study of evolution, taxonomy and morphology of mosses, liverworts and hornworts with emphasis on living plants in their environment. Prerequisite: BIOL 121. [2-4-0]

BIOL 322 (3) STRUCTURE AND EVOLUTION OF FERNS AND FERN-ALLIES. Anatomy, morphology and relationships of the ferns and fern-allies, with assessment of both fossil and extant taxa. Prerequisite: BIOL 121. [2-4-0]

BIOL 323 (3) STRUCTURE AND REPRODUCTION OF FUNGI. The evolutionary diversity of the fungi as shown by their morphology and reproductive biology. Prerequisite: BIOL 121. [2-3-0]

BIOL 324 (3) INTRODUCTION TO SEED PLANT TAXONOMY. Introduction to seed plant taxonomy emphasizing descriptive morphology and identification. Each student will be required to submit a plant collection. Prerequisite: BIOL 121. [2-3-0]

BIOL 325 (3) INTRODUCTION TO ANIMAL MECHANICS AND LOCOMOTION. Comparative aspects of the functional design of skeletal systems and the mechanics of swimming, flying and terrestrial locomotion, with particular reference to the vertebrates. Prerequisite: BIOL 121. [3-0-0]

BIOL 326 (3) BIOLOGY OF INVERTEBRATES. A comparative study of invertebrates, with emphasis on marine forms; structure and function, life histories, evolution, and ecology. Prerequisite: BIOL 205. Corequisite: BIOL 300 is recommended. [1-4-0]

BIOL 327 (3) INTRODUCTION TO ENTOMOLOGY. A survey of the structure, classification and biology of insects; ecology, life-histories and insect-plant relations. Prerequisite: BIOL 121. Equivalency: AGRO 327.

BIOL 328 (3) INTRODUCTORY PARASITOLOGY. Classification, morphology and life histories of animal parasites affecting humans and other animals. Prerequisite: BIOL 121. [2-3-0]

BIOL 331 (4) DEVELOPMENTAL BIOLOGY. Animal development and its underlying causal principles; introductory embryology. Prerequisite: All of BIOL 200, BIOL 201. BIOC 300 or BIOC 302 or BIOC 303 is recommended. [3-3-0]

BIOL 332 (6) PROTISTOLOGY. Origin of eukaryotes; diversity and evolution of unicellular eukaryotes irrespective of plant or animal affinities; environmental adaptations, symbiosis and their significance to ecosystems. Prerequisite: BIOL 200. [2-3-0; 2-3-0]

BIOL 334 (3) BASIC GENETICS. Mendelian genetics, chromosome theory of heredity, linkage, mutation, mapping, gene structure and function, gene interaction, quantitative genetics, population genetics. Credit will be granted for only one of BIOL 334 or FRST 302. Prerequisite: BIOL 200. Corequisite: BIOL 201. [3-0-2]

BIOL 335 (3) MOLECULAR GENETICS.

Isolation and identification of genes, analysis of gene structure; gene expression and its regulation in prokaryotes and in eukaryotes; developmental genetics. Prerequisite: One of BIOL 334, MICB 322, FRST 302. [3-0-2]

BIOL 336 (3) EVOLUTIONARY GENETICS. Natural selection; population genetics, quantitative genetics and systematics; classical and molecular approaches to the study of evolution. Prerequisite: BIOL 334. [3-0-2]

BIOL 337 (3) INTRODUCTORY GENETICS LABORATORY. A laboratory course demonstrating the fundamental principles of inheritance: Mendel's Laws, sex-linkage, mapping, mutagenesis, chromosome structure, developmental biology, biochemical and population genetics. Corequisite: BIOL 334. [1-4-0]

BIOL 343 (3) PLANTS AND PEOPLES. The interactions of plants and human societies: the role of people in the origin, evolution and dispersal of food, drug and economic plants, and the influences of plants on human societies. Suitable for upper-level Arts students. [2-2-1]

BIOL 344 (3) HUMAN HEREDITY AND EVOLUTION. Relates genetic and evolutionary concepts to humans. Primarily for upper-level students in the Faculty of Arts. Credit will be given for only one of BIOL 121 or BIOL 344. Not open to students in the Life Sciences. [3-0-2]

BIOL 345 (3) HUMAN ECOLOGY. Basics of ecology are introduced, focussing on observations of the natural world. Assignments, including a group project, consider connections between research, awareness and practical uses of ecology. Not for credit in the Life Sciences. [3-0-2]

BIOL 346 (3) MICROBES AND SOCIETY. An elementary course in molecular biology primarily for Arts students. The historical development of recent discoveries in molecular biology with emphasis on bacteria and viruses and their interaction with humans. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Not for credit in Life Sciences. [3-0-0]

BIOL 347 (3) PRINCIPLES AND METHODOLOGY IN BIOLOGICAL RESEARCH. Contemporary research in the Botany and Zoology Departments; history and methodology of scientific discovery; seminars on current problems. Restricted to Honours students in Biology. Not to be taken concurrently with BIOL 449. [2-3-0]

BIOL 350 (7) CELL PHYSIOLOGY. The physico-chemical basis of cellular activity: energy relationships, membrane processes, integration and internal control of cellular activities, and cellular signal transduction. The laboratory emphasizes techniques used to study cell function. Restricted to Majors and Honours students in Biology. Prerequisite: BIOL 201. Corequisite: Either (a) BIOC 302 or (b) BIOC 303. [2-4-0; 2-4-0]

BIOL 351 (4) PLANT PHYSIOLOGY I.

Mechanisms and regulation of functional processes contributing to the assimilation, transport and utilization of water, mineral nutrients and carbon by plants. Restricted to Majors and Honours students in Biology. Prerequisite: BIOL 121 and either (a) CHEM 123 or (b) all of CHEM 111, CHEM 113. CHEM 233 is recommended. Equivalency: AGRO 324, FRST 311. [3-3-0]

BIOL 352 (3) PLANT PHYSIOLOGY II: PLANT DEVELOPMENT. Introduction to the processes involved in growth and development: cell division, tissue culture, meristems, differentiation, and the action of major growth regulators, and photomorphogenesis. Emphasis on experimental approaches. Prerequisite: One of BIOL 334, FRST 302. CHEM 233 is recommended. [2-3-1]

BIOL 360 (3) CELL PHYSIOLOGY

LABORATORY. Laboratory studies of cellular function. Restricted to Majors and Honours students in Biology and Honours Biophysics. Prerequisite: BIOL 201. Corequisite: BIOL 361. [0-4-0.5; 0-4-0.5]

BIOL 361 (2) INTRODUCTION TO PHYSIOLOGY. Energetics and excitable membranes of nerve and muscle. Preference will be given to Majors or Honours students in Biology, Majors in Nutritional Sciences, and Honours in Biophysics. Prerequisite: BIOL 201. [2-0-1]

BIOL 362 (2) CELLULAR PHYSIOLOGY. The cytoskeleton, cell dynamics, and regulation of cellular activities. Preference will be given to Majors or Honours students in Biology and Honours Biophysics. Prerequisite: Either (a) BIOL 361 or (b) all of BIOL 201, BIOL 351. [2-0-1]

BIOL 363 (3) LABORATORY IN ANIMAL PHYSIOLOGY. Experimental studies in animal physiology. Restricted to Majors and Honours students in Biology, Nutritional Sciences and Biophysics. Prerequisite: BIOL 204. Corequisite: BIOL 361. [2*-3*-0; 2*-3*-0]

BIOL 364 (2) ANIMAL PHYSIOLOGY. Cardiovascular, respiratory, and osmoregulatory physiology. Preference will be given to Majors or Honours students in Biology, Majors in Nutritional Sciences, and Honours in Biophysics. Prerequisite: All of BIOL 204, BIOL 361. [2-0-1]

BIOL 398 (3) CO-OPERATIVE WORK PLACEMENT I. Work experience in an industrial setting, taken during Winter Session (Term 2) of third year. Restricted to students admitted to the Co-operative Education Program in Biology.

BIOL 399 (3) CO-OPERATIVE WORK PLACEMENT II. Work experience in an industrial research setting, taken during Summer Session (Terms 1 and 2) following third year. Restricted to students admitted to the Co-operative Education Program in Biology. Prerequisite: BIOL 398.

BIOL 402 (3) AQUATIC ECOLOGY. Theoretical and applied limnology; ecology of inland water organisms in relation to physical,

chemical and biological factors. One weekend field trip required. Prerequisite: All of BIOL 300, BIOL 302, BIOL 303. [2-4-0]

BIOL 404 (3) ECOLOGICAL METHODOLOGY. Quantitative methods for estimating population density, sampling problems of field populations, and experimental design in ecological analysis. Application of computer techniques for the statistical analysis of ecological data. Prerequisite: All of BIOL 300, BIOL 302, BIOL 303. [2-4-0]

BIOL 405 (3) MARINE ECOLOGY. A study of the relationship of marine biotic communities to the environment, with emphasis on the intertidal area. Limited to students in fourth year. Prerequisite: All of BIOL 205, BIOL 302, BIOL 320. Corequisite: BIOL 300. [2-3-0]

BIOL 406 (4) PLANT ECOLOGY I. Plant community ecology including a consideration of the major approaches to sampling, analyzing and interpreting vegetation patterns. Instruction given in field work and computer analysis of field data. Prerequisite: BIOL 302. BIOL 324 is recommended. [3-3-0]

BIOL 407 (3) PLANT ECOLOGY II. Relationships between plants and their physical and biotic environment, including plant population dynamics, genecology, ecology of reproduction and vegetation change. Students will carry out a short term project in the laboratory or field. Prerequisite: All of BIOL 302, BIOL 303. [3-3-0]

BIOL 408 (6) PRINCIPLES OF APPLIED ECOLOGY. Principles of animal and community ecology applicable to the management of animal resources; application of statistical and computer techniques for measuring, analyzing, modelling, and simulating resource systems; problems of multiple resource use. Prerequisite: BIOL 300. [2-2-0; 2-2-0]

BIOL 409 (3) FIELD COURSE IN ANIMAL ECOLOGY. A two-week intensive course in field methods used in animal ecology. The course is given in the two weeks before first term. A fee will be assessed for living expenses. Pre-registration required. Prerequisite: All of BIOL 300, BIOL 302, BIOL 303. BIOL 310 is recommended.

BIOL 410 (3) CURRENT TOPICS IN ANIMAL BEHAVIOUR. Lectures and seminar discussions on selected topics in animal behaviour. Prerequisite: BIOL 310. Permission of the head of Zoology is also acceptable. [2-0-2]

BIOL 411 (3) INSECT ECOLOGY. Behavioural, population and community ecology of insects. Interactions between insects and plants and the application of the principles of insect ecology to biological control of insects and weeds. Prerequisite: Either (a) BIOL 205 or (b) all of AGRO 327, BIOL 327. [3-0-0]

BIOL 412 (3) PHYTOGEOGRAPHY. Description and interpretation of present and past floristic vegetational patterns; integration of evolutionary, ecological, and phytogeographical concepts. Terrestrial and aquatic plants are considered. Restricted to students of third and fourth years. Prerequisite: BIOL 121. [3-0-0]

BIOL 413 (3) ZOOGEOGRAPHY. Distribution of terrestrial and aquatic animals in space and time; restricted to students in Third and Fourth year. Prerequisite: BIOL 121. [3-0-0]

BIOL 415 (3) EVOLUTIONARY PROCESSES IN PLANTS. Experimental and comparative analysis of evolutionary processes, speciation, and phylogenetic patterns in plants. Prerequisite: BIOL 334. [3-0-0]

BIOL 416 (3) PRINCIPLES OF CONSERVATION BIOLOGY. Genetics and demography of small and fragmented populations; global and local conservation problems; case histories of endangered animals and plants. Three compulsory weekend field trips. Credit will be given for only one of BIOL 416 and CONS 330. Prerequisite: BIOL 303. [2-0-2]

BIOL 418 (3) EVOLUTIONARY ECOLOGY. Ecological adaptation and evolutionary processes in contemporary populations; natural selection, variation, optimization, foraging theory, coevolution, arms races; life history theory, evolution of sex, sexual selection, evolution in managed populations. Prerequisite: All of BIOL 303, BIOL 336. [2-2-0]

BIOL 419 (3) ECOLOGICAL PARASITOLOGY. A survey of ecological concepts as they pertain to parasitic eukaryotic animals including life history, population dynamics, community structure, disease transmission and evolution. Prerequisite: One of BIOL 303, BIOL 328. [2-3-0]

BIOL 421 (3) PLANT-MICROBE INTERACTIONS. Biology and physiology of selected plant-microbe relationships. Impacts of plant-microbe relationships on society. Prerequisite: BIOL 201. Equivalency: AGRO 426. [3-0-2]

BIOL 425 (3) BIOMECHANICS. An analytical approach to the study of skeletal mechanics and animal locomotion. Selected topics in the structure and properties of biological materials, the functional design of skeletons for locomotion, and the fluid mechanics of swimming and flight. Prerequisite: BIOL 325. [2-3-0]

BIOL 427 (3) TERRESTRIAL VERTEBRATE ZOOLOGY. The natural history, behavioural ecology and conservation of terrestrial vertebrates (and marine mammals). The laboratory includes classification, life histories, and ecology, with particular attention to species from British Columbia. Prerequisite: BIOL 204. [2-3-0]

BIOL 428 (3) INVERTEBRATE AQUACULTURE. The theory and practice of culturing selected commercially important invertebrates. Restricted to students in fourth year. Prerequisite: BIOL 205. [2-3-0]

BIOL 429 (3) ALGAL AQUACULTURE. The theory and practice of growing micro- and macroalgae for commercial purposes. Includes historical aspects of algal aquaculture, cultivation principles, practical problems, end products, economics and current status of the industry. Prerequisite: BIOL 121. [3-0-0]

BIOL 430 (3) GENOME EVOLUTION. Application of genetics and molecular biology to

evolutionary problems. Emphasis on using macromolecular sequence information to answer questions about phylogeny and population structure, and on the evolutionary implications of recent discoveries in molecular genetics. Prerequisite: One of BIOL 335, BIOL 336. [3-0-0]

BIOL 431 (3) ADVANCED CELL BIOLOGY. Ultrastructure, biogenesis and evolution of bacterial and eukaryotic cells and cell organelles, including their macromolecular basis. Prerequisite: BIOL 200. BIOL 335 recommended. [3-3-0]

BIOL 433 (4) PLANT GENETICS. Emphasis on molecular aspects. Systems and techniques for genetic analysis in plants; isolation and regulation of plant genes; genetic dissection of plant-specific processes; transposable elements; gene transfer in plants; cytoplasmic inheritance; genetic engineering. Prerequisite: BIOL 335. [3-0-2]

BIOL 434 (3) POPULATION GENETICS. Theoretical and experimental aspects of population and quantitative genetics. Prerequisite: BIOL 336 and one of BIOL 334, FRST 302. [3-0-2]

BIOL 435 (3) MOLECULAR BIOLOGY AND BIOCHEMISTRY OF THE YEAST SACCHAROMYCES. Molecular and genetic analysis of transcriptional regulation, cell cycle regulation, signal transduction, and developmental mechanisms using yeast (*Saccharomyces*) as a model eukaryote. Prerequisite: BIOL 335 and one of BIOC 300, BIOC 302, BIOC 303. BIOC 303 and BIOC 410 are recommended. Equivalency: BIOC 435. [3-0-0]

BIOL 437 (3) LABORATORY IN ANIMAL CELL MOLECULAR BIOLOGY. The use of recombinant DNA techniques to explore problems in animal developmental biology. Prerequisite: All of BIOL 331, BIOL 335 and one of BIOL 201, BIOC 300, BIOC 302, BIOC 303. Permission of the department head is also required. [2-4-0]

BIOL 438 (3) ZOOLOGICAL PHYSICS. Animal systems viewed from a physicist's perspective. Topics include sensory systems, energy budgets, locomotion, internal flows, physical advantages of grouping. Prerequisite: One of PHYS 101, PHYS 107. BIOL 325 is recommended. Equivalency: PHYS 438. [3-0-0]

BIOL 441 (3) ANIMAL CELL BIOLOGY. Analysis of cellular organelles and the intracellular traffic between them, concentrating on mammalian cell systems. Prerequisite: All of BIOL 335, BIOL 360, BIOL 361 and one of BIOC 300, BIOC 302, BIOC 303. Corequisite: BIOL 350. BIOL 331 is recommended. [3-0-0]

BIOL 442 (3) ETHICAL ISSUES IN SCIENCE. Theoretical and practical consideration of ethics in the practice, reporting, public impact and accountability of science. Prerequisite: Fourth-year standing in any Faculty is required. [3-0-0]

BIOL 443 (4) PLANT BREEDING AND BIOTECHNOLOGY. Genetic basis and methodology of breeding for improved crop and ornamental plants. Application of tissue

culture and molecular biology to plant improvement. Prerequisite: BIOL 201 and one of BIOL 334, FRST 302. Equivalency: AGRO 424. [3-0-2]

BIOL 444 (3) TECHNIQUES IN PLANT MOLECULAR BIOLOGY. Purification and analysis of nucleic acids, electrophoresis and immunodetection of proteins. Restricted to Honours students with permission of the Head of Botany and the Biotechnology Teaching Laboratory. Prerequisite: BIOL 335. Corequisite: BIOL 433 is recommended. [0-7-0]

BIOL 445 (3) DARWIN'S FISHES. A series of computer-assisted lectures using ichthyology and the work of Charles Darwin to illustrate basic principles of biology, and their practical implementation, i.e., how biologists select research programs, generate and test hypotheses, and present their case to peers and the public. Prerequisite: Third-year standing in Science is required. [2-0-2]

BIOL 446 (3) HISTORY AND PHILOSOPHY OF BIOLOGY. The nature of science, this history of evolutionary and molecular biology, philosophical questions about scientific methods and fundamental conclusions of biology. Prerequisite: Fourth-year standing in any degree program is required. [3-0-0]

BIOL 447 (3) PRINCIPLES AND METHODOLOGY IN BIOLOGICAL RESEARCH. Seminars, debates, workshops and tutorials designed to produce competence in specific areas of Biology. Restricted to Honours students in Biology. Corequisite: BIOL 449. [2-3-0]

BIOL 448 (3-12) C DIRECTED STUDIES IN BIOLOGY. A course designed to allow students to undertake an investigation on a specific topic as agreed upon by the faculty member and the student. Permission of the supervisor required. No more than 6 credits of BIOL 448 may be taken with the same supervisor.

BIOL 449 (6) DIRECTED BIOLOGICAL RESEARCH. A course designed to allow students to undertake a research project in selected fields. Open only to Honours students in Biology, with permission of the supervisor. Presentation of a thesis and an oral examination are required. Corequisite: BIOL 447.

BIOL 450 (3) MOLECULAR ADAPTATION OF ANIMALS TO THE ENVIRONMENT. Physiological, biochemical and molecular strategies of adaptation of animals to environmental challenges. The evolution of genetic and biochemical systems, and their impact on animal structure and function. Prerequisite: One of BIOL 353, BIOL 355 and one of BIOC 300, BIOC 302, BIOC 303. BIOL 454 is recommended. [3-0-0]

BIOL 454 (3) COMPARATIVE ANIMAL PHYSIOLOGY. Selected topics in physiology emphasizing comparisons between diverse phylogenetic groups of animals. Prerequisite: One of BIOL 350, BIOL 353, PSYC 360. [3-0-0]

BIOL 455 (3) COMPARATIVE NEUROBIOLOGY. Current approaches in neurobiology, from the cellular to the

behavioural level, are examined using representatives of vertebrate and invertebrate nervous systems. Prerequisite: BIOL 361 and one of BIOL 360, BIOL 363. [3-0-2*]

BIOL 456 (3) COMPARATIVE AND MOLECULAR ENDOCRINOLOGY. A comparative study of vertebrate and invertebrate endocrinology. Prerequisite: BIOL 353. [3-0-0]

BIOL 457 (3) COMPARATIVE ENVIRONMENTAL PHYSIOLOGY. A survey of physiological adaptations of animals to different environments. Prerequisite: One of BIOL 353, BIOL 355. [3-0-0]

BIOL 458 (3) DEVELOPMENTAL NEUROBIOLOGY. Cellular, molecular and physiological aspects of nervous system development with applications to understanding adult nervous system function and neurological disorders. [3-0-0]

BIOL 462 (3) ECOLOGICAL PLANT BIOCHEMISTRY. The structure, biosynthesis, distribution and biological function of secondary plant metabolites. Prerequisite: All of BIOL 200, BIOL 201. BIOL 209 or BIOL 210 is recommended. Equivalency: FRST 413. [3-0-0]

BIOL 463 (3) GENE REGULATION IN DEVELOPMENT. Control of gene expression in development; the genetic and physiological basis of epigenetic determination; inductive interactions. Prerequisite: BIOL 335 and one of BIOC 300, BIOC 302, BIOC 303. BIOL 331 is recommended. [3-0-0]

BIOL 464 (3) ANIMAL DEVELOPMENTAL GENETICS. Role of genes in embryonic development. Emphasis on tissue specific expression patterns and the role of genetic networks in establishing cell types. Prerequisite: BIOL 463. [3-0-0]

BIOL 465 (3) DIVERSITY AND EVOLUTION OF FISHES. Introduction of fish diversity, with a focus on their phylogenetic interrelationships and the evolutionary, ecological, and biogeographic processes involved in generating patterns of fish biodiversity. Prerequisite: BIOL 204. [2-3-0]

BIOL 466 (3) APPLIED BIOLOGY OF FISHES. Physiological ecology and exploitation biology of teleost fishes; computer-based analysis and modeling of fish populations. Prerequisite: BIOL 465.

BIOL 498 (3) CO-OPERATIVE WORK PLACEMENT III. Work experience in an industrial research setting, taken during the Summer Session (Terms 1 and 2) following fourth year. Restricted to students admitted to the Co-operative Education Program in Biology.

BIOL 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Work experience in an industrial research setting, taken during the Winter Session (Terms 1 and 2) following fourth year. Restricted to students admitted to the Co-operative Education Program in Biology. Prerequisite: One of BIOL 399, BIOL 498.

BIOL 508 (6) GENETICS SEMINAR.

BIOL 509 (3) POPULATION AND QUANTITATIVE GENETICS.

BIOL 510 (3) APPLIED POPULATION GENETICS. Equivalency: FRST 535.

BIOL 522 (3/6) D TOPICS IN MARINE BENTHIC ECOLOGY.

BIOL 525 (2-6) D TOPICS IN SYSTEMATICS AND EVOLUTION.

BIOL 530 (3) THE BIOLOGY OF THE CELL.

BIOL 535 (3) TEACHING AND LEARNING IN THE LIFE SCIENCES.

BIOL 537 (3) TOPICS IN BIOTECHNOLOGY. Research reviews, class discussions, and presentations about current research in the diverse areas of biotechnology. Topics include the research interests of members of the UBC Biotechnology Laboratory. [1.5-0-0; 1.5-0-0]

BIOL 548 (2-6) C ADVANCED TOPICS IN BIOLOGY.

BIOL 549 (12-18) C MASTER'S THESIS.

BIOL 649 (0) PH.D. THESIS.

BIOT — BIOTECHNOLOGY Joint Degree in Biotechnology (BIOT) courses are only available on the BCIT campus.

BIOT 201 (0) LAB SAFETY. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 203 (2) INTRODUCTION TO BIOTECHNOLOGY. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 205 (3) MICROBIOLOGY I. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 206 (3) MICROBIOLOGY II. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 207 (3) PRINCIPLES OF PHYSIOLOGY. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 208 (2) PLANT ANATOMY AND PHYSIOLOGY. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 210 (3) PROCESS SYSTEMS. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 221 (3) ORGANIC CHEMISTRY I. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 222 (3) ORGANIC CHEMISTRY II. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 231 (2) COMMUNICATIONS FOR BIOTECHNOLOGY I. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 232 (3) COMMUNICATIONS FOR BIOTECHNOLOGY II. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 241 (0) INFORMATION TECHNOLOGY FOR BIOTECHNOLOGY. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 242 (3) STATISTICS. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 280 (0) INTRODUCTORY BIOTECHNOLOGY.

BIOT 306 (2) MICROBIOLOGY III. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 307 (3) MOLECULAR GENETICS I. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 308 (3) MOLECULAR GENETICS II. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 309 (2) ADVANCED PLANT CELL BIOTECHNOLOGY. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 310 (2) ADVANCED CELL ANIMAL BIOTECHNOLOGY. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 311 (3) BIOCHEMISTRY I. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 312 (3) BIOCHEMISTRY II. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 313 (3) INTRODUCTION TO PHARMACEUTICAL DEVELOPMENT. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 323 (2) ANALYTICAL CHEMISTRY I. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 324 (2) ANALYTICAL CHEMISTRY II. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 331 (3) CRITICAL READING & WRITING. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 351 (0) MANAGEMENT SKILLS AND APPLICATIONS. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 352 (2) MANAGEMENT AND REGULATORY AFFAIRS. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 361 (3) APPLIED ETHICS. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 380 (0) ADVANCED BIOTECHNOLOGY.

BIOT 398 (3) CO-OPERATIVE WORK PLACEMENT I. Credit limited to students in the Joint Degree Program in Biotechnology.

BIOT 399 (3) CO-OPERATIVE WORK PLACEMENT II. Credit limited to students in the Joint Degree Program in Biotechnology.

BOTA — BOTANY FACULTY OF SCIENCE
All undergraduate courses in Botany are listed under Biology.

BOTA 500 (2) FIELD BOTANY.

BOTA 501 (3) SEMINAR IN BOTANY.

BOTA 502 (0) THESIS SEMINAR.

BOTA 505 (2/3) C FIELD COURSE IN PLANT DIVERSITY.

BOTA 512 (2/3) C PRACTICAL MARINE PHYTOPLANKTON. Prerequisite: EOSC 574.

BOTA 520 (6) ADVANCED PHYTOGEOGRAPHY.

BOTA 526 (3) ADVANCED PLANT COMMUNITY ANALYSIS.

BOTA 527 (3) DYNAMICS OF PLANT POPULATIONS. Prerequisite: BIOL 407.

BOTA 528 (3) CURRENT TOPICS IN PLANT BIOCHEMISTRY.

BOTA 530 (3) PLANT METABOLIC PHYSIOLOGY.

BOTA 532 (3) REGULATION OF PLANT GROWTH AND DEVELOPMENT.

BOTA 544 (3) PLANT MOLECULAR BIOLOGY LABORATORY. Admission to the course is limited and requires recommendation from the Head of Botany or the Director of the Biotechnology Laboratory. Prerequisite: BIOL 335 is recommended as either a prerequisite or corequisite. Equivalency: PLNT 540, FRST 503.

BOTA 545 (3) PLANT GENETIC ENGINEERING LABORATORY. Limited enrolment; requires consent of instructors. Equivalency: PLNT 514, FRST 509.

BOTA 546 (2-12) C TOPICS IN BOTANY.

BOTA 548 (3) M.SC. MAJOR ESSAY.

BOTA 549 (6/12) C MASTER'S THESIS.

BOTA 649 (0) PH.D. THESIS.

BRDG — BRIDGE PROGRAM FACULTY OF GRADUATE STUDIES

Restricted to BRDG students only.

BRDG 500 (1.5) THESIS AND JOURNAL SEMINAR.

BRDG 501 (3) RESEARCH DEVELOPMENT.

BRDG 590 (0) INTERNSHIP. 4 months for MSc.

BRDG 600 (3) THESIS AND JOURNAL SEMINAR.

BRDG 601 (6) RESEARCH GRANT DEVELOPMENT.

BRDG 690 (0) INTERNSHIP. 8 months for PhD students.

BUED — BUSINESS EDUCATION FACULTY OF EDUCATION

BUED 301 (3) CURRICULUM AND INSTRUCTION: COMPUTER APPLICATIONS FOR BUSINESS EDUCATION. Introduction to teaching keyboarding and computer skills, and the use of software programs for a variety of business applications. Pass/Fail.

BUED 314 (4/5) D CURRICULUM AND INSTRUCTION IN BUSINESS EDUCATION: SECONDARY. Pass/Fail. Prerequisite: A completed concentration in business education or permission of the head.

BUED 375 (3) ADVANCED SOFTWARE APPLICATIONS IN BUSINESS EDUCATION. Pass/Fail. [3-0-0]

BUED 376 (3) TEACHING OFFICE ORGANIZATION AND INFORMATION COMMUNICATION TECHNOLOGIES IN BUSINESS EDUCATION. Pass/Fail. [3-0-0]

BUED 377 (3) SYSTEMS OF DATA PROCESSING. Types and organization of business systems; electronic methods of data processing; criteria and procedures for software evaluation. Teaching methods and projects for secondary schools. Prerequisite: Either (a) BUED 301 or (b) BUED 401. [3-0-0]

BUED 402 (3) CURRICULUM AND INSTRUCTION IN KEYBOARDING. Principles and problems of instruction on business documents. Prerequisite: BUED 401. [4-0]

BUED 508 (3-6) D REVIEW OF RESEARCH IN BUSINESS EDUCATION. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

BUED 561 (3-12) C LABORATORY PRACTICUM.

BUED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

BUED 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

BUED 590 (3) GRADUATING PAPER. Pass/Fail.

BUED 598 (3-12) C FIELD EXPERIENCES. For those in master's, doctoral and diploma programs.

BUED 599 (6/12) C MASTER'S THESIS.

BUSI — BUSINESS FACULTY OF COMM (SAUDER)

BUSI 100 (3) MICRO FOUNDATIONS OF REAL ESTATE ECONOMICS. Basic principles of microeconomics and application to current economic problems.

BUSI 101 (3) CAPITAL MARKETS AND REAL ESTATE. Basic principles of macroeconomics and application to current economic problems. Prerequisite: BUSI 100.

BUSI 111 (3) REAL PROPERTY LAW. Canadian legal system and contract law and detailed aspects of real estate law as it applies in British Columbia.

BUSI 121 (3) FOUNDATIONS OF REAL ESTATE MATHEMATICS. Introduction to mathematics of real estate finance and statistical measures and methods and their application to practical real estate concepts. Prerequisite: Algebra 12 strongly recommended.

BUSI 221 (3) REAL ESTATE FINANCE IN A CANADIAN CONTEXT. History, function and mechanics of Canadian mortgage markets. Prerequisite: BUSI 121.

BUSI 290 (4) INTRODUCTION TO QUANTITATIVE DECISION ANALYSIS. Introduction to decision models in business, including basic optimization, linear programming, probability, decision analysis, random variables, simulation, and solving decision problems using spreadsheet tools. Prerequisite: All of MATH 104, MATH 105 or equivalents. Equivalency: COMM 290.

BUSI 291 (4) APPLICATION OF STATISTICS IN BUSINESS. Methods and applications of statistics in business; data analysis, descriptive regression; data generation; sampling distributions; hypothesis testing; confidence intervals; two sample problems; inference in regression. Prerequisite: BUSI 290 or equivalent. Equivalency: COMM 291.

BUSI 293 (3) INTRODUCTORY FINANCIAL ACCOUNTING. Introduction to the construction and interpretation of financial reports prepared primarily for external use.

BUSI 294 (3) INTRODUCTORY MANAGEMENT ACCOUNTING. Introduction to the development and use of accounting information for management planning and control, and the development of cost information for financial reports. Prerequisite: BUSI 293 or equivalent. Corequisite: BUSI 293 or equivalent.

BUSI 295 (3) MANAGERIAL ECONOMICS. Economic foundations of managerial decision making.

BUSI 299 (1) BUSINESS COMMUNICATIONS. Basic communication theory, communications in organizations. Includes written and oral practice in lab sessions. Equivalency: COMM 299.

BUSI 300 (3) URBAN AND REAL ESTATE ECONOMICS. Comprehensive treatment of urban and real estate economics; introduction to study of cities and real estate market; analytical microeconomic principles. Prerequisite: All of BUSI 100, BUSI 101.

BUSI 329 (3) PRINCIPLES OF ORGANIZATIONAL BEHAVIOUR. An introductory examination of work organizations and the behaviour of individuals within them. Phenomena to be studied include organizational structure, environments, group processes, motivation and leadership. Equivalency: BUSI 292, COMM 292.

BUSI 330 (3) FOUNDATIONS OF REAL ESTATE APPRAISAL. Introduction to concepts and techniques for appraising the value of real estate. Prerequisite: Recommend BUSI 121.

BUSI 331 (3) REAL ESTATE INVESTMENT ANALYSIS AND ADVANCED INCOME APPRAISAL. Valuation techniques for income real estate, including income method of appraisal, tax consequences of real property ownership, and portfolio analysis methodology. Prerequisite: All of BUSI 121, BUSI 330.

BUSI 335 (3) INFORMATION SYSTEMS.

Introduction to information technology related to business use: design, implementation, and application of information systems.

BUSI 353 (3) INTERMEDIATE FINANCIAL ACCOUNTING I. An examination of accounting as a means of measurement and as an information system for external reporting purposes. Prerequisite: BUSI 293 or equivalent.

BUSI 354 (3) COST ACCOUNTING. The provision and analysis of cost accounting information that will assist management in making operating decisions and in evaluating operational performance. Prerequisite: BUSI 294 or equivalent.

BUSI 355 (3) INTRODUCTION TO INCOME TAX. A study of income tax from the standpoint of the individual and business enterprise. Prerequisite: BUSI 293 or equivalent.

BUSI 370 (3) BUSINESS FINANCE. An introduction to the basic principles of financial valuation and an examination of corporate enterprise decisions including working capital management; capital budgeting; capital structures and dividend policy. Prerequisite: BUSI 293 or equivalent.

BUSI 391 (3) INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS. Overview of computer technology and terminology; use of computers as managerial and administrative tools; the management of computer resources and the influence of information technology within the organization. Equivalency: COMM 391.

BUSI 393 (3) INTRODUCTION TO BUSINESS LAW. Introduction to the law of contracts, with particular reference to contracts for sale of goods and related law of personal property, principles of agency, partnership, and company law.

BUSI 399 (3) LOGISTICS AND OPERATIONS MANAGEMENT. The design and management of systems to make products, provide services and deliver them to the end user. Prerequisite: All of BUSI 290, BUSI 291 or equivalents. Equivalency: COMM 299.

BUSI 400 (3) RESIDENTIAL PROPERTY ANALYSIS. Underlying theory and techniques used in design, construction, and inspection of residential properties.

BUSI 401 (3) COMMERCIAL PROPERTY ANALYSIS. Underlying theory and techniques used in the design and construction of commercial properties.

BUSI 441 (3) REAL ESTATE MANAGEMENT I. Examines the day-to-day issues which affect the practice of property management. Prerequisite: BUSI 330. BUSI 331 recommended.

BUSI 442 (3) CASE STUDIES IN APPRAISAL I. Examines the day-to-day issues that affect the practice of real estate appraisal. Prerequisite: All of BUSI 121, BUSI 330, BUSI 331.

BUSI 443 (6) ASSESSMENT ADMINISTRATION. Introduces the practice of real property assessment, including the nature of the techniques used, the required duties of

assessors, and how an assessment office is administrated. Prerequisite: BUSI 330 recommended.

BUSI 444 (6) COMPUTER AIDED MASS PROPERTY ASSESSMENT. This course develops and applies the major techniques for valuing real property. Prerequisite: Recommend all of BUSI 121, BUSI 330, BUSI 443.

BUSI 445 (3) REAL ESTATE DEVELOPMENT I. Real estate development process from the project idea to the cursory feasibility stage. Steps in development planning, including analysis, design and evaluation. Evaluating development potential, land acquisition, and site planning. Prerequisite: All of BUSI 330, BUSI 331.

BUSI 446 (3) REAL ESTATE DEVELOPMENT II. Analysis of real estate development process with an examination of economic feasibility studies, approval processes, project financing, construction, project management, and marketing phases. Prerequisite: BUSI 445.

BUSI 450 (3) INTERMEDIATE FINANCIAL ACCOUNTING II. A continuation of the examination of accounting as a means of measurement and as an information system for external reporting purposes. Prerequisite: BUSI 353. Corequisite: BUSI 353.

BUSI 451 (3) REAL ESTATE MANAGEMENT II. Continuation of BUSI 441.

BUSI 452 (3) CASE STUDIES IN APPRAISAL II. Continuation of BUSI 442

BUSI 453 (3) ADVANCED FINANCIAL ACCOUNTING. An examination of advanced financial accounting topics. Prerequisite: BUSI 450. Corequisite: BUSI 450.

BUSI 454 (3) ACCOUNTING FOR MANAGEMENT CONTROL AND INCENTIVES. Design of accounting systems for facilitating and influencing management decisions, with emphasis on performance evaluation in organizations. Prerequisite: BUSI 294. Equivalency: COMM 454.

BUSI 455 (3) PRINCIPLES OF AUDITING. Principles of internal control; audit evidence; sampling and testing; audit reports; standards and responsibilities of the external audit. Prerequisite: BUSI 353. Recommended prerequisite or corequisite: BUSI 450.

BUSI 465 (3) MARKETING MANAGEMENT. Basic considerations affecting the domestic and international marketing of goods and services. Prerequisite: All of ECON 101, ECON 102, BUSI 293. Equivalency: COMM 465, COMM 396.

BUSI 470 (3) FINANCIAL MANAGEMENT. Prerequisite: One of BUSI 370, COMM 473.

BUSI 486 (3-9) D SPECIAL TOPICS IN BUSINESS.

BUSI 493 (3) STRATEGIC MANAGEMENT IN BUSINESS. A conceptual and practical introduction to the major areas of business strategy with an integrative perspective on managing a business. Includes the analysis of a business and its environment, the development

and evaluation of strategic alternatives, and implementation of change. Prerequisite: BUSI 293 and either (a) all of ECON 101, ECON 102 or (b) ECON 309. Corequisite: Two of BUSI 294, BUSI 329, BUSI 370, BUSI 465. Equivalency: COMM 493.

BUSI 498 (3) INTERNATIONAL BUSINESS MANAGEMENT. Development of general environmental framework for international business studies by drawing on international and development economics, research into government-business relations and studies in comparative socio-cultural systems and political systems. Prerequisite: BUSI 293 and either (a) all of ECON 101, ECON 102 or (b) ECON 309. Corequisite: Two of BUSI 294, BUSI 329, BUSI 370, BUSI 465. Equivalency: COMM 498.

BUSI 499 (3-6) D DIRECTED STUDIES IN REAL ESTATE. An investigation and report on a topic to be agreed upon by a member of the faculty and a senior student.

CCFI — CENTRE FOR CROSS-FACULTY INQUIRY FACULTY OF EDUCATION

CCFI 501 (3) LIVING INQUIRY IN LEARNING COMMUNITIES.

CCFI 502 (3) THEORIZING KNOWING IN EDUCATION.

CCFI 508 (3-12) C REVIEW OF RESEARCH IN EDUCATIONAL METHODS. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course is required.

CCFI 561 (3-12) C LABORATORY PRACTICUM.

CCFI 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

CCFI 567 (3/6) C PROBLEMS AND ISSUES IN ELEMENTARY EDUCATION. Recent developments, current issues, analysis, and evaluation of research in elementary education.

CCFI 572 (3/6) D ADVANCED SEMINAR IN CROSS-FACULTY INQUIRY IN EDUCATION. Examination of current theories and practices in education emphasizing factors affecting decision-making. The emphasis of the seminar will vary according to faculty and student interests and students will be encouraged to investigate an area of personal concern and present their findings.

CCFI 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

CCFI 590 (3) GRADUATING PAPER. Pass/Fail.

CCFI 598 (3-12) C FIELD EXPERIENCES. For those on master's, doctoral, and diploma programs.

CCFI 599 (6-12) C MASTER'S THESIS.

CCFI 601 (3-12) C DOCTORAL SEMINAR.

CCFI 699 (0) DOCTORAL THESIS.

CCST — CRITICAL AND CURATORIAL STUDIES FACULTY OF ARTS

CCST 500 (3) SEMINAR IN INTERDISCIPLINARY FRAMEWORKS IN MUSEUM AND CURATORIAL STUDIES. Theoretical and historical foundations of visual representations and expressive culture. It explores the history of museums and galleries, and changes in the meaning of art and material culture as debates about cultural property intensify.

CCST 501 (3) SEMINAR IN CONTEMPORARY CONTEXTUAL ISSUES FOR MUSEUMS AND CURATORIAL PRACTICE. An examination of broad social and political issues that confront curators and museum professionals who construct representations in museums, art galleries and other sites of public display.

CCST 502 (3) CASE STUDIES IN MUSEUM AND GALLERY EXHIBITIONS. A case study approach to analyzing museum and gallery exhibitions that are historically significant either because they raised issues and stimulated public debate, or because of radical features that proved influential on subsequent exhibitions. Course not offered every year.

CCST 503 (6) GRADUATE PRACTICUM IN CURATORIAL STUDIES. Practical on-site teamwork to produce exhibitions or other public displays in a museum, gallery, or alternative situation, offering opportunities for comparison, collaboration, and interdisciplinarity.

CCST 504 (3) MAJOR ESSAY IN CRITICAL CURATORIAL STUDIES. To graduate, students must produce a major essay with a weight of 3 credits.

CDST — CANADIAN STUDIES FACULTY OF ARTS

CDST 350 (3/6) D CANADIAN CULTURAL STUDIES. An interdisciplinary introduction to Canadian cultural studies. Required of all majors.

CDST 450 (3/6) D SENIOR SEMINAR IN CANADIAN STUDIES. The Canadian experience from a variety of disciplinary perspectives. Offered by the McLean Chair in Canadian Studies. Required of all majors. Prerequisite: CDST 350.

CENS — CENTRAL, EASTERN AND NORTHERN EUROPEAN STUDIES FACULTY OF ARTS

CENS 201 (3) CONTRASTS AND CONFLICTS: THE CULTURES OF CENTRAL, EASTERN AND NORTHERN EUROPE (IN ENGLISH). An introduction to the cultural history of the peoples of Central, Eastern and Northern Europe as reflected in their literature, art and music.

CENS 202 (3) GREAT WORKS OF LITERATURE FROM CENTRAL, EASTERN AND NORTHERN EUROPE (IN ENGLISH). Major works of Central, Eastern and Northern European literature from the eighteenth century to the present in their European context.

CENS 303 (3/6) D GERMAN

REPRESENTATIONS OF THE HOLOCAUST (IN ENGLISH). The Nazi Holocaust and related aspects of the Third Reich in film and literature. Texts will include first-hand accounts, fictionalizations, and perceived literary anticipations of the Holocaust by authors from the German-speaking countries.

CENS 404 (3) GENDER AND NATION: WOMEN'S STATE IN MODERN CENTRAL, EASTERN AND NORTHERN EUROPEAN LITERATURES AND CULTURES. Cultural and social discourses of gender in literary works written in Central, Eastern and Northern Europe roughly between 1850–1930.

CHBE — CHEMICAL AND BIOLOGICAL ENGINEERING FACULTY OF APPLIED SCIENCE

The Departments of Chemical Engineering and Bio-Resource Engineering have merged into a single department, the Department of Chemical and Biological Engineering. All courses listed under Chemical Engineering (CHML) are now listed under Chemical and Biological Engineering (CHBE). In some cases CHBE course numbers may not correspond to the former CHML course numbers. During the transition period some courses listed under Bio-Resource Engineering (BIOE) will remain open while others have been subsumed under Chemical and Biological Engineering (CHBE).

CHBE 230 (3) COMPUTATIONAL METHODS. Mathematical formulation of chemical and biological engineering problems; standard techniques of numerical analysis and their application to chemical, environmental and biotechnological systems; program development; use of commercial numerical analysis software. Prerequisite: CPSC 152. Corequisite: MATH 256. [3-0-2*]

CHBE 241 (3) MATERIAL AND ENERGY BALANCES. Introduction to Chemical and Biological Engineering; units; stoichiometry; phase equilibria; material balances; energy balances. [3-0-2*]

CHBE 242 (3) CHEMICAL AND BIOLOGICAL PROCESS TECHNOLOGY. Introduction to processes used in the chemical and biological industries. Problems and lectures emphasize underlying physical, chemical and biological principles. Prerequisite: CHBE 241. [3-0-2*]

CHBE 251 (3) TRANSPORT PHENOMENA I. Fluid Mechanics. Momentum-transfer in fluids in laminar and turbulent flow; microscopic and macroscopic material; momentum and energy balances; rheology; dimensional analysis; flow in conduits; pumps; fluid metering. Prerequisite: PHYS 170. Corequisite: MATH 256. [3-0-2*]

CHBE 262 (3) CHEMICAL ENGINEERING AND APPLIED CHEMISTRY LABORATORY. Experiments chosen to illustrate and use material presented in 200-level CHBE and CHEM courses. Corequisite: Second-year CHBE program. [0-4*-0; 0-4*-0]

CHBE 344 (2) UNIT OPERATIONS I. Characterization of particles; comminution, screening and classification; filtration, sedimentation,

centrifugal separations and fluidization; thermal operations including evaporation and crystallization. Prerequisite: Either (a) CHBE 242 or (b) all of CHBE 241, MECH 270; and one of CHBE 251, CIVL 215, MECH 280. [2-0-2*]

CHBE 345 (4) UNIT OPERATIONS II. Stage-wise mass transfer operations; extraction and absorption; single and stage-wise binary and multi-component distillation; principles and equipment design for continuous contact mass transfer operations including absorption, binary distillation and others such as extraction, drying, humidification, membrane separations. [4-0-2*]

CHBE 346 (3) CHEMICAL AND BIOLOGICAL ENGINEERING THERMODYNAMICS. Volumetric and thermodynamic properties of fluids; equations of state; heat effects; ideal and non-ideal mixtures; fugacities and activity coefficients; vapor-liquid and liquid-liquid phase equilibrium; solubility of gases and solids in liquids; chemical reaction equilibrium; equilibrium partitioning of pollutants. Prerequisite: All of CHBE 241, CHBE 242, CHEM 251. [3-0-2*]

CHBE 351 (3) TRANSPORT PHENOMENA II. Heat and mass transfer; conduction and molecular diffusion; convective transfer; thermal radiation; analogies among heat, mass and momentum transfer; heat exchanger design. Prerequisite: CHBE 251. [3-0-2*]

CHBE 356 (3) PROCESS DYNAMICS AND CONTROL. Introduction to modeling of chemical processes; transient response analysis; design of feedback control systems; stability analysis; frequency response analysis; process control applications; instrumentation; advanced control techniques; distributed control systems. Prerequisite: One of MATH 255, MATH 256. [3-1*-0]

CHBE 357 (3) INTERFACIAL PHENOMENA. Outline of the physics and chemistry of interfaces; discussion of the part played by surface effects in technical processes. [3-0-0]

CHBE 362 (2) CHEMICAL ENGINEERING LABORATORY. Experiments to illustrate and use material presented in 200 and 300-level CHBE courses. Field trips may be required. Prerequisite: All of CHBE 241, CHBE 251. [0-4-0]

CHBE 363 (2) PROCESS ENGINEERING LABORATORY. Experiments to illustrate and use material presented in 300-level CHBE process option courses. Field trips may be required. Prerequisite: All of CHBE 241, CHBE 251. [0-4-0]

CHBE 364 (2) ENVIRONMENTAL ENGINEERING LABORATORY. Laboratory experiments to illustrate key concepts and measurement techniques in environmental engineering as used by engineers. [0-4-0]

CHBE 365 (2) BIOTECHNOLOGY LABORATORY. Laboratory experiments to illustrate key concepts and measurement techniques in biotechnology as used by

engineers. Prerequisite: BIOL 112. Corequisite: CHBE 381. [0-4-0]

CHBE 373 (3) WATER POLLUTION CONTROL. Legal, environmental and physico-chemical aspects of industrial water pollution and its abatement will be surveyed; techniques for design of wastewater treatment processes currently used in industry; case studies from chemical and process industries will be considered in detail. [3-0-0]

CHBE 376 (3) COMPUTER FLOWSHEETING AND FLUID PROPERTIES ESTIMATION. Theory and practice of computer flowsheeting in chemical plant design; hands-on use of modern process simulators, prediction of thermodynamic properties of fluids; behaviour of single and multiphase systems. Prerequisite: CHBE 241. [3-0-2*]

CHBE 381 (3) BIOPROCESS ENGINEERING I. Design of industrial bioreactor systems: organism selection; kinetics of microbial processes and enzyme reactions; design and modeling of single and multi-stage bioreactors. Prerequisite: BIOL 112 and one of MATH 101, MATH 103, MATH 105, CHBE 241, CHBE 251. Third or fourth year standing. [3-0-2*]

CHBE 401 (3) MECHANICAL PULPING AND PAPERMAKING. Process and unit operations in mechanical pulping and papermaking, emphasizing principles and practice of refining, screening, cleaning, papermaking and properties of paper products, key economic and environmental issues. [3-0-0]

CHBE 402 (3) CHEMICAL PULPING TECHNOLOGY. Process and unit operations in the conversion of wood chips to pulp, principles and practice of kraft pulping, oxygen delignification, pulp bleaching, chemical recovery and related unit operations. Economic and environmental issues are considered. [3-0-0]

CHBE 444 (3) UNIT OPERATIONS II. Single and stage-wise binary and multicomponent distillation; principles and equipment design for continuous contact mass transfer operations including absorption, binary distillation and others such as extraction, drying, humidification, membrane separations, etc. Prerequisite: All of CHBE 344, CHBE 351. [3-0-2*]

CHBE 452 (6) ENVIRONMENTAL PROCESS DESIGN PROJECT. Design and economic assessment of an environmental engineering process. Prerequisite: All of CHBE 254, CHBE 344, CHBE 346, CHBE 351, CHBE 356, CHBE 373. Corequisite: CHBE 459. [0-0-3; 0-0-3]

CHBE 453 (6) BIOTECHNOLOGY PROCESS DESIGN PROJECT. Design and economic assessment of a chemical engineering process in the biotechnology field. Prerequisite: All of BIOL 112, CHBE 346, CHBE 356, CHBE 381. Corequisite: CHBE 459. [0-0-3; 0-0-3]

CHBE 454 (6) PROCESS DESIGN PROJECT. Design and economic assessment of a major chemical engineering process. A directed-study type course in which the students use previous course material in the synthesis of a detailed

design of a practical process. Contact hours are used for the presentation of progress reports and consultation with faculty and industrial advisors. Prerequisite: All of CHBE 341, CHBE 346, CHBE 351, CHBE 356. Corequisite: CHBE 459. [0-0-3; 0-0-3]

CHBE 455 (3) KINETICS AND REACTOR DESIGN. Kinetics of homogeneous chemical and biological reactions, isothermal ideal reactor design, analysis of non-ideal reactors using residence time distribution and mixing models. Prerequisite: CHEM 251. [3-0-2*]

CHBE 456 (3) HETEROGENOUS CATALYSIS AND ADVANCED REACTOR DESIGN. Definition of heterogeneous catalysis; properties of catalysts; kinetics of catalytic reactions; ideal heterogeneous reactors; non-isothermal reactor design; mass and heat transfer effects in heterogeneous reactors; examples of industrial reactors. Prerequisite: All of CHBE 351, CHBE 455. [3-0-2*]

CHBE 457 (3) PROCESS SYNTHESIS. Strategy for the conception and preliminary design of industrial chemical and biological processes; development and evaluation of process options, conceptual flowsheets, reaction pathways, separation sequences, material and energy recovery systems; computer aided design and optimization. Prerequisite: All of CHBE 241, CHBE 346, CHBE 376, CHBE 344. [3-0-3*]

CHBE 459 (3) CHEMICAL AND BIOLOGICAL ENGINEERING ECONOMICS. Estimation of capital and operating costs; interest calculations; taxes; economic comparison of alternatives; economic optimization. [3-0-0]

CHBE 464 (3) CHEMICAL AND BIOLOGICAL ENGINEERING LABORATORY. Experiments in unit operations relating to process, environmental and biological engineering. Experiments are designed to provide experience in instrumentation and control. Field trips may be required. Prerequisite: One of CHBE 362, CHBE 363, CHBE 364, CHBE 365. [0-6*-0; 0-6*-0]

CHBE 465 (3) REHABILITATION AND DESIGN OF AQUATIC HABITAT. Modeling the effects of the environment and nutrient availability on growth and waste production; designing closed and open environments for aquatic organisms; developing prescriptions for habitat rehabilitation. Prerequisite: BIOL 112 and third-year standing also required. [2-2*-2*]

CHBE 473 (3) DESIGN OF SOLID WASTE BIOCONVERSION SYSTEMS. Classification of waste-to-resource conversion processes; composting materials handling, equipment selection and sizing, system performance evaluation and product quality analysis; gaseous and liquid fuels production via combustion, anaerobic digestion, and other processes; planning and implementation of an integrated waste diversion program. Prerequisite: Third year standing. [2-2*-2*]

CHBE 474 (3) PROCESS CONTROL ENGINEERING. Frequency response analysis; advanced control techniques; multivariable control systems; mathematical tools for computer control systems; design of computer

control systems; engineering design of industrial control applications; plant wide control concepts; distributed control systems concepts. Prerequisite: All of CHBE 356, CHBE 376. [3-2*-0]

CHBE 476 (3) MODELLING AND OPTIMIZATION IN CHEMICAL ENGINEERING. Mathematical modelling of chemical plants and processes; computer simulation; introduction to numerical optimization techniques. Prerequisite: All of CHBE 344, CHBE 376. [3-2*-0]

CHBE 477 (3) FUEL CELL AND ELECTROCHEMICAL ENGINEERING. Stoichiometry, thermodynamics and kinetics of electrode reactions; conductivity and mass transport in electrolytes; material, energy and voltage balances; design of electrosynthesis, electrorecovery of metals, and energy generation of batteries and fuel cells. Prerequisite: All of CHEM 252, CHBE 241. [3-0-0]

CHBE 479 (3) CHEMICAL ENGINEERING ASPECTS OF OCCUPATIONAL HEALTH AND SAFETY. Relationship between current engineering practice and worker health and safety. Engineering analysis of industrial health and safety problems. Prerequisite: Third-year Chemical and Biological Engineering. [2-2-0]

CHBE 480 (3) HAZARDOUS WASTE PROCESSING TECHNOLOGY. Characterization, treatment and final disposal of hazardous waste with emphasis upon chemical engineering principles. Topics to include relevant legislation, in-plant minimization, treatment options and clean-up of contaminated sites. Case studies to be used for illustration. Prerequisite: Third year Chemical and Biological Engineering. [3-0-0]

CHBE 481 (3) BIOPROCESS ENGINEERING II. Bioprocess flowsheeting; production-scale fermenter design; product recovery and purification; bioseparations; chromatography; viral inactivation and removal; process validation. Prerequisite: CHBE 381. [3-0-2*]

CHBE 483 (3) ENERGY ENGINEERING. Supply and use of conventional and alternative fuels and energy. Design and operation of unit operations for processing of fossil fuels, biomass and other energy sources. Environmental considerations of energy use. Prerequisite: Third-year Chemical and Biological Engineering. [3-0-0]

CHBE 484 (3) GREEN ENGINEERING PRINCIPLES AND APPLICATIONS FOR PROCESS INDUSTRIES. Pollution prevention, cleaner production, green chemistry and engineering, industrial ecology, eco-industrial parks, and sustainable development; environmental impact assessment including life-cycle assessment, total cost analysis and environmental systems analysis; reduce/recycling/reuse of wastes and by-products. Prerequisite: All of CHBE 241, CHBE 242. [3-0-0]

CHBE 485 (3) AIR POLLUTION CONTROL. Characteristics of various air pollutants and their behaviour in the atmosphere; monitoring problems; technology of particulate collection and control of pollutant gases. [3-0-0]

CHBE 489 (3) POLLUTION CONTROL IN THE PULP AND PAPER INDUSTRY. Pollutants of concern in the pulp and paper industry; environmental impact of the industry; technologies used for the control of solid, liquid and gaseous wastes. [3-0-0]

CHBE 490 (3) ADVANCED BIOLOGICAL WASTE SYSTEMS DESIGN AND MANAGEMENT. Biological (aerobic and anaerobic) treatment systems; advanced wastewater treatment; nutrients removal; natural treatment systems; membrane technology. Prerequisite: CHBE 373. [2-0-2]

CHBE 491 (1) THESIS PROPOSAL. Literature searching, planning, equipment design, experimental design for an individual research project leading to a written proposal and oral presentation. Prerequisite: All of CHBE 362, CHBE 363. [0-2-0]

CHBE 492 (5) THESIS. Research project under the direction of a staff member. Prerequisite: CHBE 491. [0-8-0]

CHBE 493 (1) THESIS PROPOSAL-ENVIRONMENTAL TOPIC. Literature search, planning, equipment design for an individual research project leading to a written proposal and oral presentation. Topic to be chosen from a selection of environmental topics offered by the department. Prerequisite: All of CHBE 362, CHBE 364. [0-2-0]

CHBE 494 (5) THESIS-ENVIRONMENTAL TOPIC. Environmental engineering research topic. Prerequisite: CHBE 493. [0-8-0]

CHBE 495 (1) THESIS PROPOSAL-BIOTECHNOLOGY TOPIC. Literature search, planning, equipment design for an individual research project leading to a written proposal and oral presentation. Topic to be chosen from a selection of biotechnology topics offered by the department. Prerequisite: All of CHBE 362, CHBE 365. [0-2-0]

CHBE 496 (5) THESIS BIOTECHNOLOGY TOPIC. Biotechnological engineering research topic. Prerequisite: CHBE 495. [0-8-0]

CHBE 498 (1) ENGINEERING REPORT. This should be written on some subject of scientific interest or technical interest, based preferably on personal experience. Specifications are issued by the Department. Prerequisite: Third-year Chemical and Biological Engineering.

CHBE 506 (3) INDUSTRIAL PROCESS ENGINEERING. Mass and energy balances. Stoichiometry. Flow diagrams. Key unit operations for selected process industries in Western Canada with special attention to emission controls and hazards. May require field trips. Not open to Chemical and Biological Engineering students.

CHBE 510 (3) OPTIMIZATION OF BIOPROCESSES. Experimental design, data analysis, model building, reactor dynamics and computer control for optimization.

CHBE 540 (3) ADVANCED DESIGN OF BIO-AQUATIC SYSTEMS. Technical and economic feasibility studies, design of waste treatment, feeding and rehabilitation systems for aquatic organisms in natural and artificial settings.

CHBE 549 (12) MASTER'S THESIS FOR M.SC.

CHBE 550 (2-4) D ADVANCED REACTOR DESIGN. Topics vary from year to year, and may include kinetics of fluid-solid reactions of single particles, packed, moving, fluidized and transported bed reactors; rotary kilns; gas-liquid reaction kinetics and reactor design; reactor design for gas-liquid-solid and non-catalytic processes.

CHBE 551 (2-4) D CHEMICAL ENGINEERING THERMODYNAMICS. Pressure-volume-temperature relations; chemical equilibria by Gibbs' method; vapor-liquid equilibria; thermodynamic calculations by third law and quantum-statistical methods; irreversible thermodynamics and information theory.

CHBE 552 (2-4) D OPTIMIZATION METHODS. Mathematical and experimental techniques for optimizing processes. Course content will vary from year to year, but will be chosen from: direct search techniques, unconstrained optimization, Jacobian and Lagrangian optimization, mathematical programming, and variational calculus techniques.

CHBE 553 (2-4) D MATHEMATICAL OPERATIONS IN CHEMICAL ENGINEERING. Topics vary from year to year. Amongst these will be dimensional analysis and model theory; treatment and interpretation of chemical engineering data; formulation and solution of differential and finite difference equations; graphical, numerical and statistical methods.

CHBE 554 (2-4) D MOMENTUM, HEAT AND MASS TRANSFER. Prediction of velocity, temperature, and concentration profiles for flowing fluids; unifying concepts and analogies in momentum, heat, and mass transport; streamline flow and turbulence, molecular and eddy conduction and diffusion, boundary layers, smooth and rough conduits and other boundaries.

CHBE 557 (2-4) D FLUID DYNAMICS. Topics include tensor analysis; governing equations for Newtonian fluids, exact and numerical solutions to Navier-Stokes equations; creeping flow; flow through porous media; incompressible boundary layers; stability analysis; turbulence.

CHBE 559 (2-6) D TOPICS IN CHEMICAL ENGINEERING. A discussion of some aspects of modern Chemical Engineering. Subject matter varies each year.

CHBE 560 (3) BIOCHEMICAL ENGINEERING. Introduction to the biochemistry and biology of bioprocesses; kinetics of enzymatic and cellular processes; principles of cell culture, process development and product recovery; optimization of bioreactor design and operation.

CHBE 561 (2-4) D PARTICULATE AND MULTIPHASE SYSTEMS. Topics vary from year to year and include electrokinetic colloidal phenomena; packed beds; filtration; sedimentation; two- and three-phase fluidized beds; spouted beds; hydraulic and pneumatic transport; gas, liquid and solid particle mechanics; multiphase flows.

CHBE 563 (3) APPLIED HETEROGENEOUS CATALYSIS. Techniques for characterizing catalysts and their surfaces. Commercial methods of preparing catalysts. Chemistry of catalytic reactions and the impact of catalyst properties, mechanisms and kinetics on reactor engineering. Applications of catalytic oxidations, hydrogenations, C-C bond formation and cracking. [2-0-0]

CHBE 564 (3) INDUSTRIAL BIOTECHNOLOGY LABORATORY. Modern bioreactor technology, upstream and downstream processing of biotechnology products. Credit will not be given for both CHBE 564 and MICB 419. [1-4-0]

CHBE 565 (2-4) D ADVANCED PROCESS CONTROL. Discrete-time chemical system modeling; model-based predictive control; predictive controller design; analysis of design parameters; controller stability; robustness and performance analysis; selected topics from current developments in the literature.

CHBE 566 (3) TOPICS IN BIOCHEMICAL ENGINEERING. Analysis of recent engineering and biotechnology research articles. Topics chosen from: bioprocess, biosensor and biomedical literature. Prerequisite: BIOL 112.

CHBE 567 (2-4) D SYSTEM IDENTIFICATION AND ADAPTIVE CONTROL. Input/Output modeling; frequency analysis; regression analysis; model parametrizations; recursive estimation methods; model validation; adaptive controller design; implementation issues; chemical process control applications; selected topics from current developments in the literature.

CHBE 571 (2-6) D NON-NEWTONIAN FLUID BEHAVIOUR. Selections from the following topics: kinematics of deformation and flow, dynamics of continuous media, constitutive equations, physical chemical and molecular aspects of viscosity, engineering applications to pipe flow, mixing, heat transfer. Handling of suspensions and polymers.

CHBE 572 (2-6) D WATER POLLUTION CONTROL. Water pollution control; methods of problem assessment from chemical operations, technology of control with special attention to regional problems. Topics vary from year to year with emphasis on industrial problems.

CHBE 574 (2-4) D EQUILIBRIUM PROPERTIES OF NON-IDEAL MIXTURES. Discussion of various methods of calculating vapor-liquid, liquid-liquid equilibrium and thermal properties, including molecular thermodynamics. Excess free-energy of mixing. Thermodynamic consistency tests. Emphasis on engineering applications and newer approaches.

CHBE 575 (2-4) D AIR POLLUTION CONTROL. Characteristics of various air pollutants, their behaviour in the atmosphere, monitoring problems, technology of particle collection and control of pollutant gases. Particular problems of regional interest are discussed.

CHBE 577 (2-4) D ELECTROCHEMICAL SCIENCE, ENGINEERING AND TECHNOLOGY. Electrochemical interfaces; electrode reactions; thermodynamics; kinetics and transport processes in electrochemical systems; experimental techniques. Electrochemical reactors and processes; modelling, design and economics. Electrochemical technologies; electrosynthesis, batteries and fuel cells. Electro-metallurgy; electrowinning and refining of metals, corrosion, leaching and cementation.

CHBE 579 (2-4) D ENVIRONMENTAL PROTECTION CONTROL IN THE PULP AND PAPER INDUSTRY. Environmental regulations; measurement of pollutants; environmental impacts; environmental audits; air pollution control technology; water pollution control technology; sludge management and disposal.

CHBE 580 (3) ADVANCED TOPICS IN PULP AND PAPER ENGINEERING. Advanced material in selected topics in pulp and paper in science and engineering. Subject matter varies each year. [3-0-0]

CHBE 590 (3) SMALL WATERSHED SYSTEMS DESIGN. Hydrologic design of water management systems for the production of agricultural and other biological materials. Analysis and design of composite systems for watersheds.

CHBE 596 (0) ENGINEERING REPORT. Engineering report of at least 3000 words on a research or design topic under the supervision of a faculty member.

CHBE 598 (0) SEMINAR. Presentation and discussion of current topics in chemical and biological engineering research. A required course for all graduate students in Chemical and Biological Engineering which carries no academic credit.

CHBE 599 (12) THESIS. For M.A.Sc.

CHBE 699 (0) THESIS. For Ph.D.

CHEM — CHEMISTRY FACULTY OF SCIENCE

Science students with BC Secondary School Chemistry 11, but not Chemistry 12, are required to take CHEM 111. Many Science programs require CHEM 121 and 123, or 111 and 113. CHEM 111 is not open to students with credit for Chemistry 12. CHEM 111, 113 are open to students who have obtained credit for Chemistry 11 only whereas CHEM 121, 123 are open to students with credit for Chemistry 12. The following courses are for students in the Faculty of Applied Science: CHEM 154, CHEM 250, CHEM 251, CHEM 260. Additional fees are charged for some courses.

CHEM 111 (4) PRINCIPLES OF CHEMISTRY I. Stoichiometry, atomic and molecular structure, chemical periodicity, descriptive inorganic chemistry. Not open to students with credit for CHEM 12. Prerequisite: Not open to students with credit for CHEM 12. [3-3-1]

CHEM 113 (4) PRINCIPLES OF CHEMISTRY II. General and ionic equilibrium, solubility, thermodynamics. Introductory organic chemistry: stereochemistry; substitution, elimination

and oxidation-reduction reactions. Not open to students with credit for CHEM 12 or CHEM 121. Can be used as prerequisite to subsequent CHEM courses. Prerequisite: CHEM 111. [3-3-1]

CHEM 121 (4) STRUCTURAL CHEMISTRY, WITH APPLICATION TO CHEMISTRY OF THE ELEMENTS. Fundamentals of structural chemistry; descriptive chemistry of main-group elements, with industrial and environmental applications. This is a required course for all students needing a first-year Chemistry course who have CHEM 12. [3-3-0]

CHEM 123 (4) PHYSICAL AND ORGANIC CHEMISTRY. Principles of equilibrium and chemical thermodynamics. Introductory organic chemistry: stereochemistry; substitution, elimination and oxidation-reduction reactions. This course or CHEM 113 is prerequisite to all subsequent courses in chemistry. Prerequisite: CHEM 121. [3-3-0]

CHEM 154 (3) CHEMISTRY FOR ENGINEERING. Chemical bonding, properties of matter. Chemical thermodynamics with applications to phase equilibria, aqueous equilibria and electrochemistry. Processes at surfaces. Prerequisite: CHEM 12. [3-3*-0]

CHEM 201 (3) INTRODUCTION TO PHYSICAL CHEMISTRY. Principles of chemical kinetics, reaction mechanisms and chemical thermodynamics. Credit will be given for only one of CHEM 201 and 205. Prerequisite: Either (a) SCIE 001 or (b) one of MATH 101, MATH 103, MATH 105, MATH 121 and either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) CHEM 154. MATH 200 or MATH 217 or MATH 226 or MATH 253 or MATH 263 is recommended. [2-3*-1]

CHEM 202 (3) COORDINATION CHEMISTRY. Coordination chemistry of the transition elements. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) one of SCIE 001, CHEM 154. [2-3*1]

CHEM 203 (4) INTRODUCTION TO ORGANIC CHEMISTRY. Structure, bonding and physical properties of aliphatic and aromatic compounds; conformational analysis, stereochemistry and NMR spectroscopy; substitution and elimination reactions of alkyl halides; ethers, epoxides, aldehydes, ketones. Only open to students in Chemistry and Biochemistry programs. Credit will be given for only one pair of CHEM 203, 204, or CHEM 231, 232, or CHEM 233, 235. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001. [3-3-0]

CHEM 204 (4) ORGANIC CHEMISTRY. Mechanistic analysis of chemical reactivity of common functional groups with focus on carbonyl chemistry; aromaticity and aromatic substitution; functional group transformations in organic synthesis; carbohydrates, amino acids, proteins, heterocycles. Only open to students in Chemistry and Biochemistry programs. Prerequisite: CHEM 203. [3-3-0]

CHEM 205 (3) PHYSICAL CHEMISTRY. Chemical kinetics and thermodynamics and spectroscopy useful in biological, medical, agricultural, earth, and related sciences. Not for credit in Chemistry and Biochemistry programs. Credit will be given for only one of CHEM 201 and 205. Prerequisite: Either (a) SCIE 001 or (b) one of MATH 100, MATH 102, MATH 104, MATH 120, MATH 180, MATH 184 and either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123. MATH 101 or MATH 103 or MATH 105 or MATH 121 is recommended. [3-0-0]

CHEM 211 (4) ANALYTICAL CHEMISTRY. Chemical equilibrium applied to analysis; volumetric analysis; analytical electrochemistry. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001. [3-3-0]

CHEM 233 (3) ORGANIC CHEMISTRY FOR THE BIOLOGICAL SCIENCES. Reactions and properties of carbonyl compounds, carbohydrates, amino acids, nucleic acids. Not for credit in Chemistry and Biochemistry programs. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001. [3-0-0]

CHEM 235 (1) ORGANIC CHEMISTRY LABORATORY. Techniques of organic chemistry. To be taken in conjunction with, or in the term following, CHEM 233. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001. Corequisite: CHEM 233. [0-3-0]

CHEM 250 (2) INORGANIC CHEMISTRY. Chemistry of selected groups of inorganic compounds, considered in relation to industrial processes. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001 or (d) CHEM 154. [2-0-0]

CHEM 251 (3) PHYSICAL CHEMISTRY FOR ENGINEERS. States of matter, properties of gases, phase diagrams. Elementary chemical thermodynamics and kinetics. Reaction equilibria. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001 or (d) CHEM 154. [3-0-1]

CHEM 260 (3) ORGANIC CHEMISTRY FOR ENGINEERS. A description of the properties and reactions of organic compounds. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001 or (d) CHEM 154. [3-0-0]

CHEM 301 (3) AQUEOUS ENVIRONMENTAL CHEMISTRY. Properties of natural waters, including gas and solid equilibria, pH, redox, complexation analysis, corrosion treatment, ion exchange, colloids and microbial transformations. Prerequisite: One of CHEM 201, CHEM 205, CHEM 251. Recommended: (a) One of CHEM 202, and (b) one of CHEM 204, CHEM 232, CHEM 233, or (c) CHEM 260. [3-0-0]

CHEM 302 (3) ATMOSPHERIC ENVIRONMENTAL CHEMISTRY. Introduction to structure, composition and chemical processes occurring in Earth's atmosphere,

including interactions with solar radiation, stratospheric ozone layer, photochemical smog and acid rain. Prerequisite: One of CHEM 201, CHEM 205, CHEM 251. [3-0-0]

CHEM 304 (3) FUNDAMENTALS OF PHYSICAL CHEMISTRY. Review of thermodynamics concepts; introduction to statistical mechanics; solution thermodynamics; phase equilibria; electrochemistry. Prerequisite: CHEM 201 and one of MATH 200, MATH 217, MATH 226, MATH 253, MATH 263. [2-4*-1]

CHEM 305 (3) BIOPHYSICAL CHEMISTRY. Diffusion and transport phenomena; interaction of radiation and matter. Methods for determining molecular weight, size, and shape of molecules in solution. Prerequisite: CHEM 304 and one of MATH 200, MATH 217, MATH 226, MATH 253, MATH 263. [2-4*-1]

CHEM 307 (3) ADVANCED PHYSICAL CHEMISTRY. Introduction to phenomena at surfaces and interfaces: colloids; adsorption, thermodynamic treatments, technological applications. Modern methods to characterize surfaces in materials science. Chemical dynamics at electrode interfaces. Prerequisite: CHEM 304 and one of MATH 200, MATH 217, MATH 226, MATH 253, MATH 263. [2-4*-1]

CHEM 309 (3) FOUNDATIONS OF INORGANIC CHEMISTRY. Molecular structure and bonding in compounds of main-group and transition elements. Solid state chemistry. Acid-base chemistry; inorganic chemistry in non-aqueous media. Prerequisite: CHEM 202. [2-4*-1]

CHEM 310 (3) CHEMISTRY OF THE ELEMENTS. Representative chemistry of *s*-, *p*-, *d*-, and *f*-block elements interpreted in terms of structure, mechanisms, and theoretical principles. Prerequisite: CHEM 309. [2-4*-1]

CHEM 311 (4) INSTRUMENTAL ANALYTICAL CHEMISTRY. Instrumental methods of chemical analysis including spectroscopic methods, mass spectrometry, radiochemical methods, surface analysis, chromatography. Prerequisite: CHEM 211. [2-4-1]

CHEM 312 (3) INTRODUCTION TO QUANTUM MECHANICS AND SPECTROSCOPY. Principles of quantum mechanics; atomic wavefunctions; angular momentum; spin; atomic term symbols. Prerequisite: Either (a) SCIE 001 or (b) either (a) all of CHEM 121, CHEM 123 or (b) all of CHEM 111, CHEM 113; and one of MATH 200, MATH 217, MATH 226, MATH 253, MATH 263. [3-0-0]

CHEM 313 (4) ADVANCED ORGANIC CHEMISTRY FOR THE LIFE SCIENCES. Chemistry of organic substances that have particular relevance to the life sciences. Credit will be given for only one of CHEM 313 and 330. Prerequisite: All of CHEM 203, CHEM 204. [3-4-0]

CHEM 320 (3) STRUCTURE OF ATOMS AND MOLECULES. Introduction to variational methods; many-electron systems; semi-empirical methods; perturbation theory;

computational methods. Prerequisite: One of CHEM 312, PHYS 304 and one of MATH 152, MATH 221, MATH 223. [3-0-0]

CHEM 330 (4) ADVANCED ORGANIC CHEMISTRY. Application of carbonyl group chemistry, cyclisation reactions, conformational analysis and rearrangement reactions in organic synthesis. Credit will be given for only one of CHEM 313 and 330. Prerequisite: All of CHEM 203, CHEM 204. [3-4-0]

CHEM 333 (3) SPECTROSCOPIC TECHNIQUES IN ORGANIC CHEMISTRY. Application of mass spectrometry, and NMR, UV/visible, and IR spectroscopies to organic chemical problems. Prerequisite: Either (a) all of CHEM 203, CHEM 204 or (b) all of CHEM 233, CHEM 205. [3-0-0]

CHEM 398 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Taken during the winter term of the third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Chemistry.

CHEM 399 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Taken during the summer following the third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Chemistry. Prerequisite: CHEM 398.

CHEM 401 (3) PRINCIPLES OF SPECTROSCOPY. Rotational, vibrational, electronic and magnetic resonance spectroscopy and associated techniques; group theory. Prerequisite: Either (a) CHEM 320 or (b) PHYS 304. [3-0-0]

CHEM 402 (3) DIFFRACTION METHODS. Crystal structures; point and space groups; X-ray diffraction, neutron diffraction, electron diffraction of gases and surfaces. Credit will be given for only one of CHEM 402 and 514. Prerequisite: All of CHEM 202, CHEM 312. [3-0-0]

CHEM 404 (3) ADVANCED INORGANIC CHEMISTRY. Structure, reactivity and bonding of compounds containing homonuclear bonds; cluster chemistry of both main group and transition elements. Chemistry of non-aqueous solvents. Prerequisite: All of CHEM 309, CHEM 310. [3-0-0]

CHEM 405 (3) BIOPHYSICAL CHEMISTRY. Interactions of macromolecules in solution: ligand, antibody and ion binding to macromolecules; thermodynamics of polymer solutions; excluded volume effects; phase separation; partition in two phase polymer solutions. Prerequisite: All of CHEM 203, CHEM 204. Corequisite: One of CHEM 305, CHEM 307. [3-0-0]

CHEM 406 (3) POLYMER CHEMISTRY. Structure and availability of monomers; Propagation mechanisms; synthesis of polymers with predetermined properties; measurement

and interpretation of physical properties of polymers. Prerequisite: All of CHEM 203, CHEM 204 and one of CHEM 304, CHEM 251. [3-0-0]

CHEM 407 (3) STATISTICAL MECHANICS IN CHEMISTRY. Introductory concepts of statistical mechanics and statistical thermodynamics. Applications to chemistry with emphasis on understanding chemical reactivity. Credit will not be given for CHEM 503/CHEM 407 and PHYS 455. Prerequisite: CHEM 304. [3-0-0]

CHEM 408 (3) CHEMICAL DYNAMICS. Macroscopic and microscopic kinetics; photochemistry; theory of reaction rates; reaction cross sections, energy distributions, experimental methods. Credit will not be given for both CHEM 408 and CHEM 508. Prerequisite: All of CHEM 304, CHEM 312. [3-0-0]

CHEM 410 (3) PHYSICAL CHEMISTRY OF THE SOLID STATE. Introduction to the theory of electrons in solids; bands and zones. Absorption of light and excitons. Vacancies, interstitials, electronic defects and dislocations and their roles in chemical reactivity. Credit will not be given for CHEM 410/CHEM 502 and PHYS 474. Prerequisite: CHEM 202 and one of CHEM 201, CHEM 205. [3-0-0]

CHEM 411 (3) SYNTHESIS AND CHEMISTRY OF NATURAL PRODUCTS. A discussion of synthetic methods and their application to natural products, particularly in the areas of alkaloids, steroids and terpenes. Credit will not be given for both CHEM 411 and CHEM 566. Prerequisite: One of CHEM 330, CHEM 313. [3-0-0]

CHEM 412 (3) INDUSTRIAL ORGANIC CHEMISTRY. The production and use of primary petrochemicals; plastics and synthetic fibres; pharmaceutical agents; insecticides, herbicides and insect pheromones, dyes, detergents, perfumes and flavours; commercially important microbial transformations. Prerequisite: Either (a) all of CHEM 233, CHEM 235 or (b) all of CHEM 231, CHEM 232 or (c) all of CHEM 203, CHEM 204 or (d) CHEM 260. [3-0-0]

CHEM 413 (3) MECHANISTIC ENZYMOLOGY. Chemistry of cofactors; biosynthetic transformations; molecular synthesis; transformation and degradation; natural product biosynthesis. Credit will be given for only one of CHEM 413, CHEM 569, or BIOC 403. Prerequisite: One of CHEM 313, CHEM 330. [3-0-0]

CHEM 414 (3) COORDINATION CHEMISTRY OF THE TRANSITION ELEMENTS. Molecular and electronic structures and reactivities of coordination compounds of the transition elements. Credit will not be given for both CHEM 414 and CHEM 525. Prerequisite: All of CHEM 309, CHEM 310. [3-0-0]

CHEM 415 (3) ADVANCED CHEMISTRY LABORATORY. Integrated laboratory course designed to illustrate principles of modern analytical, inorganic, organic and physical chemistry. Prerequisite: All of CHEM 304, CHEM 310, CHEM 311, CHEM 312.

Corequisite: One of CHEM 313, CHEM 330. [0-8*-0; 0-8*-0]

CHEM 416 (3) PHYSICAL AND THEORETICAL ORGANIC CHEMISTRY. Energetics and catalysis in organic reactions. Pericyclic reactions. Substituent effects. Linear free energy relationships. Credit will not be given for both CHEM 416 and CHEM 563. Prerequisite: One of CHEM 313, CHEM 330. [3-0-0]

CHEM 417 (3) NUCLEAR CHEMISTRY AND RADIOCHEMISTRY. Basic treatment of the nucleus, with analogy to concepts in chemistry. Nuclear stabilities and associated radioactive decay processes. Nuclear structure. Applications of radioisotopes in chemistry. The interaction of radiation with matter. Prerequisite: CHEM 201 or with permission CHEM 205. CHEM 312 is recommended. [3-0-0]

CHEM 418 (3) ORGANOMETALLIC CHEMISTRY. The chemistry of compounds containing organic groups directly bonded to metals and metalloids. Emphasis will be placed on the structure and bonding of the compounds and their use in synthetic chemistry. Credit will not be given for both CHEM 418 and CHEM 524. Prerequisite: All of CHEM 309, CHEM 310. [3-0-0]

CHEM 425 (6) CHEMISTRY INTEGRATED LABORATORY. Integrated course designed to illustrate principles of modern laboratory chemistry. Prerequisite: All of CHEM 304, CHEM 310, CHEM 311, CHEM 312. Corequisite: One of CHEM 313, CHEM 330. [0-8-0; 0-8-0]

CHEM 427 (3) CHEMISTRY OF MATERIALS. Introduction to the chemistry, theory and applications of contemporary materials. Credit will not be given for both CHEM 427 and CHEM 527. Prerequisite: One of CHEM 201, CHEM 251 and one of CHEM 202, CHEM 250 and either (a) CHEM 260 or (b) all of CHEM 203, CHEM 204 or (c) all of CHEM 231, CHEM 232 or (d) all of CHEM 233, CHEM 235. [3-0-0]

CHEM 430 (3/6) D DEVELOPMENTS IN CONTEMPORARY CHEMISTRY. A review of modern developments in general chemistry for teachers of Secondary School chemistry (Not for credit in the Faculty of Science). Course is offered periodically in extra-session sessions.

CHEM 435 (3) BIO-INORGANIC CHEMISTRY. A discussion of the involvement of inorganic chemistry in biological systems. Chemistry of cations, metalloenzymes, and simpler model systems. Reactions of coordinated ligands, chemistry of sulphur and phosphorus. Credit will not be given for both CHEM 435 and CHEM 526. Prerequisite: All of CHEM 304, CHEM 309. [3-0-0]

CHEM 448 (3/6) D DIRECTED STUDIES IN CHEMISTRY. Students will undertake an investigation of a specific topic as agreed upon by the student and the faculty supervisor. Open to third- and fourth-year chemistry students.

CHEM 449 (6) SEMINAR AND THESIS. Original research work under the direction of a faculty member. Weekly seminar. Required of

all Honours students. Open to Majors students with a satisfactory standing and permission of the department head.

CHEM 498 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Taken during the summer following fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Chemistry. Prerequisite: CHEM 399.

CHEM 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Taken during the fall term of the fifth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Chemistry. Prerequisite: CHEM 498.

CHEM 501 (3) APPLICATIONS OF QUANTUM MECHANICS IN CHEMISTRY.

CHEM 502 (3) ADVANCED PHYSICAL CHEMISTRY OF THE SOLID STATE. Credit will not be given for both CHEM 502 and CHEM 410.

CHEM 503 (3) EQUILIBRIUM STATISTICAL MECHANICS IN CHEMISTRY. Introductory principles of Statistical Mechanics with illustrations of chemical importance. Applications to molecular gases, liquids, solids, independent particle statistics, electric and magnetic moments, radiation, chemical equilibrium and reaction rates. Credit will not be given for CHEM 407/CHEM 503 and PHYS 455.

CHEM 504 (3) RELAXATION PHENOMENA IN CHEMISTRY. Microscopic description of relaxation processes. Introduction to stochastic processes, quantum time dependence and linear response theory, with application to chemical kinetics, NMR, lasers and line shapes.

CHEM 507 (3/6) D TOPICS IN PHYSICAL AND THEORETICAL CHEMISTRY.

CHEM 508 (3) CHEMICAL KINETICS AND REACTION DYNAMICS. Macroscopic and microscopic kinetics; transition state theory; collision theory and reaction cross section, energy distributions, molecular beams and experimental techniques. Credit will not be given for both CHEM 408 and CHEM 508.

CHEM 509 (3) ELECTRON AND PHOTON IMPACT PHENOMENA. Basic aspects of collision phenomena. Mass spectroscopy, UV and X-ray photoelectron spectroscopy, Auger spectroscopy, electron scattering, electron impact spectroscopy, breakdown of molecules under particle and photon impact, Penning ionization.

CHEM 510 (3) ADVANCED ELECTRONIC STRUCTURE THEORY.

CHEM 511 (3) NUCLEAR DECAY PROBES IN CHEMISTRY.

CHEM 512 (3) RADIATION CHEMISTRY. The study of the interactions of ionizing radiations (and high energy particles) with matter to

produce physical, chemical and biological changes, including a discussion of solvated electrons.

CHEM 513 (3) SURFACE CHEMISTRY. Chemistry of the solid-gas interface: Modern methods for investigation of the structure of solid surfaces and interactions between solid surfaces and gases. Theory of adsorption, surface reactivity and heterogeneous catalysis.

CHEM 514 (3) CRYSTAL STRUCTURES. Crystal structures and structural analysis by the methods of X-ray diffraction and neutron diffraction. Credit will not be given for both CHEM 402 and CHEM 514.

CHEM 516 (3/6) D TOPICS IN BIOPHYSICAL CHEMISTRY.

CHEM 517 (3) ELECTROCHEMISTRY.

CHEM 518 (3/6) D TOPICS IN MAGNETIC RESONANCE.

CHEM 519 (3/6) D TOPICS IN MOLECULAR SPECTROSCOPY.

CHEM 521 (3/6) D TOPICS IN INORGANIC CHEMISTRY.

CHEM 522 (3) INORGANIC REACTION MECHANISMS. Substitution reactions and electron transfer processes in inorganic and organometallic chemistry. Catalytic processes involving metal hydrides, carbonyls, and organometallics. Proton transfer reactions. Photochemical reactions of metal complexes.

CHEM 523 (3) APPLIED INORGANIC CHEMISTRY. Topics chosen from: superconductors, batteries, fuel cells, metal organic chemical vapour deposition, inorganic polymers, laser isotope separation, nuclear fuels, environmental concerns.

CHEM 524 (3) CHEMISTRY OF ORGANOMETALLIC COMPOUNDS. Credit will not be given for both CHEM 418 and CHEM 524

CHEM 525 (3) ADVANCED COORDINATION CHEMISTRY. Credit will not be given for both CHEM 525 and CHEM 414.

CHEM 526 (3) BIOINORGANIC CHEMISTRY. Inorganic aspects of biological chemistry; emphasis on the role of metal ions and metalloenzymes. Credit will not be given for both CHEM 526 and CHEM 435.

CHEM 527 (3) MATERIALS CHEMISTRY. Credit will not be given for both CHEM 527 and CHEM 427.

CHEM 528 (3) SYMMETRY AND MOLECULAR SPECTROSCOPY IN INORGANIC CHEMISTRY. Group theory, and vibrational and electronic spectroscopy (including optical rotatory dispersion and circular dichroism).

CHEM 529 (3) STRUCTURAL METHODS IN INORGANIC CHEMISTRY. NMR, ESR, mass spectrometry, photoelectron spectroscopy (Auger, UV, X-Ray), Mossbauer spectroscopy, electrochemistry.

CHEM 531 (3) ANALYTICAL SPECTROSCOPY. Fundamental and practical aspects of optical methods for atomic and

molecular analysis: frequency and intensity measurements; absorption, fluorescence, and emission techniques and instrumentation.

CHEM 533 (3) BIOANALYTICAL CHEMISTRY.

CHEM 534 (3) CHROMATOGRAPHY AND MASS SPECTROMETRY. Gas, liquid and supercritical fluid chromatography. Mass spectrometry: ionization processes, mass analyses, ion molecule reactions, fragmentation processes.

CHEM 535 (3/6) D TOPICS IN ANALYTICAL CHEMISTRY.

CHEM 540 (3) SEMINAR IN CHEMISTRY.

This course is compulsory for all graduate students in Chemistry.

CHEM 548 (0) RESEARCH CONFERENCE.

Attendance is compulsory for all graduate students in each year of registration for the M.Sc. or Ph.D. in chemistry. No credit value.

CHEM 549 (18) M.SC. THESIS.

CHEM 561 (3) ORGANIC CHEMISTRY.

Fundamentals of reactivity and stereoselectivity, including stereoelectronic theory.

CHEM 562 (3) ADVANCED ORGANIC CHEMISTRY. Organic photochemistry, conformational analysis, stereochemistry of chiral substances.

CHEM 563 (3) ADVANCED PHYSICAL ORGANIC CHEMISTRY. Discussion of acidity functions, photochemistry and reactive intermediates in organic chemistry. Applications of molecular orbital theory to organic systems. Credit will not be given for both CHEM 563 and CHEM 416.

CHEM 566 (3) ADVANCED ORGANIC SYNTHESIS. Discussion of modern synthetic methods and applications to the synthesis of complex organic molecules. Credit will not be given for both CHEM 566 and CHEM 411.

CHEM 567 (3) HETEROCYCLIC CHEMISTRY. The synthesis, reactions and properties of the principal families of heterocyclic compounds.

CHEM 568 (3/6) D TOPICS IN ORGANIC CHEMISTRY.

CHEM 569 (3) ADVANCED MECHANISTIC ENZYMOLOGY. Credit will be given for only one of CHEM 569, CHEM 413, or BIOC 403.

CHEM 570 (3) CARBOHYDRATES. Synthesis, reactions and chemical properties of mono- and oligosaccharides; applications of these concepts to the study of polysaccharide structures.

CHEM 573 (3) APPLICATION OF SPECTROSCOPY TO ORGANIC STRUCTURAL DETERMINATIONS. A problem solving course to illustrate the application of NMR, mass spectrometry, ORD, CD, etc. to elucidation of structures of organic and organometallic compounds.

CHEM 649 (0) PH.D. THESIS.

CHIL — CHILDREN'S LITERATURE FACULTY OF ARTS

CHIL 599 (6) THESIS FOR MASTER OF ARTS IN CHILDREN'S LITERATURE.

CHIN — CHINESE FACULTY OF ARTS

CHIN 100 (3) NON-INTENSIVE BASIC

CHINESE I. An introduction to the grammar and syntax of spoken and written Chinese.

CHIN 101 (3) NON-INTENSIVE BASIC

CHINESE I. Continuation of CHIN 100.

CHIN 102 (6) INTENSIVE BASIC CHINESE I.

An introduction to the grammar and syntax of spoken and written Chinese. Non-heritage students should enrol in an alternative section. Consult the Department. Equivalency: CHIN 100ANDCHIN 101.

CHIN 110 (3) NON-INTENSIVE BASIC

CHINESE II. Prerequisite: One of CHIN 101, CHIN 102.

CHIN 111 (3) NON-INTENSIVE BASIC

CHINESE II. Continuation of CHIN 110. Prerequisite: CHIN 110.

CHIN 112 (6) INTENSIVE BASIC CHINESE II.

Continuation of CHIN 102. Non-heritage students should enrol in an alternative section. Consult the Department. Prerequisite: One of CHIN 101, CHIN 102. Equivalency: CHIN 110 and CHIN 111.

CHIN 200 (3) INTERMEDIATE CHINESE I A.

Further development of integrated reading, writing, listening, and speaking skills in modern Chinese at the intermediate level. *Please note: Section 003 reserved for non-heritage students.* Prerequisite: One of CHIN 111, CHIN 112.

CHIN 201 (3) INTERMEDIATE CHINESE I B.

Continuation of CHIN 200. Further development of integrated reading, writing, listening, and speaking skills in modern Chinese at the intermediate level. *Please note: Section 003 reserved for non-heritage students.* Prerequisite: CHIN 200.

CHIN 202 (6) INTENSIVE INTERMEDIATE

CHINESE I. Further development of integrated reading, writing, listening, and speaking skills in modern Chinese at the intermediate level. *Please note: Section 3 reserved for non-heritage students.* Prerequisite: One of CHIN 111, CHIN 112. Equivalency: CHIN 200, CHIN 201.

CHIN 210 (3) INTERMEDIATE CHINESE I A.

Continuation of CHIN 201 or 202. Further development of integrated reading, writing, listening, and speaking skills in modern Chinese at the intermediate level. *Please note: Section 003 reserved for non-heritage students.* Prerequisite: One of CHIN 201, CHIN 202.

CHIN 211 (3) INTERMEDIATE CHINESE II B.

Continuation of CHIN 210. Further development of integrated reading, writing, listening, and speaking skills in modern Chinese at the intermediate level. *Please note: Section 003 reserved for non-heritage students.* Prerequisite: CHIN 210.

CHIN 212 (6) INTENSIVE INTERMEDIATE

CHINESE II. Further development of integrated reading, writing, listening, and speaking skills in modern Chinese at the intermediate level. *Please note: Section 003 reserved for non-heritage students.* Prerequisite:

One of CHIN 201, CHIN 202. Equivalency: CHIN 210 and CHIN 211.

CHIN 220 (3) MANDARIN FOR CANTONESE SPEAKERS I.

Placement interview required.

CHIN 221 (3) MANDARIN FOR CANTONESE

SPEAKERS II. Continuation of CHIN 220. Prerequisite: CHIN 220.

CHIN 300 (3) ADVANCED MODERN

CHINESE. An advanced study of modern Chinese writings at the literary level, with emphasis on reading comprehension, analytical discussion, oral presentation, and essay writing. Prerequisite: either (a) CHIN 201 and CHIN 211 for heritage students, or (b) CHIN 202 and CHIN 212 for non-heritage students.

CHIN 301 (3) ADVANCED MODERN

CHINESE. Continuation of CHIN 300. Prerequisite: CHIN 300.

CHIN 302 (6) INTENSIVE ADVANCED

MODERN CHINESE. An advanced study of modern Chinese writings at the literary level, with emphasis on reading comprehension, analytical discussion, oral presentation, and essay writing. Summer equivalent to CHIN 300 and 301. Prerequisite: Either (a) CHIN 201 and CHIN 211 for heritage students; or (b) CHIN 202 and CHIN 212 for non-heritage students.

CHIN 310 (3) ADVANCED CHINESE

CONVERSATION, COMPREHENSION AND COMPOSITION. A course to help students gain greater mastery over the vernacular language through discussion, debate, and written comments on selected topics in Chinese culture and modern life. Prerequisite: Either (a) all of CHIN 201, CHIN 211 or (b) all of CHIN 202, CHIN 212 or (c) one of CHIN 301, CHIN 302.

CHIN 311 (3) ADVANCED CHINESE

CONVERSATION, COMPREHENSION AND COMPOSITION. Continuation of CHIN 310. Prerequisite: CHIN 310.

CHIN 312 (6) INTENSIVE ADVANCED

CHINESE CONVERSATION, COMPREHENSION AND COMPOSITION. A course to help students gain greater mastery over the vernacular language through discussion, debate, and written comments on selected topics in Chinese culture and modern life. Summer equivalent to CHIN 310 and 311. Prerequisite: Either (a) all of CHIN 201, CHIN 211 or (b) all of CHIN 202, CHIN 212 or (c) one of CHIN 301, CHIN 302.

CHIN 320 (3) READINGS IN TWENTIETH-

CENTURY CHINESE LITERATURE. For students who have acquired a good reading knowledge of modern Chinese before entering the University, or with instructor's approval. Prerequisite: Either (a) all of CHIN 301, CHIN 311 or (b) all of CHIN 302, CHIN 312.

CHIN 321 (3) READINGS IN TWENTIETH-

CENTURY CHINESE LITERATURE. Continuation of CHIN 320. Prerequisite: CHIN 320.

CHIN 322 (6) READINGS IN 20TH CENTURY

CHINESE LITERATURE. Summer equivalent to CHIN 320 and 321.

CHIN 330 (3) CLASSICAL CHINESE I.

An introduction to the grammar and syntax of

Classical Chinese. Students may not take CHIN 330, 331 or 332 after taking CHIN 430, 431 or 432. Prerequisite: Either (a) all of CHIN 201, CHIN 211 or (b) all of CHIN 202, CHIN 212 or instructor approval.

CHIN 331 (3) CLASSICAL CHINESE I. Continuation of CHIN 330. Prerequisite: CHIN 330.

CHIN 332 (6) CLASSICAL CHINESE II.

Summer equivalent to CHIN 330 and 331.

CHIN 340 (3) INTERNATIONAL BUSINESS

CHINESE I. Practical reading, writing, discussion and presentations.

CHIN 341 (3) INTERNATIONAL BUSINESS

CHINESE II. Business law, trade negotiation, contract, investment, shipment and custom declaration, sales and payment. Prerequisite: CHIN 340.

CHIN 380 (6) READING COURSE IN CHINESE FOR HONOURS STUDENTS.

CHIN 400 (3) MEDIA CHINESE I. Audiovisual and video materials, newspapers and TV news programs in Chinese.

CHIN 401 (3) MEDIA CHINESE II. Chinese language used in newspapers, radio and television broadcasts and the Internet. Prerequisite: CHIN 400.

CHIN 410 (3) ADVANCED READINGS IN

TWENTIETH-CENTURY CHINESE. Selected prose essays from 1917 to the present. Only for students who do not have a good reading knowledge of modern Chinese before entering University. Students may not take CHIN 410, 411 or 412 after taking CHIN 320, 321 or 322. Prerequisite: One of CHIN 301, CHIN 302. Completion of 60 credits is also required.

CHIN 411 (3) ADVANCED READINGS IN

TWENTIETH CENTURY CHINESE. Continuation of CHIN 410. Prerequisite: CHIN 410.

CHIN 412 (6) ADVANCED READINGS IN

TWENTIETH-CENTURY CHINESE. Summer equivalent to CHIN 410 and 411.

CHIN 420 (3) TWENTIETH-CENTURY CHINESE

LITERATURE I. Selected short stories, novels, plays, essays, and poems from 1917 to present. For students who have a good reading knowledge of modern Chinese. Students who have taken CHIN 420, 421 or 422 may not also earn credit from CHIN 410, 411, 412. Prerequisite: CHIN 321 and completion of 60 credits.

CHIN 421 (3) TWENTIETH-CENTURY CHINESE

LITERATURE II. Continuation of CHIN 420. Prerequisite: CHIN 420.

CHIN 422 (6) TWENTIETH-CENTURY CHINESE

LITERATURE. Selected short stories, novels, plays, essays, and poems from 1917 to the present. For students who have a good reading knowledge of modern Chinese. Prerequisite: completion of 60 credits.

CHIN 430 (3) CLASSICAL CHINESE II.

Advanced readings in Classical Chinese literary, historical, and philosophical texts. Prerequisite: One of CHIN 331, CHIN 332.

CHIN 431 (3) CLASSICAL CHINESE II.

Continuation of CHIN 430. Prerequisite: CHIN 430.

CHIN 432 (6) INTENSIVE CLASSICAL CHINESE II. Summer equivalent to CHIN 430 and 431. Prerequisite: One of CHIN 331, CHIN 332.

CHIN 440 (3) READINGS IN PRE-MODERN CHINESE LITERATURE I. Selected texts from pre-twentieth-century drama and fiction. For students who have acquired a good reading knowledge of modern Chinese before entering the University. Prerequisite: One of CHIN 331, CHIN 332.

CHIN 441 (3) READINGS IN PRE-MODERN CHINESE LITERATURE II. Continuation of CHIN 440. Prerequisite: CHIN 440.

CHIN 442 (6) READINGS IN PRE-MODERN CHINESE LITERATURE. Selected texts from pre-twentieth-century drama and fiction. For students who have acquired a good reading knowledge of modern Chinese before entering the University. Prerequisite: One of CHIN 331, CHIN 332.

CHIN 450 (3) PRE-MODERN CHINESE FICTION I. Explores the origins of fictional narrative in the classical language by reading Six Dynasties zhiguai and tan chuanqi narratives. Only for students who do not have a good reading knowledge of modern Chinese before entering the University. Prerequisite: One of CHIN 331, CHIN 332 or instructor approval.

CHIN 451 (3) PRE-MODERN CHINESE FICTION II. A continuation of CHIN 450, with emphasis on the emergence fictional narratives written in vernacular Chinese in the late imperial period. Only for students who do not have a good reading knowledge of modern Chinese before entering the University. Prerequisite: One of CHIN 331, CHIN 332 or instructor approval.

CHIN 452 (6) PRE-MODERN CHINESE FICTION. Summer equivalent to CHIN 450 and 451. Prerequisite: One of CHIN 331, CHIN 332.

CHIN 460 (3) READINGS IN CLASSICAL CHINESE POETRY I. Translation and analysis of selected works, especially from the pre-Han, North-South, and early Tang periods. Prerequisite: One of CHIN 331, CHIN 332 or instructor approval.

CHIN 461 (3) READINGS IN CLASSICAL CHINESE POETRY II. Continuation of CHIN 460. Prerequisite: CHIN 460.

CHIN 462 (6) READINGS IN CLASSICAL CHINESE POETRY I. Summer equivalent to CHIN 460 and 461. Prerequisite: One of CHIN 331, CHIN 332 or instructor approval.

CHIN 470 (3) READINGS IN CLASSICAL CHINESE POETRY II. Readings in classical poetry from the time of Du Fu (712–770) to the end of the Qing dynasty. Not offered every year. Prerequisite: One of CHIN 331, CHIN 332 or instructor approval.

CHIN 471 (3) READINGS IN CLASSICAL CHINESE POETRY II. Continuation of CHIN 470. Prerequisite: CHIN 470.

CHIN 472 (6) READINGS IN CLASSICAL CHINESE POETRY II. Readings in classical poetry from the time of Du Fu (712–770) to the end of the Qing dynasty. Not offered every year. Prerequisite: One of CHIN 331, CHIN 332.

CHIN 480 (12) TUTORIAL IN CHINESE FOR HONORS STUDENTS. Will require the presentation of at least one research paper.

CHIN 481 (6) READINGS IN CHINESE PHILOSOPHICAL TEXTS. Selected readings from primary texts in the history of Chinese thought exclusive of Buddhism. Not offered every year. Prerequisite: One of CHIN 331, CHIN 332 and all of ASIA 371, ASIA 372.

CHIN 482 (3–18) C SUPERVISED STUDY IN THE CHINESE LANGUAGE. Primarily for graduate students.

CHIN 491 (3) READINGS IN CLASSICAL CHINESE: THE COMMENTARIAL TRADITION. Conceptual and linguistic aspects of the commentarial tradition from the Han to Qing dynasties, including strategies of interpretation and commentary-specific conventions and grammar. Prerequisite: CHIN 331.

CICS — COMPUTING INFORMATION AND COGNITIVE SYSTEMS FACULTY OF GRADUATE STUDIES

CICS 500 (0) SOFTWARE SYSTEMS INTERNSHIP. Technological work experience in an approved company or organization for a four-month period. A required internship to be taken as part of the M.S.S. (Master of Software Systems) program. Prerequisite: All of CICS 505, CICS 510, CICS 515, CICS 520, CICS 525.

CICS 505 (6) INTRODUCTION TO SOFTWARE SYSTEMS. Introductory overview: programming (data structures and low-level design); programming in the large (introduction to operating systems, concurrency); introduction to software engineering (system design and analysis, documentation).

CICS 510 (6) MODELS AND ANALYSIS OF SOFTWARE SYSTEMS. In depth study of selected models and analysis of software systems: software testing and its models; discrete mathematics; algorithm analysis and complexity.

CICS 515 (3) COMPUTER AND NETWORK ARCHITECTURE. The architecture of computer and network systems: hardware architectures; machine language; network architectures; communication protocols. Prerequisite: All of CICS 505, CICS 510.

CICS 520 (3) LANGUAGE TRANSLATION AND ANALYSIS. Programming language syntax, semantics and typing; database query language and functional languages; compilers interpreters and lexical analyzers; debugging and profiling. Prerequisite: All of CICS 505, CICS 510.

CICS 525 (3) REAL TIME SYSTEMS AND DESIGN. An in-depth study of real-time analysis and design; real-time systems and programming. Prerequisite: All of CICS 505, CICS 510.

CICS 526 (3) DISTRIBUTED SYSTEMS PROGRAMMING. A continuation of CICS 525. An in-depth study of distributed systems and analysis; distributed systems programming. Prerequisite: CICS 525.

CIVL — CIVIL ENGINEERING FACULTY OF APPLIED SCIENCE

CIVL 200 (3) ENGINEERING AND SUSTAINABLE DEVELOPMENT. Implications of a finite biosphere and the complexities inherent in environmental decision-making. [3-0-0]

CIVL 210 (4) SOIL MECHANICS I. Soil classification, principle of effective stress, analysis of seepage, filter criteria, introduction to shear strength and slope stability analysis. Prerequisite: One of CIVL 230, MECH 260. Corequisite: EOSC 210 and one of CIVL 215, MECH 280, EOSC 329. [3-2*-0]

CIVL 215 (4) FLUID MECHANICS I. Fluid properties, hydrostatics, kinematics, and fluid dynamics: energy and momentum methods with applications. Dimensional analysis, modelling, introduction to flow in pipes and forces on immersed objects. Prerequisite: PHYS 170 and one of MATH 101, MATH 154. [3-0-2]

CIVL 225 (3) COMPUTER APPLICATIONS IN CIVIL ENGINEERING. An introduction to spreadsheets, equation-solving software, and computer-aided graphic design tools used when solving civil engineering problems. Familiarity with micro-computers is essential. [1*-3-0]

CIVL 228 (3) MECHANICS IN CIVIL ENGINEERING DESIGN. Basic principles of engineering mechanics with reference to civil engineering problems: equilibrium of rigid elements of engineering systems, free body diagrams, analysis of trusses, shear and bending moments in beams, kinematics and kinetics of rigid bodies, single degree of freedom vibrations. Prerequisite: PHYS 170. [3-0-1]

CIVL 230 (4) SOLID MECHANICS I. Review of statics; beam forces, shear and moment diagrams; definitions of stress and strain; constitutive relations; stresses in elementary rods, shafts, beams and tanks; Mohr's circle; deformations of beams and shafts; introduction to indeterminate structures. Prerequisite: PHYS 170 and one of MATH 101, MATH 154. Corequisite: CIVL 228. [3-0-2]

CIVL 231 (3) STRUCTURAL MECHANICS AND DESIGN. Advanced beam bending; principal moments of inertia; plastic bending capacity; column buckling; beam columns; concepts of structural design, load and strength uncertainty; design of wood and steel members. Prerequisite: CIVL 230. [3-0-2*]

CIVL 235 (4) PLANE SURVEYING. Theory and application of plane surveying methods. Introduction to and use of compass, transit, tape, and level. Construction and topographic surveys. Reduction of field data and construction of drawings. Demonstration of modern instruments, remote sensing methods and geographical information systems (GIS). This course commences immediately after spring

examinations and continues full time for two weeks, including Saturdays. Information on the exact dates will be available in the Civil Engineering Office following publication of the final Examination Timetable.

CIVL 301 (3) OPTIMIZATION AND DECISION ANALYSIS IN CIVIL ENGINEERING. An introduction to the application of systems engineering, optimization, and applied probability to the design and operation of civil engineering systems. Prerequisite: CIVL 225. Corequisite: All of CIVL 200, STAT 251. [3-2*-0]

CIVL 311 (4) SOIL MECHANICS II. Consolidation and shear strength of soils, with application to settlement and stability analysis of embankments, retaining walls, shallow footing and pile foundations. Prerequisite: CIVL 210. [3-2*-0]

CIVL 315 (4) FLUID MECHANICS II. Two dimensional flow around immersed objects; velocity and pressure fields; lift and drag on cylinders and aerofoils; evaluation of wind loads on structures; pumps and turbines; analysis and design of pipeline systems; unsteady flow in pipes; frictionless waterhammer analysis. Prerequisite: CIVL 215. Corequisite: MATH 257. [3-2*-1]

CIVL 316 (4) HYDROLOGY AND OPEN CHANNEL FLOW. Introduction to engineering hydrology and open channel hydraulics; estimation of design discharge; flood statistics; nonuniform steady open channel flow; energy and momentum principles, backwater analysis; culvert and bridge hydraulics. Prerequisite: CIVL 215. [3-2*-1]

CIVL 320 (3) CIVIL ENGINEERING MATERIALS. The structure and properties of common Civil Engineering materials: aggregates, Portland cement, concrete, asphalt, timber and metals. The emphasis is on the relationship between the structure of materials and their mechanical properties. Prerequisite: All of APSC 278, APSC 279. [3-0-0]

CIVL 322 (3) PROJECT BASED LEARNING IN CIVIL ENGINEERING MATERIALS. Some topical problems will be identified and students in groups will carry out experiments to study the materials involved. Site visits, external consultations are an integral requirement. Prerequisite: CIVL 320. Corequisite: APSC 201. [1-3-0]

CIVL 331 (4) STEEL AND TIMBER DESIGN. Introduction to limit states design of steel and timber structures: material properties, design of tension and compression members, beams, columns, and connections. Prerequisite: CIVL 231. [3-0-2]

CIVL 332 (3) STRUCTURAL ANALYSIS. Introduction to indeterminate structural analysis; approximate analysis of structures; calculation of displacements using virtual work; flexibility (force) method; stiffness method for frames; moment distribution method. Prerequisite: All of CIVL 231, MATH 152. [3-0-2]

CIVL 340 (3) TRANSPORTATION ENGINEERING I. The analysis and design of the elements of transportation facilities in

development of transport technology; vehicle motion; vehicle/pavement interaction; elements of road design; principles of queuing and roadway capacity; rail transit performance and capacity analysis; economics as applied to transport. Corequisite: STAT 251. [3-0-0]

CIVL 400 (3) CONSTRUCTION ENGINEERING AND MANAGEMENT. Management of the firm: strategic planning; marketing; organizational structure and behaviour. Project delivery systems: traditional; construction management; turnkey; project management. Network planning methods. Activity planning, including construction methods selection. Estimating, bidding and bonding. Project control tools and procedures. Safety considerations and quality control. Prerequisite: Fourth-year standing. [3-0-0]

CIVL 402 (2) ENGINEERING LAW AND CONTRACTS IN CIVIL ENGINEERING. Aspects of law encountered in engineering, with emphasis on contracts and specifications. Contract documents; preparation of specifications; torts and independent contractor; companies and partnerships; mechanics liens; agency; evidence; expert witness; Engineers Act and Code of Ethics; industrial design and trade secrets; employment law; liability. Prerequisite: Fourth-year standing. [2-0-0]

CIVL 403 (3) ENGINEERING ECONOMIC ANALYSIS. The subjects of decision-making; hard and soft systems management; decision models, cost concepts and accounting, the time value of money; comparing options; depreciation and taxes; and public sector projects will be studied. Case studies will be presented. Prerequisite: CIVL 200. Fourth-year standing required. [3-0-0]

CIVL 405 (3) ENVIRONMENTAL IMPACT STUDIES. A course to familiarize the student with environmental impact assessment legislation and to discuss design and construction considerations useful in minimizing and mitigating such impacts. Prerequisite: CIVL 316. [3-0-0]

CIVL 406 (3) WATER TREATMENT AND WASTE MANAGEMENT. Processes used in water and wastewater treatment. Conditions which necessitate treatment of water or wastewater, water and wastewater treatment processes and plant design. Municipal services required and associated with solid waste management. Prerequisite: CIVL 315. [3-0-0]

CIVL 407 (3) ENVIRONMENTAL LABORATORY ANALYSIS. Testing procedures used in water quality studies and in the operation of water and wastewater treatment plants. Prerequisite: CHEM 154. [1-3-0]

CIVL 408 (3) GEO-ENVIRONMENTAL ENGINEERING. Site remediation technologies and design considerations related to mechanisms of soil-contaminant interaction, geochemistry and contamination, regulatory requirements. Design and performance case histories. Prerequisite: CIVL 210. [3-0-0]

CIVL 409 (3) DESIGN OF WATER SUPPLY AND WASTE CONVEYANCE SYSTEMS. Identification and evaluation of design solutions for providing a community with adequate water supply, collecting and disposing of stormwater and sewage, and managing excess stormwater flow. [3-0-1]

CIVL 410 (3) FOUNDATION ENGINEERING I. An introduction to the process of foundation engineering. Empirical and analytical approaches used in current professional practice. Topics include site investigation, preloading, liquefaction assessment, ground improvement, design of shallow and deep foundations, and retaining structures. The importance of geology and technical communication are emphasized. Prerequisite: CIVL 311. [3-0-0]

CIVL 411 (3) FOUNDATION ENGINEERING II. Aspects of Geotechnical Engineering. Design considerations illustrated by case histories pertinent to BC. Topics include: site investigation, terrain analyses, in situ testing, groundwater problems, deep foundations, tie back walls and bracing, tailings impoundments, Northern construction, ground ice, dikes and dams engineering. Many case histories presented in part by prominent consulting engineers in BC. Prerequisite: CIVL 311. [3-0-0]

CIVL 413 (3) DESIGN OF EARTH DAMS AND CONTAINMENT STRUCTURES. Purpose and types of dams; design criteria; construction sequence; compaction; seepage; filter design; factors influencing the design of earth dams; stability and deformation under static and earthquake loading; slope protection; field instrumentation. Prerequisite: CIVL 311. Fourth-year standing. [3-0-1]

CIVL 415 (3) WATER RESOURCE ENGINEERING. An introduction to the planning and design of water resource systems, stream systems, and municipal and hydropower engineering. Prerequisite: All of CIVL 316, STAT 251. [3-0-0]

CIVL 416 (3) ENVIRONMENTAL HYDRAULICS. Application of hydraulic engineering principles to problems of environmental concern. Pollutant transport and dispersion. Mixing in rivers and lakes. Theory of jets and plumes. Design of outfall diffusers. Prerequisite: All of CIVL 316, MATH 257. [3-0-0]

CIVL 417 (3) COASTAL ENGINEERING. General discussion of waves; linear wave theory; finite amplitude waves; standing waves; seiches; harbour design; wave shoaling, refraction and diffraction; beaches and coasts; wave statistics; wave generation; wave forces on piles, walls and breakwaters; tides; instrumentation and modelling techniques. Prerequisite: All of CIVL 315, CIVL 316, MATH 257. [3-0-0]

CIVL 418 (3) ENGINEERING HYDROLOGY.

Hydrologic processes – weather, precipitation, infiltration, evaporation, snowmelt and runoff generation. Emphasis on quantitative techniques including: hydrograph analysis, reservoir and channel routing, statistical methods and design floods, hydrologic modelling. Prerequisite: All of CIVL 315, CIVL 316. [3-0-0]

CIVL 420 (3) CONCRETE TECHNOLOGY.

Physical and chemical properties and microstructure of hydrated Portland cement; construction practices; modern use of industrial by-products such as fly ash, blast furnace slag, silica fume and metakaolin; use of chemical admixtures; environmental issues; properties of hardened concrete; issues in standardized and accelerated testing, non-destructive testing. Prerequisite: CIVL 320. [3-0-0]

CIVL 430 (3) DESIGN OF CONCRETE

STRUCTURES. Non-linear response of reinforced concrete members subjected to axial load, bending and shear; design of simple one-way members including beams, columns, slabs and footings. Prerequisite: CIVL 332. [3-0-1]

CIVL 432 (3) ADVANCED STRUCTURAL

STEEL DESIGN. Frame connections with high-strength bolts and welds, highway bridge loadings, composite beams of steel and concrete, welded steel plate girders. Prerequisite: All of CIVL 331, CIVL 332. [3-0-0]

CIVL 433 (3) ADVANCED CONCRETE

DESIGN. Design of continuous reinforced concrete building frames and structures. Prerequisite: CIVL 430. [3-0-0]

CIVL 435 (3) ADVANCED STRUCTURAL

ANALYSIS. The force method and example applications, shear walls; extension of displacement method, shear deformation, curved members; nonlinear effects, P-delta, buckling, elasto-plastic analysis. Introduction to the finite element method. Prerequisite: CIVL 436. [3-0-0]

CIVL 436 (3) MATRIX STRUCTURAL

ANALYSIS AND DYNAMICS. Further techniques in matrix structural analysis; non-rigid supports, temperature-shrinkage effects, computer implementation; matrix representation of structural dynamics; mode shapes, natural frequencies, continuous systems; lumped mass models, modal analysis, response spectra. Prerequisite: CIVL 332. [3-0-0]

CIVL 437 (3) STRUCTURAL DESIGN. Concept synthesis and evaluation for structural designs, approximate design and analysis techniques, detailed design and analysis. Prerequisite: Fourth-year standing. [3-0-1]

CIVL 439 (3) DESIGN OF TIMBER

STRUCTURES. Design of timber structural elements for light frame systems using limit states design principles with emphasis on load duration, stress grades, sawn and glued laminated members, deflection, elastic instability, combined loads, timber joints and fasteners. Credit will not be given for both CIVL 439 and WOOD 476. Prerequisite: One of CIVL 230, WOOD 376. Equivalency: WOOD 476. [2-0-2]

CIVL 440 (3) TRANSPORTATION

ENGINEERING II. Traffic operations and network analysis; traffic studies and data design; traffic stream flow and roadway analysis; weaving and interchange ramp analysis; intersection traffic control measures and control design; progressive signal system design; flows prediction; road network simulation and assignment algorithms; motor vehicle accident analysis; field exercises. Prerequisite: CIVL 340. [3-0-0]

CIVL 441 (3) TRANSPORTATION PLANNING

AND ANALYSIS. Transportation systems planning and analysis: data needs; surveys and analysis; sampling techniques; trip generation; trip distribution; modal choice; trip assignment; traffic impact studies; system evaluation. Prerequisite: CIVL 340. Fourth-year standing. [3-0-1]

CIVL 445 (3) ENGINEERING DESIGN AND

ANALYSIS. Students will be expected to either design and carry out an experimental project, or carry out a design project through the development of conceptual, preliminary and final design. Prerequisite: APSC 201 and fourth-year standing. [0-2-0; 0-4-0]

CIVL 478 (3) BUILDING SCIENCE.

Design of elements providing environmental separation in buildings to forces including heat transfer, air leakage, vapour diffusion. Prerequisite: Fourth-year standing. Equivalency: WOOD 478. [3-0-0]

CIVL 493 (3) CASE STUDIES OF

CONSTRUCTION METHODS. Identification and evaluation of solutions to construction site operation problems: the relationship between design and construction; factors affecting productivity and safety; measurement of on-site performance. Prerequisite: Fourth-year standing. [3-0-1]

CIVL 498 (1-6) D DIRECTED STUDIES.

Registration will take place on the first day of class by the Instructor.

CIVL 504 (2) SEISMICITY AND SEISMIC

DESIGN PARAMETERS. Causes of earthquakes. Fault mechanisms. Wave motions. Magnitudes and intensities. Regional seismicity and risk analysis. Attenuation of ground motion parameters with distance. Development of site specific ground motions. Selection of earthquake records and construction of design spectra.

CIVL 505 (2) SEISMIC RESPONSE OF

STRUCTURES. Response of structures to earthquakes; concept of ductility; development of seismic design codes. Hierarchy of analytical tools; quasi-static, modal, and nonlinear analyses. Modelling of structures. Soil-structure interaction.

CIVL 506 (2) SEISMIC DESIGN OF CONCRETE

STRUCTURES. Application of seismic design principles to the design of concrete structures with particular emphasis on building structures.

CIVL 507 (3) DYNAMICS OF STRUCTURES I.

Fundamental analysis of simple structures subjected to dynamic loadings; vibration problems in structures; linear and nonlinear structural response of simple systems;

numerical methods for practical vibration analysis.

CIVL 508 (3) DYNAMICS OF STRUCTURES II.

Dynamic response of discrete and continuous systems; structural property matrices and eigenvalue problem; introduction to random vibrations; wave propagation analysis; experimental techniques and computer modelling.

CIVL 510 (3) BEHAVIOUR OF STEEL

STRUCTURES. Elastic response; elastic limit; capacity design; non-elastic stability problems of members and frames; plastic design and analysis; connection design for ultimate loads.

CIVL 511 (3) ADVANCED TOPICS IN STEEL

STRUCTURES. Seismic design of steel buildings; composite design; welding of steel; corrosion protection; application of CAD in steel design.

CIVL 513 (3) CONCRETE STRUCTURES.

Response of prestressed and non-prestressed concrete elements and structures; comparison of analytical predictions and experimental results; simplified design procedures. [3-0-0]

CIVL 515 (3) BRIDGE DESIGN AND

CONSTRUCTION. Performance requirements, loads, conceptual and detailed design, approximate methods of analysis, erection methods, bridge and foundation types, case studies from recent designs.

CIVL 516 (3) BEHAVIOUR OF TIMBER

STRUCTURES. Design problems in timber structures; effects of size; environment; duration of load; connections.

CIVL 517 (3) ADVANCED TOPICS IN TIMBER

STRUCTURES. Behaviour of timber structural systems. Simulation of system response and structural reliability. Effect of quality controls.

CIVL 518 (3) RELIABILITY AND STRUCTURAL

SAFETY. Probability theory and random variables. Performance functions and probability of non-performance: simulations and FORM/SORM methods. Applications. System reliability. Time-dependent reliability and introduction to stochastic processes.

CIVL 520 (3) CONSTRUCTION PLANNING

AND CONTROL. Planning of civil engineering projects using networking techniques and time space methods. Treatment of resources and cash flow. Activity planning. Concepts of control at the project and activity levels.

CIVL 521 (3) CONSTRUCTION METHODS

AND PERFORMANCE. Case studies in construction methods and solutions to construction site operation problems. Construction productivity, performance measurement, safety, quality, and other production issues. [3-0-0]

CIVL 522 (3) PROJECT AND CONSTRUCTION

ECONOMICS. Application of the principles of engineering economics, economics and systems analysis techniques to the mathematical modeling of civil engineering projects. Topics treated: modeling of capital expenditures, revenues and operating expenditures, project financing, sensitivity analysis, risk analysis and management.

CIVL 523 (3) PROJECT MANAGEMENT FOR ENGINEERS. Perspectives of project management as it relates to civil engineering. Case studies are used to illustrate key issues.

CIVL 524 (3) LEGAL ASPECTS OF PROJECT AND CONSTRUCTION MANAGEMENT. Legal issues of construction contracts, bidding processes, negligence, insurance, bonding, liens, and labour law.

CIVL 525 (3) DEVELOPING COMPUTER APPLICATIONS FOR CIVIL ENGINEERING. Software analysis and design for civil engineers; overview of internet, databases, and programming languages.

CIVL 526 (3) 3D MODELING, COST ESTIMATING AND CONSTRUCTION PLANNING. Modeling the relationships between design, cost, and schedule information to manage and control construction. Conceptual and detailed estimating techniques; construction resources and productivity; CPM scheduling; value engineering and constructability analysis.

CIVL 527 (2) SPECIALIZED CONCRETES. Production, properties, durability and applications of various specialized concretes.

CIVL 528 (2) ADVANCED CONCRETE TECHNOLOGY. Pore structure, permeability and transport properties of concrete with and without mineral and chemical admixtures, damage modeling and application of linear and non-linear fracture mechanics, fiber reinforcement of concrete, strain-rate effects, fatigue and impact resistance, durability. Prerequisite: CIVL 420.

CIVL 529 (2) HIGH PERFORMANCE MATERIALS IN REPAIR AND REHABILITATION OF CIVIL INFRASTRUCTURE. High performance plain and fiber reinforced concrete and shotcrete, fibre reinforced polymer laminates, wraps, jackets and sprayed composites, types of repairs, analysis, case studies.

CIVL 535 (3) ELASTICITY. Kinematics of deformable bodies. Strain and stress tensors. Tensor transformations. Elastic constitutive laws. Orthotropy and isotropy. Energy theorems. Principles of virtual work. Stress waves. Introduction to plasticity and linear viscoelasticity. Credit given for only one of MECH 561 and CIVL 535.

CIVL 536 (3) PLASTICITY. Elastic-plastic strains, yield criteria, flow rules, limit theorems. Plastic collapse in frames and plates. Applications to beam bending, and axisymmetric problems. Linear viscoelasticity and viscoplasticity. Credit given for only one of MECH 568 or CIVL 536.

CIVL 537 (3) COMPUTATIONAL MECHANICS I. Numerical techniques, weighted residual methods, finite differences, finite elements. Formulations using energy principles, shape functions, conformity, stiffness and mass matrices. Consistent load vectors. Applications to linear problems. Numerical integration and equation solvers. Dynamic problems. Introduction to nonlinear problems.

CIVL 538 (3) COMPUTATIONAL MECHANICS II. Finite elements for geometrically nonlinear problems: Lagrangian and Eulerian formulations. Review of constitutive models: Finite elements for materially nonlinear problems. Incremental formulations. Iterative solution algorithms. Application to project type problems. Prerequisite: CIVL 537.

CIVL 539 (3) ADVANCED THEORY OF STRUCTURES. Topics in stiffness and flexibility analysis of frame structures; plastic behaviour; stability problems; P-Delta effects and buckling in columns and frames, lateral and torsional buckling. Introduction to plates and cylindrical shells. Buckling and plastic collapse in plates.

CIVL 540 (3) WAVES AND WAVE EFFECTS. Wave hydrodynamics: wave statistics and design wave selection; wave forces; wave effects on coastal and offshore structures.

CIVL 541 (3) ENVIRONMENTAL FLUID MECHANICS. Analysis of density stratified flows with application to water quality problems in inland and coastal waters.

CIVL 542 (3) PHYSICAL LIMNOLOGY. Physical processes that affect the behaviour of lakes, including reservoirs, water filled mine pits, mine tailings ponds and other standing water bodies. Impacts of these processes on water quality, and methods used in the rehabilitation of lakes.

CIVL 543 (3) TURBULENT FLUID DYNAMICS. Physical and mathematical models of turbulent flow suitable for engineering estimates and predictions.

CIVL 544 (3) COMPUTATIONAL OPEN CHANNEL HYDRAULICS. Overview of 1-D, 2-D, and 3-D fixed and mobile bed formulations. Application to flooding, river morphology, erosion and scour prediction. [3-0-0]

CIVL 545 (3) METHODS IN ENVIRONMENTAL FLUID MECHANICS. Data acquisition, pre- and post processing in the field, laboratory, and numerical modeling. Overview from experimental design to final presentation of results.

CIVL 546 (3) FLUVIAL HYDRAULICS. Hydraulics of flow in rivers. Sediment transport, flow resistance, river morphology, stable channel design, bank erosion and scour; effects of engineering works on river systems; river restoration.

CIVL 547 (2) ESTUARY HYDRAULICS. Estuary dynamics and estuary classification; the effect of engineering works on salinity intrusion; physics of estuary pollution and the use of computer and hydraulic models.

CIVL 548 (3) NUMERICAL MODELLING OF SURFACE WATER QUALITY. Development and application of water quality models for lakes, rivers, estuaries, and reservoirs. Derivation of differential equations of pollutant transport; kinetic relationships for physical and chemical transformation of substances; numerical and analytical solutions to transport equations; calibration and verification.

CIVL 551 (2) ADVANCED HYDROLOGY. Modelling hydrologic runoff processes. Flow forecasting models for mountain watersheds. Estimation of design rainfall and snowmelt.

CIVL 555 (3) ANALYSIS OF CIVIL ENGINEERING SYSTEMS. Concepts and techniques of operations research, decision analysis, and systems engineering applicable to water resources transportation engineering, and construction management.

CIVL 557 (2) TOXIC AND HAZARDOUS WASTE TREATMENT AND DISPOSAL. Environmental impact of disposal of toxic and hazardous wastes. Treatment technology for detoxification. Landfill disposal and self attenuation in landfills and underlying soils. Incineration of municipal wastes.

CIVL 558 (2) WATER RESOURCES INFRASTRUCTURE. Case history studies of local infrastructure used for controlling and utilizing water, including hydroelectric projects, developments on alluvial fans and floodplains and management of transportation corridors. Emphasis on engineering and environmental aspects.

CIVL 559 (2) ADVANCED WATER AND WASTEWATER TREATMENT TECHNOLOGY. Processes for removing and mitigating impurities that are not effectively removed in conventional water and waste treatment practice; investigation of disposal practices that make use of the impurities as a resource. Prerequisite: One of CIVL 565, CIVL 569 and equivalent background experience.

CIVL 560 (3) SANITARY ENGINEERING DESIGN. Design problems in water and sewage treatment, with emphasis on the hydraulic and sanitary engineering considerations.

CIVL 561 (3) INVESTIGATION, RISK ASSESSMENT AND MANAGEMENT OF CHEMICALS IN GEO-ENVIRONMENT. Sampling, investigations, fate and transport of chemicals in soil, water, sediment, biota and air; exposure pathways assessment and toxicological principles for receptors; risk-based approach to site remediation, treatment and control technologies.

CIVL 562 (3) ENVIRONMENTAL CONTAMINANT ANALYSIS LABORATORY. An advanced laboratory course to familiarize the student with environmental engineering laboratory procedures, instrumental analysis, sampling techniques and data analysis. Prerequisite: One of CIVL 407, CHBE 364.

CIVL 563 (3) UNIT OPERATIONS AND UNIT PROCESSES IN SANITARY ENGINEERING. Laboratory classroom and field assessments of sanitary engineering operations and processes. Prerequisite: CIVL 569.

CIVL 564 (2) ENGINEERING MANAGEMENT OF SOLID WASTES. Characteristics of solid wastes; introduction to solid waste collection, treatment and disposal. Evaluation of current practice and analysis of future potential of landfills, composting, combined treatment, recycle and re-use.

CIVL 565 (3) PHYSICAL-CHEMICAL TREATMENT PROCESSES. Development of the principles of selected physical and chemical treatment unit operations. Applications in both water and wastewater treatment.

CIVL 566 (2) TRANSPORT AND MIXING OF POLLUTANTS IN AQUATIC SYSTEMS. Mixing and dispersion of pollutants in inland and coastal waters. Pollutants associated with pulp mills, waste treatment plants, mining operations and other sources. Natural processes (physical, chemical and biological) affecting the ultimate fate and impact of these pollutants. Corequisite: CIVL 416.

CIVL 567 (2) WATER POLLUTION CONTROL ENGINEERING. Industrial waste survey and design problems. Appraisal and analysis of existing water quality management systems. Water quality and effluent standards.

CIVL 568 (2) WATER POLLUTION ENGINEERING AND ITS ECOLOGICAL IMPACT. The chemical and biological processes involved in the cycling, transformations and distribution of inorganic compounds (nitrogen, phosphorus, sulphur and trace metals) and organic compounds (pesticides, hydrocarbons and detergents) in polluted water environments. Prerequisite: One of ZOO 404, CIVL 567. Permission of instructor is also acceptable.

CIVL 569 (4) BIOLOGICAL WASTEWATER TREATMENT. Development of the principles of secondary, biological treatment processes, with application to both municipal and industrial wastewater treatment. Discussion of different treatment methodology, incorporating both aerobic and anaerobic microbiological processes. Prerequisite: MICB 400.

CIVL 570 (3) SOIL MECHANICS. Soil composition and geological factors affecting engineering properties, stress and strain at a point, principle of effective stress, stress-strain relations; theories of primary and secondary consolidation, settlement; shear testing equipment, stress-strain and strength behaviour of soil under static and dynamic loading. Prerequisite: CIVL 311.

CIVL 572 (3) ENVIRONMENTAL GEOTECHNIQUE. Physical-Chemical properties of clays, chemical effects on soils, site investigation for chemical sensitivity, contaminant fate and transport, environmental regulations, in-situ and laboratory tests; design of dewatering, containment, remediation systems including slurry/reactive walls, liners, covers. Case studies.

CIVL 573 (2) NUMERICAL METHODS IN SOIL MECHANICS. Application to geotechnical problems including stress, seepage, consolidation, and risk.

CIVL 574 (3) EXPERIMENTAL SOIL MECHANICS. Experimental studies of advanced aspects of soil behaviour; compressibility; shear strength; pore water pressure; dynamic tests; advanced instrumentation and measurement techniques; research reports required. Prerequisite: CIVL 570.

CIVL 575 (2) CONSTITUTIVE MODELS FOR SOIL. Non-linear elasticity; plasticity models including CamClay, UBC Sand and NorSand; applicability of models to specific engineering problems.

CIVL 577 (3) SOIL EXPLORATION FOR ENGINEERING DESIGN. Advanced methods of subsurface investigation; determination of stratigraphy and engineering properties by in-situ testing. Emphasis on field work and interpretation of results. Prerequisite: CIVL 570.

CIVL 579 (2) GEOSYNTHETICS. Material properties; standard tests data; soil-geosynthetic interaction; design of reinforced soil structures (walls, slopes, embankments); design of filtration and drainage works; design of geomembrane-lined waste containment facilities; regulatory requirements; case history applications. Prerequisite: CIVL 311.

CIVL 581 (3) SOIL DYNAMICS. Seismic loading and its effect on earth structures; dynamic response of single, and multi-degree of freedom systems and continuous systems; behaviour of soil under dynamic loading; pore pressure generation and liquefaction effects; seismicity and seismic design parameters; dynamic analysis of earth structures; seismic design of soil-structure systems. Prerequisite: CIVL 570.

CIVL 582 (3) TRANSPORTATION ENGINEERING IMPACTS. Methods to measure, predict and evaluate impacts of transportation modes. Discussion of measures to reduce impacts.

CIVL 583 (3) URBAN ENGINEERING METHODS AND MODELS. The application of urban analysis methods and models to the design of municipal and transportation engineering systems.

CIVL 584 (3) APPLICATIONS OF ADVANCED COMPUTER TECHNIQUES IN CIVIL ENGINEERING. Applications of artificial intelligence, neural networks, fuzzy logic and computer simulation to civil engineering problems involving uncertainty.

CIVL 586 (3) URBAN TRANSPORTATION SYSTEM ANALYSIS. Development and use of urban transportation models, including travel generation models, distribution models, mode choice models and system evaluation.

CIVL 589 (3) TRAFFIC FLOW THEORY. A discussion of the various traffic flow distribution models, gap acceptance, queuing processes, traffic flow simulation with applications to intersection design, signal system design and control of urban freeways. [3-0-0]

CIVL 595 (0) GRADUATING PAPER.

CIVL 596 (2-6) D PROJECT IN CIVIL ENGINEERING. For M.Eng. students only.

CIVL 597 (1) SEMINAR. Presentations and discussions of current research topics in various disciplines of Civil Engineering.

CIVL 598 (1-6) D TOPICS IN CIVIL ENGINEERING.

CIVL 599 (6-12) C M.A.SC. THESIS.

CIVL 699 (0) THESIS. For the Ph.D.

CLST — CLASSICAL STUDIES FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnrs.ubc.ca.

CLST 100 (6) INTRODUCTION TO CLASSICAL CIVILIZATION. The history, literature, art, and architecture of fifth-century Athens and first-century Rome. Pertinent readings in translation and modern texts.

CLST 101 (3) AN INTRODUCTION TO ANCIENT GREEK AND ROMAN LITERATURE. Selections from poetry, prose, and drama of Greek and Roman authors.

CLST 102 (3) AN INTRODUCTION TO ANCIENT GREEK AND ROMAN HISTORY AND ARCHAEOLOGY. Selections from the Greek and Roman historians and an introduction to Greek and Roman art and archaeology.

CLST 204 (3) INTRODUCTION TO CLASSICAL AND NEAR EASTERN ARCHAEOLOGY. A selective survey of the material cultures of the Near East, pre-classical and classical civilizations of the Mediterranean to illustrate archaeological history, principles, aims, and techniques.

CLST 211 (3) GREEK PHILOSOPHY I. The Presocratics; Socrates; Sophists. Recommended as preparation for CLST/PHIL 212, CLST 336, 337 and PHIL 310. Equivalency: PHIL 211.

CLST 212 (3) GREEK PHILOSOPHY II. Aristotle; selections from Hellenistic Philosophy. Recommended as preparation for CLST 336, 337 and PHIL 310. Equivalency: PHIL 212.

CLST 301 (3) THE TECHNICAL TERMS OF MEDICINE AND BIOLOGICAL SCIENCE. Acquaints the student with the Greek and Latin elements from which most specialized terms of modern medicine are constructed. Intended primarily for students planning to enter the medical, pharmaceutical, or biological sciences.

CLST 305 (6) CLASSICAL MYTH AND RELIGION. The major cycles of Greek and Roman myth; their association with religion, cult, and society.

CLST 306 (3) APPLIED SCIENCE AND TECHNOLOGY IN CLASSICAL ANTIQUITY. The origins and achievements of applied technology in the Greek and Roman world from the Bronze Age to late Antiquity, with special attention to archaeological evidence.

CLST 307 (3) GREEK LAW. The study of Greek legal theory, practice, and institutions from their origin in self-help, through the early lawgivers and their codes, to the developed system of Athens in the fifth and fourth centuries. A variety of test cases from the works of the Greek orators will be explored.

CLST 308 (3) ROMAN LAW. The development of Roman private law during the classical period with special attention to family law, contract and delict.

CLST 310 (6) GREEK AND ROMAN LITERATURE. A study, through selected readings in translation, of the range and variety of literary forms invented and developed by the Greeks and Romans from Homer to Apuleius.

CLST 311 (3) WOMEN IN THE BRONZE AGE, CLASSICAL GREEK AND HELLENISTIC CULTURES. The images projected in mythology, literature, and art are compared with realities of women's lives insofar as they can be reconstructed from historical, legal, and archaeological records.

CLST 312 (3) WOMEN IN THE ROMAN WORLD OF REPUBLICAN AND IMPERIAL TIMES. Women in the Roman world in the culture of the Republic and the Empire. Literary, artistic, and mythological sources are compared and contrasted to historical, legal, and archaeological records.

CLST 313 (3) GREEK EPIC. Homer's *Iliad* and *Odyssey*. In translation.

CLST 314 (3) LATIN EPIC. A survey of the development of the epic genre in Latin, with detailed study of Vergil's *Aeneid*, Ovid's *Metamorphoses*, and Lucan's *Civil War*.

CLST 315 (3) ANCIENT PROSE FICTION. A survey of the development of the ancient novel, in Greek and Latin, with particular study of Petronius' *Satyricon* and Apuleius' *The Golden Ass*.

CLST 317 (3) CLASSICAL TRAGEDY. The plays of the Greek and Roman tragic dramatists. In translation.

CLST 318 (3) CLASSICAL COMEDY. The plays of the Greek and Roman comic dramatists: Aristophanes, Menander, Plautus and Terence. In translation.

CLST 330 (6) GREEK AND ROMAN ART. A study of the achievements of the Greeks and Romans in art and architecture from the Bronze Age to the reign of Constantine. Credit will be granted to only one of CLST 330 or ARTH.

CLST 331 (6) ANCIENT HISTORY. The rise of the Greek city-states; special emphasis on the political, economic, and cultural achievements of the fifth and fourth centuries BC; the growth of Rome and the development of her political institutions during the Republic; the social and economic history of the Empire; the transition from the classical to the medieval world.

CLST 333 (3) GREEK RELIGION.

CLST 334 (3) ROMAN RELIGION.

CLST 335 (6) SUMMER PRACTICUM IN CLASSICAL ARCHAEOLOGY. Practical training in excavation techniques and interpretation, including survey and mapping procedures, recording, drawing and analysis of artifacts, and study of comparative material. Students will participate in the excavation of a Greek or Roman site in Europe or the Middle East for the Summer Session. The course will include lectures and field-excursions relevant to the region and period of the site.

CLST 351 (3) DARK AGE AND ARCHAIC GREECE.

CLST 352 (3) THE ROMAN REPUBLIC. Rome from the foundation to the Augustan settlement. Constitutional development; the workings and failure of the Republican political system; acquisition and growth of Empire; the political, social, and economic consequences of imperialism. Prerequisite: CLST 331. Permission of the instructor is also acceptable.

CLST 353 (3) THE EARLY ROMAN EMPIRE. Roman imperial history during the Julio-Claudian and Flavian periods (30 BC–96 AD). Prerequisite: CLST 331. Permission of the instructor is also acceptable.

CLST 354 (3) THE LATER ROMAN EMPIRE. Roman history of the high and later Empire (from AD 96 to the end of the fourth century); the development of Christianity and the problem of church and state. Prerequisite: CLST 331. Permission of the instructor is also acceptable.

CLST 355 (3) THE ATHENIANS AND THEIR EMPIRE. The sources (literary, epigraphical and other) for Athens' emergence as one of the two leading city-states in late archaic and classical Greece and the stages by which her empire grew. Prerequisite: CLST 331. Permission of the instructor is also acceptable.

CLST 356 (3) ALEXANDER THE GREAT AND HIS EMPIRE. The rise of Macedon under Philip II leading to its domination of Greece and the overthrow of the Persian Empire by his son, Alexander; the subsequent spread of Greek civilization in the East. Prerequisite: CLST 331. Permission of the instructor is also acceptable.

CLST 360 (3–12) D LIFE AND SOCIETY IN CLASSICAL ANTIQUITY. Topics in Greek and Roman life and society.

CLST 429 (3/6) D STUDIES IN THE ART AND ARCHAEOLOGY OF GREECE AND ROME. Credit will be granted to only one of CLST 429 or ARTH.

CLST 430 (3) TOPOGRAPHY AND MONUMENTS OF ANCIENT ATHENS. A study of the ancient city with special attention to the archaeological sources. Prerequisite: One of CLST 330, ARTH 329, FINA 329.

CLST 431 (3) TOPOGRAPHY AND MONUMENTS OF ANCIENT ROME. A study of the ancient city with special attention to the archaeological sources. Prerequisite: One of CLST 330, FINA 329. Permission of the instructor is also acceptable.

CLST 449 (6) HONOURS ESSAY.

CLST 501 (3) TOPOGRAPHY AND MONUMENTS OF ATHENS. A study of the topography and monuments of ancient Athens from the Bronze Age to Late Antiquity. Offered in the first term of alternate years.

CLST 502 (3) TOPOGRAPHY AND MONUMENTS OF ROME. A study of the topography and monuments of ancient Rome from the Iron Age to Late Antiquity. Offered in the second term of alternate years.

CLST 503 (3/6) D STUDIES IN GREEK ARCHITECTURE. Selected topics in Greek architecture, e.g., religious, secular, and military architecture.

CLST 504 (3/6) D STUDIES IN ROMAN ARCHITECTURE. Selected topics in Roman architecture, e.g., religious, military, domestic, and public secular architecture.

CLST 505 (3/6) D STUDIES IN GREEK TOWN PLANNING. The development of Greek town planning from the Bronze Age to the Hellenistic period.

CLST 506 (3/6) D STUDIES IN ROMAN TOWN PLANNING. The origins of town planning in Italy and the development of cities in the Roman Empire.

CLST 508 (3/6) D STUDIES IN ROMAN PAINTING AND MOSAICS. Selected topics in Roman painting and mosaics, e.g., Campanian wall painting, regional styles of mosaic decoration.

CLST 509 (3/6) D STUDIES IN GREEK SCULPTURE. Selected topics in Greek sculpture, e.g., development of kouros and kore, Hellenistic sculpture, sculpture of fifth-century Athens.

CLST 510 (3/6) D STUDIES IN ROMAN SCULPTURE. Selected topics in Roman sculpture, e.g., imperial relief sculpture, portraiture, regional styles.

CLST 511 (3/6) D STUDIES IN GREEK REGIONAL ARCHAEOLOGY. Study of a particular area, e.g., Ionia, Sicily, Southern Italy.

CLST 512 (3/6) D STUDIES IN ROMAN PROVINCIAL ARCHAEOLOGY. Study of a particular area, e.g., Gaul, Britain, Asia Minor.

CLST 513 (3/6) D THE ARCHAEOLOGY OF GREEK AND ROMAN TECHNOLOGY. Material evidence for the technological achievements of the Greek and Roman world.

CLST 514 (3/6) D GREEK AND ROMAN MINOR ARTS. Minor arts of the Greek and Roman world, e.g., coins, jewelry, terracottas.

CLST 516 (3) D STUDIES IN GREEK BLACK-FIGURE VASE-PAINTING. Selected topics in Greek painting, e.g., Athenian vase painting, regional styles of vase painting, Hellenistic painting.

CLST 517 (3) D STUDIES IN GREEK RED-FIGURE VASE-PAINTING. Selected topics in Greek painting, e.g., Athenian vase painting, regional styles of vase painting, Hellenistic painting.

CLST 518 (3/6) D TOPICS IN GREEK ARCHAEOLOGY.

CLST 519 (3/6) D TOPICS IN ROMAN ARCHAEOLOGY.

CLST 520 (3/6) D DIRECTED STUDIES IN GREEK ARCHAEOLOGY.

CLST 521 (3/6) D DIRECTED STUDIES IN ROMAN ARCHAEOLOGY.

CLST 547 (3) GUIDED RESEARCH.

CLST 548 (0) MAJOR ESSAY.

**CNPS — COUNSELLING PSYCHOLOGY
FACULTY OF EDUCATION**

CNPS 312 (3) CAREER EDUCATION FOR TEACHERS. Introduction to career education practices and standards program content, and principles for the design of career education programs. [3-0]

CNPS 362 (3) BASIC INTERVIEWING SKILLS. Development of basic interviewing skills for counselling and guidance. [3-3]

CNPS 363 (3) CAREER COUNSELLING. Critical survey of career counselling theory and practice. [3-0]

CNPS 364 (3) FAMILY EDUCATION AND CONSULTATION. Examination of current theories and practices in family education and consultation. [3-0]

CNPS 365 (3) INTRODUCTION TO THEORIES OF COUNSELLING. An overview of selected theories of counselling. [3-0]

CNPS 426 (6) THE ROLE OF THE TEACHER IN GUIDANCE. This course is designed to assist the teacher in understanding and using guidance techniques for day-to-day use in the classroom. The emphasis will be on techniques for working with people towards better self-understanding and better perspectives of alternatives. [2-1; 2-1]

CNPS 427 (3) GUIDANCE: PLANNING AND DECISION-MAKING. The work of the beginning counsellor and guidance worker in assisting students with educational, vocational, and personal planning and decision-making. [3-0]

CNPS 433 (3) THE PERSONAL AND SOCIAL DEVELOPMENT OF THE ADULT. Personal and social adjustment issues for professional counsellors; basic skills necessary for effective group counselling. [3-3]

CNPS 504 (3) ELEMENTARY SCHOOL COUNSELLING. Theory and practice of elementary school counselling.

CNPS 508 (3-12) C REVIEW OF RESEARCH IN EDUCATIONAL METHODS. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

CNPS 514 (3) COUNSELLING ADOLESCENTS. Theory, research, and practice of counselling adolescents.

CNPS 523 (3) COUNSELLING THEORY AND THE EDUCATION OF DEAF AND HARD OF HEARING STUDENTS. The impact of hearing loss considered from a developmental and family systems perspective; counselling strategies. [3-0]

CNPS 524 (3) COUNSELLING ADULTS. Major issues and problems of adult development. Selection of appropriate counselling interventions for use in education and other counselling settings.

CNPS 531 (3) INTERVIEW AND NON-STANDARDIZED MEASURES IN COUNSELLING. Theoretical assumptions in the use of non-standardized appraisal techniques.

CNPS 532 (3/6) D PSYCHOLOGICAL ASSESSMENT IN COUNSELLING. The use of standardized measures of mental ability, achievement, aptitude, interest and personality.

CNPS 534 (3) GENDER AND SEX ROLE ISSUES IN COUNSELLING. Theory, research, and practice in the area of gender and sex role issues related to counselling.

CNPS 544 (3) FAMILY COUNSELLING I. Counselling approaches as applied to the family, in educational and other counselling settings.

CNPS 545 (3) FAMILY COUNSELLING—INTERVENTIONS AND RESEARCH. Main theoretical and therapeutic approaches of contemporary family counselling with emphasis on intervention and critical research issues in educational and other counselling settings.

CNPS 551 (3-6) D SCHOOL-BASED CONSULTATION. Equivalency: EPSE 551.

CNPS 561 (3-12) C LABORATORY PRACTICUM.

CNPS 564 (3) GROUP COUNSELLING. Understanding, designing and knowledge of groups and how to conduct them for use in counselling and guidance services.

CNPS 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

CNPS 566 (3) ADVANCED STUDY IN GROUP COUNSELLING. Prerequisite: CNPS 564.

CNPS 574 (3) CAREER PLANNING AND DECISION-MAKING COUNSELLING. Theory, research, and practice of career planning and decision counselling. Prerequisite: CNPS 363.

CNPS 578 (3/6) C INDIVIDUAL AND FAMILY COUNSELLING THEORIES AND INTERVENTIONS. Major counselling theories, interventions for change and corresponding skill development. Prerequisite: All of CNPS 362, CNPS 365.

CNPS 579 (3) RESEARCH IN COUNSELLING PSYCHOLOGY. Assumptions and methods of major research paradigms. Prerequisite: One of EDUC 500, EPSE 481 and one of EPSE 482, EPSE 483.

CNPS 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

CNPS 584 (3) PROGRAM DEVELOPMENT AND PROFESSIONAL PRACTICE IN COUNSELLING. Designing, implementing and assessing counselling programs in schools, colleges, universities, and other counselling settings. Prerequisite: One of EDUC 500, EPSE 481 and one of EPSE 482, EPSE 483.

CNPS 586 (3) ETHICS IN COUNSELLING PSYCHOLOGY. Ethical decision-making and legal issues in counselling psychology research and practice.

CNPS 587 (1-3) D HISTORY AND SYSTEMS OF PSYCHOLOGY.

CNPS 588 (3-12) C SUPERVISED TRAINING IN COUNSELLING. Initial counselling experience under faculty supervision in department training centres.

CNPS 594 (3) CROSS-CULTURAL COUNSELLING. Critical analysis of cross-cultural counselling theory, research and practice.

CNPS 595 (3) STRESS, COPING AND ADAPTATION. Theories, research, and applications of psychosocial stress and coping processes, with a particular focus on counselling issues and contexts.

CNPS 598 (3/12) C FIELD EXPERIENCES. For those on Master's program. Pass/Fail.

CNPS 599 (6/12) C MASTER'S THESIS.

CNPS 601 (6/12) C DOCTORAL SEMINAR.

CNPS 632 (3) ADVANCED ASSESSMENT. Counselling psychology research and practice in adult personality assessment, including ethics of testing and use with special populations. Prerequisite: One of PSYC 303, EPSE 528 and CNPS 532.

CNPS 669 (3/6) D RESEARCH APPROACHES IN COUNSELLING PSYCHOLOGY.

CNPS 677 (3) THEORIES OF VOCATIONAL DEVELOPMENT. Sociological and psychological aspects of career planning, theories of vocational development, vocational choice.

CNPS 678 (3/6) D THEORETICAL PERSPECTIVES IN COUNSELLING PSYCHOLOGY. Major theoretical traditions in Counselling Psychology and illustration of the links among theory, research and practices; perspectives on Counselling Psychology as a distinct field of specialization.

CNPS 679 (3) INFORMATION SYSTEMS IN GUIDANCE AND COUNSELLING. The application of automatic data processing to guidance and counselling in student accounting, job placement, information dissemination and in interviewing. Prerequisite: A course in Computer Science.

CNPS 688 (6) SUPERVISION OF COUNSELLING PRACTICE. Supervision requires both knowledge of supervision models and practices, and skills to implement them. This course involves a seminar and practicum to integrate the two requirements of the subject. (For those on the Doctoral program.) Pass/Fail.

CNPS 698 (6) PRE-DOCTORAL INTERNSHIP. A 1600-hour supervised internship in Counselling Psychology. Internship sites offer counselling services as detailed in the "Specialty Guidelines for the Delivery of Services by Counselling Psychologists" (APA). Pass/Fail.

CNPS 699 (0) DOCTORAL THESIS. Pass/Fail.

CNRS — CLASSICAL, NEAR EASTERN AND RELIGIOUS STUDIES FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnrs.ubc.ca.

CNRS 316 (3/6) D GODS, HEROES, AND DIVINE HUMANS IN GRECO-ROMAN ANTIQUITY.

CNRS 370 (3) THEORIES OF MYTH.

CNRS 500 (3) PRO-SEMINAR IN ANCIENT MEDITERRANEAN STUDIES.

CNRS 501 (3) THE CITY: ETERNAL, EPHEMERAL, AND UNREAL.

CNRS 502 (3-12) D STUDIES IN LAW AND SOCIETY.

CNRS 503 (3-12) D STUDIES IN LITERATURE, ART AND SOCIETY.

CNRS 504 (3-12) D STUDIES IN RELIGION.

CNRS 505 (3-12) D STUDIES IN ETHNICITY.

CNRS 579 (3) MAJOR ESSAY.

COGS — COGNITIVE SYSTEMS PROGRAM FACULTY OF SCIENCE

COGS 200 (3) INTRODUCTION TO COGNITIVE SYSTEMS. Interdisciplinary examination of human mental processes and how these are mediated by the brain. Will draw on cognitive psychology, linguistics, cognitive neuroscience, philosophy, artificial intelligence. Prerequisite: second-year standing in the Faculty of Arts or Science. [3-0-0]

COGS 300 (3) UNDERSTANDING AND DESIGNING COGNITIVE SYSTEMS. Theory and methods for integrating diverse disciplinary content in cognitive systems. Prerequisite: COGS 200. [2-3-0]

COGS 400 (6) SPECIAL TOPICS IN COGNITIVE SYSTEMS. Interdisciplinary seminar and research course dealing with theory, methods, and current research topics. Prerequisite: restricted to students majoring in Cognitive Systems with fourth-year standing in the Faculty of Arts or Science. [3-3-0; 0-0-3]

COGS 401 (3) SEMINAR IN COGNITIVE SYSTEMS. Interdisciplinary seminar integrating theory, methods, and current research topics. Prerequisite: COGS 300. [1-0-4]

COGS 402 (3) RESEARCH IN COGNITIVE SYSTEMS. Supervised research project in a Cognitive Systems-related laboratory. Prerequisite: COGS 300. COGS 401 is recommended. [0-9-0]

COML — COMPARATIVE LITERATURE FACULTY OF GRADUATE STUDIES

COML 500 (3/6) D INTRODUCTION TO COMPARATIVE LITERATURE.

COML 501 (3/6) D STUDIES IN GENRE.

COML 502 (3/6) D STUDIES IN LITERARY MOVEMENTS AND PERIODS.

COML 503 (3/6) D STUDIES IN MYTH, THEME AND TRADITION.

COML 504 (3/6) D TOPICS IN COMPARATIVE LITERATURE.

COML 505 (3/6) D NEW PROBLEMS IN COMPARATIVE LITERATURE.

COML 506 (3/6) D COMPARATIVE STUDIES IN ORIENTAL AND OCCIDENTAL LITERATURE.

COML 507 (3/6) D ADVANCED SEMINAR IN LITERARY CRITICISM.

COML 547 (3-12) C READING COURSE.

COML 548 (1) MAJOR PAPER.

COML 549 (6/12) C MASTER'S THESIS.

COML 649 (0) PH.D. THESIS.

COMM — COMMERCE FACULTY OF COMM (SAUDER)

In general, not all of the prerequisites for Commerce courses are listed. Students must be registered in the same year level as the course they intend to register in. For example, eligibility for Commerce 400-level courses requires a student to have completed second and third-year Commerce, and to be registered in fourth year. Students should refer to the Commerce website or contact the Undergraduate program office regarding course prerequisites and variations from standard program sequences. Additional fees are charged some courses.

COMM 100 (3) INTRODUCTION TO BUSINESS. An overview of all functional areas of business. Students will be introduced to the computer and internet tools commonly used in business. For non-Commerce students only.

COMM 184 (3) CHINOOK I. An applied overview of the functional areas of business, business practice evaluations, and Aboriginal values on business practices. Restricted to students who are currently enrolled in the Chinook Diploma Program at Chinook Partner Institutions.

COMM 201 (3-36) D STUDY ABROAD, NON-COMMERCE. A study abroad program developed in cooperation between UBC Faculty of Commerce and another institution offering a set of courses tailored to a particular field of study.

COMM 290 (3) INTRODUCTION TO QUANTITATIVE DECISION MAKING.

Introduction to decision models in business, including basic optimization, linear programming, probability, decision analysis, random variables, simulation, and solving decision problems using spreadsheet tools. Prerequisite: All of MATH 104, MATH 105.

COMM 291 (3) APPLICATION OF STATISTICS IN BUSINESS. Methods and applications of statistics in business; data analysis, descriptive regression; data generation; sampling distributions; hypothesis testing; confidence intervals; two sample problems; inference in regression. Prerequisite: COMM 290.

COMM 292 (3) MANAGEMENT AND ORGANIZATIONAL BEHAVIOUR. Behaviour in organizations as it affects people as individuals, their relationships with others, their performance in groups and their effectiveness at work.

COMM 293 (3) FINANCIAL ACCOUNTING.

Introduction to the construction and interpretation of financial reports prepared primarily for external use.

COMM 294 (3) MANAGERIAL ACCOUNTING. Introduction to the development and use of accounting information for management planning and control and the development of cost information for financial reports. Prerequisite: COMM 293.

COMM 295 (3) MANAGERIAL ECONOMICS. Economic foundations of managerial decision-making. Demand theory, cost and production, market structure, competitive strategy, organization of the firm, welfare-economic foundations of business regulation. Credit may be obtained for only one of ECON 201, ECON 206, ECON 301, ECON 304, FRE 295, COMM 295. Prerequisite: MATH 105 and either (a) all of ECON 101, ECON 102 or (b) ECON 100.

COMM 297 (3) CAPITAL MARKETS AND INSTITUTIONS. Economic environment in which business operates, including the role of the Bank of Canada, analysis of domestic and international money markets and institutions and basic principles of financial valuation. [3-0; 3-0]

COMM 298 (3) INTRODUCTION TO FINANCE. Introduces the basic principles of financial valuation, including the time-value of money and the risk/return tradeoff. Develops tools for the quantitative analysis of corporate and/or individual financing and saving decisions, and of capital budgeting decisions. Prerequisite: All of COMM 290, COMM 293, MATH 105 and one of COMM 295, ECON 201, ECON 301. [3-0; 3-0]

COMM 299 (1) BUSINESS COMMUNICATIONS. Basic communication theory, communications in organizations. Includes written and oral practice in lab sessions.

COMM 300 (3-36) D STUDY ABROAD, COMMERCE. A study abroad program developed in cooperation between UBC Faculty of Commerce and another institution offering a set of courses tailored to a particular field of study.

COMM 302 (3-36) D STUDY ABROAD, NON-COMMERCE. A study abroad program developed in cooperation between UBC Faculty of Commerce and another institution offering a set of courses tailored to a particular field of study.

COMM 306 (3) URBAN LAND ECONOMICS. Examines economic factors affecting the urban land market, with an emphasis on determinants of urban land values, the housing market, urban transportation, and land use policies. Prerequisite: One of COMM 295, ECON 201, ECON 301.

COMM 307 (3) REAL ESTATE INVESTMENT. Evaluation of investment in real estate assets; proforma analysis, property and asset management, equity securitization, appraisal, and international real estate investment. Prerequisite:

site: One of COMM 295, ECON 201, ECON 301 and one of COMM 297, COMM 298.

COMM 310 (3) SIMULATION MODELS IN BUSINESS DECISION-MAKING. Computer simulation, simulation languages. Typical business applications in financial planning, waiting line problems and other operating problems. Prerequisite: COMM 291.

COMM 320 (3) ORGANIZATIONAL ANALYSIS. An analysis of organizational structures and intraorganizational processes; effects of organizational factors on individual behaviour. Prerequisite: COMM 292.

COMM 327 (3) HUMAN RESOURCE MANAGEMENT. Introduction to activities, policies and practices required for effective human resource planning, external factors that influence human resource management. Prerequisite: COMM 292.

COMM 328 (3) ADMINISTRATION OF COLLECTIVE AGREEMENTS. Grievance handling in collective agreements; the arbitration process; arbitral jurisprudence; substantive grievance issues such as discipline and promotions. Prerequisite: COMM 392.

COMM 329 (3) PRINCIPLES OF ORGANIZATIONAL BEHAVIOUR. An introductory examination of work organizations and the behaviour of individuals within them. Phenomena to be studied include organizational structure, environments, group processes, motivation and leadership (For non-Commerce students in third and fourth year).

COMM 335 (3) INFORMATION SYSTEMS TECHNOLOGY AND DEVELOPMENT. Introduction to information technology related to business use. Design, implementation and application of Information Systems. Prerequisite: One of COMM 391, CPSC 211.

COMM 336 (3) INTRODUCTION TO E-BUSINESS. Fundamental concepts for moving into e-Business including: technology infrastructure; security; electronic payment systems; business-to-consumer and business-to-business e-commerce; business models; strategy, behavioral and interface issues; legal and privacy concerns cases. Prerequisite: COMM 391.

COMM 337 (3) INTRODUCTION TO BUSINESS PROGRAMMING. Introduction to shared and object-oriented computer programming; program design and documentation techniques; development of business related systems.

COMM 341 (3) APPLIED BUSINESS LOGISTICS. Analysis of the firm's decision in inventory planning and control, logistics system design and logistics operations; the role of logistics in corporate strategy.

COMM 349 (3) LOGISTICS SERVICES MANAGEMENT. Overview of the characteristics and commercial environment of logistics and transportation services; service operations planning and design, costing, pricing and quality management. Corequisite: One of COMM 396, COMM 399.

COMM 353 (3) FINANCIAL ACCOUNTING – INTERMEDIATE I. An examination of accounting as a means of measurement and as an information system for external reporting purposes. Prerequisite: All of COMM 293, COMM 294. Corequisite: Either (a) all of COMM 297, COMM 397 or (b) COMM 298.

COMM 354 (3) COST ACCOUNTING. The provision and analysis of cost accounting information that will assist management in making operating decisions and in evaluating operational performance. The utilization of statistical analysis and linear models is included. Prerequisite: All of COMM 290, COMM 291, COMM 293, COMM 294.

COMM 355 (3) INCOME TAXATION. A study of income tax from the standpoint of the individual and of business enterprise. Prerequisite: One of COMM 293, COMM 457.

COMM 357 (3) TAX PLANNING. A study of personal income tax and financial planning for individuals at various life stages. Credit will be given for only one of COMM 355 or COMM 357.

COMM 362 (3) BUYER BEHAVIOUR. The use of consumer research and theory in marketing and policy decisions. Psychological, sociological and economic theory and research relevant to consumer behaviour are considered. Prerequisite: COMM 396.

COMM 363 (3) MARKETING ANALYSIS. Analytical methods applicable to marketing management decision making; attention to strategic considerations linking analysis of consumer data, corporate data, environmental factors, and competitive response. The course makes extensive use of micro computers. Prerequisite: COMM 396.

COMM 365 (3) MARKET RESEARCH. The process of marketing research including topics such as problem/opportunity formulation, research objectives, data sources, research instrument design, sampling, data collection and processing and methods of data analysis. Prerequisite: All of COMM 290, COMM 291, COMM 396 and one of COMM 295, ECON 201, ECON 301. Corequisite: COMM 391.

COMM 371 (3) THEORY OF FINANCE. Basic concepts of corporate finance, including security valuation and financial decisions by the corporation. Prerequisite: One of COMM 370, COMM 397.

COMM 374 (3) SECURITY MARKETS. Introduction to theories and evidence concerning the structure of security markets and the valuation of stocks, bonds, options, and futures contracts; the role of portfolio management in informationally efficient security markets. Prerequisite: One of COMM 370, COMM 397.

COMM 376 (3) FINANCIAL INSTITUTIONS I. The financial systems in Canada; the practices of the major financial institutions; and theories of financial processes. Prerequisite: One of COMM 297, COMM 298.

COMM 377 (3) INTERNATIONAL FINANCIAL MARKETS AND INSTITUTIONS. Structure, nature and institutions of foreign exchange markets, including spot, forward, futures, options, and offshore currency markets. Factors affecting exchange rates are also discussed. Prerequisite: One of COMM 370, COMM 397.

COMM 378 (3) RISK MANAGEMENT AND FINANCIAL ENGINEERING. Principles of financial engineering and risk management. Use of derivatives in risk management. Valuation and option models for contingent claims. Prerequisite: COMM 371. Corequisite: COMM 374.

COMM 379 (3) INTRODUCTION TO PENSIONS AND INSURANCE. Financial dimensions and institutional structure of the pension and insurance industry; calculation of annuities and other aspects of actuarial science based on probability distributions and asset returns. Suitable for students in mathematics who have taken basic finance and for commerce students in finance, accounting and related areas.

COMM 380 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised work experience for a minimum of 3.5 months. Normally taken during the winter term of the third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Commerce. Option-specific prerequisites apply.

COMM 381 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised work experience for a minimum of 3.5 months. Normally taken during the summer term of the third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Commerce. Prerequisite: COMM 380.

COMM 383 (3) PRODUCTION/OPERATIONS MANAGEMENT. Production planning and scheduling, inventory control, control of materials, purchasing, quality assurance, capacity management and industrial location decisions.

COMM 384 (3) CHINOOK III INDUSTRY ANALYSIS & OPPORTUNITY IDENTIFICATION. Detailed analysis of an industry of the student's choice focusing on issues of key success factors, industry segmentation, and opportunity identification-evaluation.

COMM 385 (3) CHINOOK IV NEW BUSINESS PLANNING. The development of a new business plan, from new business idea through to implementation planning.

COMM 391 (3) INTRODUCTION TO MANAGEMENT INFORMATION SYSTEMS. Overview of computer technology and terminology; use of computers as managerial and administrative tools; the management of computer resources and the influence of information technology within the organization.

COMM 392 (3) MANAGING THE EMPLOYMENT RELATIONSHIP. The role of employment relations in enterprise perfor-

mance. Managing employees under statutory law, collective bargaining and progressive human resource management. Key issues in forming, developing and maintaining a work force. Prerequisite: COMM 292 and either (a) all of ECON 101, ECON 102 or (b) ECON 100.

COMM 393 (3) COMMERCIAL LAW.

Introduction to the law of contracts, with particular reference to contracts for sale of goods and related law of personal property; principles of agency, partnerships and company law.

COMM 394 (3) GOVERNMENT AND BUSINESS.

Roles of government and business in the Canadian economy including effects of public policy on the business environment. Ethical foundations of government, business and personal decision-making. Prerequisite: One of COMM 295, ECON 201, ECON 301.

COMM 396 (3) INTRODUCTION TO MARKETING.

Basic considerations affecting the domestic and international marketing of goods and services. Prerequisite: COMM 293 and one of COMM 295, ECON 201, ECON 301.

COMM 397 (3) BUSINESS FINANCE.

Examination of the corporate enterprise decisions including working capital management, capital budgeting; capital structures and dividend policy. Prerequisite: COMM 297.

COMM 399 (3) LOGISTICS AND OPERATIONS MANAGEMENT.

The design and management of systems to make products, provide services and deliver them to the end user. Prerequisite: All of COMM 290, COMM 291.

COMM 400 (3-36) D STUDY ABROAD.

Study Abroad A one or two term program of regular undergraduate studies at a foreign university under an existing formal exchange program. Pass/Fail.

COMM 405 (3) REAL ESTATE FINANCE.

The role of mortgage markets, mathematical analysis of return and valuation issue and methods of dealing with lender and borrower risk exposure. Prerequisite: COMM 297.

COMM 407 (3) URBAN PUBLIC ECONOMICS.

The economics of local government. Analysis will focus on local expenditures, taxes, and land use control including the impacts of these policies. Prerequisite: One of COMM 295, ECON 201, ECON 301.

COMM 408 (3) REAL ESTATE DEVELOPMENT.

The development process from theories of development, market analysis, site selection, project design, land use regulation and financial analysis. Prerequisite: One of COMM 297, COMM 298 and one of COMM 295, ECON 201, ECON 301.

COMM 409 (3) CITY GROWTH AND STRUCTURE.

Advanced urban and regional economics, including economic basis analysis location theory, housing policy, dynamics of land use, land use succession, and urban renewal. Prerequisite: COMM 307.

COMM 410 (3) METHODS OF MANAGEMENT SCIENCE.

Formulation of models from a variety of areas, including the analysis of models of inventory, allocation (linear and non-linear programming), competition (game theory), and scheduling. Case studies will be used.

COMM 411 (3) INTERMEDIATE BUSINESS STATISTICS.

Statistical techniques useful in business environments. Includes regression analysis, analysis of variance, forecasting, and logit and probit analysis. Credit may be obtained for only one of STAT 300, 306, and COMM 411. Prerequisite: COMM 291. Equivalency: STAT 300.

COMM 412 (3) NEGOTIATION.

Negotiation is the art and science of securing agreements between two or more interdependent parties. Through lectures and weekly negotiation simulations students will gain insight into the behaviour of individuals, groups and organizations in competitive situations.

COMM 420 (3) BUSINESS AND MANAGEMENT VALUES IN ORGANIZATIONAL LIFE.

Balancing organizational, personal, and community interests in a global economy. In addition to standard management textbooks and readings, the class will draw from the work of poets, fiction writers, essayists, and social critics. Prerequisite: COMM 292.

COMM 421 (3) COLLECTIVE BARGAINING.

Structural, behavioural, legal and substantive aspects of labour management relations and the collective bargaining process. Prerequisite: COMM 392.

COMM 422 (3) PUBLIC SECTOR INDUSTRIAL RELATIONS.

Industrial relations in the Canadian public sector and the experience of the parties in dealing with these issues. Studies of subsectors such as civil services, education and health care are undertaken. Prerequisite: COMM 392.

COMM 425 (3) RESEARCH METHODS FOR HUMAN RESOURCE MANAGEMENT.

Techniques for collection and analysis of data in organizations to support adoption and administration of human resource management. Prerequisite: All of COMM 291, COMM 292, COMM 327.

COMM 426 (3) ORGANIZATIONAL DEVELOPMENT.

The tactics and strategies for implementing constructive modifications in organizations. Interpersonal relations skill building is emphasized in classroom activities, while lectures and assignments explore applications in business and non-business organizations. Prerequisite: COMM 292.

COMM 428 (3) SELECTED TOPICS IN HUMAN RESOURCE MANAGEMENT.

Prerequisite: All of COMM 327, COMM 425.

COMM 431 (3) LAW OF BUSINESS ASSOCIATIONS.

The application of various statutes to business entities including corporations, partnerships, societies, co-operatives, credit unions, trust companies and banks; the consequences of bankruptcy on legal entities. Prerequisite: COMM 393.

COMM 432 (3) ADVANCED BUSINESS PROGRAMMING.

Advanced structured and object-oriented computer programming; principles of software engineering; development of business-related systems. Prerequisite: One of COMM 337, CPSC 122, CPSC 152.

COMM 433 (3) EMPLOYMENT LAW.

Legal aspects of the employment relationship. Topics include: employment contracts, human rights legislation, standards of work legislation, the labour codes, Workers' Compensation Act and statutes dealing with related areas, e.g., unemployment and pension benefits. Prerequisite: COMM 393.

COMM 434 (3) LAND LAW.

Legal principles and concepts relating to real estate and land development. Prerequisite: COMM 393.

COMM 435 (3) DEVELOPING E-BUSINESS APPLICATIONS.

Applications of e-Business and e-Commerce; technological infrastructure; software tools, development process, development techniques, security, business implications, and other related issues for implementing e-business applications. Prerequisite: One of COMM 437, CPSC 304.

COMM 436 (3) INFORMATION SYSTEMS ANALYSIS AND DESIGN.

The process of information systems development; modern techniques and tools for systems analysis and design. Prerequisite: COMM 335.

COMM 437 (3) DATABASE TECHNOLOGY.

Theory and technology of database management from an applications perspective; database design; database administration. Credit will not be granted for both COMM 437 and CPSC 304. Corequisite: COMM 335.

COMM 438 (3) MANAGEMENT OF INFORMATION SYSTEMS.

Managerial issues in the administration of computerized information systems. Prerequisite: COMM 335.

COMM 439 (3) BUSINESS TELECOMMUNICATIONS.

Basic data communications concepts and technology; local area, wide area, and enterprise networks; the Internet; wireless networking; network development life cycle; network security and management. Prerequisite: COMM 335.

COMM 441 (3) ADVANCED BUSINESS LOGISTICS.

Analysis of logistics systems within firms and across supply chains. The formulation of corporate logistics strategies. Corequisite: COMM 399.

COMM 442 (3) E-BUSINESS AND SUPPLY CHAIN MANAGEMENT.

Methods/strategies for supply chain management using e-business technology; applications of electronic technologies to procurement, fulfillment, transportation and logistics; freight and logistics exchanges; and virtual supply chains. Prerequisite: One of COMM 341, COMM 399.

COMM 444 (3) AIR TRANSPORTATION.

An integrative treatment of air transport management including: demand analysis, sales and marketing, globalization trends, aircraft selection and fleet planning; airport economics and management. Prerequisite: One of COMM 295, ECON 201, ECON 301.

COMM 445 (3) SHIPPING AND INTERNATIONAL LOGISTICS. The characteristics of shipping services and the role of shipping services in the design and management of international logistics systems.

COMM 446 (3) TRANSPORTATION ECONOMICS. Economic characteristics of passenger and freight transportation services; market structure of the transportation industry; economic impact of public regulation and promotion and the role of economic analysis in resolving problems of Canadian policy. Credit may be obtained for only one of COMM 446, ECON 480. Prerequisite: One of COMM 295, ECON 201, ECON 301, ECON 206. Equivalency: ECON 480.

COMM 447 (3) PROJECT APPRAISAL AND MANAGEMENT. Evaluation of transport projects in the private and public sector; cost benefit analysis and related framework; project management, financing transport infrastructure. Prerequisite: One of COMM 295, ECON 201, ECON 301.

COMM 450 (3) FINANCIAL ACCOUNTING – INTERMEDIATE II. Intermediate II. Continuation of the examination of accounting as a means of measurement and as an information system for external reporting purposes. Prerequisite: COMM 353.

COMM 451 (3) ADVANCED ACCOUNTING TOPICS. Selected areas in accounting.

COMM 452 (3) TAXES AND DECISION MAKING. Analysis of business and financial decisions in the presence of taxes.

COMM 453 (3) FINANCIAL ACCOUNTING – ADVANCED. An examination of advanced financial accounting. Prerequisite: All of COMM 353, COMM 450.

COMM 454 (3) ACCOUNTING FOR MANAGEMENT CONTROL AND INCENTIVES. Design of accounting systems for facilitating and influencing management decisions, with emphasis on performance evaluation in organizations. Prerequisite: COMM 294.

COMM 455 (3) PRINCIPLES OF AUDITING. Principles of internal control, audit evidence, sampling and testing; audit reports; standards; responsibilities of the external auditor. Prerequisite: All of COMM 353, COMM 450.

COMM 456 (3) INFORMATION TECHNOLOGY RISKS, PROTECTION AND AUDIT. Business risks associated with the use of information technology. Controls for integrity, security safety, and privacy of hardware, software, data and communications. Methods for auditing information systems and their controls. Prerequisite: COMM 335.

COMM 457 (3) FUNDAMENTALS OF FINANCIAL ACCOUNTING. Financial accounting for business organizations; principles and problems of accounting measurements; forms of business organizations; financing of businesses. For non-Commerce students in third or fourth year only.

COMM 458 (3) FUNDAMENTALS OF MANAGERIAL ACCOUNTING. Use of accounting data in decision making by businesses; financial statement analysis; cash flows; cost behaviour patterns; methods of accounting for costs. For non-Commerce students in third and fourth year only. Prerequisite: One of COMM 293, COMM 457.

COMM 459 (3) FINANCIAL STATEMENT ANALYSIS. An examination of financial statement information from the perspective of decision makers external to the firm, e.g. investors and financial institutions. Prerequisite: COMM 293 and one of COMM 297, COMM 298 and one of COMM 370, COMM 397.

COMM 460 (3) PUBLIC AND NONPROFIT MARKETING MANAGEMENT. Examines the role, use, and application of marketing in government agencies and nonprofit institutions. Prerequisite: COMM 362.

COMM 461 (3) SALES MANAGEMENT. Theory and management of personal selling. Strategy, tactics, and implementation of sales programs. Prerequisite: COMM 362.

COMM 462 (3) PROMOTION STRATEGY. Campaign strategy; planning, organizing, and controlling an advertising program; advertising research and analysis. Prerequisite: COMM 362.

COMM 463 (3) SPECIAL TOPICS IN MARKETING. An investigation of current developments in both retailing and wholesaling fields and their application to marketing institutions.

COMM 464 (3) E-MARKETING. Investigation of Internet-based marketing, emphasizing customer-focused perspectives, competitive situations and analysis of the effectiveness of business websites using marketing principles and practices. Prerequisite: COMM 396.

COMM 465 (3) MARKETING MANAGEMENT. Basic considerations affecting the domestic and international marketing of goods and services. For non-Commerce students in third and fourth year only. Prerequisite: One of COMM 293, COMM 457 and either (a) all of ECON 101, ECON 102 or (b) ECON 100. Or (c) all of ECON 310, ECON 311 or (d) all of ECON 101, ECON 311 or (e) all of ECON 102, ECON 310.

COMM 468 (3) MARKETING APPLICATIONS. Applied marketing planning with emphasis on a major industrial analysis and the subsequent development of a detailed marketing plan for an operating organization. Prerequisite: All of COMM 362, COMM 363. Corequisite: COMM 365.

COMM 469 (3) INTERNATIONAL MARKETING. An analysis of the scope and significance of contemporary international business operations with particular reference to the marketing management problems encountered by firms with multinational branches and subsidiaries. Prerequisite: COMM 396.

COMM 471 (3) FINANCIAL MANAGEMENT. Advanced problems of financial management. Debt policy and capital structure planning; capital costs, capital budgeting, dividend policy, valuation, mergers and acquisitions. Prerequisite: COMM 371 and one of COMM 370, COMM 397.

COMM 472 (3) QUANTITATIVE ANALYSIS OF FINANCIAL DECISIONS. Application of modern quantitative techniques to the formulation of financial decisions under conditions of both certainty and uncertainty. Prerequisite: COMM 371.

COMM 473 (3) BUSINESS FINANCE. Introduction to managerial finance, including the role and functioning of financial markets, procurement of funds and financing strategies, dividend policy, capital budgeting and financial analysis and planning. For non-Commerce students only in third and fourth year. Prerequisite: Either (a) all of ECON 101, ECON 102 or (b) ECON 100 or (c) all of ECON 310, ECON 311 or (d) all of ECON 101, ECON 311 or (e) all of ECON 102, ECON 310 and one of MATH 100, MATH 102, MATH 104, MATH 120, MATH 180, MATH 184. Corequisite: One of COMM 293, COMM 457.

COMM 474 (3) FIXED INCOME MARKETS AND MANAGEMENT. Fixed income instruments and derivatives. Risk profiles and their use in establishing fixed income investment portfolios. Performance attribution techniques. Prerequisite: COMM 374.

COMM 475 (3) INVESTMENT POLICY. The management of security portfolios for individual and institutional investors; relation of investment policy to money markets and business fluctuations. Prerequisite: COMM 374.

COMM 478 (3) INTERNATIONAL FINANCIAL MANAGEMENT. International financing, hedging and investment activities. Sources of funds, asset pricing, bond markets, equity markets and capital budgeting. Topics include transfer prices and taxation of multinationals. Prerequisite: COMM 377.

COMM 480 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised work experience for a minimum of 35 months. Normally taken during the summer term of the fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Commerce. Prerequisite: COMM 381.

COMM 481 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised work experience for a minimum of 35 months. Normally taken during the fall term of the fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Commerce. Prerequisite: COMM 480.

COMM 483 (6) PLANNING AND CONTROL PROBLEMS. Advanced problems in planning and controlling work operations with special emphasis on quantitative analysis. Case and field work problems.

COMM 486 (3-36) D SPECIAL TOPICS IN BUSINESS.

COMM 488 (3) PUBLIC SECTOR MANAGEMENT. This course focuses on some of the distinctive aspects of managing in the public sector.

COMM 489 (3) TOPICS IN POLICY ANALYSIS AND PUBLIC POLICY. Current developments in the theory and practice of policy analysis applied to specific issues in the public and private sectors.

COMM 490 (3/6) D DIRECTED STUDIES IN COMMERCE. An investigation and report on a topic to be agreed upon by a member of the faculty and a senior student.

COMM 491 (3) STRATEGIC MANAGEMENT. Concepts and processes for the strategic management of private sector, single and multi-business unit enterprises are analysed using the case method. Methodologies which draw on economic and organizational theory are integrated to form the foundations for strategic analyses.

COMM 492 (3) MANAGEMENT SIMULATION. Student teams manage hypothetical firms in a complex simulation, coordinating production, finance, marketing and strategic planning in competition with other teams.

COMM 493 (3) STRATEGIC MANAGEMENT IN BUSINESS. A conceptual and practical introduction to the major areas of business strategy with an integrative perspective on managing a business. Includes the analysis of a business and its environment, the development and evaluation of strategic alternatives, and implementation of change (For non-Commerce students only in fourth year). Prerequisite: One of COMM 293, COMM 457 and all of COMM 329, COMM 465, COMM 473; and either (a) all of ECON 101, ECON 102 or (b) all of ECON 310, ECON 311 or (c) ECON 100 or (d) all of ECON 101, ECON 311 or (e) all of ECON 102, ECON 310.

COMM 494 (3) CORPORATE AND INDUSTRY ANALYSIS. A general framework for the analysis of industries for the purpose of shaping corporate strategy and public policy. Focuses on market structure, the conduct of firms and industry performance.

COMM 495 (3) BUSINESS AND SUSTAINABLE DEVELOPMENT. An overview of environmental issues, focusing on corporate strategy, government policy and interactions between these two sectors of the economy.

COMM 496 (3) E-BUSINESS STRATEGY. Knowledge and conceptual frameworks for formulating a strategy in e-business. Market behaviour in the information and digital products industries; contract law, jurisdictional issues and intellectual property. Prerequisite: Fourth year standing

COMM 497 (3) NEW ENTERPRISE DEVELOPMENT. The particular problems and experiences encountered in starting, developing and managing new enterprises. The course

includes lectures, guest speakers, and case studies.

COMM 498 (3) INTERNATIONAL BUSINESS MANAGEMENT. Development of general environmental framework for international business studies by drawing on international and development economics, research into government-business relations and studies in comparative socio-cultural systems and political systems.

COMM 499 (3/6) D INTERNSHIP.

COMM 504 (3) SEMINAR IN PROPERTY TAXATION.

COMM 505 (3) SEMINAR IN URBAN LAND ECONOMICS.

COMM 511 (3) SEMINAR IN BUSINESS APPLICATIONS OF MANAGEMENT SCIENCE I.

COMM 520 (3) ADVANCED TOPICS IN ORGANIZATIONAL BEHAVIOUR.

COMM 525 (3) INTRODUCTION TO BEHAVIOURAL RESEARCH METHODS FOR BUSINESS.

COMM 528 (3) ADVANCED TOPICS IN HUMAN RESOURCE MANAGEMENT.

COMM 536 (3) ANALYSIS AND DESIGN OF INFORMATION SYSTEMS.

COMM 537 (3) DATABASE DESIGN AND ADMINISTRATION.

COMM 539 (3) TECHNOLOGY STRATEGY AND POLICY.

COMM 544 (3) SEMINAR IN TRANSPORTATION ECONOMICS.

COMM 546 (3-6) D SELECTED TOPICS IN INTERNATIONAL BUSINESS.

COMM 547 (3-6) D MAJOR ESSAY/ INDUSTRY PROJECT.

COMM 548 (3) DIRECTED STUDY IN BUSINESS ADMINISTRATION.

COMM 549 (6/12) C MASTER'S THESIS.

COMM 551 (3) ADVANCED ACCOUNTING SEMINAR.

COMM 552 (3) SEMINAR IN INCOME DETERMINATION.

COMM 553 (3) SEMINAR IN ACCOUNTING STANDARDS.

COMM 561 (3) LAW AND THE ARTS.

COMM 562 (3) MARKETING STRATEGY.

COMM 568 (3) SEMINAR IN INTERNATIONAL BUSINESS.

COMM 571 (3) SEMINAR IN FINANCIAL MANAGEMENT.

COMM 572 (3) ADVANCED THEORY AND QUANTITATIVE TECHNIQUES IN CORPORATE FINANCE.

COMM 574 (3) SEMINAR IN SECURITY ANALYSIS.

COMM 575 (3) SEMINAR IN INVESTMENT MANAGEMENT.

COMM 577 (3) SEMINAR IN INTERNATIONAL FINANCE.

COMM 580 (3) BUSINESS STATISTICS.

COMM 581 (3) STATISTICAL METHODOLOGY I.

COMM 582 (3) STATISTICAL METHODOLOGY II.

COMM 583 (3) FORECASTING AND TIME SERIES ANALYSIS IN BUSINESS ENVIRONMENTS.

COMM 588 (3) CONSULTING PRACTICES: METHODS.

COMM 589 (3) CONSULTING PRACTICES: APPLICATIONS.

COMM 590 (3-9) D TOPICS IN BUSINESS ADMINISTRATION.

COMM 591 (3) MANAGEMENT STRATEGY AND POLICY.

COMM 592 (3) MANAGEMENT SIMULATION.

COMM 593 (3) CORPORATE PLANNING MODELS.

COMM 596 (3) MANAGERIAL DECISION-MAKING.

COMM 598 (3) ANALYSIS OF THE INTERNATIONAL BUSINESS ENVIRONMENT. Equivalency: BAIM 500, BAIM 501.

COMM 599 (3/6) D SELECTED TOPICS IN POLICY ANALYSIS.

COMM 604 (3) ADVANCED TOPICS IN URBAN LAND ECONOMICS I.

COMM 605 (3) ADVANCED TOPICS IN URBAN LAND ECONOMICS II.

COMM 609 (3) SEMINAR IN URBAN LAND ECONOMICS.

COMM 611 (3) SEMINAR ON THEORETICAL DEVELOPMENTS IN MANAGEMENT.

COMM 612 (3) ADVANCED TOPICS IN OPTIMIZATION.

COMM 616 (3) OPTIMIZATION THEORY AND APPLICATIONS.

COMM 618 (3) DISCRETE OPTIMIZATION II.

COMM 621 (3) SEMINAR IN HUMAN RESOURCE MANAGEMENT.

COMM 625 (3) ADVANCED TOPICS IN ORGANIZATIONAL BEHAVIOUR.

COMM 626 (3) ADVANCED TOPICS IN ORGANIZATIONAL THEORY.

COMM 627 (3) ADVANCED BEHAVIOURAL RESEARCH METHODS.

COMM 628 (3) ORGANIZATIONAL STUDIES RESEARCH SEMINAR.

COMM 633 (3) MODELLING METHODS IN THE RESEARCH AND PRACTICE OF INFORMATION SYSTEMS. Prerequisite: At least 9 graduate course credits in information system topics.

COMM 634 (3) EMPIRICAL RESEARCH METHODS IN INFORMATION SYSTEMS.

COMM 635 (3) ADVANCED TOPICS IN MANAGEMENT INFORMATION SYSTEMS.

COMM 636 (3) WORKSHOP IN MANAGEMENT INFORMATION SYSTEMS.

COMM 643 (3) WORKSHOP IN TRANSPORTATION AND UTILITIES.

COMM 644 (3) ADVANCED TOPICS IN TRANSPORTATION.

COMM 649 (0) PH.D. THESIS.

COMM 651 (3) ANALYSIS OF ACCOUNTING INFORMATION IN MARKETS.

COMM 654 (3) ANALYSIS OF ACCOUNTING INFORMATION IN ORGANIZATIONS.

COMM 657 (3) EMPIRICAL METHODS IN ACCOUNTING RESEARCH.

COMM 658 (3) RESEARCH SEMINAR IN ACCOUNTING.

COMM 659 (3) ADVANCED TOPICS IN EMPIRICAL ACCOUNTING RESEARCH.

COMM 660 (3) RESEARCH SEMINAR IN MARKETING.

COMM 661 (3) ANALYTICAL METHODS AND MODELS IN MARKETING.

COMM 662 (3) BUYER BEHAVIOUR.

COMM 671 (3) THEORY OF FINANCE.

COMM 672 (3) ADVANCED TOPICS IN THEORETICAL CORPORATE FINANCE.

COMM 673 (3) ADVANCED TOPICS IN THEORETICAL ASSET PRICING.

COMM 674 (3) ADVANCED TOPICS IN EMPIRICAL ASSET PRICING.

COMM 675 (3) RESEARCH SEMINAR IN FINANCE WORKSHOP.

COMM 682 (3) ADVANCED TOPICS IN STOCHASTIC MODELS.

COMM 684 (3) TOPICS IN ADVANCED BUSINESS STATISTICS.

COMM 691 (3) ADVANCED TOPICS IN POLICY ANALYSIS.

COMM 692 (3) RESEARCH SEMINAR IN POLICY ANALYSIS.

COMM 693 (3) SEMINAR IN RESEARCH METHODOLOGY I.

COMM 695 (3) ADVANCED TOPICS IN EMPIRICAL CORPORATE FINANCE.

COMM 696 (3) APPLIED RESEARCH IN POLICY ANALYSIS AND STRATEGY.

COMM 697 (3) ORGANIZATIONAL DECISION-MAKING.

CONS — NATURAL RESOURCES CONSERVATION FACULTY OF FORESTRY

CONS 101 (1) INTRODUCTION TO CONSERVATION. Seminars on current natural resources conservation and forest sciences topics. [1-0-0]

CONS 200 (3) FOUNDATIONS OF CONSERVATION. Conceptual foundations of conservation; means of conserving nature and natural resources. Prerequisite: All of BIOL 121, BIOL 140. [3-0-0]

CONS 320 (3) NATURAL RESOURCE COMMUNICATIONS. Concepts and techniques for communication with various constituencies in the natural resources arena. Principles of public relations, conflict resolution and public participation in resource planning and decision making. Business and professional speaking. [2-3]

CONS 330 (3) CONSERVATION BIOLOGY. Fundamental concepts in conservation biology. Different philosophies and perspectives on setting priorities for managing biodiversity. Prerequisite: CONS 200. [2-3-0]

CONS 340 (3) INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS FOR FORESTRY AND CONSERVATION. Introduction to principles, practice and context of Geographic Information Systems (GIS) applied to forest management and natural resource conservation issues. Priority enrolment to students in the Faculty of Forestry. Prerequisite: FRST 232. [2-0-0]

CONS 370 (3) PERSPECTIVES ON FIRST NATIONS AND FOREST LANDS. History of contact in North America, contemporary relations, Aboriginal Rights, contemporary treaty processes including interim measures, co-management/joint ventures, traditional uses, and self government. Some full day field trips. Fees will be assessed to meet expenses. [3-0-0]

CONS 440 (3) CONSERVATION POLICY. Contemporary issues are used to examine conservation policies designed to achieve conservation objectives. Prerequisite: CONS 200. [3-0]

CONS 449 (1-6) C DIRECTED STUDIES IN NATURAL RESOURCES CONSERVATION. In special cases and with the approval of the instructor concerned, a student may carry out directed studies of specific problems in natural resources conservation.

CONS 451 (15) INTEGRATED FIELD SCHOOL. Field methods, research and analysis, community oriented projects, and the interactions between biological and social aspects of conservation research. Students may not take any other courses in conjunction with CONS 451. Restricted to students registered in fourth year of the B.Sc. (NRC). [10-10-10]

CONS 481 (3) CONSERVATION PLANNING AND WILDLAND RECREATION. Theory and tools needed for the selection and design of protected areas, the designation of land use types, and the management and conservation of wildland recreation resources. [2-2-0]

CONS 486 (3) FISH CONSERVATION AND MANAGEMENT. Principles of fish biology, population and community ecology necessary to understand conservation and management; overview of current issues, tactics and institutions involved with fisheries conservation and management. Prerequisite: FRST 386. [2-3-0]

CONS 491 (2) ISSUES IN RECREATION, NATURAL AREAS MANAGEMENT AND RESOURCE CONSERVATION. A seminar on issues in resource-based recreation and related tourism, wildlife and natural heritage conservation in the governance of lands and coastal resources; analysis of recreation and related tourism, wildlife and natural heritage policies; the application of research findings to natural heritage including wildlife conservation and recreational land management. Prerequisite: One of FRST 290, CONS 200. [2-0]

CONS 498 (3) THESIS OR SPECIAL PROJECT. An independent study or research project of a subject of special interest to the student under the supervision of a staff member.

CONS 500 (3) SEMINAR IN BIOLOGICAL CONSERVATION. Topics in conservation biology with application to current issues and particular reference to (but not limited to) forested ecosystems. 2-0-1

CONS 501 (3) TOPICS IN CONSERVATION GENETICS. The genetics of small populations, inbreeding, extinction risks due to genetic versus demography factors, adaptation and climate change, and methods for assessing genetic diversity for conservation planning. Equivalency: ZOO 524.

CONS 502 (3) CONSERVATION POLICY. Examination of international and Canadian conservation agreements and policies as instruments of distributive justice. Application of contemporary theories of justice to conservation policy issues.

CONS 503 (1-6) D TOPICS IN CONSERVATION.

CONS 504 (1-6) C DIRECTED STUDIES IN CONSERVATION.

CONS 520 (3) CONSERVATION POLICY. Examination of international and Canadian conservation agreements and policies as instruments of distributive justice. Application of contemporary theories of justice to conservation policy issues.

CPSC — COMPUTER SCIENCE FACULTY OF SCIENCE

Students with no previous exposure to computers may consider a more general introduction to computers and computer science provided by CPSC 100 or CPSC 101. Students who have credit for, or are currently registered in any of CPSC 111, 122, 124, 152, or have Computer Science credit from another institution, may not take CPSC 100 or CPSC 101 or APSC 160 for credit in Science Programs. Students with sufficient background in the concepts presented in CPSC 111 and an advisor's approval are encouraged to challenge the CPSC 111 course for credit by taking an

examination. Enrolment restrictions apply to certain CPSC courses. In order to register into CPSC 211, 213, 216, 218, 219, 220, 221, 310, 313, and 320, students should have an overall average greater than or equal to a threshold set by the Department of Computer Science.

Students who are currently in a CPSC program but are prevented from registering in any of these courses may not be able to continue in a CPSC program. Those students should consider transferring to another program. Additional fees are charged for some courses. For more information students are advised to contact the Department of Computer Science or visit the Computer Science undergraduate program website: (<http://www.cs.ubc.ca/ugrad/program/index.html>). Faculty of Science Credit Exclusion List: For information on credit exclusion between CPSC and other courses, please consult the Faculty of Science Credit Exclusion List.

CPSC 100 (4) ELEMENTS OF COMPUTER SCIENCE. An introduction to elementary concepts in Computer Science. Topics include: history, hardware, software, user applications, networks, and programming. [3-3-1]

CPSC 101 (4) CONNECTING WITH COMPUTER SCIENCE. Fundamentals of computer science and their connections with the arts, psychology, and biology. Historical, cultural, and gender perspectives of important contributions to the field will be discussed. No prior computing background required. Equivalency: WMST 201. [3-3-0]

CPSC 111 (4) INTRODUCTION TO COMPUTATION. Basic programming constructs, data types, classes, interfaces, protocols and the design of programs as interacting software components. Prerequisite: MATH 12. [3-2-1]

CPSC 121 (4) MODELS OF COMPUTATION. Physical and mathematical structures of computation. Boolean algebra and combinations logic circuits; proof techniques; functions and sequential circuits; sets and relations; finite state machines; sequential instruction execution. Prerequisite: MATH 12. [3-2-1]

CPSC 211 (4) INTRODUCTION TO SOFTWARE DEVELOPMENT. Software design and the development of robust abstractions; design practices, data abstractions, inheritance, testing, concurrency and distributed computing. Prerequisite: One of CPSC 111, CPSC 260. [3-2-0]

CPSC 213 (4) INTRODUCTION TO COMPUTER SYSTEMS. Software architecture, operating systems, and I/O architectures. Relationships between application software, operating systems, and computing hardware; critical sections, deadlock avoidance, and performance; principles and operation of disks and networks. Prerequisite: Either (a) all of CPSC 121, CPSC 211 or (b) all of CPSC 260, EECE 256, CPSC 211. CPSC 211 may be taken concurrently with case (b) only. [3-3-0]

CPSC 221 (4) BASIC ALGORITHMS AND DATA STRUCTURES. Design and analysis of basic algorithms and data structures; algorithm

analysis methods, searching and sorting algorithms, basic data structures, graphs and concurrency. Prerequisite: CPSC 211 and one of CPSC 121, MATH 220. Corequisite: One of MATH 101, MATH 103, MATH 105, MATH 121. [3-2-0]

CPSC 260 (4) OBJECT-ORIENTED PROGRAM DESIGN. Design and analysis of object-oriented programs, emphasizing data structures. Topics include: classes, interfaces, fundamental data structures, algorithmic complexity, basic debugging and testing techniques. Prerequisite: APSC 160. [3-2-0]

CPSC 298 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised technical work experience in the computing industry for a minimum of 3.5 months. Normally taken during Winter Session of second year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Computer Science.

CPSC 299 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised technical work experience in the computing industry for a minimum of 3.5 months. Normally taken during the summer following the second year. Technical report required. Restricted to students admitted to the Co-operative Education. Prerequisite: CPSC 298.

CPSC 302 (3) NUMERICAL COMPUTATION FOR ALGEBRAIC PROBLEMS. Numerical techniques for basic mathematical processes involving no discretization, and their analysis. Solution of linear systems, including analysis of round-off errors; norms and condition number; introduction to iterative techniques in linear algebra, including eigenvalue problems; solution to nonlinear equations. Prerequisite: One of CPSC 111, CPSC 122, CPSC 126, CPSC 260 and all of MATH 200, MATH 221. [3-0-0]

CPSC 303 (3) NUMERICAL APPROXIMATION AND DISCRETIZATION. Numerical techniques for basic mathematical processes involving discretization, and their analysis. Interpolation and approximation, including splines and least squares data fitting; numerical differentiation and integration; introduction to numerical initial value ordinary differential equations. Prerequisite: One of CPSC 111, CPSC 122, CPSC 126, CPSC 260 and all of MATH 200, MATH 221. [3-0-0]

CPSC 304 (3) INTRODUCTION TO RELATIONAL DATABASES. Overview of database systems, ER models, logical database design and normalization, formal relational query languages, SQL and other commercial languages, transaction processing, concurrency control and recovery. Prerequisite: Either (a) one of CPSC 216, CPSC 252 and one of CPSC 220, EECE 320; or (b) CPSC 221 or (c) all of CPSC 260, EECE 320 and one of CPSC 211, EECE 310. [3-0-1]

CPSC 310 (4) INTRODUCTION TO SOFTWARE ENGINEERING. Specification, design, implementation and maintenance of large, multi-module software systems. Principles,

techniques, methodologies and tools for computer aided software engineering (CASE); human-computer interfaces, reactive systems, hardware-software interfaces and distributed applications. Prerequisite: Either (a) all of CPSC 213, CPSC 221 or (b) all of CPSC 216, CPSC 219, CPSC 220 or (c) all of CPSC 211, CPSC 213, CPSC 260, EECE 320. [3-2-0]

CPSC 311 (3) DEFINITION OF PROGRAMMING LANGUAGES. Comparative study of advanced programming language features. Statement types, data types, variable binding, parameter passing mechanisms. Methods for syntactic and semantic description of programming languages. Prerequisite: Either (a) CPSC 221 or (b) all of CPSC 216, CPSC 220 or (c) all of CPSC 211, CPSC 260, EECE 320. [3-0-1]

CPSC 312 (3) FUNCTIONAL AND LOGIC PROGRAMMING. Principles of symbolic computing, using languages based upon first-order logic and the lambda calculus. Algorithms for implementing such languages. Applications to artificial intelligence and knowledge representation. Prerequisite: Either (a) CPSC 221 or (b) all of CPSC 216, CPSC 220 or (c) all of CPSC 260, EECE 320. [3-0-0]

CPSC 313 (3) COMPUTER HARDWARE AND OPERATING SYSTEMS. Instruction sets, pipelining, code optimization, caching, virtual memory management, dynamically linked libraries, exception processing, execution time of programs. Prerequisite: Either (a) all of CPSC 213, CPSC 221 or (b) all of CPSC 211, CPSC 213, CPSC 260, EECE 320. [3-0-1]

CPSC 314 (3) COMPUTER GRAPHICS. Human vision and colour; geometric transformations; algorithms for 2-D and 3-D graphics; hardware and system architectures; shading and lighting; animation. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: All of MATH 200, MATH 221 and either (a) one of CPSC 216, CPSC 221 or (b) all of CPSC 260, EECE 320. [3-1-0]

CPSC 317 (3) INTERNET COMPUTING. Computer networking, basic communication protocols, network infrastructure and routing. Common application-level protocols and principles associated with developing distributed applications. Prerequisite: CPSC 213 and either (a) CPSC 221 or (b) all of CPSC 211, CPSC 260, EECE 320. [3-0-1]

CPSC 319 (4) SOFTWARE ENGINEERING PROJECT. The design, implementation, and test of a large software system, using a team approach. Prerequisite: CPSC 310. [3-0-2]

CPSC 320 (3) INTERMEDIATE ALGORITHM DESIGN AND ANALYSIS. Systematic study of basic concepts and techniques in the design and analysis of algorithms, illustrated from various problem areas. Topics include: models of computation; choice of data structures; graph-theoretic, algebraic, and text processing algorithms. Prerequisite: Either (a) CPSC 221 or (b) one of CPSC 216, CPSC 260 and one of CPSC 220, EECE 320. In addition to above pre-requisites: either (a) 6 credits of 2nd Yr.

MATH or STAT or (b) 3 credits of 2nd Yr. MATH or STAT with a grade of 72% or better. [3-0-1]

CPSC 322 (3) INTRODUCTION TO ARTIFICIAL INTELLIGENCE. Problem-solving and planning; state/action models and graph searching. Natural language understanding Computational vision. Applications of artificial intelligence. Prerequisite: Either (a) CPSC 221 or (b) all of CPSC 216, CPSC 220 or (c) all of CPSC 211, CPSC 260, EECE 320. [3-0-0]

CPSC 340 (3) MACHINE LEARNING AND DATA MINING. Models of algorithms for dimensionality reduction, nonlinear regression, classification, clustering and unsupervised learning; applications to computer graphics, computer games, bio-informatics, information retrieval, e-commerce, databases, computer vision and artificial intelligence. Prerequisite: One of MATH 221, MATH 223 and one of STAT 241, MATH 302, STAT 302 and either (a) CPSC 216 or (b) CPSC 221 or (c) all of CPSC 211, CPSC 260, EECE 320. [3-0-0]

CPSC 344 (3) INTRODUCTION TO HUMAN COMPUTER INTERACTION METHODS. Basic tools and techniques, teaching a systematic approach to interface design, task analysis, analytic and empirical evaluation methods. Corequisite: CPSC 310 and one of STAT 200, STAT 241. [2-2-2]

CPSC 349 (0) HONOURS RESEARCH SEMINAR. Students will attend a series of research seminars presented by faculty members, produce a thesis proposal, and choose their honours thesis supervisor. Available to Honours students. Majors students with satisfactory standing may also be permitted to enrol. [1-0-0]

CPSC 352 (4) INTRODUCTION TO SOFTWARE ENGINEERING. Specification, design, implementation and maintenance of large, multi-module software systems. Principles, techniques, methodologies and tools for software development. Prerequisite: CPSC 252. Corequisite: EECE 320. Equivalency: CPSC 310. [3-2-0]

CPSC 398 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised technical work experience in the computing industry for a minimum of 3.5 months. Normally taken during the summer following the third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Computer Science.

CPSC 399 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised technical work experience in the computing industry for a minimum of 3.5 months. Normally taken during the fall term of the fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Computer Science.

CPSC 402 (3) NUMERICAL LINEAR ALGEBRA. Investigation of the practical techniques of computational linear algebra. Orthogonal transformations and their applica-

tion to the solution of linear equations, the eigenproblem, and linear least squares. Complete solution of the symmetric eigenproblem, including bisection and the QR method. Refinements of these techniques for sparse matrices. Prerequisite: CPSC 302 and one of MATH 307, MATH 223. [3-0-0]

CPSC 403 (3) NUMERICAL SOLUTION OF ORDINARY DIFFERENTIAL EQUATIONS. Investigation of practical computational methods for ordinary differential equations. Multistep and Runge-Kutta methods for initial value problems. Control of error and stepsize. Special methods for stiff equations. Shooting, finite difference, and variational methods for linear and nonlinear boundary value problems. Prerequisite: All of CPSC 303, MATH 316. [3-0-0]

CPSC 404 (3) ADVANCED RELATIONAL DATABASES. Physical database design, file organization, indexing and hashing, multimedia issues, relational query processing and optimization. Prerequisite: CPSC 304 and one of CPSC 213, CPSC 218, EECE 259. [3-0-0]

CPSC 405 (3) MODELLING AND SIMULATION. Numeric models of dynamic systems with emphasis on discrete stochastic systems. State description of models, common model components and entities. A thorough description of a common simulation language. Simulation using algebraic languages. Methodology of simulation: data collection, model design, analysis of output, optimization, validation. Elements of queuing theory and its relationship to simulation. Applications to models of computer systems. Prerequisite: Either (a) one of CPSC 216, CPSC 221, CPSC 252 or (b) CPSC 260; and either (a) STAT 241 or (b) STAT 200 and one of MATH 302, STAT 302. [3-0-0]

CPSC 410 (3) ADVANCED SOFTWARE ENGINEERING. Specification, design, construction and validation of multi-version software systems. Prerequisite: Either (a) CPSC 310 or (b) all of EECE 310, EECE 315. [3-0-0]

CPSC 411 (3) INTRODUCTION TO COMPILER CONSTRUCTION. A practical introduction to lexical analysis, syntactic analysis, type-checking, code generation and optimization. This will be used to design and implement a compiler for a small Pascal-like language. Prerequisite: CPSC 311 and one of CPSC 213, CPSC 218. [3-0-0]

CPSC 415 (3) ADVANCED OPERATING SYSTEMS. Process synchronization and communication schemes, including message-passing and concepts of monitor and serializer. Virtual memory systems management and the problem of information sharing in such systems. The working set principle. Traps and interrupt handling. Elementary queuing theory and its application such as process scheduling, system balancing and load control. File systems and operating system design methodologies. Prerequisite: Either (a) one of CPSC 313, CPSC 315 or (b) EECE 315. [0-0; 3-0]

CPSC 416 (3) DISTRIBUTED SYSTEMS. Introduction to distributed operating systems. Communication architecture and models for interprocess communication. Process migration, naming, distributed file systems, fault tolerance, and concurrency control. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: Either (a) CPSC 313 or (b) CPSC 315. with CPSC 318 recommended. [3-0-0]

CPSC 417 (3) COMPUTER COMMUNICATIONS. Layered protocols, packet switching, data communications, and queuing analysis. Data link controls. Virtual circuits, datagrams, network design, routing, flow and congestion control. Satellite and packet radio links. Local area networks. Prerequisite: One of CPSC 313, CPSC 315 and one of STAT 200, STAT 241. [3-0-0]

CPSC 418 (3) ADVANCED COMPUTER ARCHITECTURES. Introduction to advanced processor architectures and taxonomical views; performance considerations. Introduction to parallel machine designs. Examination of pipeline organizations; pipelined ALU and control units; representative architectures. Exploratory non-Von Neumann architectural models including: object-oriented, tagged, capability, dataflow and RISC designs. Prerequisite: Either (a) CPSC 313 or (b) all of CPSC 315, CPSC 318. [3-0-1]

CPSC 420 (3) ADVANCED ALGORITHMS DESIGN AND ANALYSIS. The study of advanced topics in the design and analysis of algorithms and associated data structures. Topics include algorithms for graph-theoretic; algebraic and geometric problems; algorithms on nonsequential models; complexity issues; approximation algorithms. Prerequisite: CPSC 320. [3-0-0]

CPSC 421 (3) INTRODUCTION TO THEORY OF COMPUTING. Characterizations of computability (using machines, languages and functions). Universality, equivalence and Church's thesis. Unsolvable problems. Restricted models of computation. Finite automata, grammars and formal languages. Prerequisite: Either (a) CPSC 221 or (b) all of CPSC 216, CPSC 220 or (c) all of CPSC 260, EECE 320. CPSC 320 is recommended. [3-0-0]

CPSC 422 (3) INTELLIGENT SYSTEMS. Principles and techniques underlying the design, implementation and evaluation of intelligent computational systems. Applications of artificial intelligence to natural language understanding, image understanding and computer-based expert and advisor systems. Advanced symbolic programming methodology. Prerequisite: All of CPSC 312, CPSC 322. [3-0-0]

CPSC 424 (3) GEOMETRIC MODELING. Introduction to curves and surfaces, in particular splines, subdivision surfaces, polygonal meshes. Principles and mathematical foundations for representing complex geometry for computer graphics and numerical simulations. Practical applications of different modeling techniques. Prerequisite: MATH 221 and one

of MATH 227, MATH 317 and either (a) CPSC 216 or (b) CPSC 221 or (c) all of CPSC 211, CPSC 260, EECE 320. Corequisite: One of CPSC 314, EECE 478. [3-0-1]

CPSC 425 (3) COMPUTER VISION. Introduction to the processing and interpretation of images. Image sensing, sampling, and filtering. Algorithms for colour analysis, texture description, stereo imaging, motion interpretation, 3D shape recovery, and recognition. Prerequisite: All of MATH 200, MATH 221 and either (a) CPSC 216 or (b) CPSC 221 or (c) all of CPSC 260, EECE 320. [3-0-0]

CPSC 426 (3) COMPUTER ANIMATION. Motion in computer graphics for characters and their environments. Keyframing, inverse kinematics, particle systems, rigid body dynamics, contact and collision, controller-based active motion, motion capture. Prerequisite: One of CPSC 314, CPSC 414, EECE 478. [3-0-0]

CPSC 430 (3) COMPUTERS AND SOCIETY. Impact of computer technology on society; historical perspectives; social and economic consequences of large-scale information processing systems and automatic control; legal and ethical problems in computer applications. Computers and the individual: machine versus human capabilities, fact and fancy; problematic interface between man and machine. Prerequisite: 3 credits of Computer Science and at least third-year standing. [3-0-0]

CPSC 444 (3) USER INTERFACE DESIGN. User-centered design, analysis, prototyping, and evaluation of interactive systems based on formal models of human behaviour and software development methodology. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: CPSC 310 and CPSC 398 or CPSC 310 and corequisite of CPSC 319. [3-1-0]

CPSC 445 (3) ALGORITHMS IN BIOINFORMATICS. Sequence alignment, phylogenetic tree reconstruction, prediction of RNA and protein structure, gene finding and sequence annotation, gene expression, and biomolecular computing. Prerequisite: CPSC 320 and 6 credits of BIOL beyond BIOL 111. [3-0-0]

CPSC 448 (3/6) C DIRECTED STUDIES IN COMPUTER SCIENCE. Open ordinarily to Honours students in Computer Science, with the permission of the department head. The course may consist of supervised reading, participation in a seminar, and one or more programming projects.

CPSC 449 (6) HONOURS THESIS. Under supervision of a faculty member, students investigate a research topic and prepare a thesis. Prerequisite: CPSC 349.

CPSC 490 (3) STUDENT DIRECTED SEMINARS. Self-directed, collaborative studies, in a group-learning environment, initiated and coordinated by senior undergraduate students with the supervision of a faculty advisor. Course structure, enrollment and delivery methods will comply with the

“Handbook for Student Directed Seminars”. [3-0-0]

CPSC 499 (3) CO-OPERATIVE WORK PLACEMENT V. Approved and supervised technical work experience in the computing industry for a minimum of 3.5 months. Normally taken during the summer following the fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Computer Science.

CPSC 500 (3) FUNDAMENTALS OF ALGORITHM DESIGN AND ANALYSIS. [3-0-0]

CPSC 501 (3) THEORY OF AUTOMATA, FORMAL LANGUAGES AND COMPUTABILITY. The scope and limitations of effective computation. General and restricted models of computation formal languages and grammars. Relations between automata and formal languages. Resource bounded computation. Applications in parsing, pattern matching, and the design of efficient algorithms. Prerequisite: CPSC 421.

CPSC 502 (3) ARTIFICIAL INTELLIGENCE I. An introduction to AI emphasizing various approaches to the representation of domain-specific knowledge and methods of reasoning using these representations. Typical applications to be discussed include natural language understanding systems, problem solving, deductive question-answering, production-based expert systems and machine vision. Prerequisite: Sufficient programming background (e.g., CPSC 310) and consent of instructor.

CPSC 503 (3) COMPUTATIONAL LINGUISTICS I. Formal models for natural language: phrase-structure grammars, context-free grammars, context-sensitive grammars, transformational grammars; syntactic analysis by computer. Prerequisite: Sufficient programming background (e.g., CPSC 310) and consent of instructor.

CPSC 504 (3) DATA MANAGEMENT.

CPSC 505 (3) IMAGE UNDERSTANDING I: IMAGE ANALYSIS. Image formation constraints and the processing of digital images in order to extract information about the world being imaged. Computational models for analysis. Prerequisite: Sufficient programming background (e.g., CPSC 310) and consent of instructor.

CPSC 506 (3) COMPLEXITY OF COMPUTATION. Abstract complexity theory, time and space hierarchies, properties of complexity measures. Provably intractable problems, reducibilities and complete problems $P = NP$ question. Concrete complexity and algorithms design. Resource trade-offs. Prerequisite: CPSC 320.

CPSC 507 (3) SOFTWARE ENGINEERING.

CPSC 508 (3) OPERATING SYSTEMS. Principles and techniques for the design and implementation of operating systems, especially distributed operating systems and operating systems for parallel computer systems. The

concept of object model applied to operating system design. Prerequisite: CPSC 416.

CPSC 509 (3) PROGRAMMING LANGUAGE PRINCIPLES. Comparative study of language constructs; effects on implementation.

CPSC 510 (3) MULTIGRID AND MULTILEVEL METHODS. Numerical methods based on multi-level resolution for solving large sparse systems with an appropriate local structure. Practical and theoretical aspects investigated. Prerequisite: CPSC 302.

CPSC 511 (3) IMPLEMENTATION OF PROGRAMMING LANGUAGES. Advanced techniques for the implementation of programming languages. Translator writing systems. Special classes of grammars of interest to compiler writers. Code optimization. Prerequisite: CPSC 411.

CPSC 512 (3) ARCHITECTURE AND CONTROL IN ARTIFICIAL INTELLIGENCE. The interaction of computational architecture, control schemes and representational formalism in solving artificial intelligence problems. The concept of a virtual machine. Language constructs for representation and control, logic programming, concurrent systems, object-oriented methods. Serial machines, parallel and distributed machines, coarse-grain to fine-grain parallelism, SIMD/MIMD control. Applications to computational vision, robotics, reasoning and diagnosis. Prerequisite: CPSC 312.

CPSC 513 (3) INTEGRATED SYSTEMS DESIGN.

CPSC 514 (3) COMPUTER GRAPHICS: RENDERING.

CPSC 515 (3) COMPUTATIONAL ROBOTICS.

CPSC 516 (3) COMPUTATIONAL GEOMETRY. The design and analysis of algorithms for geometric problems including convexity, intersection, search, proximity and optimization. Lower bound arguments, NP-completeness results, parallel algorithms, probabilistic algorithms, approximation algorithms, dynamization techniques, effects of preprocessing and other issues applicable to geometric problems Applications of geometric algorithms. Prerequisite: CPSC 320.

CPSC 517 (3) SPARSE MATRIX COMPUTATION. Algorithms for computational solution of basic numerical linear algebra problems applied to large sparse matrices. Solution of large sparse linear systems by direct and iterative methods; application to linear least squares problems; computation of eigenvalues and singular values of large sparse matrices.

CPSC 519 (3) LOGIC PROGRAMMING AND FUNCTIONAL PROGRAMMING. An introduction to the theory, applications and implementation of logic programming languages and functional programming languages. Dataflow architecture to support logic and functional programming languages. Prerequisite: All of CPSC 311, CPSC 312.

CPSC 520 (3) NUMERICAL SOLUTION OF DIFFERENTIAL EQUATIONS. Finite difference and finite element methods for time-dependent partial differential equations. Explicit and implicit schemes, stability and accuracy considerations, choice of boundary conditions, efficiency of computation, special schemes for particular linear and nonlinear equations. Prerequisite: CPSC 403.

CPSC 521 (3) PARALLEL ALGORITHMS AND ARCHITECTURES.

CPSC 522 (3) ARTIFICIAL INTELLIGENCE II. Heuristic search and game-playing. Problem solving and planning. Problem reduction, and/or trees, goal-directed behaviour. Expert, diagnosis, and advising systems. Knowledge-based systems. Prerequisite: Sufficient programming background e.g., CPSC 310 and CPSC 503, or consent of instructor. CPSC 502 would be helpful, but is not essential.

CPSC 523 (3) COMPUTATIONAL LINGUISTICS II. Natural language processing by computer. Modelling of dialogue and discourse. Applications in question-answering interfaces for large databases. Prerequisite: CPSC 503.

CPSC 524 (3) COMPUTER GRAPHICS: MODELING.

CPSC 525 (3) IMAGE UNDERSTANDING II: SCENE ANALYSIS. Computer-based techniques for image understanding. The development of paradigms for knowledge representation and use in image understanding. Descriptive languages and picture grammars. Block world scene analysis. Control regimes. Programming languages and systems for perception. Representing scene domain knowledge. Applications to various scene domains including remote sensing. Prerequisite: CPSC 505.

CPSC 526 (3) COMPUTER ANIMATION.

CPSC 527 (3) COMPUTER COMMUNICATION PROTOCOLS. Fundamentals of computer communications and OSI lower level protocols. Higher-level protocols: transport, session, presentation and application layers. Introduction to formal techniques for protocol specification, verification and testing. Prerequisite: CPSC 417.

CPSC 528 (3) FORMAL TECHNIQUES FOR COMMUNICATION PROTOCOLS. Current development in higher-level protocol standards. Formal description techniques (FDTs). Methods and tools for protocol implementation, testing, and verification/validation. Prerequisite: CPSC 527.

CPSC 529 (3) DEFINITION OF PROGRAMMING LANGUAGES. Approaches to defining the syntax and semantics of programming languages.

CPSC 530 (2-6) C TOPICS IN INFORMATION PROCESSING.

CPSC 531 (3-6) D TOPICS IN THEORY OF COMPUTATION. Possible topics: algebraic structure of automata, program schemata,

recursive function theory, computability and logic, language theory.

CPSC 532 (2-6) D TOPICS IN ARTIFICIAL INTELLIGENCE. Possible topics: current issues in representation and control, induction and learning, program synthesis, and robotics.

CPSC 533 (2-6) D TOPICS IN COMPUTER GRAPHICS. Possible topics: curve and surface modeling, including splines; computer animation; rendering techniques, including local and global illumination models, algorithms; modeling natural phenomena; user interface design; colour and human perception; high performance architectures; multimedia and hypermedia.

CPSC 534 (2-6) D TOPICS IN DATA MANAGEMENT.

CPSC 535 (2-6) D TOPICS IN SIMULATION AND OPTIMIZATION. Possible topics: simulation languages, Monte Carlo methods, construction of models of various natural and artificial systems, implementation of optimization algorithms.

CPSC 536 (2-6) D TOPICS IN ALGORITHMS AND COMPLEXITY. Possible topics: graph theory—algorithms and applications, geometric complexity, combinatorial algorithms, advanced data structures, arithmetic complexity, circuit complexity, approximation and probabilistic algorithms.

CPSC 537 (2-6) D TOPICS IN CODING AND INFORMATION THEORY. Possible topics: Properties of Shannon's information measure, source encoding discrete memoryless channels, the fundamental theorem of information theory, linear and cyclic error correcting codes; selected topics from the analysis of channels with memory and from algebraic coding theory.

CPSC 538 (2-6) D TOPICS IN COMPUTER SYSTEMS. Possible topics: advanced architectures; distributed systems; performance analysis; protocol and software engineering.

CPSC 539 (2-6) D TOPICS IN PROGRAMMING LANGUAGES. Possible topics: formal aspects of translation; formal definition methods; extensible languages; correctness of programs. Applications of semantic methods to the design of language.

CPSC 540 (3) MACHINE LEARNING.

CPSC 541 (3) COMPUTATIONAL METHODS FOR ORDINARY DIFFERENTIAL EQUATIONS & DYNAMICAL SYSTEMS.

CPSC 542 (2-6) D TOPICS IN NUMERICAL COMPUTATION. Various topics not covered in specific graduate courses in numerical computation.

CPSC 543 (3) PHYSICAL USER INTERFACE DESIGN AND EVALUATION.

CPSC 544 (3) HUMAN COMPUTER INTERACTION.

CPSC 545 (3) ALGORITHMS FOR BIOINFORMATICS.

CPSC 548 (3) DIRECTED STUDY.

CPSC 549 (6/12) C MASTER'S THESIS.

CPSC 554 (2-6) D TOPICS IN HUMAN-COMPUTER INTERACTION. Possible topics: Multimodal user interface design, research and testing methodologies, perception user modeling, computation and adaptation.

CPSC 564 (3) DATA MINING.

CPSC 589 (3) M.SC. MAJOR ESSAY.

CPSC 590 (3) RESEARCH METHODS IN COMPUTER SCIENCE.

CPSC 649 (0) PH.D. THESIS.

CRWR — CREATIVE WRITING FACULTY OF ARTS

For admission requirements for all courses see Creative Writing entry under Arts.

CRWR 202 (6) CREATIVE FORMS. Designed for beginning writers, including first-year students by special permission. Short story, shorter play forms, and verse. Instructors may also give assignments in other forms such as plays for screen, television or radio, or imaginative non-fictional prose.

CRWR 301 (6) WRITING TECHNIQUES. Designed for beginning writers and other students who have a particular interest in the uses of literary techniques and ways of transferring these from one genre to another. The course is very suitable for prospective teachers and writers from the Diploma in Applied Creative Non-fiction. Major emphasis is given to the students' own writing. Performance in workshop (i.e., opportunity to respond and evaluate others' work) and an understanding of technique and basic principles in writing make up a minor portion of the final evaluation.

CRWR 306 (3) INTRODUCTION TO SCREENPLAY I. Techniques of creating, developing and writing a screenplay. Screen forms include the feature film, the short film, the documentary, and writing for television. No prerequisites or manuscript submission required.

CRWR 307 (3) INTRODUCTION TO SCREENPLAY II. Workshop in which students write their own screenplays, critique the work of other students, and work on the outline and the screenplay form. Admission upon acceptance of portfolio.

CRWR 403 (6) WRITING OF CHILDREN'S LITERATURE. Techniques of writing for children in various genres. Limitations as to the children's age group and genres to be set by the instructor. Instruction given through workshop and individual tuition.

CRWR 404 (6) WRITING OF DRAMA AND FEATURES FOR RADIO.

CRWR 405 (6) CREATIVE FORMS AND TECHNIQUES OF NON-FICTION. The use of literary techniques in the writing of non-fictional forms such as personal essay, memoir, biography, autobiography, travelogue, popular history, and miscellany.

CRWR 406 (6) WRITING OF DRAMA FOR SCREEN AND TELEVISION. Some studio work may be required. Focus is on writing. Students

whose chief interest is film and TV production should refer to the Theatre listings.

CRWR 407 (6) WRITING OF DRAMA FOR THE STAGE. Studio work is required, and some plays may be given workshop production.

CRWR 408 (6) WRITING OF THE NOVELLA OR NOVEL.

CRWR 409 (6) WRITING OF THE SHORT STORY.

CRWR 410 (6) WRITING OF POETRY.

CRWR 415 (6) THEORY AND PRACTICE OF TRANSLATION. Where a language department is regularly consulted on a project, the language adviser may assign marks equal to 3 credits of the course. Prerequisite: Evidence of promise as a translator and proficiency in at least one language other than English.

CRWR 416 (6) RESEARCH AND WRITING. Feature and investigative articles, essays and studies in any subject area for a general audience. Involves instruction in the use of literary as well as research techniques such as the interview.

CRWR 417 (3/6) D PLAY DEVELOPMENT WORKSHOP. An interdisciplinary course, in cooperation with the Theatre program, emphasizing script development through scene work, character development and stagecraft. Prerequisite: Manuscript submission or equivalent theatre experience.

CRWR 439 (3/6) C SPECIAL PROJECTS IN CREATIVE WRITING.

CRWR 447 (6) DIRECTED READING. The course will emphasize current trends and techniques rather than critical evaluation. Not offered every year.

CRWR 491 (6) TUTORIAL IN WRITING OF CHILDREN'S LITERATURE. For students who receive departmental permission to do advanced work in this genre.

CRWR 492 (6) TUTORIAL IN WRITING OF NON-FICTIONAL PROSE. For students who receive departmental permission to do advanced work in this genre.

CRWR 493 (6) TUTORIAL IN WRITING OF DRAMA AND FEATURES FOR RADIO. For students who receive departmental permission to do advanced work in this genre.

CRWR 494 (6) TUTORIAL IN WRITING OF DRAMA FOR SCREEN AND TELEVISION. For students who receive departmental permission to do advanced work in this genre.

CRWR 495 (6) TUTORIAL IN TRANSLATION. For students who receive departmental permission to do advanced work in translation.

CRWR 496 (6) POETRY TUTORIAL.

CRWR 497 (6) TUTORIAL IN FICTION. For students who receive departmental permission to do advanced work in this genre.

CRWR 498 (6) TUTORIAL IN DRAMA. For students who receive departmental permission to do advanced work in this genre.

CRWR 503 (6) ADVANCED WRITING OF CHILDREN'S LITERATURE.

CRWR 504 (6) ADVANCED WRITING OF DRAMA AND FEATURES FOR RADIO.

CRWR 505 (6) CREATIVE FORMS AND TECHNIQUES OF NON-FICTION (ADVANCED).

CRWR 506 (6) ADVANCED WRITING OF DRAMA FOR SCREEN AND TELEVISION.

CRWR 507 (6) ADVANCED WRITING OF DRAMA FOR THE STAGE.

CRWR 508 (6) ADVANCED WRITING OF THE NOVELLA OR NOVEL.

CRWR 509 (6) ADVANCED WRITING OF SHORT FICTION.

CRWR 510 (6) ADVANCED WRITING OF POETRY.

CRWR 515 (6) ADVANCED WORKSHOP IN TRANSLATION. Where a language department is regularly consulted on a project, the language adviser may assign marks equal to 3 credits of the course work.

CRWR 516 (6) RESEARCH AND WRITING OF FEATURE AND INVESTIGATIVE ARTICLES, ESSAYS AND STUDIES (ADVANCED).

CRWR 517 (3/6) D ADVANCED PLAY DEVELOPMENT WORKSHOP. An interdisciplinary course, in co-operation with the Acting and the M.F.A. Directing programs in Theatre, emphasizing script development through scenework, character development, and stagecraft. Prerequisite: Manuscript submission or equivalent theatre experience.

CRWR 521 (6) EDITING AND MANAGING A LITERARY MAGAZINE. Operation of a literary magazine; editing and evaluating creative writing submissions. Prerequisite: Permission of the instructor is required.

CRWR 539 (3/6) D ADVANCED PROJECTS IN CREATIVE WRITING.

CRWR 547 (6) DIRECTED READING. May not be offered every year.

CRWR 549 (6) THESIS.

CSED — COMPUTING STUDIES EDUCATION FACULTY OF EDUCATION

CSED 314 (4/5) D CURRICULUM AND INSTRUCTION IN COMPUTER STUDIES: SECONDARY. Pass/Fail. Prerequisite: A completed concentration in Computer Science or permission of the head.

CSED 400 (3) COMPUTERS IN EDUCATION. Current research and practice concerning uses of computers in education, including computer-assisted instruction and computer-augmented instruction. [3-0]

CSED 402 (3) PROFESSIONAL USE OF MICROCOMPUTERS FOR TEACHERS. Principles and techniques of using microcomputers to improve teaching performance and classroom administration. Students will use word processors, spreadsheets, graphics utilities, database programs, and other software useful to teachers. [3-1]

CSED 420 (3) COMPUTERS FOR INSTRUCTION. Instructional applications of microcomputer programs in a variety of subject areas; basic design and sequencing of educational software. Introduction to a programming language. [3-2]

CSED 422 (3) COMPUTERS IN THE ELEMENTARY SCHOOL. Theory and practice concerning the use of microcomputers in the elementary school. [3-2]

CSED 424 (3) COMPUTERS IN THE SECONDARY SCHOOL. Theory and practice concerning the use of microcomputers in the secondary school, including software design and programming. [3-2]

CSED 450 (3) DEVELOPMENT OF EDUCATIONAL SOFTWARE. The software development process; principles and techniques for effective communication with a microcomputer; formative software evaluation. Students will design and develop an instructional package. Prerequisite: CSED 420. [3-2]

CSED 508 (3-6) D REVIEW OF RESEARCH IN COMPUTING STUDIES. Studies are made of recent research bearing on the applications of computers in education.

CSED 546 (3) SEMINAR IN THE TEACHING OF COMPUTING STUDIES. Curriculum, instruction and organization of computing studies courses in the secondary school. Prerequisite: CSED 314 or extensive experience with teaching computing studies in the schools.

CSED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

CSED 580 (3-12) C PROBLEMS IN COMPUTING IN EDUCATION. Investigation and report of a problem from the area of Computing Studies Education.

CSED 590 (3) GRADUATING PAPER. Pass/Fail.

CSIS — CRITICAL STUDIES IN SEXUALITY FACULTY OF ARTS

CSIS 300 (3/6) D INTRODUCTION TO CRITICAL STUDIES IN SEXUALITY. A multidisciplinary, team-taught course which provides an introduction to the study of sexuality, including lesbian, gay, bisexual, heterosexual, and transgender issues and related topics.

CSIS 450 (3-6) D TOPICS IN CRITICAL STUDIES IN SEXUALITY. A thematic course, which explores current questions and issues in relation to the study of sexuality. Topics may vary from year to year.

CSIS 490 (3/6) D DIRECTED TOPICS. Designed to allow a student to develop an individual course of study in a specific area as approved by a faculty member affiliated with the CSIS program.

CSIS 500 (3/6) D CRITICAL STUDIES IN SEXUALITY: MULTIDISCIPLINARY APPROACHES.

CSPW — COORDINATED SCIENCE PROGRAM WORKSHOP FACULTY OF SCIENCE

CSPW 100 (1) COORDINATED SCIENCE PROGRAM WORKSHOP. Students participate in activities related to their CSP courses, including hands-on work, discussion and analysis of scientific topics. Graded Pass/Fail. Prerequisite: Registration in Coordinated Science Program [0-0-2; 0-0-2]

CUST — CURRICULUM STUDIES FACULTY OF EDUCATION

CUST 300 (1) TEACHING AND LEARNING ACROSS THE CURRICULUM: ELEMENTARY. Pass/Fail. [1-0-0]

CUST 306 (3) CURRICULUM AND INSTRUCTION IN HEALTH EDUCATION. School health promotion programs and policies; child and adolescent health knowledge, attitudes, and behaviours; curriculum planning; teaching methods and strategies for grades K–12.

CUST 307 (3) HEALTH EDUCATION AND PROMOTION.

CUST 308 (3/6) D ISSUES IN HEALTH EDUCATION.

CUST 314 (4/5) D CURRICULUM AND INSTRUCTION IN APPLIED STUDIES IN MATHEMATICS, SCIENCE AND TECHNOLOGY I: SECONDARY. Pass/Fail.

CUST 321 (3) COMPUTER STUDIES IN ART AND MUSIC. [1-4]

CUST 322 (3) COMPUTER STUDIES IN ART AND MUSIC EDUCATION USING MULTIMEDIA. Prerequisite: CUST 321. [1-4-0]

CUST 363 (3) INTERDISCIPLINARY/INTEGRATED CURRICULUM AND INSTRUCTION. Theory and practice of interdisciplinary and integrated studies; instructional methods, materials, and plans; evaluation strategies. The specific curricular focus may vary. [3-0]

CUST 396 (3–12) D CURRICULUM DEVELOPMENT AND EVALUATION. Practical and conceptual issues of developing and evaluating elementary and/or secondary school curricula will be discussed in relation to concurrent classroom pre-service or in-service experience.

CUST 412 (3) CURRICULUM FOR CAREER PROGRAMS.

CUST 414 (3) CURRICULUM AND INSTRUCTION IN APPLIED STUDIES IN MATHEMATICS, SCIENCE, AND TECHNOLOGY II: SECONDARY. Prerequisite: CUST 314. [3-0-0]

CUST 416 (3/6) D SPECIAL TOPICS IN CURRICULUM STUDIES. Advanced study designed to bring teachers up to date with current research and developments. [3-0-0]

CUST 424 (3) CURRICULUM FOR GLOBAL EDUCATION. Key concepts, teaching strategies, and curriculum planning for grades K–12. [3-0-0]

CUST 431 (3) VISUAL LITERACY ACROSS THE CURRICULUM. Prerequisite: One of EDUC 310, EDUC 311 or teaching experience.

CUST 432 (3) MEDIA EDUCATION ACROSS THE CURRICULUM. Prerequisite: One of EDUC 310, EDUC 311 or teaching experience.

CUST 440 (3–9) D SPECIAL STUDY IN A SUBJECT-MATTER FIELD. Topics in a subject field relevant to teaching and not covered in previous undergraduate work. Pass/Fail.

CUST 487 (6) RECENT DEVELOPMENTS IN ELEMENTARY CURRICULUM AND INSTRUCTION. An examination of recent changes in the organization and curriculum of elementary schools. [3-0; 3-0]

CUST 488 (3) KEY CURRICULAR ORIENTATIONS: PROGRESSIVISM. Key concepts and practical implications of progressive curricular orientations. [3-0]

CUST 510 (3) VIDEO ETHNOGRAPHY IN EDUCATION RESEARCH: CULTURE, TECHNOLOGY AND INTERPRETATION. Prerequisite: An introductory course in research methods or permission of the instructor is required

CUST 512 (3/6) D EDUCATION ACTION RESEARCH.

CUST 558 (3) MASTER'S SEMINAR. Pass/Fail.

CUST 562 (3) INTRODUCTION TO CURRICULUM ISSUES AND THEORIES.

CUST 563 (3) CURRICULUM EVALUATION. An examination of various concepts and methods pertinent to the evaluation of curricula. Prerequisite: EDCI 562.

CUST 564 (3) TEXTS, POLITICS, AND IDEOLOGIES OF CURRICULUM DEVELOPMENT.

CUST 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD.

CUST 566 (3) CURRICULUM CHANGE AND IMPLEMENTATION. Theories of educational change, current research literature, and principles for planning and evaluating curriculum implementation.

CUST 568 (3) CURRICULA IN THEIR HISTORICAL CONTEXT.

CUST 580 (3/12) C PROBLEMS IN EDUCATION.

CUST 590 (3) GRADUATING PAPER.

CUST 598 (3/12) C FIELD EXPERIENCES.

CUST 599 (6–12) C MASTER'S THESIS.

CUST 601 (3/6) D DOCTORAL SEMINAR.

CUST 602 (3/6) D DOCTORAL SEMINAR. Pass/Fail

CUST 699 (0) DOCTORAL THESIS. Pass/Fail.

DENT — DENTISTRY FACULTY OF DENTISTRY

DENT 407 (6) ORAL HEALTH CARE IN RESIDENTIAL CARE SETTINGS.

DENT 410 (15) DENTISTRY I. Introduction to dentistry and supporting science in classroom, laboratory and clinical settings, usually in small groups. Patient-centred communication skills, standards of professional behavior, dental and medical clinical skills, dental anatomy, and fundamentals of oral systems and diseases as related to body systems.

DENT 420 (15) DENTISTRY II. Integration of supporting science, preclinical medicine, and dentistry in classroom, small group, and clinical settings. Adult and pediatric patient assessment, dental charting and record keeping, oral and maxillofacial radiology, assessment of temporomandibular joints and occlusion, dental and medical clinical skills, oral mucosal disease, diagnostic casts and biomaterials, and occlusal records and articulation. Prerequisite: DENT 410. [0-3-0]

DENT 430 (58) DENTISTRY III. An integrated clinical, affective and cognitive course utilizing hybrid problem-based didactic learning with concurrent simulation and clinical learning. Students function as team members in clinical group practices with individual progression through the Clinical Clerkships. Prerequisite: DENT 420. [10-12-36]

DENT 440 (50) DENTISTRY IV. A continuing integrated clinical, affective and cognitive experience with ongoing participation in clinical group practices and individual progression through the Clinical Clerkships. Prerequisite: DENT 430. [5-6-20]

DENT 523 (6) ORAL MEDICINE II. [0-6-3; 0-6-3]

DENT 540 (6) RESEARCH METHODS AND SEMINARS IN ORAL BIOLOGY. [3-0-0; 3-0-0]

DENT 541 (6) CRANIOFACIAL BIOLOGY. [3-0-0; 3-0-0]

DENT 542 (6) BIOLOGY OF ORAL TISSUES. [3-0-0; 3-0-0]

DENT 543 (3) ADVANCED OCCLUSION AND ARTICULATION. [3-0-0; 3-0-0]

DENT 544 (3) D ADVANCED TOPICS IN ORAL MICROBIOLOGY.

DENT 553 (3) ORAL MEDICINE I. [0-6-3]

DENT 555 (2) ORAL RADIOLOGY.

DENT 556 (2) ORAL RADIOLOGY.

DENT 557 (6) ADVANCED ORAL RADIOLOGY. [0-6-3; 0-6-3]

DENT 561 (2–6) D DIRECTED STUDIES IN DENTAL SCIENCES.

DENT 570 (2) PERIODONTAL CASE MANAGEMENT.

DENT 571 (3) CELL BIOLOGY OF DISEASED AND HEALING PERIODONTIUM.

DENT 572 (3/6) D LITERATURE REVIEW IN PERIODONTICS.

DENT 573 (3/6) D LITERATURE REVIEW IN PERIODONTICS II.

DENT 574 (1) PERIODONTIC TREATMENT PLANNING SEMINARS.

DENT 575 (3) IMPLANT THERAPY.

DENT 576 (2) GUIDED TISSUE REGENERATION.

DENT 577 (3-6) D ADVANCED TOPICS IN RESTORATIVE THERAPY.

DENT 599 (12) MASTER'S THESIS. Enrolment restricted to Graduate Students in Dental Science.

DENT 649 (0) PH.D. THESIS.

DENT 700 (0) DIRECTED STUDIES IN ORTHODONTICS.

DENT 703 (0) INTER-RELATIONSHIP OF DENTAL AND MEDICAL SPECIALTIES WITH IMAGING PROCEDURES.

DENT 706 (0) FORENSIC ODONTOLOGY.

DENT 711 (0) CLINICAL PERIODONTICS.

DENT 715 (0) PERIODONTAL THERAPY SEMINARS.

DENT 720 (0) REVIEW OF ORAL RADIOLOGY LITERATURE.

DENT 723 (0) PRESCRIPTION PERIODONTAL SURGERY.

DENT 729 (0) HOSPITAL DENTISTRY AND ANAESTHESIOLOGY.

DENT 734 (0) CLINICO-PATHOLOGICAL CONFERENCES.

DENT 740 (0) CLINICAL DENTISTRY.

DENT 741 (0) SPECIALTY ROTATIONS.

DENT 742 (0) EMERGENCY PATIENT MANAGEMENT.

DENT 743 (0) SEMINARS ON HOSPITAL DENTISTRY.

DENT 744 (0) DIRECTED STUDIES IN HOSPITAL DENTISTRY.

DENT 750 (0) HEAD AND NECK ONCOLOGY.

DENT 752 (0) ORAL SURGICAL PATHOLOGY.

DENT 753 (0) CLINICAL ORAL MEDICINE.

DENT 755 (0) ORAL RADIOGRAPHIC TECHNIQUES.

DENT 756 (0) ORAL RADIOLOGY.

DENT 757 (0) ORAL RADIOLOGICAL INTERPRETATION.

DENT 760 (0) ORAL CYTOLOGY.

DENT 770 (0) ADVANCED CLINICAL ORTHODONTICS.

DERM — CLINICAL DERMATOLOGY FACULTY OF MEDICINE

DERM 430 (1) CLINICAL DERMATOLOGY. Exposure to a number of aspects pertaining to the clinical practice of dermatology. Prerequisite:

Completion of first- and second-year medicine program.

DHYG — DENTAL HYGIENE FACULTY OF DENTISTRY

DHYG 400 (6) CURRENT ISSUES IN ORAL HEALTH SERVICES. Critical reviews of oral health care delivery, oral disease processes and dental hygiene. [3-0-0; 3-0-0]

DHYG 401 (2/5) C ORAL EPIDEMIOLOGY. The 5-credit version includes statistical content comparable to HCEP 400 or EPSE 482 and is available in on-line distance education format only. [0-0-0;0-2-0] or [online hours TBA] [0-0-0; 2-0-0]

DHYG 402 (6) DENTAL HYGIENE PRACTICE I. Dental hygiene concepts, processes, and skills for individuals and communities. [3-0-0; 3-0-0]

DHYG 404 (6) DENTAL HYGIENE PRACTICE II. Advanced dental hygiene concepts, processes and skills in community health, educational or institutional settings.

DHYG 405 (3) ORAL MICROBIOLOGY AND IMMUNOLOGY. Microbiology and immunological concepts for dental hygiene students.

DHYG 406 (3) D GUIDED STUDY IN DENTAL HYGIENE. Elective offered only in final year.

DHYG 433 (3) ASSESSMENT AND TREATMENT PLANNING FOR ADVANCED PERIODONTAL DISEASES. Available in online distance education format only.

DHYG 435 (3) ORAL MEDICINE AND PATHOLOGY. Pathobiology of oral diseases. Available in online distance education format only.

DHYG 461 (4) LITERATURE REVIEW I. [2-0-0; 2-0-0]

DHYG 462 (4) LITERATURE REVIEW II. A continuation of DHYG 461. [2-0-0; 2-0-0]

DPAS — DOCTOR/DENTIST, PATIENT & SOCIETY FACULTY OF MEDICINE

DPAS 410 (6) DOCTOR/DENTIST, PATIENT AND SOCIETY. This multidisciplinary course will examine critical issues in health care. Problem-based tutorials will address the patient-doctor relationship, health care systems, research, epidemiology, prevention, ethics, behavioural and social sciences, resource allocation, multiculturalism, and marginalized populations. [0-0-2]

DPAS 420 (6) DOCTOR/DENTIST, PATIENT AND SOCIETY. This multidisciplinary course will examine critical issues in health care. Problem-based tutorials will address the patient-doctor relationship, health care systems, research, epidemiology, prevention, ethics, behavioural and social sciences, resource allocation, multiculturalism and marginalized populations. [0-0-2]

DRAM — DRAMA FACULTY OF ARTS

DRAM 200 (3) DRAMA: FORMS AND IDEAS I. The Anatomy of Drama: Its history, aesthetic principles, performative potential.

DRAM 201 (3) DRAMA: FORMS AND IDEAS II. Topics in comparative drama; drama and the other performing arts; dramaturgy.

DRAM 300 (3) THEORY OF DRAMA PERFORMANCE. The basic principles of dramaturgy and theory of performance. Historical and contemporary writing on dramatic theory and criticism and their relation to theatrical practice.

DRAM 301 (3) STUDIES IN DRAMA. Topics will vary from year to year.

DRAM 400 (3) DRAMATURGY. Advanced problems in dramaturgy, both in a historical and a contemporary context.

EADM — EDUCATIONAL ADMINISTRATION FACULTY OF EDUCATION

EADM 501 (3) RESEARCH TRADITIONS IN EDUCATIONAL ADMINISTRATION.

EADM 502 (3) PROBLEM REFORMULATION SKILLS FOR ADMINISTRATION.

EADM 505 (3) THE ROLE OF THE SCHOOL PRINCIPAL.

EADM 507 (3) PERSONNEL ADMINISTRATION IN EDUCATION.

EADM 508 (3-12) D REVIEW OF RESEARCH METHODS IN EDUCATIONAL ADMINISTRATION.

EADM 517 (3) IMPROVEMENT OF INSTRUCTION THROUGH SUPERVISION.

EADM 520 (3) ADVANCED STUDY OF EDUCATIONAL ORGANIZATIONS.

EADM 522 (3) ADVANCED PROBLEM ANALYSIS AND REFORMULATION.

EADM 531 (3) POLITICS OF EDUCATIONAL GOVERNANCE. Equivalency: EDST 531.

EADM 532 (3) LEADERSHIP IN EDUCATIONAL ORGANIZATIONS. Equivalency: EDST 532.

EADM 548 (3) TEACHER UNIONS IN EDUCATION.

EADM 553 (3-6) D GROUP INQUIRY IN EDUCATIONAL ADMINISTRATION.

EADM 554 (3) ADMINISTRATION AND EDUCATIONAL POLICY.

EADM 555 (3) EDUCATIONAL FINANCE.

EADM 556 (3) LEADERSHIP AND ADMINISTRATION OF EDUCATIONAL PROGRAMS.

EADM 560 (3) SCHOOL LAW.

EADM 561 (3-12) D PRACTICUM SIMULATION IN SCHOOL LEADERSHIP AND ADMINISTRATION. Prerequisite: EADM 502.

EADM 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD.

EADM 579 (3) SCHOOL-COMMUNITY RELATIONS.

EADM 580 (3–12) C PROBLEMS IN EDUCATION.

EADM 581 (3) LEADERSHIP, ADMINISTRATION, AND THE AIMS OF EDUCATION.

EADM 582 (3) THE STUDY OF ORGANIZATIONS IN THE EDUCATIONAL CONTEXT.

EADM 590 (3) GRADUATING PAPER. Pass/Fail.

EADM 598 (3–12) C FIELD EXPERIENCES.

EADM 599 (6/12) C MASTER'S THESIS.

EADM 699 (0) DOCTORAL THESIS. Pass/Fail.

ECED — EARLY CHILDHOOD EDUCATION FACULTY OF EDUCATION

ECED 333 (3) PRE-KINDERGARTEN CURRICULUM. The development of prekindergarten programs with reference to recent research, theories of early learning, and curriculum trends and practices. [3-0]

ECED 334 (3) HOME, SCHOOL, AND COMMUNITY RELATIONS. Philosophy, history, and problems of the parent-teacher partnership; development of effective cooperation through individual parent-teacher conferences and parent-group discussions; examination of community services and inter-professional relationships on behalf of children. [3-0]

ECED 336 (3) HISTORY OF EARLY CHILDHOOD EDUCATION. Political and social factors which influenced movements and trends in early childhood education in North America, pre-kindergarten through primary. [3-0]

ECED 343 (3) PRE-KINDERGARTEN INSTRUCTION. Planning and implementing prekindergarten learning experiences; resources, materials, guidance, curriculum integration, evaluation, scheduling, and classroom design. [3-0]

ECED 380 (3–12) C SELECTED TOPICS IN EARLY CHILDHOOD EDUCATION.

ECED 405 (3) FOUNDATIONS OF CURRICULUM AND INSTRUCTION IN EARLY CHILDHOOD EDUCATION.

ECED 415 (3) SUPPORTING LEARNING IN THE PRIMARY YEARS. Prerequisite: ECED 405 or teaching experience or successful completion of the extended practicum. Corequisite: ECED 405 or teaching experience or successful completion of the extended practicum.

ECED 425 (3) ADVANCED STUDIES IN EARLY CHILDHOOD EDUCATION. Prerequisite: ECED 405.

ECED 433 (3) KINDERGARTEN CURRICULUM. The development of kindergarten programs with reference to recent research, theories of early learning, curriculum trends and practices, and the place of kindergarten in contemporary education. [3-0]

ECED 438 (3) OBSERVATION AND RECORDING. Methods of observing and recording children's behaviour in early childhood settings. [3-0]

ECED 443 (3) SUPPORTING LEARNING IN THE KINDERGARTEN YEAR. Prerequisite: One of ECED 405, ECED 433 or teaching experience, or successful completion of extended practicum. Corequisite: One of ECED 405, ECED 433 or teaching experience, or successful completion of extended practicum.

ECED 508 (3–12) C REVIEW OF RESEARCH IN EDUCATIONAL METHODS. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

ECED 561 (3–12) C LABORATORY PRACTICUM.

ECED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

ECED 580 (3–12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

ECED 585 (3–6) D ADVANCED SEMINAR ON RESEARCH IN EARLY CHILDHOOD EDUCATION.

ECED 590 (3) GRADUATING PAPER. Pass/Fail.

ECED 598 (3–12) C FIELD EXPERIENCES. For those on master's, doctoral and Diploma programs.

ECED 599 (6–12) D MASTER'S THESIS.

ECON — ECONOMICS FACULTY OF ARTS

For course prerequisites purposes, all of ECON 101, ECON 102 is equivalent to all of ECON 310, ECON 311, or to ECON 100 or to ECON 309. Many courses in Economics have a Mathematics prerequisite of MATH 104 (or equivalent) and/or MATH 105 (or equivalent). Courses equivalent to MATH 104 as a prerequisite are MATH 100, 111, 120, 140, 153, 180 and 184. For MATH 105 the equivalents are MATH 101, 103, 121, 141, and 154. Note ECON 490 and ECON 495 have been changed from 6 to 3 credits. For details of current listings and a menu of new courses (not yet in the printed calendar) see the departmental website at www.econ.ubc.ca.

ECON 101 (3) PRINCIPLES OF MICROECONOMICS. Elements of theory and of Canadian policy and institutions concerning the economics of markets and market behaviour, prices and costs, exchange and trade, competition and monopoly, distribution of income.

ECON 102 (3) PRINCIPLES OF MACROECONOMICS. Elements of theory and of Canadian policy and institutions concerning the economics growth and business cycles, national income accounting, interest and exchange rates, money and banking, the balance of trade.

ECON 201 (3) INTERMEDIATE MICROECONOMICS I. Consumer behaviour, exchange, production and cost, equilibrium of the firm under different market structures, industry equilibrium. Credit may be obtained for only one of ECON 201, ECON 206, ECON 301, ECON 304. Prerequisite: Either (a) all of ECON 101, ECON 102 or (b) all of ECON 100, MATH 104.

ECON 202 (3) INTERMEDIATE MACROECONOMIC ANALYSIS. Income and employment theory, monetary theory, the open economy, economic fluctuations and growth. Credit may be obtained for only one of ECON 202 and ECON 207, ECON 302, and ECON 305. Prerequisite: Either (a) all of ECON 101, ECON 102 or (b) ECON 100; and one of MATH 100, MATH 102, MATH 104, MATH 120, MATH 140, MATH 180, MATH 184.

ECON 207 (3) MACROECONOMIC ANALYSIS I. Income and employment theory, monetary theory, the open economy, economic fluctuations and growth. Intended primarily for prospective honours and other qualified students. Credit may be obtained for only one of ECON 202, ECON 207, ECON 302 and ECON 305. Prerequisite: All of ECON 101, ECON 102, MATH 104, MATH 105. Permission of the department is also acceptable.

ECON 210 (3) MICROECONOMIC POLICY. A survey of policy issues, such as regulation, taxation, environmental and resource policy, health care, education and income distribution. Prerequisite: All of ECON 101, ECON 102.

ECON 211 (3) MACROECONOMIC POLICY. A survey of policy issues, such as the costs of inflation and unemployment, monetary and fiscal policy, the effects of government debt and exchange rate policy. Prerequisite: All of ECON 101, ECON 102.

ECON 221 (3) INTRODUCTION TO STRATEGIC THINKING. An introduction to how people interact in strategic situations drawn from political science, history, psychology, law, biology, military history, economics, business, and anthropology. The focus will be on developing intuition.

ECON 226 (3) MAKING SENSE OF ECONOMIC DATA. Formulation of a testable hypothesis, identification of relevant data, use of appropriate statistical tools. Prerequisite: All of ECON 101, ECON 102.

ECON 234 (3) WEALTH AND POVERTY OF NATIONS. Historical approaches to long-run economic growth; international comparisons of income growth and inequality; colonialism; evolution of world capital markets; human migrations; rise of world trading empires; instability in the international economy. Credit will be granted for only one of ECON 234 and former ECON 334 (6). Prerequisite: All of ECON 101, ECON 102.

ECON 255 (3) UNDERSTANDING GLOBALIZATION. Social and economic implications for both rich and poor countries of lowered barriers to the international flows of information, capital, labour and goods. Prerequisite: All of ECON 101, ECON 102.

ECON 301 (3) INTERMEDIATE

MICROECONOMIC ANALYSIS I. Consumer behaviour, producer theory, exchange, monopoly, oligopoly, externalities, public goods, general equilibrium and welfare economics. Credit may be obtained for only one of ECON 201, ECON 206, ECON 301, ECON 304. Prerequisite: All of ECON 101, MATH 104, MATH 105.

ECON 302 (3) INTERMEDIATE

MACROECONOMIC ANALYSIS I. Income and employment theory, monetary theory, the open economy, economic fluctuations and growth. Credit may be obtained for only one of ECON 202, ECON 207, ECON 302, ECON 305. Prerequisite: All of ECON 101, ECON 102, MATH 105.

ECON 303 (3) INTERMEDIATE

MICROECONOMICS II. Risk and uncertainty, some concepts in game theory, adverse selection, moral hazard, bargaining, auctions. Credit may be obtained for only one of ECON 303 and 306. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 304 (3) HONOURS INTERMEDIATE

MICROECONOMIC ANALYSIS I. Consumer behaviour, producer theory, exchange, monopoly, oligopoly, externalities, public goods, general equilibrium and welfare economics. Credit may be obtained for only one of ECON 201 or 206 or 301 or 304. Prerequisite: A score of 68% or higher in all of ECON 101, MATH 104, MATH 105.

ECON 305 (3) HONOURS INTERMEDIATE

MACROECONOMIC ANALYSIS I. Income and employment theory, monetary theory, the open economy, economic fluctuations and growth. Credit may be obtained for only one of ECON 202, ECON 207, ECON 302, ECON 305. Prerequisite: All of ECON 101 [with 68% or above], ECON 102, MATH 104 [with 68% or above], MATH 105 [with 68% or above].

ECON 306 (3) HONOURS INTERMEDIATE

MICROECONOMICS II. Risk and uncertainty, some concepts in game theory, adverse selection, moral hazard, bargaining, auctions. Credit may be obtained for only one of ECON 303 and 306. Prerequisite: A score of 68% or higher in one of ECON 206, ECON 304. Permission of the department is also acceptable.

ECON 307 (3) HONOURS INTERMEDIATE

MACROECONOMICS II. Theories of economic growth and the business cycle. Intended primarily for prospective honours and other qualified students. Prerequisite: Either (a) a score of 68% or higher in ECON 207 or (b) a score of 68% or higher in ECON 305. Permission of the department is also acceptable.

ECON 310 (3) PRINCIPLES OF

MICROECONOMICS. The scope of this course is approximately the same as that of ECON101. The course is intended for upper-level students only. Credit will be given for only one of ECON 310 and ECON 101, ECON 308. Prerequisite: Third-year, fourth-year, or graduate standing.

ECON 311 (3) PRINCIPLES OF

MACROECONOMICS. The scope of this course is approximately the same as that of ECON 102. The course is intended for upper-level students only. Credit will be given for only one of ECON 311 and ECON 102, ECON 309. Prerequisite: Third-year, fourth-year or graduate standing.

ECON 312 (3) POLITICAL ECONOMY OF

CAPITALISM. An intellectual history of the evolution of the capitalist system and its institutions; a selection of defences and criticisms of capitalism and its alternatives in the writings of leading social and political philosophers from the 18th to the 20th centuries. Prerequisite: All of ECON 101, ECON 102.

ECON 313 (3) MARXIST ECONOMICS.

Marxist critiques of capitalist systems and Marxian alternatives. The origin of exploitation; feudalism and capitalism; exploitation and profits; the morality of exploitation; the emergence of class; historical materialism; Marxist theories of imperialism; and public ownership of the means of production. Prerequisite: All of ECON 101, ECON 102.

ECON 317 (3) POVERTY AND INEQUALITY.

Economic inequality in Canada and other countries; measurement and causes. Inequality in the distribution of wealth; redistribution of income and wealth; notions of distributive justice. Prerequisite: All of ECON 101, ECON 102.

ECON 318 (3) HISTORY AND PHILOSOPHY

OF ECONOMICS FROM ARISTOTLE TO ADAM SMITH. The development of economic thought from Aristotle to Adam Smith, focusing on the conceptual foundations of economics, particularly the problems of value, distribution, and economic growth. Prerequisite: All of ECON 101, ECON 102.

ECON 319 (3) HISTORY AND PHILOSOPHY

OF ECONOMICS FROM RICARDO TO KEYNES. The development of economic thought from David Ricardo up to the present including such figures as Malthus, Mill, Jevons, and Keynes, focusing on the conceptual foundations of economics, particularly the problems of value, distribution and growth. Prerequisite: All of ECON 101, ECON 102.

ECON 320 (3) INTRODUCTION TO

MATHEMATICAL ECONOMICS. Application of single and multivariable calculus to economics. Includes comparative static analysis of household and firm behaviour as well as simple dynamic models. Prerequisite: All of ECON 101, ECON 102, MATH 104, MATH 105.

ECON 325 (3) INTRODUCTION TO

EMPIRICAL ECONOMICS. Essentials of probability and statistics for applied work in economics. Topics include descriptive statistics, probability, estimation, hypothesis testing, and analysis of variance. Prerequisite: All of ECON 101, ECON 102, MATH 104, MATH 105. Corequisite: ECON 101 and ECON 102 may be taken concurrently.

ECON 326 (3) METHODS OF EMPIRICAL

RESEARCH IN ECONOMICS. Techniques of empirical economic research. Topics include

simple and multiple regression, time series analysis, and simultaneous equation estimation. Students will be required to undertake applied work. Credit may be obtained for only one of ECON 326 and STAT 306. Prerequisite: ECON 325.

ECON 334 (3) ECONOMIC HISTORY OF

MODERN EUROPE. Background, causes and effects of economic change in Europe from the 18th century to recent times. Evolution of social and economic institutions; analysis of growth, structural change, the distribution of income, and the spread of industrialization. Prerequisite: All of ECON 101, ECON 102.

ECON 335 (3) FERTILITY, FAMILIES AND

HUMAN MIGRATION. Traditional fertility and mortality patterns, demographic transition, catastrophes, well-being and nutrition, international and internal migration, epidemics and growth spurts. Prerequisite: All of ECON 101, ECON 102.

ECON 336 (3) ECONOMIC HISTORY OF

CANADA. The growth of the Canadian economy in relation to development of natural resources, changing markets, industrialism, communications, and technology. Prerequisite: All of ECON 101, ECON 102.

ECON 337 (3) ECONOMIC HISTORY OF THE

UNITED STATES. The growth of the United States from the Colonial Era to the present: British colonialism, development of slave-based agriculture, the western expansion, the 'American system' of manufacturing, cyclical instability and depression, and the distribution of income. Credit will be granted for only one of ECON 337 and former ECON 437. Prerequisite: All of ECON 101, ECON 102.

ECON 339 (3) ECONOMICS OF

TECHNOLOGICAL CHANGE. Application of economic analysis to technological change; the impact of technological change on the growth and distribution of income; economic influences on the invention and diffusion of technology; the interaction between technology, work, skills, and education; public policy toward technological change. Prerequisite: All of ECON 101, ECON 102.

ECON 341 (3) ECONOMIC DEVELOPMENT OF

ASIA. Economic development under colonialism, the colonial legacy, population, trade and development, land reform, the Green Revolution, industrialization strategies, distribution of the gains from development. Each topic is discussed in the context of an Asian country. Prerequisite: All of ECON 101, ECON 102.

ECON 342 (3) THE ECONOMY OF CHINA

SINCE 1949. The Maoist strategy of development, the commune system and rural development, the pace and pattern of industrialization, management and planning, incentive policy, economic lessons from China. Students who wish to contrast different approaches to development may find it useful to take ECON 341 and 342 as a sequence. Prerequisite: All of ECON 101, ECON 102.

ECON 343 (3) THE ECONOMIC

DEVELOPMENT OF MODERN JAPAN. An economic analysis of the growth and structural

changes of the Japanese economy from the Meiji Restoration to the Second World War. Sources of growth, the development of new economic institutions, agricultural development, international trade and early industrialization, the emergence of a dual economic structure, war preparation, and the drive towards heavy industrialization. Prerequisite: All of ECON 101, ECON 102.

ECON 345 (3) MONEY AND BANKING.

Financial markets and financial institutions in theory and practice; structure and development of the Canadian financial system; development and theory of the regulation of the financial system; process of monetary control; theory and history of central banking and monetary policy. Prerequisite: All of ECON 101, ECON 102.

ECON 350 (3) PUBLIC FINANCE POLICY

TOPICS. Examination of two or three selected policy problems from areas of taxation, income security, and public expenditures. Topics to be selected each year from areas of current or recent policy debate. Examples include public pension policy, privatization and public services, income tax or sales tax reform, federal-provincial cost sharing programs, tax incentives versus direct expenditures, welfare reform. Prerequisite: All of ECON 101, ECON 102.

ECON 351 (3) WOMEN IN THE ECONOMY.

Economic analysis of markets and policies particularly affecting women. Selected topics drawn from economic discrimination; educational, occupational, and work choices; pay and employment equity; allocation of work time and consumption within the household and in the market; economics of marriage and fertility; poverty; taxation; income security and pension policies; and historical perspectives. Prerequisite: All of ECON 101, ECON 102.

ECON 352 (3) PUBLIC SECTOR ECONOMICS.

The government plays a pervasive role in the Canadian economy. The powerful tools of government policy –taxation, spending, borrowing, regulation—affect the economic life of every Canadian. This course applies the tools of economic analysis to the study of some of the most important aspects of public policy in these areas.

ECON 355 (3) INTRODUCTION TO

INTERNATIONAL TRADE. The determinants of trade patterns, trade policy, tariff and non-tariff barriers to trade, political economy of protectionism, bilateral and multilateral trade disputes, trade liberalization, trade and development. Credit may be obtained for only one of ECON 355 and 455. Prerequisite: All of ECON 101, ECON 102.

ECON 356 (3) INTRODUCTION TO

INTERNATIONAL FINANCE. Exchange rate policy regimes; international financial organizations; the interaction between monetary policy and exchange rate regimes; financial crises. Credit will be given for only one of ECON 356 and former ECON 345 (6). Prerequisite: All of ECON 101, ECON 102.

ECON 360 (3) LABOUR ECONOMICS. A study of the Canadian labour market. Labour supply, the allocation of the time among work and non-market activity, participation in the labour force, education and training. The demand for labour. The determination of wages and employment. The effect of unions on wages and employment. The wage structure, wage differentials by occupation, industry, race and sex. Unemployment. Credit may be obtained for only one of ECON 360 and 460. Prerequisite: All of ECON 101, ECON 102.

ECON 361 (3) ECONOMICS OF INDUSTRIAL

RELATIONS. Economic aspects of industrial relations in Canada. Why workers join unions. The theory of trade union behaviour. The labour movement in Canada. Wage determination under collective bargaining. The causes of strikes and lockouts. Unions and the wage structure. Credit may be obtained for only one of ECON 361 and 461. Prerequisite: All of ECON 101, ECON 102.

ECON 365 (3) TOPICS IN CANADIAN

INDUSTRIAL ORGANIZATION AND REGULATION POLICY. Current topics in industrial organization and regulation with emphasis on Canadian federal and provincial policy. The content will differ from year to year. Possible subjects include the regulation of transportation and communications, environmental regulation, marketing boards and other forms of agricultural regulation, competition and anti-combines policy, industrial organization and trade policy, and issues in consumer protection. Prerequisite: All of ECON 101, ECON 102.

ECON 367 (3) ECONOMIC ANALYSIS OF

LAW. The economics of market failure, equity and efficiency. Property rights, the economics of accident and contract law, economic theories of law enforcement. Prerequisite: All of ECON 101, ECON 102.

ECON 370 (3) BENEFIT-COST ANALYSIS AND THE ECONOMICS OF PROJECT

EVALUATION. Techniques and problems in benefit-cost analysis of public projects. Examination of alternative approaches to public decision-making such as cost-effectiveness analysis and multiple-objective frameworks. Case studies of projects in the areas of natural resources, the environment, human resources, public services, and transportation. Prerequisite: All of ECON 101, ECON 102.

ECON 371 (3) ECONOMICS OF THE

ENVIRONMENT. Economic analysis applied to various environmental issues, including sustainable development, quality of life, and environmental impacts of specific industrial and consumption activities. The design and implementation of government policies. Global environmental effects of human economic activity. Prerequisite: All of ECON 101, ECON 102.

ECON 374 (3) LAND ECONOMICS.

Economic analysis applied to problems of land use. Rent theory. Land valuation. Land conservation. Techniques for assessing economic efficiency of land use. Effects of institutions and public

policies on land use. Prerequisite: All of ECON 101, ECON 102.

ECON 384 (3) ECONOMIC ANALYSIS OF

HEALTH SERVICES. Microeconomic theory of resource allocation with emphasis on the applications of optimizing models of health service markets. Analysis of Canadian problems in health service supply. Models of the consumer/patient, the physician/entrepreneur, the not-for-profit hospital/firm, and the third-party regulatory and payment agency. Prerequisite: All of ECON 101, ECON 102.

ECON 387 (3) ECONOMIC REFORM AND

TRANSITION. Problems and processes of economic reform and of transition between different types of economic system, with emphasis on reform and transition in Communist and post-Communist economies. Credit may be obtained for only one of ECON 387 or ECON 487. Prerequisite: All of ECON 101, ECON 102.

ECON 406 (3) TOPICS IN

MICROECONOMICS. Selected topics in advanced microeconomic analysis. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 303, ECON 306.

ECON 407 (3) TOPICS IN

MACROECONOMICS. Selected topics in advanced macroeconomic analysis. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 202, ECON 207, ECON 302, ECON 305 and one of ECON 303, ECON 306.

ECON 417 (3) WELFARE ECONOMICS.

The criteria for evaluating economic performance with special reference to the problems of justice in the distribution of income and economic efficiency. Topics include social evaluation functions, pareto-optimality, compensation criteria, and consistency of collective decision making. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 303, ECON 306.

ECON 420 (3) OPTIMIZATION AND

ECONOMIC THEORY. An introduction to static and dynamic optimization methods with economic applications. Prerequisite: MATH 200 and one of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 303, ECON 306. Permission of the instructor is also acceptable.

ECON 421 (3) INTRODUCTION TO GAME

THEORY AND APPLICATIONS. Principles of rational behaviour in strategic situations and various notions of equilibrium useful in predicting outcomes. Applications from economics, business, politics, law and biology. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 422 (3) MATHEMATICS FOR

ECONOMISTS. Provides the required preparation in mathematics for the study of graduate economic theory. Solving systems of simultaneous equations; unconstrained and constrained maxima; elementary theory of difference and differential equations. Restricted

to students taking graduate economic theory courses.

ECON 425 (3) INTRODUCTION TO ECONOMETRICS. Theoretical and applied issues in statistics and econometrics. Statistical distributions, sampling theory, maximum likelihood methods of estimation and hypothesis testing, generalized least squares, measurement errors, non-normal errors, systems of equations, discrete-choice models, outliers, regression diagnostics, and model selection. Prerequisite: All of ECON 325, ECON 326.

ECON 426 (3) ECONOMETRIC ANALYSIS. Further topics in econometrics including such areas as nonlinear estimation, distributed lag models, time-series analysis, time-varying parameters, multivariate analysis, simulation and forecasting models, Monte Carlo experiments, duration models, large econometric models, Bayesian statistics, asymptotic theory, and ergodic theory. Prerequisite: ECON 425.

ECON 436 (3) HISTORICAL BACKGROUND TO CONTEMPORARY ISSUES IN CANADIAN ECONOMY. Demographic change, immigration, unemployment and labour markets, the inter-provincial transfer of resources, industrial and trade policy. Prerequisite: One of ECON 201, ECON 206, ECON 304, ECON 301 and one of ECON 202, ECON 207, ECON 302, ECON 305. Credit will be given for only one of ECON 436 and former ECON 336 (6).

ECON 441 (3) THE PROCESS OF ECONOMIC DEVELOPMENT. Industrialization of an agrarian economy; how the West grew rich; history of Japanese development; technical progress and growth; evolution of the patterns of income distribution; role of international trade in development; environment and development. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304. (Also accepted as corequisites.)

ECON 442 (3) ISSUES IN ECONOMIC DEVELOPMENT. Gender; labour markets; child labour; political economy of reforms, corruption and growth; population growth and demographic transition; agricultural productivity growth; agrarian institutions; famines; multinationals; crises in Asia and Latin America; LDC debt problem. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 444 (3) THE CONTEMPORARY JAPANESE ECONOMY. An economic analysis of selected issues in contemporary Japan. The postwar growth record, economic management and planning, industrial policy, labour market and industrial relations, foreign trade and investment, rapid industrialization and its consequences, external economic relations. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 447 (3) MONETARY THEORY. Theoretical analysis of economies that use money; the emergence of money; the roles of money in the economy; models of money demand; the optimal quantity of money seignorage and inflation; monetary policy and macroeconomic stability; monetary policy in an

open economy. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 202, ECON 207, ECON 302, ECON 305.

ECON 450 (3) ECONOMICS OF TAXATION. The economic analysis of taxation. Equity and efficiency; optimal taxation theory; partial and general equilibrium analysis of incidence; analysis of taxes such as the personal and corporate income taxes, sales and excise taxes, payroll taxes and property tax. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 451 (3) ECONOMICS OF PUBLIC EXPENDITURES. The role of government in the economy; efficiency and economic justice. Theory of public goods; applications to topics such as education, medical care and social services. Pricing and investment rules for public enterprises. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 303, ECON 306.

ECON 455 (3) INTERNATIONAL TRADE. International trade theory and policy in general equilibrium; relative costs, factor proportions, imperfect competition and the pattern of trade; efficiency and distribution. Credit granted for only one of ECON355 and ECON455. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 456 (3) INTERNATIONAL MACROECONOMICS AND FINANCE. Balance of payments; market for foreign exchange; mechanism for adjusting the balance of payments; internal vs. external stability; current problems and issues. Prerequisite: One of ECON 202, ECON 207, ECON 302, ECON 305.

ECON 457 (3) SEMINAR IN INTERNATIONAL ECONOMIC RELATIONS. Selected topics focusing upon various issues arising in international economic relations. Open only to fourth-year students in the Major program in International Relations. Prerequisite: All of ECON 101, ECON 102.

ECON 460 (3) ECONOMICS OF LABOUR MARKETS. The theory of labour supply and demand for individuals, households, and firms. Policy implications for Canadian taxation and benefit programs. Employee selection, hiring and promotion. Credit may not be obtained for both ECON 360 and 460. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 202, ECON 207, ECON 302, ECON 305 and one of ECON 303, ECON 306.

ECON 461 (3) ECONOMICS OF TRADE UNIONS. The microeconomic and macroeconomic effects of unions on wages, prices and employment. Industrial disputes and their resolution. Credit may not be obtained for both ECON 361 and 461. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 202, ECON 207, ECON 302, ECON 305 and one of ECON 303, ECON 306.

ECON 465 (3) MARKET STRUCTURE. Market structure and social welfare, theory of price

discrimination, equilibrium in oligopolistic markets, entry and exit decisions, product differentiation and spatial models, theories of hierarchical organization, agency problem in the modern corporation, vertical integration and control, market structure and technical progress. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 303, ECON 306.

ECON 466 (3) THE ECONOMICS OF GOVERNMENT REGULATION OF BUSINESS. Normative and positive theories of government regulation of business. Topics include natural monopoly, socially optimal monopoly pricing, regulation of multi-firm industries, competition policy. Selected empirical studies. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 303, ECON 306.

ECON 471 (3) ECONOMICS OF NONRENEWABLE RESOURCES. Application of economic analysis to the management of nonrenewable natural resources. Emphasis is placed on the economics of alternative energy sources. Other topics include mineral economics, criteria for the optimal use of resources, and measurement of resources. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 472 (3) ECONOMICS OF RENEWABLE RESOURCES. Application of economic analysis to the management of renewable resources. Special attention is given to criteria for the optimal use of depleting resources such as forests and water. Other topics include public policy with regard to environmental quality, conservation, and outdoor recreation. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 480 (3) TRANSPORTATION. Economic characteristics of the provision of transportation services, both passenger and freight; the market structure of the industry and the economic impact of the varying degrees of public regulation and promotion within the industry; the role of economic analysis in resolving problems of Canadian policy. Prerequisite: One of ECON 201, ECON 206, COMM 295, ECON 301, ECON 304. Equivalency: COMM 446.

ECON 487 (3) COMPARATIVE ECONOMIC SYSTEMS. Economic analysis of non-market/non-price systems of resource allocation. Economic analysis of central planning, coordination problems in hierarchical organizations, and the role of quantity restrictions, quotas, standards, etc. in regulating economic behaviour. The Soviet system of economic planning is used throughout as an example of the issues discussed. Credit may be obtained for only one of ECON 387 or ECON 487. Prerequisite: One of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 490 (3) SEMINAR IN APPLIED ECONOMICS. Selected problems and issues in the theory and practice of Economics. Each section will focus on a different field. Restricted to Economics Majors, and Combined Majors in

Economics in fourth year. Prerequisite: All of ECON 325, ECON 326 and one of ECON 201, ECON 206, ECON 301, ECON 304 and one of ECON 202, ECON 207, ECON 302, ECON 305. For additional possible prerequisites see individual course descriptions on the departmental website.

ECON 492 (3/6) C DIRECTED READING.

ECON 495 (3) HONOURS SEMINAR. Reports and group discussions of selected topics for fourth-year Honours students.

ECON 499 (6) HONOURS ESSAY. Essay on some theoretical, applied, or institutional problem. Open only to fourth-year Honours students.

ECON 500 (3) MICROECONOMICS.

ECON 502 (3) MACROECONOMICS.

ECON 514 (3) INFORMATION AND INCENTIVES.

ECON 515 (3/6) D SPECIAL TOPICS IN MICROECONOMIC THEORY.

ECON 516 (3) SPECIAL TOPICS IN MACROECONOMICS.

ECON 517 (3) SOCIAL EVALUATION, SOCIAL CHOICE, AND ECONOMIC PERFORMANCE.

ECON 518 (3) HISTORY OF ECONOMIC ANALYSIS I.

ECON 519 (3) HISTORY OF ECONOMIC ANALYSIS II.

ECON 522 (3) ECONOMIC APPLICATIONS OF GAME THEORY.

ECON 526 (3) PROBABILITY AND STATISTICS FOR USE IN ECONOMICS.

ECON 527 (3) ECONOMETRIC METHODS OF ECONOMIC RESEARCH.

ECON 531 (3) ECONOMIC HISTORY OF MODERN EUROPE.

ECON 532 (3) ECONOMIC HISTORY OF NORTH AMERICA.

ECON 541 (3) ECONOMIC DEVELOPMENT I.

ECON 542 (3) ECONOMIC DEVELOPMENT II.

ECON 543 (3) ECONOMICS OF TRANSITION ECONOMIES.

ECON 546 (3) MONETARY THEORY AND POLICY I.

ECON 547 (3) MONETARY THEORY AND POLICY II.

ECON 550 (3) GOVERNMENT FINANCE: EXPENDITURES.

ECON 551 (3) GOVERNMENT FINANCE: REVENUES.

ECON 553 (3) THE ECONOMICS OF INCOME SECURITY.

ECON 555 (3) INTERNATIONAL TRADE.

ECON 556 (3) INTERNATIONAL FINANCE.

ECON 560 (3) ECONOMICS OF LABOUR.

ECON 561 (3) TOPICS IN INDUSTRIAL RELATIONS.

ECON 565 (3) MARKET STRUCTURE AND BUSINESS BEHAVIOUR.

ECON 566 (3) BUSINESS PERFORMANCE AND PUBLIC POLICY.

ECON 567 (3) ORGANIZATION THEORY AND NON-MARKET ALLOCATION.

ECON 571 (3) THE ECONOMICS OF RENEWABLE RESOURCES.

ECON 572 (3) THE ECONOMICS OF NON-RENEWABLE RESOURCES.

ECON 573 (3) ENVIRONMENTAL ECONOMICS.

ECON 574 (3) SPECIAL TOPICS IN THE ECONOMICS OF RESOURCE USE.

ECON 580 (3) SOCIAL AND ECONOMIC MEASUREMENT.

ECON 581 (3) COST-BENEFIT ANALYSIS.

ECON 590 (2-6) D SPECIAL ADVANCED COURSE.

ECON 592 (2-6) C DIRECTED READING.

ECON 594 (6) APPLIED ECONOMICS.

ECON 595 (0) MAJOR ESSAY.

ECON 599 (6/12) C MASTER'S THESIS.

ECON 600 (3) MICROECONOMICS I.

ECON 601 (3) MICROECONOMICS II.

ECON 602 (3) MACROECONOMICS I.

ECON 603 (3) MACROECONOMICS II.

ECON 620 (3) MATHEMATICAL ECONOMICS I.

ECON 621 (3) MATHEMATICAL ECONOMICS II.

ECON 626 (3) ECONOMETRIC THEORY I. Prerequisite: ECON 527.

ECON 627 (3) ECONOMETRIC THEORY II. Prerequisite: ECON 626.

ECON 628 (1-3) D TOPICS IN APPLIED ECONOMETRICS I. Prerequisite: Prior graduate-level work in econometrics is required.

ECON 629 (1-3) D TOPICS IN APPLIED ECONOMETRICS II. Prerequisite: Prior graduate-level work in econometrics is required.

ECON 640 (3) PH.D. RESEARCH SEMINAR.

ECON 690 (2-6) D WORKSHOPS IN ECONOMICS.

ECON 699 (0) PH.D. THESIS.

**EDST — EDUCATIONAL STUDIES
FACULTY OF EDUCATION**

EDST 314 (3) SOCIAL ISSUES IN EDUCATION. Pass/Fail.

EDST 400 (2-5) D SOCIAL AND ETHICAL CONSIDERATIONS IN EDUCATION. [5-0-0]

EDST 425 (3) EDUCATIONAL ANTHROPOLOGY. Selected concepts from educational anthropology for teachers. Comparative study of school and classroom culture, school teaching, and multicultural education. Pass/Fail.

EDST 426 (3) HISTORY OF EDUCATION. An examination of selected topics in the history of Canadian and British Columbian education and of the relationships between historical development and current educational policy. Pass/Fail.

EDST 427 (3) PHILOSOPHY OF EDUCATION. An introductory course in which consideration is given to the philosophical foundations of education and to the practical bearing of theory upon curriculum content and classroom practice in our schools. Pass/Fail.

EDST 428 (3) THE SOCIAL FOUNDATIONS OF EDUCATION. An application of the social sciences to the study of education. Pass/Fail.

EDST 429 (3) EDUCATIONAL SOCIOLOGY. Selected theories of society and schooling applied to Canadian education. Pass/Fail.

EDST 451 (3) ISSUES AND FRAMEWORKS IN ENVIRONMENTAL EDUCATION. Competing conceptions of environmental education; the social construction of nature and of science; addressing class, race, culture, and gender in developing sound teaching strategies. Pass/Fail.

EDST 452 (3) GENDER AND EDUCATION. Pass/Fail.

EDST 453 (3) MORAL EDUCATION IN ELEMENTARY AND SECONDARY SCHOOLING. Approaches to moral education; developing educationally and morally justifiable teaching strategies. Pass/Fail.

EDST 454 (3) CRITICAL THINKING: FRAMEWORKS, METHODS, AND CHALLENGES. Competing conceptions of critical thinking, including feminist and post-colonial; teaching and evaluation strategies. Pass/Fail.

EDST 455 (3) HISTORY OF CHILDHOOD AND YOUTH. Pass/Fail.

EDST 502 (3/6) C GROWING UP IN HISTORY: THE MEANINGS OF CHILDHOOD.

EDST 503 (3) CURRICULA IN THEIR HISTORICAL CONTEXT. Equivalency: EDCI 568.

EDST 504 (3/6) C READINGS IN THE HISTORY OF EDUCATIONAL POLICY.

EDST 505 (3) FIRST NATIONS AND EDUCATIONAL CHANGE.

EDST 506 (3) EDUCATING THE BODY: PHYSICALITY AND IDENTITY IN HISTORICAL PERSPECTIVE.

EDST 507 (3/12) D SEMINAR IN THE HISTORY OF EDUCATION.

EDST 508 (3/12) C REVIEW OF RESEARCH IN EDUCATIONAL METHODS.

EDST 509 (3) CONSTRUCTING "NATIONS": CANADA AND THE EDUCATIONAL PAST.

EDST 512 (3) TRANSITIONS AND ACCESS ACROSS THE LIFE COURSE. Equivalency: HIED 512.

EDST 515 (3) SURVEY RESEARCH METHODS.

EDST 523 (3/6) D COMPARATIVE EDUCATION. Prerequisite: One of EDST 426, EDST 427, EDST 429.

EDST 524 (6) ADVANCED SEMINAR IN COMPARATIVE EDUCATION.

EDST 533 (3) PLANNING IN EDUCATIONAL ORGANIZATIONS. [3-0]

EDST 561 (3/12) C LABORATORY PRACTICUM.

EDST 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD.

EDST 570 (3) SEMINAR IN SOCIOLOGY OF EDUCATION.

EDST 573 (3) SOCIOLOGY OF THE CURRICULUM.

EDST 574 (3) SCHOOLTEACHING: AN OCCUPATIONAL ANALYSIS.

EDST 575 (3) SEMINAR ON WORK AND EDUCATION.

EDST 576 (3) FEMINIST THEORY, PEDAGOGY AND CURRICULUM.

EDST 577 (3) THE SOCIAL CONTEXT OF EDUCATIONAL POLICY.

EDST 578 (3) MULTICULTURALISM, RACE RELATIONS AND EDUCATION.

EDST 580 (3/12) C PROBLEMS IN EDUCATION.

EDST 588 (3) ENVIRONMENTAL PHILOSOPHY AND ENVIRONMENTAL EDUCATION.

EDST 590 (3) GRADUATING PAPER. Pass/Fail.

EDST 591 (3/6) D EPISTEMOLOGY AND THE CURRICULUM.

EDST 592 (3/6) D CONCEPTIONS OF TEACHING AND LEARNING.

EDST 593 (3/6) D MORAL EDUCATION AND MORAL PHILOSOPHY.

EDST 594 (3) PHILOSOPHY OF EDUCATIONAL RESEARCH.

EDST 595 (3) CONCEPTUAL INQUIRY IN EDUCATIONAL RESEARCH.

EDST 596 (3/6) C PHILOSOPHY AND EDUCATIONAL POLICY.

EDST 597 (3) EDUCATIONAL THEORIES.

EDST 598 (3/6) C ADVANCED SEMINAR IN PHILOSOPHY OF EDUCATION.

EDST 599 (6/12) C MASTER'S THESIS.

EDST 601 (3/6) D DOCTORAL SEMINAR. Required of students in the first year of a doctoral program. Pass/Fail.

EDST 602 (3/6) C DOCTORAL SEMINAR. For students in the second year of a doctoral program. Pass/Fail.

EDST 690 (0) ED.D. THESIS. Pass/Fail.

EDST 699 (0) DOCTORAL THESIS. Pass/Fail.

EDUC — EDUCATION FACULTY OF EDUCATION

EDUC 140 (3) INTRODUCTION TO FIRST NATIONS STUDIES. Selected issues affecting BC First Nations; the cultural and historical antecedents to these issues; First Nations viewpoints towards these issues. The course draws from various disciplines as well as from the knowledge of First Nations resource people. [3-0]

EDUC 141 (3) CULTURAL STUDIES. The study of a First Nations cultural group with an emphasis on traditional values and practices related to education. For students in the Native Indian Teacher Education Program (NITEP) only. [3-0]

EDUC 143 (1) SEMINAR AND CLASSROOM OBSERVATION I. Pass/Fail.

EDUC 240 (3) ISSUES IN FIRST NATIONS EDUCATION. [3-0]

EDUC 244 (2) SEMINAR AND CLASSROOM OBSERVATION II. Pass/Fail

EDUC 300 (7) INTEGRATED PRACTICUM EXPERIENCE: ELEMENTARY I.

EDUC 301 (3) INTEGRATED PRACTICUM EXPERIENCE: TWO-YEAR ELEMENTARY. Program II. Prerequisite: EDUC 300 and all previous coursework in the program.

EDUC 302 (6) INTEGRATED PRACTICUM EXPERIENCE: SECONDARY I.

EDUC 303 (7) INTEGRATED PRACTICUM EXPERIENCE: MIDDLE YEARS I.

EDUC 310 (4) PRINCIPLES OF TEACHING: ELEMENTARY AND MIDDLE YEARS.

Introduction to principles and instructional procedures related to classroom management, instructional planning, and the assessment of learning as applicable across grade levels and subject matter fields. Pass/Fail. [4-0-0]

EDUC 311 (4) PRINCIPLES OF TEACHING: SECONDARY. Introduction to principles and instructional procedures related to classroom management, instructional planning, and the assessment of learning as applicable across grade levels and subject matter fields. Pass/Fail. [4-0-0]

EDUC 315 (0) PRE-PRACTICUM EXPERIENCE. Observation and instruction in educational settings. Pass/Fail. [0-4]

EDUC 316 (3) COMMUNICATION SKILLS IN TEACHING. Study and practice of communication skills in educational settings. Candidates will be required to demonstrate satisfactory oral communication abilities. Pass/Fail. [1-3]

EDUC 319 (0) ORIENTATION SCHOOL EXPERIENCE: SECONDARY. A two-week sequence of observations and instructional assignments in a selected secondary school. Corequisite: EDUC 311.

EDUC 321 (0) ORIENTATION SCHOOL EXPERIENCE: ELEMENTARY. A two-week sequence of observations and instructional assignments in a selected elementary school. Pass/Fail. Prerequisite: EDUC 310.

EDUC 323 (0) ORIENTATION SCHOOL EXPERIENCE: MIDDLE YEARS. A two-week sequence of observation and instructional assignments with students between the ages of 10 and 14 years. Pass/Fail. Prerequisite: EDUC 310. [0-4]

EDUC 329 (18) EXTENDED PRACTICUM: SECONDARY. A developmental program of teaching practice, normally in one BC secondary school. Candidates will teach the subjects for which they have been academically and pedagogically prepared. Pass/Fail. Prerequisite: All requirements set for Term 1. [0-40]

EDUC 342 (6) TEACHING FIRST NATIONS LANGUAGES IN ELEMENTARY SCHOOLS. Strategies, materials and programs for teaching First Nations Languages as first and second languages. Prerequisite: One of LLED 489, LING 200, LING 400. LLED 486 and LING 433 are recommended as pre- or corequisites. [3-0; 3-0]

EDUC 344 (0) ISSUES IN FIRST NATIONS EDUCATION. Pass/Fail. Prerequisite: All of EDUC 143, EDUC 244.

EDUC 345 (0) FIRST NATIONS CURRICULUM: FIELD EXPERIENCE. Pass/Fail.

EDUC 390 (3) TEACHING AND LEARNING IN DIGITAL ENVIRONMENTS. Development and evaluation of curriculum resources and critical perspectives on the contribution of digital media technologies to teaching and learning.

EDUC 395 (3/6) D REGIONAL FIELD STUDIES IN EDUCATION. Directed study of a particular aspect of education in other countries and other cultures. Each field study will consist of a balanced program of study, travel, and community experience. Not offered on a regular basis. Prerequisite: 12 credits of course work approved by the Associate Dean (Teacher Education) as being appropriate to the particular study.

EDUC 399 (0) FIELD EXPERIENCE AND PRACTICE. For those undertaking postgraduate study in Education. Pass/Fail.

EDUC 400 (13) INTEGRATED PRACTICUM EXPERIENCE: TWELVE-MONTH ELEMENTARY PROGRAM II. Prerequisite: EDUC 300 and all previous coursework in the program

EDUC 401 (16) INTEGRATED PRACTICUM EXPERIENCE: TWO -YEAR ELEMENTARY PROGRAM III. Prerequisite: All of EDUC 300, EDUC 301 and all previous coursework in the program.

EDUC 402 (14) INTEGRATED PRACTICUM EXPERIENCE: SECONDARY II. Prerequisite: EDUC 302 and all previous coursework in the program.

EDUC 403 (13) INTEGRATED PRACTICUM EXPERIENCE: MIDDLE YEARS II. Prerequisite: EDUC 303 and all previous coursework in the program.

EDUC 418 (6-18) D EXTENDED PRACTICUM: ELEMENTARY. A developmental program of teaching practice, normally in one BC elementary school. Candidates will teach all subjects in the elementary curriculum. All elementary students must complete 18 credits of extended practicum. Pass/Fail. Prerequisite: All requirements set to precede this practicum.

EDUC 419 (6-18) D EXTENDED PRACTICUM: MIDDLE YEARS. Candidates will teach the subjects for which they have been academically and pedagogically prepared. Pass/Fail. Prerequisite: All requirements set to precede this practicum. All Middle Years students must complete 18 credits of extended practicum.

EDUC 420 (2) SCHOOL ORGANIZATION IN ITS SOCIAL CONTEXT. The organization and administration of schools, including issues in governance, finance, and community and professional control and influence. Pass/Fail. [2-0-0]

EDUC 432 (3/6) D THE SUPERVISION OF TEACHING. Recent research on teaching effectiveness. The analysis of teaching. Clinical supervision of teaching. Enrolment limited to persons with teaching or supervisory experience. [3-0]

EDUC 441 (3) HISTORY OF FIRST NATIONS SCHOOLING. An examination of key events affecting delivery of education, including contact, colonial policies and band-controlled initiatives. [3-0-0]

EDUC 442 (3) CRITICAL ISSUES IN FIRST NATIONS EDUCATION. Post-practicum students will explore how a school program may need to be modified in order to integrate more fully First Nations history, content, and world views. [3-0-0]

EDUC 449 (3/6) C SUPERVISED STUDY. This course is available only to outstanding students approved by the Associate Dean (Teacher Education) in their senior years to undertake a research investigation into a particular problem.

EDUC 490 (3/6) D SPECIAL STUDIES IN EDUCATION. Topics in education not covered in a course. A pilot course may be offered under this name for only one year and with permission of the Associate Dean (Teacher Education).

EDUC 492 (6/12) D CRITICAL ANALYSIS OF TEACHING. A combined clinical and research-based examination of teaching which seeks to help teachers determine what kinds of teaching activities are appropriate to the context in which they are involved. Teaching practice in a public elementary or secondary school is an integral part of this course.

EDUC 495 (4-18) C TEACHING PRACTICUM (ELEMENTARY). Supervised teaching in a BC elementary school. For qualified teachers wishing to strengthen or expand areas of teaching competence and for those not enrolled in a full program of teacher education but requiring between 3 and 15 weeks of current teaching practice. Pass/Fail. Prerequisite: Completion of recent elementary teaching methods courses in the subjects to be taught.

EDUC 496 (4-18) C TEACHING PRACTICUM (SECONDARY). Supervised teaching in a BC secondary school. For qualified teachers wishing to strengthen or expand areas of teaching competence and for those not enrolled in a full program of teacher education but requiring between 3 and 15 weeks of current teaching practice. Pass/Fail. Prerequisite: Recent completion of secondary teaching methods courses in the subjects to be taught.

EDUC 500 (3) RESEARCH METHODOLOGY IN EDUCATION. Overview of methodological approaches to research in education.

EDUC 503 (3/6) C ETHNOGRAPHY AND EDUCATION. Prerequisite: EDUC 500.

EDUC 504 (3) SEMINAR IN QUALITATIVE DATA ANALYSIS. Prerequisite: One of EDUC 503, EPSE 595. (May also be taken as co-requisites.)

EDUC 566 (6) PRINCIPLES OF SECONDARY EDUCATION. Recent thought on classroom procedures, provisions for individual differences, discipline. The place of various school subjects in total education, and remedial education in Canada and other countries.

EDUC 601 (6/12) C DOCTORAL SEMINAR.

EDUC 699 (0) DOCTORAL THESIS. Pass/Fail.

EECE — ELECTRICAL & COMPUTER ENGINEERING FACULTY OF APPLIED SCIENCE

EECE 201 (11) PROJECT INTEGRATED PROGRAM I. This is a project based learning equivalent of EECE 251, EECE 254, EECE 256, EECE 280. [6-7-3]

EECE 202 (12) PROJECT INTEGRATED PROGRAM II. This is a project based learning equivalent of EECE 253, EECE 259, EECE 261, EECE 281, and EECE 285. Prerequisite: Either (a) EECE 201 or (b) all of EECE 251, EECE 256, EECE 280. Corequisite: EECE 254. [6-9-3]

EECE 251 (2) CIRCUIT ANALYSIS I. The fundamentals of analysis of lumped linear time-invariant circuits; network theorems; operational amplifiers; first and second-order circuits; impedance and admittance functions. Corequisite: One of MATH 255, MATH 256, MATH 265. [2-0-1]

EECE 253 (2) CIRCUIT ANALYSIS II. Phasor analysis and AC power; transfer functions; Bode plots; filters and resonance; Laplace transforms; transformers; two-port networks. Prerequisite: EECE 251. [2-0-1]

EECE 254 (3) ELECTRONIC CIRCUITS I. Semiconductor fundamentals; modelling of electronic devices including diodes and transistors; design and analysis of linear and non-linear electronic circuits including amplifiers, power supplies, wave shaping circuits, waveform generators and logic circuits. Prerequisite: EECE 251. [3-0-0]

EECE 256 (3) DIGITAL LOGIC DESIGN. Data representation in digital computers; Boolean algebra; the analysis, design, optimization and implementation of combinatorial and sequen-

tial circuits; modern digital circuit technologies. [3-0-0]

EECE 259 (3) INTRODUCTION TO MICROCOMPUTERS. Organization and operation of microcomputers, memory addressing modes, representation of information, instruction sets, machine and assembly language programming, systems programs, I/O structures, I/O interfacing and I/O programming, introduction to digital system design using microcomputers. Prerequisite: EECE 256. [3-0-0]

EECE 261 (3) ENGINEERING ELECTROMAGNETICS. Electrostatics, electric currents, dielectrics, capacitance, electrostatic potential, magnetostatics. [3-0-1]

EECE 263 (3) BASIC CIRCUIT ANALYSIS. Ideal passive elements and sources; Kirchhoff's Laws; DC circuits; natural, forced and complete response of RLC circuits; impedance; phasors; complex power, resonance. Not open to students in Electrical and Computer Engineering. Corequisite: One of MATH 255, MATH 256. [2-2*-1]

EECE 265 (3) CIRCUITS AND ELECTRONICS. Introduction to circuit analysis and electronic circuits; topics chosen for applicability to systems involving signal acquisition, amplification, low/high pass filtering and power control. Not open to students in the Faculty of Applied Science. [3-2-0]

EECE 280 (2) ELECTRICAL AND COMPUTER ENGINEERING LABORATORY I. Introduction to oscilloscopes, signal generators and electrical measuring instruments. Experiments in analog and digital logic circuits. [1-3-0]

EECE 281 (2) ELECTRICAL AND COMPUTER ENGINEERING LABORATORY II. Experiments involving electronic devices and circuits, electromagnetics and microcomputers. Prerequisite: EECE 280. [1-3-0]

EECE 283 (2) ELECTRO-MECHANICAL LABORATORY. Experiments in analog and digital electronics, including microcomputers. Not open to students in Electrical and Computer Engineering. [1-3-0]

EECE 285 (3) GROUP PROJECT. Project management. Working under contract. Running a professional engineering practice. Group organization and dynamics. Effective presentation of ideas. Students will work in groups on a study and oral presentation of an engineering topic. [1-4-0]

EECE 310 (3) SOFTWARE ENGINEERING. Engineering practices for the development of non-trivial software-intensive systems including requirements specification, software architecture, implementation, verification and maintenance. Iterative development. Recognized standards, guidelines and models. Credit will only be given for one of CPSC 352, CPSC 310, and EECE 310. Prerequisite: CPSC 260. [3-2-0]

EECE 314 (3) SYSTEM SOFTWARE ENGINEERING. An overview of modern languages, operating systems, real-time systems, computer communications, computer/human interfaces, information structures,

system design methodologies, sizing, documentation, testing and maintenance and project management. Prerequisite: CPSC 260 and one of EECE 202, EECE 259. [2-1-1]

EECE 315 (4) OPERATING AND FILE SYSTEMS. Introduction to operating systems, their design and their implementation. Process concurrency, synchronization, communication and scheduling. Device drivers, memory management, virtual memory, file systems, networking and security. Prerequisite: One of EECE 202, EECE 259 and either (a) CPSC 260 or (b) EECE 256. [3-2-0]

EECE 320 (3) DISCRETE STRUCTURES AND ALGORITHMS. Software, hardware, and systems applications of discrete mathematics: logic and proofs; discrete structures and their properties; algorithms for analysis of discrete structures; algorithmic complexity. Prerequisite: One of EECE 201, EECE 256, CPSC 260. [3-0-0]

EECE 321 (3) LANGUAGES AND TRANSLATION. Principles and practice of automated language translation. Language syntax and semantics, typing, binding and parameter passing. Syntactic and lexical analysis. Language automata, parsing. Compilers and compiler-compilers. Prerequisite: CPSC 260. [3-1-0]

EECE 352 (3) ELECTRICAL ENGINEERING MATERIALS AND DEVICES. Fundamental aspects of electrical engineering materials such as: semiconductors, dielectrics, piezoelectrics, ferroelectrics, ferrites, and their applications in devices such as sensors and transducers. Prerequisite: One of EECE 202, EECE 261, PHYS 251. [3-0-0]

EECE 353 (3) DIGITAL SYSTEMS DESIGN. Advanced combinational and sequential electronic system design. Hardware specification, modeling, and simulation using hardware description languages (HDLs) and CAD tools. Design with programmable logic including FPGA's. Applications include complex state machines, microcontrollers, arithmetic circuits, and interface units. Credit can be given for only one of EECE 353 or EECE 379. Prerequisite: One of EECE 201, EECE 256. [2-3*-1]

EECE 355 (3) DIGITAL SYSTEMS AND MICROCOMPUTERS. Data representation in digital computers; boolean algebra; the design and optimization and implementation of combinatorial and sequential circuits; modern digital circuit technologies; memory and programmable logic devices; organization and operation of microcomputers; data/address bus organization; input-output interfacing. Prerequisite: EECE 263. [3-2*-0]

EECE 356 (4) ELECTRONIC CIRCUITS II. Analysis and design of electronic circuits; biasing of and small-signal models for transistors; frequency response of amplifiers; feedback and stability aspects of amplifier design; OP-AMPS; active filters; oscillators; IC specification and selection. Credit will only be given for one of EECE 356 or EECE 374. Prerequisite: Either (a) EECE 254 and one of EECE 253, EECE 263; or (b) EECE 202. [3-3*-0]

EECE 359 (3) SIGNALS AND COMMUNICATIONS. Continuous and discrete time signal analysis by Fourier methods; convolution and correlation; filtering, sampling, and multiplexing; amplitude, phase and pulse modulation. Students taking this course will not be eligible for credit for EECE 369. Prerequisite: One of EECE 202, EECE 253. [3-0-0]

EECE 360 (3) SYSTEMS AND CONTROL. Continuous and discrete time system analysis by Laplace and z transforms; system modeling by transfer function and state space methods; feedback, stability and sensitivity; control design; digital filtering. Credit will be given for only one of EECE 360 or 369. Prerequisite: One of EECE 202, EECE 253. [3-0-1*]

EECE 361 (2) SIGNALS AND SYSTEMS LABORATORY. Communications and control systems laboratory; analysis and design software; spectral analysis and modulation; servo and regulator control system design. Prerequisite: One of EECE 359, EECE 360, EECE 369. [1*-3-0]

EECE 363 (3) ELECTRONIC CIRCUITS FOR ELECTROMECHANICAL DESIGN. Semiconductor fundamentals; modelling of electronic devices including diodes and transistors; design of power supplies, waveform generators and logic circuits; signals in time and frequency domains; operational amplifiers; active filters; oscillators; device specification and selection. Prerequisite: EECE 263. [3-2*-0]

EECE 364 (4) ELECTROMAGNETIC FIELDS AND WAVES. Maxwell's equations; plane waves in free space and lossy media; TEM transmission lines; polarization; reflection and refraction; waveguides; radiation; antennas. Prerequisite: One of EECE 202, EECE 261. [3-3*-0]

EECE 365 (3) APPLIED ELECTRONICS AND ELECTROMECHANICS. Characteristics of semiconductor devices; analog circuits; force and torque production; motor principles and torque-speed characteristics; principles of power electronics. Not open to students in Electrical and Computer Engineering. Prerequisite: One of EECE 251, EECE 263. [2-2*-2*]

EECE 369 (3) SIGNALS AND SYSTEMS. Continuous-time LTI systems, discrete-time LTI systems, convolution sum, discrete-time Fourier series and transforms, z-transform, sampling discrete-time filtering, modulation, multiplexing, feedback systems, stability. Prerequisite: One of EECE 202, EECE 253. [3-1-0]

EECE 370 (3) ELECTRICAL MACHINES AND POWER TRANSMISSION. Electric power, three-phase systems, transmission/distribution; transformers, motors, generators. Not open to students in Electrical and Computer Engineering. Credit will only be given for one of EECE 365, 370, 373, 374 or 376. Prerequisite: One of EECE 251, EECE 263. [2-2*-1*]

EECE 373 (4) ELECTRO-MECHANICAL ENERGY CONVERSION AND TRANSMISSION. Three-phase power, generation/transmission; transformers; DC, induction, synchronous machines; brushless DC and

single-phase motors. Credit will only be given for one of EECE 365, EECE 370, EECE 373, EECE 374, or EECE 376. Prerequisite: One of EECE 202, EECE 253, EECE 263. [3-3*-0]

EECE 374 (4) ELECTRONICS AND ELECTROMECHANICS. BJT and MOSFET amplifiers; cascade and differential amplifiers; nonideal OP amps; feedback; active filters; permanent magnet. DC motors; variable voltage control; software control of variable frequency; mechanical power, torque and speed. Credit will only be given for one of EECE 356, 365, 370, 373, 374, or 376. Prerequisite: Either (a) EECE 202 or (b) all of EECE 253, EECE 254. Corequisite: One of EECE 202, EECE 261. [3-3*-0]

EECE 375 (6) COMPUTER-BASED INSTRUMENTATION DESIGN LABORATORY. Theory and practice of electronic instrumentation for software engineers. Computer-based data acquisition and control techniques. Design project. [1-10-0]

EECE 376 (3) ELECTROMECHANICS. Electromechanical energy conversion; linear actuators; torque/speed of rotating devices; reluctance, stepper, permanent-magnet, induction, brushless-DC motors and DC motors; actuator/motor drive circuits/controllers. Credit will only be given for one of EECE 365, EECE 370, EECE 373, EECE 374, or EECE 376. Corequisite: EECE 363. [3-2*-0]

EECE 411 (3) DESIGN OF DISTRIBUTED SOFTWARE APPLICATIONS. Communications, processes, naming, synchronization, consistency and replication, fault tolerance, object-based middleware, and security technologies for distributed applications. Prerequisite: All of EECE 315, EECE 320 and one of EECE 310, EECE 314. Corequisite: One of EECE 456, CPSC 417.

EECE 412 (3) INTRODUCTION TO COMPUTER SECURITY. Security risks, threats, and vulnerabilities from technical perspectives; confidentiality, integrity, and hybrid policies; cryptography, access control, assurance, accountability, and engineering of secure systems. Prerequisite: One of CPSC 211, CPSC 260. [3-0-0]

EECE 415 (3) REQUIREMENTS ENGINEERING FOR SOFTWARE-INTENSIVE SYSTEMS. Elicitation, analysis, validation, description, management and traceability of functional and non-functional requirements. Specialized techniques. Emphasis on software-intensive systems but also applicable to other kinds of engineered systems. [3-1-0]

EECE 416 (3) VERIFICATION OF SOFTWARE-INTENSIVE SYSTEMS. Different levels of testing including unit, integration, system, performance and regression levels. Requirements flowdown. Problem tracking. Coverage criteria. Static methods. Tools support. Specialized techniques. Assessment of correctness, reliability, safety. Prerequisite: EECE 415. [3-0-0]

EECE 417 (3) SOFTWARE ARCHITECTURE. Software architecture as a bridge from requirements to implementation. Architectural description and patterns. Iterative development.

Use of commercial off-the-shelf products. Prerequisite: One of EECE 310, CPSC 352, CPSC 310 and EECE 315 and one of EECE 320, CPSC 221. [3-0-0]

EECE 418 (3) HUMAN COMPUTER INTERFACES IN ENGINEERING DESIGN.

Practical issues for interfaces for modern software. Task analysis, user modeling, usability engineering, representations, metaphors, prototyping tools. Applications: interactive multimedia systems, engineering, scientific visualization, engineering design. Prerequisite: One of EECE 320, CPSC 220, CPSC 221 and one of CPSC 310, CPSC 352, EECE 310, EECE 314. [3-0-0]

EECE 419 (5) SOFTWARE ENGINEERING PROJECT.

Team project involving the application of the software engineering concepts. Credit will only be given for one of EECE 389, EECE 419, or CPSC 319. Prerequisite: One of CPSC 310, EECE 310, CPSC 352. [0-10-0]

EECE 423 (3) SOFTWARE SYSTEMS FOR MODELING AND SIMULATION. Discrete, continuous and hybrid approaches to modeling and simulating natural and artificial systems. Credit will not be given for both EECE 423 and CPSC 405. Prerequisite: Either (a) CPSC 260 or (b) all of CPSC 211, CPSC 221; and one of STAT 251, MATH 318. [3-2-0]

EECE 440 (3) ADVANCED OBJECT-ORIENTATION. Frameworks, patterns, enterprise-level modeling, making object oriented test cases. Distributed object architectures, databases. Prerequisite: One of EECE 320, CPSC 220, CPSC 221 and one of CPSC 310, CPSC 352, EECE 310. [3-0-0]

EECE 443 (3) SOFTWARE PROJECT MANAGEMENT. Advanced project planning, cost estimation and scheduling. Project management tools. Factors influencing productivity and success. Productivity metrics. Analysis of options and risk. Tools. Case studies. Prerequisite: One of CPSC 310, CPSC 352, EECE 310, EECE 314. [3-0-0]

EECE 450 (3) ECONOMIC ANALYSIS OF ENGINEERING PROJECTS. Time-money relationships; economic analysis of alternatives including the effects of interest rates, inflation, depreciation, taxation and uncertainty; cost estimation and budgeting; financial analysis of engineering operations. [3-0-0]

EECE 451 (3) ENGINEERING PRODUCT DEVELOPMENT AND MANAGEMENT. Product development cycle: generation of ideas and market requirements for new products, economic and quality considerations, the team approach, relationships with suppliers and evaluation of proposed products. Cases involving North American and Japanese firms. [3-0-0]

EECE 452 (3) INTRODUCTION TO OPTICAL NETWORKS. Wavelength division multiplexing, framing techniques, traffic grooming, virtual topology design, routing and wavelength assignment, protection and restoration, optical packet switching. Prerequisite: EECE 359. [3-0-0]

EECE 453 (3) COMMUNICATION SYSTEMS. Review of probability theory, signals and noise, spectral analysis; detection and estimation of signals in the presence of noise; performance calculations of amplitude, angle and pulse modulation systems; introduction to digital communication techniques. Prerequisite: EECE 359 and one of STAT 251, MATH 318. [3-0-0]

EECE 454 (3) DIGITAL COMMUNICATIONS. Formulation of the digital communication problem; definition of information, source and channel coding; digital modulation techniques, signal space, design of optimum digital receivers and performance calculations; trellis coded modulation; spread spectrum techniques; issues in wireless communication techniques and new standards. Prerequisite: EECE 453. [3-0-0]

EECE 456 (3) COMPUTER COMMUNICATIONS. Analysis, design and implementation of computer networks and their protocols. Queuing analysis, data link control, network design, routing, flow and congestion control. Satellite and packet radio networks. Local area networks. Prerequisite: One of STAT 251, MATH 318 and one of EECE 359, EECE 369; and one of EECE 259, EECE 315. [3-0-0]

EECE 457 (3) RF ELECTRONICS. Introduction to radio communication systems; frequency selective networks; small- and large-signal high frequency amplifiers; oscillators; phase locked loops; modulators and demodulators; AM, FM, SSB and digital transceivers. Prerequisite: One of EECE 356, EECE 374 and one of EECE 359, EECE 369. [2-0-2]

EECE 458 (3) POWER SYSTEM ANALYSIS. Electric power transmission. Voltage regulation and power flow. Fault analysis. Transient stability. Protective relaying HVDC transmission. System design projects using a real-time power system simulator, the EMTP program, and MATLAB toolboxes. Prerequisite: One of EECE 373, EECE 374. [3-0-0]

EECE 459 (3) COMPUTER APPLICATIONS IN POWER SYSTEMS. Power system monitoring and control; hardware/software architectures for large networks; optimization. Artificial intelligence techniques. Application to problems of generation and load control, optimum power flow, power transactions, reliability and security enhancement. Prerequisite: One of EECE 373, EECE 374. [3-0-0]

EECE 460 (3) CONTROL SYSTEMS. Relationships between system parameters and system responses for linear control systems. Design specifications for dynamic and steady-state performance and realization by use of feedback control. Robust design of PID controllers and multivariable controllers. Prerequisite: EECE 360. [3-0-0]

EECE 465 (3) MICROCOMPUTER SYSTEMS DESIGN. Microprocessor and system buses; advanced I/O methods; priority interrupts; event/exception handling; serial I/O; computer networking; memory system design; interaction of hardware and software, microprocessor comparison, testability issues, safety critical

systems. Prerequisite: EECE 259 and one of EECE 353, EECE 379. [3-0-1]

EECE 466 (3) DIGITAL SIGNAL PROCESSING SYSTEMS. DSP fundamentals; digital filter FIR and IIR structures; filter design; DSP architectures; DSP applications. Prerequisite: EECE 359. [2-0-2]

EECE 467 (3) REAL-TIME IMPLEMENTATION OF DSP ALGORITHMS. Review of sampling, digital filter design, convolution, transforms; DSP systems and architecture; programming DSP boards in "C" and assembly, fixed-point vs. floating point arithmetic; testing; DSP solutions in audio and telecommunications. [2-3-0]

EECE 468 (3) DIGITAL PROCESS CONTROL. Discrete systems, z-transform; sampled data systems; process control algorithms; multivariable control; state space methods; response to stochastic inputs, Wiener and Kalman filtering; least squares parameter identification. Prerequisite: EECE 360. [2-0-2]

EECE 470 (3) MICROWAVE CIRCUITS. Transmission lines; microwave integrated circuit lines; passive microstrip devices; microwave solid state control devices and circuits, amplifiers, oscillators and frequency conversion circuits. Prerequisite: One of EECE 364, PHYS 351. [2-0-2]

EECE 474 (6) INSTRUMENTATION AND DESIGN LABORATORY. Theory and practice of electrical measurements and electronic instrumentation. [1-10-0]

EECE 476 (3) COMPUTER ARCHITECTURE. Modern computer architecture, RISC and CISC machines, methods for performance improvements, multiple buses, pipelining, memory systems, caches, associative memories, multiple views of the design space and their interrelationships, other advanced architectures. Credit will be given for only one of CPSC 313 or EECE 476. Prerequisite: One of EECE 202, EECE 259, EECE 315. [3-0-1]

EECE 478 (3) COMPUTER GRAPHICS. Physical and virtual graphics I/O devices. The GKS standard Interactive graphics. Transformations, modelling, rendering algorithms for 2-D and 3-D graphics. Curves and surfaces. Credit will not be given for both CPSC 314 and EECE 478. Prerequisite: CPSC 260. [3-0-0]

EECE 479 (3) INTRODUCTION TO VLSI SYSTEMS. The chip design process using VLSI design styles in CMOS technology. Data path, control and register file design and layout. Clocking schemes, flip-flop and latch-based design. VHDL/Verilog design project using CAD tools. Prerequisite: One of EECE 353, EECE 379. Concurrent enrolment in EECE 480 recommended. [3-0-0]

EECE 480 (3) SEMICONDUCTOR DEVICES: PHYSICS, DESIGN AND ANALYSIS. Physics of operation, and design and analysis of modern transistors (eg. MOSFETs, MESFETs, HEMTs, BJTs, HBTs), emphasizing the suitability of particular transistors to high-frequency, high-speed or high-power applications. [3-0-0]

EECE 481 (3) DIGITAL INTEGRATED CIRCUIT DESIGN. Overview of deep submicron custom ic design. Advanced MOS models. IC fabrication. Timing and power calculations. Interconnect modeling and analysis techniques. Circuit-level design issues. SPICE circuit simulation. High-speed circuit design project. Prerequisite: EECE 479. EECE 480 recommended. [3-0-0]

EECE 482 (3) OPTICAL WAVEGUIDES AND PHOTONICS. Planar dielectric waveguides; single mode optical fibers; integrated optics waveguides and devices; semiconductor lasers; optical detectors; optical communications links. [2-0-2]

EECE 483 (3) ANTENNAS AND PROPAGATION. Basic antenna concepts; antennas for low, medium and high frequencies; terrestrial and satellite propagation links; environmental effects on electromagnetic radiation. Prerequisite: One of EECE 364, PHYS 351. [2-0-2]

EECE 485 (3) DIGITAL INSTRUMENTATION FOR MECHANICAL SYSTEMS. Design of microcomputer-based controllers and instrumentation; basics of digital and analog computer interface hardware; processor structure and function; high-level and low-level languages and system design-related issues. Laboratory experiments in basic logic elements, computer interface control, and sensor-based software control of various devices. Credit will be given for only one of EECE 485 or APSC 380. Not open to students in Electrical and Computer Engineering. Prerequisite: One of EECE 365, PHYS 253 and one of CPSC 152, CPSC 122. [2-3*-2*]

EECE 487 (3) INTRODUCTION TO ROBOTICS. Common manipulator configurations, actuator and sensor technology. Efficient representations and computational methods for real-time microprocessor-based implementation of robot control algorithms. Advanced robot control methods, network equivalents and applications to impedance control and bilateral (force-reflecting) teleoperation. Implementation aspects. Prerequisite: All of PHYS 170, EECE 360. [2-0-2]

EECE 488 (3) ANALOG CMOS INTEGRATED CIRCUIT DESIGN. Design and analysis of analog integrated circuits, with emphasis on CMOS design techniques. Gain stages, opamp design, frequency compensation, oscillators, A/D, D/A converters, PLL, DLL. Prerequisite: EECE 356. [3-0-1]

EECE 490 (1-3) D TOPICS IN ELECTRICAL AND COMPUTER ENGINEERING I. Lectures or projects on subjects of current interest.

EECE 491 (1-3) D TOPICS IN ELECTRICAL AND COMPUTER ENGINEERING II. Lectures or projects on subjects of current interest.

EECE 492 (3) DISTRIBUTED ENERGY SYSTEMS MANAGEMENT. Energy systems, high voltage transmission technology, low voltage domestic distribution. Advanced energy storage systems, alternative energy sources, interfacing of distributed generation sources, harmonics and power quality, smart metering, and tariffs. [3-2*-0]

EECE 493 (4) POWER ELECTRONICS. AC-DC, DC-DC, DC-AC, AC-AC. Converters. Analysis of idealized circuits with generalized loads.

Introduction to applications of practical devices—diodes, thyristors, power transistors and FETs. Prerequisite: One of EECE 365, EECE 370, EECE 373, EECE 374. [2-3*-2*]

EECE 494 (3) REAL-TIME DIGITAL SYSTEM DESIGN. Multi-tasking; interrupt-driven systems; task scheduling; task inter-communication and synchronization; memory management for real-time systems; performance measurement; hardware/software integration; hardware/software tradeoffs. Prerequisite: One of EECE 315, CPSC 315, CPSC 313. [3-0-0]

EECE 495 (3) INDUSTRIAL DRIVES. Analysis of typical loads. Characteristics and analysis of dc and ac drives. Commercial choices of drive for various applications. Dynamic response of ac and dc drives. Microprocessor-based controllers. Prerequisite: One of EECE 365, EECE 370, EECE 373, EECE 374. [2-2-0]

EECE 496 (5) ENGINEERING PROJECT. Project in electrical engineering or computer engineering involving design, experimental and/or computer simulation work as selected from topics supplied by faculty members or proposed by a student and approved by faculty. An individual project report is to be prepared according to specifications available from the departmental office. Prerequisite: APSC 201. Fourth-year standing. [0-10-0]

EECE 500 (3) TOPICS IN COMMUNICATION.

EECE 502 (3) TOPICS IN INTEGRATED CIRCUIT AND SYSTEM DESIGN.

EECE 511 (3) TOPICS IN SOFTWARE ENGINEERING.

EECE 512 (3) TOPICS IN COMPUTER SECURITY. Safety problems in computer security, information flow and access control models, security in distributed systems, design of secure systems, trust management, intrusion detection, security and usability

EECE 513 (3) FAULT TOLERANT DIGITAL SYSTEMS. Design and analysis of high-availability and life-critical embedded and commercial systems.

EECE 514 (3) REAL-TIME DIGITAL SYSTEMS SOFTWARE. Real-time system modelling, data models; behavioural models; control models; structured methods; timing constraints; implementation constraints; implementation transformations; and process and resource control; synchronization methods; deadlock issues; storage management; application to engineering examples. MECH 563 is recommended.

EECE 515 (3) SYSTEMS ENGINEERING FOR SOFTWARE-INTENSIVE SYSTEMS. Principles and practices of systems engineering and architecture of large complex systems. Examples of military and industrial systems will be discussed; air traffic control, multi-mode radar systems, spacecraft control systems.

EECE 516 (3) SOFTWARE AND SYSTEM TESTING. Theoretical and practical aspects of software and system testing. Functional and structural testing, integration testing, regression testing, test metrics, design for testability, test management.

EECE 518 (3) HUMAN INTERFACE TECHNOLOGIES. Human sensation, perception, kinetics; input technologies, gesture, vision, speech, audio; metaphors, information appliances, ubiquitous computing, wearable computing; output technologies, video display, speech, audio, tactile, haptic; evaluation methodology; user centered design.

EECE 519 (3) COMPUTER-SUPPORTED COLLABORATIVE WORK. Technical and social perspectives on collaboration and teamwork. Communications theory and collaboration technologies including email, instant messaging, videoconferencing, hypertext, knowledge management, and digital libraries.

EECE 520 (3) ADVANCED TOPICS IN COMPUTER NETWORKING. Advanced treatment of fundamental problems in computer networking and packet switching. Internet routing and gateway protocols, traffic engineering and multi-protocol label switching techniques, quality of service mechanisms, network and application level signalling, real-time multimedia communications.

EECE 530 (3) ROBUST MULTIVARIABLE CONTROL. Classic feedback control, linear systems, SISO and MIMO performance limitations, uncertainty, robust stability and performance, wind tunnel model and paper machine two-dimensional loop shaping control, practical MIMO analysis and design.

EECE 540 (3) LINEAR AND NONLINEAR MULTIVARIABLE PREDICTIVE CONTROL. Advanced mathematics in a control-engineering framework; design and analysis of predictive multivariable controllers; hands on experience with industrial control solutions.

EECE 541 (3) MULTIMEDIA SYSTEMS. Theoretical and practical issues in designing multimedia systems. Interactive multimedia, digital video broadcasting and streaming, media asset management, video indexing and retrieval, content protection, and design of multimedia middleware.

EECE 544 (3) MEDICAL IMAGING. Physical principles of ultrasound, magnetic resonance, computed tomography and X-ray projection imaging. Methods of feature detection, segmentation, registration and visualization of 2D and 3D images. Applications in diagnostics, therapeutics and interventions.

EECE 545 (3) SIGNAL COMPRESSION. Information theory; modelling; lossless coding including Huffman, arithmetic and dictionary coding; application to text and images; rate-distortion theory; audio-visual perception; quantization; prediction; transforms, subbands and wavelets; fractal and motion models; application to speech, audio, image and video.

EECE 549 (3) DYNAMIC MODELING OF ELECTRIC MACHINES AND CONTROLS. Numerical aspects of time-domain simulation are reviewed. Dynamic modeling and analysis of power systems components including transformers, induction and synchronous machines, inverters, electric drives and associated controls.

EECE 550 (3) TOPICS IN POWER ELECTRONIC DESIGN. New devices and applications in power electronics. Prerequisite: EECE 493.

EECE 552 (3) VOLTAGE AND FREQUENCY CONTROL IN MODERN DEREGULATED POWER SYSTEMS. Coordinated control of reactive power, voltage and frequency in large interconnected deregulated power systems. Factors influencing voltage stability. Methods of analysis, devices and strategies for reactive power control.

EECE 553 (3) ADVANCED POWER SYSTEMS ANALYSIS. Computer-oriented analysis of electric power systems with regard to multiphase line constants, steady-state analysis of single and parallel circuits, lightning and switching surges; large-scale solution of power-flow problems; optimal real and reactive power flow.

EECE 554 (3) ADVANCED POWER SYSTEM CONTROL AND DYNAMICS. Synchronous machine modelling; excitation and speed governor systems; enhancing power system damping through excitation or governor control; linear optimal stabilization of power systems; load shedding, generator dropping and other emergency measures; asynchronous operation and resynchronization; nonlinear stability; power-frequency control.

EECE 556 (3) OPTIMUM FILTERING AND CONTROL. The minimum principle, calculus of variations, and dynamic programming. The minimization of algebraic and functional quadratic forms. Applications to optimum filtering for state and parameter estimation and to the optimization of dynamic systems.

EECE 558 (3) SWITCHED MODE POWER SUPPLY DESIGN. Survey of different configurations. Choice of components. Magnetic component design. Buck converter. Boost converter. Flyback converter. Cuk converter. Resonant converter. Converter modelling and analysis techniques. Stability. Electromagnetic interference problems and shielding. Includes project work. Prerequisite: EECE 493.

EECE 559 (3) ENERGY STORAGE SYSTEMS – SUPER CAPACITORS. Superconducting Magnetic Energy Storage. Pumped Storage. Other possible technologies. System modeling and control.

EECE 560 (3) NETWORK ANALYSIS AND SIMULATION. Solution of lumped and distributed networks. Time-domain solutions, discretization and integration rules. Frequency-domain solutions, FFT and windowing techniques. Systems of linear equations, reduction and sparsity techniques. Nonlinear elements. Computer-aided simulation.

EECE 561 (3) ALTERNATIVE ENERGY SOURCES. Photovoltaic, wind, small hydro and fuel cell systems for stand alone and grid connected use.

EECE 562 (3) STATISTICAL SIGNAL PROCESSING WITH APPLICATIONS IN WIRELESS COMMUNICATIONS AND DEFENCE. Stochastic dynamical models, Least Squares, Recursive Least Squares. Kalman, Hidden Markov, particle filters. Maximum likelihood estimation. Sensor management, Markov Decision Processes. Case studies: wireless communications, target tracking.

EECE 563 (3) WIRELESS COMMUNICATION SYSTEMS. Characterization of fading channels such as land-mobile, mobile-satellite, cellular and indoor; modem design and performance on fading channels, diversity techniques, carrier and bit synchronization; effects of non-linearities and interference on system performance, and remedies; software and hardware system designs; system architectures (FDMA, TDMA, CDMA); cellular systems—frequency allocation, spectrum efficiency and channel assignment strategies; spread spectrum systems.

EECE 564 (3) DETECTION AND ESTIMATION OF SIGNALS IN NOISE. Formulation of the detection problem, optimum receiver principles, signal space, maximum likelihood decisions, error performance calculations. Estimation of signals in noise, linear and nonlinear estimation, cost functions, recursive mean square estimation, Wiener and Kalman filters.

EECE 565 (3) DATA COMMUNICATIONS. Analysis and design of communications networks; network architectures; Internet protocols; routing; scheduling algorithms; medium access control; congestion control; admission control; queuing analysis; network management.

EECE 566 (3) COMMUNICATION AND INFORMATION THEORY. Coding for noisy channels, linear block codes, cyclic codes, convolutional codes, maximum likelihood decoding, trellis coded modulation, measure of information, source coding, channel capacity theorem.

EECE 567 (3) PRIVACY AND SECURITY IN DATA COMMUNICATION NETWORKS. Introduction to cryptography, standard encryption algorithms, privacy and authentication issues in data networks, public key cryptosystems, digital signatures, information-theoretic approach to secrecy, cryptographic protocols.

EECE 568 (3) CONTROL SYSTEMS. State-space analysis of continuous and discrete multivariable systems. Controllability and observability. Sensitivity considerations. Stability of linear and nonlinear systems.

EECE 569 (3) MOBILE COMMUNICATIONS NETWORKS. Network architectures: cellular networks, ad hoc networks; access protocols; radio and network resource management; quality of service; mobility and location management; routing; mobile-IP; current wireless technologies for personal, local and satellite networks.

EECE 571 (1–4) C ELECTRICAL ENGINEERING SEMINAR AND SPECIAL PROBLEMS.

EECE 572 (1–3) C ADVANCED TOPICS IN CONTROL. Studies in areas of current research interest, with written problem assignments.

EECE 574 (3) SELF-TUNING CONTROL. Adaptive control; system identification; self-tuning control; design and implementation considerations; algorithm convergence and stability; industrial applications.

EECE 575 (3) DIGITAL IMAGE AND VIDEO PROCESSING. Mathematical preliminaries; image perception and modelling; image sampling and quantization; mathematical modelling; image enhancement; image restoration; image reconstruction from projections; image analysis; digital video; spatio-temporal sampling and reconstruction; motion modelling and estimation; video filtering.

EECE 576 (3) SEMICONDUCTOR THEORY FOR DEVICE APPLICATIONS. A treatment of the structure and electronic properties of semiconducting materials and heterojunction devices; including energy bands, carrier transport mechanisms, scattering and recombination.

EECE 577 (3) SOLID STATE ELECTRONIC AND PHOTONIC DEVICES. Solid-state devices of current interest (e.g., heterostructure transistors and lasers, very high speed silicon bipolars, short-channel MOSFETs) and their application in high-speed circuits.

EECE 578 (3) INTEGRATED CIRCUIT DESIGN-FOR-TEST. Test and design-for-test methodologies. Fault modeling, test generation, test architectures, System on Chip test infrastructure and methodologies. Digital, analog, and mixed-signal circuit test and design for testability and manufacturability. EECE 479 is recommended.

EECE 579 (3) ADVANCED TOPICS IN VLSI DESIGN. A course in VLSI design with an emphasis on new methodologies in digital IC design. Top-down design and CAD tools are illustrated through a class project. EECE 479 and EECE 481 are recommended.

EECE 580 (3) EMERGING ELECTRONIC MATERIALS AND DEVICES. The physics, fabrication and characterization of organic and carbon nanotube based capacitors, transistors, batteries, electrochromic windows, active displays, chemical sensors, photo-detectors, strain gauges, actuators and single molecule devices.

EECE 581 (3) RADIO-FREQUENCY INTEGRATED CIRCUIT DESIGN.

EECE 582 (3) OPTICAL FIBERS AND DEVICES. Modeling and analysis of dielectric waveguides; loss and dispersion in optical fibers; integrated-optics and photonics devices.

EECE 583 (3) CAD ALGORITHMS FOR INTEGRATED CIRCUITS. Algorithms used in contemporary computer-aided design tools targeting custom integrated circuits and field-programmable gate arrays, including high-level synthesis, logic optimization, partitioning,

placement and routing, optimization techniques.

EECE 584 (3) PROPOGATION AND CHANNEL MODELING FOR WIRELESS COMMUNICATIONS SYSTEM DESIGN.

EECE 585 (3) APPLIED ELECTROMAGNETIC WAVE PROPAGATION. Propagation Green's functions for one, two and three dimensions; antenna types and properties; physical propagation models for wireless communications.

EECE 586 (3) WAVELETS, PRINCIPLES AND APPLICATIONS IN SIGNAL PROCESSING. Concepts, methodologies and tools of signal processing using wavelets, including multi-resolution analysis, wavelet packets, wavelet dictionaries, wavelet denoising and selected applications.

EECE 587 (3) PRINCIPLES AND APPLICATIONS OF IMAGING RADAR. Fundamentals of radar; the RADARSAT satellites; how imaging is achieved; Synthetic Aperture Radar processing; applications such as oceanography, agriculture and forestry, including the techniques of polarimetry and interferometry.

EECE 588 (3) ANALOG INTEGRATED CIRCUIT DESIGN. Analysis and design emphasizing CMOS implementations. Gain stages, biasing circuits, comparators, sample-and-hold circuits, switched-capacitor circuits, Nyquist-rate and oversampling A/Ds and D/As, oscillators, PLLs.

EECE 589 (3) SYSTEM DESIGN FOR ROBOTS AND TELEOPERATORS. Requirements and methods for computer control of manipulator systems; computer simulation of mechanical linkages and actuator systems. Computer architectures suitable for manipulator control in robots and teleoperators. Prior taking of MECH 563 is recommended.

EECE 590 (3) DIGITAL SPEECH AND AUDIO PROCESSING. DSP fundamentals; speech models; time-domain analysis methods; short-time spectrum analysis methods; homomorphic speech processing; linear prediction analysis methods; speech recognition; text-to-speech synthesis; audio modelling; digital recording, transmission and psychoacoustic broadcast distribution.

EECE 591 (3) APPLIED DIGITAL SIGNAL PROCESSING. Review of DSP fundamentals: A/D conversion, filter design, FFTs, interpolation and fast convolution. MATLAB exercises including design of a digital SAR processor. Other industrial applications taken from GPS, images, audio and communications.

EECE 592 (3) ARCHITECTURE FOR LEARNING SYSTEMS. Symbolic methods used in conventional AI; knowledge representation, search strategies, inference mechanisms in expert system shells. Neural-network methods; system identification and pattern recognition issues, basic paradigms and their promises and limitations. Unified approaches using both symbolic and neural-network methods. Implementation issues using microcomputers in specific application domains, e.g., adaptive control and man-machine communication.

EECE 593 (3) ADVANCED COMPUTER GRAPHICS. Geometric modelling, curves and surfaces (Bezier, B-splines). Solid modelling, representation schemes, CSG, B-rep Volumetric modelling, quadtrees and octrees. Prerequisite: EECE 478.

EECE 595 (3) PARALLEL PROCESSING AND ADVANCED COMPUTER ARCHITECTURE. Overview of parallel processing, modelling, identification and scheduling of parallelism, architecture and characteristics of high-performance computer systems, interconnection networks, shared-memory and distributed memory systems, superscalar and symmetric multiprocessor systems, other topics in parallel and distributed processing.

EECE 597 (6) ENGINEERING REPORT. Project report on assigned topic of specialization. For students registered in the M.Eng. program in Electrical or Computer Engineering.

EECE 598 (3) INTELLIGENT SYSTEMS APPLICATIONS TO ELECTRICAL POWER SYSTEMS. Introduction to expert systems, fuzzy logic, neural networks, and other artificial intelligence-based methods; applications to electrical power systems; system fault analysis and restorative operation support; flexible systems with uncertainties; self-organizing systems.

EECE 599 (12) THESIS. For M.A.Sc.

EECE 699 (0) THESIS. For Ph.D.

EMER — EMERGENCY MEDICINE FACULTY OF MEDICINE

EMER 430 (4) EMERGENCY MEDICINE. This course covers the principles of Emergency Medicine. The seminar series is case based and interactive. Teaching resuscitative skills is emphasized.

ENDS — ENVIRONMENTAL DESIGN SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

ENDS 211 (3) INTRODUCTION TO ENVIRONMENTAL DESIGN. Survey of the visual, cultural, ecological and spatial literacies in environmental design and planning.

ENDS 301 (9) ENVIRONMENTAL DESIGN STUDIO 1: TERRAIN(S). Introduction to definitions of community; the study of relationships of human beings to each other and the environment; methods of analysis and composition; physical properties of land, natural and man-made; simple spatial and functional programs deployed in the creation of landscape and "place".

ENDS 302 (9) ENVIRONMENTAL DESIGN STUDIO 2: CONSTRUCTION(S). Expands the terms of the purposeful transformation of "place" to include modifications to the environment at the scale of the individual; concepts of dwelling and habitation; the human body as an instrument of measure, dimension and design of the private realm.

ENDS 320 (3) DESIGN, MEDIA AND REPRESENTATION. Theories, histories and techniques of design representation; geometry,

design and expression are principle areas of focus.

ENDS 401 (9) ENVIRONMENTAL DESIGN STUDIO 3: SETTLEMENT(S). Expands the scale and design enquiry to emphasize the regard between communities and environment, urban infrastructure and ecological systems.

ENDS 402 (9) ARCHITECTURAL DESIGN FOUNDATION: INSTITUTION(S). The exploration of a complex physical and spatial program for building in the public realm, resulting in an integrative design project. Pre-architecture option.

ENDS 403 (9) LANDSCAPE PLANNING FOUNDATION: COMMON(S). The exploration of a complex physical and spatial program in the design and planning of the public realm, resulting in an integrative design project. Pre-Landscape Architecture Option.

ENDS 410 (3) URBAN FORM AND STRUCTURE. Introduction to the major histories and theories of urbanism as expressed in the physical form of cities throughout Eastern and Western civilizations. Methods and Techniques of mapping will be a principle focus.

ENDS 420 (3) TECHNOLOGY AND TECHNIQUE. Introduction to fundamental design principles and investigations of buildings, landscape, machines and furniture, including structure, enclosure, envelope and detailing.

ENDS 440 (3) ECOLOGY AND URBAN DESIGN. The symbiotic relationship between ecological structures and the structure and quality of urban life.

ENGL — ENGLISH FACULTY OF ARTS

Attainment of a satisfactory Language Proficiency Index (LPI) score is a prerequisite to registration in 100-level English courses. See "Language Proficiency Index" in the Degree Requirements section within the Faculty of Arts or visit www.lpi.ubc.ca.

ENGL 110 (3) APPROACHES TO LITERATURE. Study of selected examples of poetry, fiction, and drama. Essays are required.

ENGL 111 (3) APPROACHES TO NON-FICTIONAL PROSE. Study of a selection of prose texts ranging in length from the essay to the book, with emphasis on writing of the twentieth century. Essays are required.

ENGL 112 (3) STRATEGIES FOR UNIVERSITY WRITING. Study and application of the principles of university-level discourse, with emphasis on expository and persuasive writing. Essays and exercises are required.

ENGL 120 (3) LITERATURE AND CRITICISM. Enriched study of selected works of literature from a number of critical perspectives. Open to students with a mark of "A" in English 12 or "B+" in English Literature 12. Essays are required.

ENGL 121 (3) INTRODUCTION TO LITERARY THEORY. Study of various theories of literature. Open to students with a mark of A in

English 12 or B+ in English Literature 12. Essays are required.

ENGL 210 (6) AN INTRODUCTION TO ENGLISH HONOURS. For prospective Honours students accepted by the English Honours Committee on the recommendation of the instructor. Students permitted to take this course must take ENGL 211 concurrently. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 211 (6) SEMINAR FOR ENGLISH HONOURS. An introduction to practical criticism; required of and open only to students of ENGL 210. A limited number of texts from a range of genres and periods will be chosen for close critical analysis.

ENGL 220 (3) LITERATURE IN ENGLISH TO THE 18TH CENTURY. A survey of prose, poetry and drama to the 18th Century. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 221 (3) LITERATURE IN BRITAIN: THE 18TH CENTURY TO THE PRESENT. A survey of poetry, drama, fiction and non-fiction prose from the 18th century to the present. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 222 (3) LITERATURE IN CANADA. The major types of Canadian writing: fiction, poetry, non-fictional prose, and drama. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 223 (3) LITERATURE IN THE UNITED STATES. The major types of American writing: fiction, poetry, drama and non-fictional prose. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 224 (3) WORLD LITERATURE IN ENGLISH. English literature produced outside Britain and North America. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 225 (3) POETRY. Principles, methods, and resources for reading poetry. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 226 (3) DRAMA. Principles, methods and resources for reading drama. Prerequisite: 6 credits of first-year English, or Arts One, or Foundations.

ENGL 227 (3) PROSE FICTION. Principles, methods and resources for reading the novel and the short story. Prerequisite: 6 credits of first-year English, or Arts One, or Foundations.

ENGL 228 (3-6) D TOPICS IN LITERARY AND/OR CULTURAL STUDIES. Current research interests in English studies. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 229 (3-6) D TOPICS IN THE STUDY OF LANGUAGE AND/OR RHETORIC. Prerequisite: 6 credits of first year English, or Arts One, or Foundations.

ENGL 230 (3-6) D BIBLICAL AND CLASSICAL BACKGROUNDS OF ENGLISH LITERATURE. Prerequisite: 6 credits of first-year English, or Arts One, or Foundations.

ENGL 301 (3) TECHNICAL WRITING. Study of the principles of written communication in general business and professional activities, and practice in the preparation of abstracts, proposals, reports, and correspondence. This course is closed to first- and second-year students in Arts. Not for credit towards the English Major or Minor. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 302 (3) ADVANCED PRACTICAL WRITING. Library research in the student's professional field; the writing of articles and research papers; detailed preparation of term or graduating essays required in a number of departments and faculties. Attention will be given to appropriate style. Not for credit towards the English Major or Minor. Prerequisite: ENGL 301. Permission of the course chair is also acceptable.

ENGL 303 (6) INTERMEDIATE COMPOSITION. Study of the principles and extensive practice in the writing of effective prose, from arrangement and punctuation to various stylistic strategies. May be taken in the second year. Not for credit towards the English Major or Minor. Prerequisite: 6 credits of first-year English or Arts One or Foundations.

ENGL 304 (6) ADVANCED COMPOSITION. Special emphasis on rhetoric, with a focus on audience, authorial voice, and range of style.

ENGL 307 (3-12) D STUDIES IN RHETORIC. Topics in rhetorical theories and their application.

ENGL 308 (3-12) D RHETORICAL CRITICISM. A study of literary texts from a rhetorical perspective.

ENGL 309 (3-12) D RHETORIC OF SCIENCE, TECHNOLOGY, AND MEDICINE. Exploration of the persuasive dimension of discourse practices in science, technology, and medicine.

ENGL 310 (3) HISTORY AND THEORY OF RHETORIC: CLASSICAL RHETORIC. Introduction to classical rhetoric with attention to the analysis of present-day texts.

ENGL 311 (3) HISTORY AND THEORY OF RHETORIC: THE LATER THEORY. Rhetorical theory from Augustine to the 21st century, emphasizing questions of persuasion in everyday life.

ENGL 312 (3-12) D DISCOURSE AND SOCIETY. Introduction to theories of language and culture, and to techniques for analysing discourses in their social contexts.

ENGL 320 (6) HISTORY OF THE ENGLISH LANGUAGE. Development of the English language from West Germanic to the present; phonology, morphology, syntax, and vocabulary.

ENGL 321 (3-12) D ENGLISH GRAMMAR AND USAGE. Descriptive approaches to the English Language

ENGL 322 (3-12) D STYLISTICS. Application of linguistic theory and method to stylistic analysis.

ENGL 323 (3-12) D VARIETIES OF ENGLISH. Study of geographical, social, and/or urban dialects of English.

ENGL 326 (3-12) D STUDIES IN THE ENGLISH LANGUAGE. Topics in the history or structure of the English language.

ENGL 328 (3-12) D METAPHOR, LANGUAGE AND THOUGHT. Exploration of the concepts underlying figurative language (in vocabulary as well as in grammar), using data from both colloquial and literary language.

ENGL 329 (6) THE STRUCTURE OF MODERN ENGLISH. A description of English phonetics, phonology, grammar, and vocabulary.

ENGL 340 (3) INTRODUCTION TO OLD ENGLISH. Old English grammar, with readings in the prose of the period.

ENGL 343 (3) OLD ENGLISH LITERATURE.

ENGL 344 (3-12) D MEDIEVAL STUDIES.

ENGL 346 (3-6) D CHAUCER AND THE MIDDLE AGES. A detailed study of Chaucer's major works.

ENGL 347 (3-12) D RENAISSANCE STUDIES.

ENGL 348 (3/6) D SHAKESPEARE AND THE RENAISSANCE.

ENGL 349 (3-12) D SEVENTEENTH-CENTURY STUDIES.

ENGL 352 (3) MIDDLE ENGLISH. The forms and development of the language.

ENGL 354 (3/6) D MILTON AND THE SEVENTEENTH CENTURY.

ENGL 356 (3) CHAUCER. For Honours students.

ENGL 357 (3-12) D RESTORATION AND EIGHTEENTH-CENTURY STUDIES.

ENGL 358 (3-12) D STUDIES IN AN EIGHTEENTH-CENTURY GENRE.

ENGL 359 (3-12) D STUDIES IN ROMANTICISM.

ENGL 362 (3-12) D STUDIES IN A NINETEENTH-CENTURY GENRE.

ENGL 364 (3-12) D NINETEENTH-CENTURY STUDIES.

ENGL 367 (3) SHAKESPEARE. Intensive study of at least six plays. For Honours students.

ENGL 369 (3-12) D STUDIES IN AMERICAN LITERATURE TO 1900.

ENGL 376 (3) MILTON. For Honours students.

ENGL 399 (0) CO-OPERATIVE WORK PLACEMENT. Supervised work experience related to English studies, in an approved company or organization for a minimum of 455 hours. Orientation workshops and final reports.

ENGL 402 (3-12) D STUDIES IN POETRY.

ENGL 405 (3-12) D STUDIES IN DRAMA.

ENGL 406 (3-12) D STUDIES IN PROSE FICTION.

ENGL 407 (3/6) D A CRITICAL HISTORY OF ENGLISH LITERATURE. Not open to students who have taken ENGL 201 or ENGL 210 or ENGL 220.

ENGL 408 (3/6) D HISTORY OF CRITICISM AND THEORY.

ENGL 409 (3/6) D MODERN CRITICAL THEORIES.

ENGL 412 (3) STUDIES IN CRITICAL THEORY.

ENGL 417 (3/6) D THE LITERATURE OF THE BIBLE.

ENGL 418 (3-12) D STUDIES IN EUROPEAN LITERATURE.

ENGL 419 (3/6) D HISTORY OF THE BOOK.

ENGL 462 (3-12) D TWENTIETH-CENTURY BRITISH AND IRISH STUDIES.

ENGL 464 (3-12) D TWENTIETH-CENTURY STUDIES.

ENGL 466 (3-12) D STUDIES IN A TWENTIETH-CENTURY GENRE.

ENGL 468 (3/6) D CHILDREN'S LITERATURE.

ENGL 470 (3-12) D CANADIAN STUDIES.

ENGL 472 (3-12) D AMERICAN STUDIES.

ENGL 474 (3-12) D STUDIES IN CONTEMPORARY LITERATURE.

ENGL 476 (3-12) D FIRST NATIONS STUDIES.

ENGL 478 (3-12) D POST-COLONIAL STUDIES.

ENGL 490 (3) MAJORS SEMINAR. Required of all Literature Majors. See Department Website (www.english.ubc.ca) for options.

ENGL 491 (3-12) C SENIOR HONOURS SEMINAR. Offerings in literary theory.

ENGL 492 (3-12) C SENIOR HONOURS SEMINAR. Offerings in literary research.

ENGL 496 (3-6) D DIRECTED READINGS IN ENGLISH LITERATURE. For Honours students only.

ENGL 499 (3/6) C HONOURS ESSAY.

ENGL 500 (3) RESEARCH TOOLS AND METHODS. Required of all graduate students in thesis programs.

ENGL 501 (3-12) D STUDIES IN BIBLIOGRAPHY.

ENGL 502 (3-12) D STUDIES IN CRITICISM.

ENGL 503 (3-12) D STUDIES IN PROSE.

ENGL 504 (3-12) D STUDIES IN DRAMA.

ENGL 505 (3-12) D STUDIES IN FICTION.

ENGL 506 (3-12) D STUDIES IN POETRY.

ENGL 507 (3-12) D STUDIES IN THE HISTORY OF THE ENGLISH LANGUAGE.

ENGL 508 (3-12) D STUDIES IN THE STRUCTURE OF THE ENGLISH LANGUAGE.

ENGL 509 (3-12) D STUDIES IN RHETORIC AND THEORY OF COMPOSITION.

ENGL 510 (3-12) D STUDIES IN OLD ENGLISH.

ENGL 511 (3-12) D CHAUCER.

ENGL 512 (3-12) D MIDDLE ENGLISH STUDIES.

ENGL 514 (3-12) D STUDIES IN THE RENAISSANCE.

ENGL 515 (3-12) D SHAKESPEARE.

ENGL 519 (3-12) D STUDIES IN THE SIXTEENTH CENTURY.

ENGL 520 (3-12) D STUDIES IN THE SEVENTEENTH CENTURY.

ENGL 525 (3-12) D STUDIES IN THE EIGHTEENTH CENTURY.

ENGL 530 (3-12) D STUDIES IN THE ROMANTIC PERIOD.

ENGL 535 (3-12) D STUDIES IN THE VICTORIAN PERIOD.

ENGL 539 (3-12) D STUDIES IN THE TWENTIETH CENTURY.

ENGL 540 (3-12) D STUDIES IN AMERICAN LITERATURE TO 1890.

ENGL 541 (3-12) D STUDIES IN AMERICAN LITERATURE SINCE 1890.

ENGL 545 (3-12) D STUDIES IN CANADIAN LITERATURE.

ENGL 546 (3-12) D STUDIES IN COMMONWEALTH/POST-COLONIAL LITERATURES.

ENGL 547 (3/6) C DIRECTED READING.

ENGL 549 (6-12) C MASTER'S THESIS.

ENGL 551 (3-12) D STUDIES IN LITERARY MOVEMENTS.

ENGL 552 (3/6) D PRACTICAL CRITICISM. Close reading and analysis of selected literary texts.

ENGL 553 (3-12) D STUDIES IN LITERARY THEORY.

ENGL 555 (3-12) D STUDIES IN LITERATURE AND THE OTHER ARTS.

ENGL 649 (0) PH.D. THESIS.

ENVR — ENVIRONMENTAL STUDIES FACULTY OF SCIENCE

ENVR 200 (3) ENVIRONMENTAL STUDIES I. An introduction, in seminars and field trips, to the major global, regional, and local environmental issues facing human societies. Prerequisite: Open to all students with second-year, or higher, standing. [3-0-0]

ENVR 300 (3) ENVIRONMENTAL STUDIES II. An introduction to environmental research. Students investigate research methodologies and reporting in a range of scientific disciplines and fields. Prerequisite: Open to all students

with third-year, or higher, standing in the Faculty of Science. [3-0-0]

ENVR 449 (6) ENVIRONMENTAL STUDIES THESIS. Prerequisite: ENVR 300 and fourth-year standing in the B.Sc. Environmental Sciences program. [3-0-0;3-0-0]

EOSC — EARTH AND OCEAN SCIENCES FACULTY OF SCIENCE

EOSC 110 (3) THE SOLID EARTH: A DYNAMIC PLANET. Earth's origin, composition, structure, and natural resources. Plate tectonics as the driving force for volcanism, mountain building, and earthquakes. Imaging Earth's interior. Environmental geoscience and sustainability. (Consult the Credit Exclusion list for the Faculty of Science section of the Calendar.) Corequisite: EOSC 111 is recommended. [3-0-0]

EOSC 111 (1) LABORATORY EXPLORATION OF PLANET EARTH. An examination of the processes that shape and change the planet earth. This laboratory course accompanies any of EOSC 110, EOSC 112, EOSC 114, EOSC 116. Course content is customizable at the individual student level. Corequisite: One of EOSC 110, EOSC 112, EOSC 114, EOSC 116. [0-3-0]

EOSC 112 (3) THE FLUID EARTH: ATMOSPHERE AND OCEAN. Introduction to processes in ocean and atmosphere. Heat, current, winds, clouds, marine life, resources. Effects of coupling, climate change, pollution. (Consult the Credit Exclusion list, within the Faculty of Science section in the Calendar.) Corequisite: EOSC 111 is recommended. [3-0-0]

EOSC 114 (3) THE CATASTROPHIC EARTH: NATURAL DISASTERS. Introduction to causes and physical characteristics of disasters such as volcanic eruptions, earthquakes, tsunamis, hurricanes, storm surge, thunderstorms, tornadoes, landslides, wind waves, meteor impacts, mass extinctions. Corequisite: EOSC 111 is recommended. [3-0-0]

EOSC 116 (3) DINOSAURS' EARTH. Geologic time and earth habitat of dinosaurs; tectonic, climate, and ocean changes. Reading the fossil record of dinosaurs and their environment from rise through extinction. Corequisite: EOSC 111 is recommended. [3-0-0]

EOSC 210 (3) EARTH SCIENCE FOR ENGINEERS. Focus on the interaction between society and the geologic environment. Locating, assessing and developing natural resources; understanding and preparing for natural hazards, design of structures and waste disposal sites. For applied science and forestry students only. [3-2-0; 0-0-0]

EOSC 211 (3) COMPUTER METHODS IN EARTH, OCEAN AND ATMOSPHERIC SCIENCES. Mathematical computer-based problem solving in the physical, chemical, and biological sciences. Problems drawn from studies of the earth, the oceans and the atmosphere. Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001. [2-0-2]

EOSC 212 (3) IMAGING THE EARTH. Use of imaging techniques at scales that range from 10⁷m (satellite images) to 10⁻¹⁰m (atomic force microscopy) to study earth materials and processes. Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121 and one of PHYS 101, PHYS 107 and one of CHEM 111, CHEM 121. [3-0-0]

EOSC 217 (3) THE SCIENCE AND PRACTICE OF SUSTAINABILITY. Two week interdisciplinary field school. Earth system science, ecoliteracy, ecofootprinting, sustainability indicators, geological/climatological rates compared to human timescales. Prerequisite: Second-year standing.

EOSC 220 (3) INTRODUCTORY MINERALOGY. Introduction to crystallography, physical and chemical properties of minerals. Recognition and identification of common minerals. Prerequisite: One of CHEM 121, CHEM 123, CHEM 111, CHEM 113. [2-3; 0-0]

EOSC 221 (3) INTRODUCTORY PETROLOGY. Optical mineralogy and the classification and genesis of igneous, metamorphic and sedimentary rocks. Prerequisite: EOSC 220. [2-3-0]

EOSC 222 (3) GEOLOGICAL TIME. Measuring geological time and understanding Earth history using stratigraphic principles, paleontology and radioactive decay. Prerequisite: Second-year standing in Science. One of EOSC 1** , EOSC 210, GEOG 101 or GEOG 103 is recommended. [2-2-0]

EOSC 223 (3) FIELD TECHNIQUES. Introduction to the techniques of geological mapping and the interpretation of field data. Includes three one-day field trips on weekends plus a seven-day field school after Spring examinations. A fee is to be paid by January 31. Corequisite: EOSC 221. [2-2-0]

EOSC 250 (3) FIELDS AND FLUXES. Application of classical theory of scalar and vector fields to geophysical sciences. Conductive, convective and radiative energy flux, gravitation, electrostatics, and magnetostatics. Gauss' and Stokes' theorems. Prerequisite: One of PHYS 101, PHYS 107. Corequisite: MATH 200. One of PHYS 102, 108 is recommended. [3-0; 0-0]

EOSC 252 (3) INTRODUCTION TO EXPERIMENTAL GEOPHYSICS. Physical properties of geological materials determined from laboratory measurements and application to geophysical field surveys. Prerequisite: One of PHYS 101, PHYS 121 and one of MATH 101, MATH 121. [0-0; 2-3]

EOSC 270 (3) MARINE BIODIVERSITY. Introduction to diversity of marine habitats and ecosystems; hydrothermal vent, intertidal, coral reef, estuarine, deep sea, and polar ecosystems; impacts of ecosystem change; evolution of ocean plankton; invasive species; climate change; pollution. Prerequisite: Second-year standing [3-0-0]

EOSC 310 (3) THE EARTH AND THE SOLAR SYSTEM. The Earth as a planet: its composition, internal dynamics, and surface evolution.

Rotation, magnetic field, plate tectonics, earthquakes, volcanoes. The ocean, atmosphere, and biosphere as components of a varying geo-environment. Not for credit in the Faculties of Science and Applied Science. No background in Science or Mathematics is required. Prerequisite: Second-year standing. [3-0-0]

EOSC 311 (3) THE EARTH AND ITS RESOURCES. An introduction to the Earth with emphasis on its industrial and aesthetic resources. Rocks, minerals, gold, diamonds, sediments, fossils, oil and gas, canyons, and volcanoes and the processes that create them. Not for credit in the Faculties of Science and Applied Science. No background in Science or Mathematics is required. Prerequisite: Second-year standing. [3-0-0]

EOSC 312 (3) THE EARTH SYSTEM AND ENVIRONMENTAL EVOLUTION. Earth's environmental history and aspects of contemporary global change. Plate tectonics, mass extinction, and the Gaia Hypothesis. Not for credit in the Faculties of Science or Applied Science. [3-0-0]

EOSC 314 (3) THE OCEAN ENVIRONMENT. An introduction to the oceans and the processes that have shaped them, their composition and movement, waves, tides, beaches, interactions with the atmosphere and human exploitation of the non-living resources. Not for credit in the Faculties of Science or Applied Science. No background in Science or Mathematics is required. Prerequisite: Second-year standing. [3-0-0]

EOSC 315 (3) THE OCEAN ECOSYSTEM. An introduction to life in the oceans, its variety and evolution; primary producers and their links to the environment, zooplankton, marine communities, living marine resources and their role in today's world. Not for credit in the Faculties of Science or Applied Science. Prerequisite: EOSC 314 is recommended. [3-0-0]

EOSC 320 (3) SEDIMENTOLOGY. Origin, diagenesis and geochemistry of sediments and sedimentary rocks. Prerequisite: All of EOSC 221, EOSC 222. [2-2-0]

EOSC 321 (3) PRINCIPLES OF IGNEOUS PROCESSES. Study of igneous processes with emphasis on the origins of volcanic rocks and deposits. Prerequisite: EOSC 221. [2-3-0]

EOSC 322 (3) METAMORPHIC PETROLOGY. Deciphering lithospheric processes as recorded by the mineralogy, chemistry and textures of metamorphosed rocks. Prerequisite: All of EOSC 221, CHEM 201, CHEM 202 and one of MATH 101, MATH 202. [2-3-0]

EOSC 323 (3) STRUCTURAL GEOLOGY I. Analysis and interpretation of natural deformation. Prerequisite: All of EOSC 221, EOSC 222, EOSC 223. [2-3-0]

EOSC 324 (3) INTRODUCTION TO MINERALOGY AND PETROLOGY. The common minerals and rocks, and the processes that formed them. Not for credit in any Earth & Ocean Sciences program but allowable as credit towards the Earth Science component in

the General Science program. Credit will not be given for EOSC 324 and EOSC 220. Corequisite: Either (a) GEOG 103 or (b) all of EOSC 110, EOSC 111. [2-3-0]

EOSC 326 (3) EARTH AND LIFE THROUGH TIME. The fossil record of adaptation and extinction emphasizing the interaction of biological and geological processes. Not for credit in any Earth and Ocean Sciences program but allowable as credit towards the Earth Science component in the general science program. Prerequisite: Biology 100 level and third-year standing in Science. [3-0-0]

EOSC 327 (3) GEOCHEMICAL THERMODYNAMICS. Application of chemical thermodynamics to problem solving in the earth sciences. Geochemical tools are developed for: low-T aqueous geochemistry, high-T, high-P processes in the lithosphere, ore-deposit formation, and for prediction of geochemical reaction rates in all environments. Prerequisite: EOSC 220. Corequisite: One of CHEM 201, CHEM 205. [2-2-0]

EOSC 328 (3) FIELD GEOLOGY. Recording and processing geological data in the field. Held within the three weeks following April examinations after third year. A special fee is to be paid by January 31. Prerequisite: All of EOSC 323, EOSC 330 and one of EOSC 321, EOSC 322.

EOSC 329 (3) GROUNDWATER HYDROLOGY. Introduction to theory of groundwater flow; flow nets; regional groundwater resource evaluation; well hydraulics; role of groundwater in geologic processes. [2-2*-2*; 0-0-0]

EOSC 330 (3) PRINCIPLES OF GEOMORPHOLOGY. Landform development; morphological and historical analysis of landforms; applications in engineering and resource development. Prerequisite: One of GEOG 101, GEOG 103, EOSC 110, EOSC 210. [3-2-0; 0-0-0]

EOSC 331 (3) INTRODUCTION TO MINERAL DEPOSITS AND EXPLORATION GEOLOGY. Introduction to economic geology and models related to mineral exploration. Study includes typical deposit types and their plate tectonic setting. Prerequisite: One of EOSC 220, EOSC 324. [2-2-0; 0-0-0]

EOSC 332 (3) TECTONIC EVOLUTION OF NORTH AMERICA. An overview of the geology and tectonic evolution of North America; comparisons and contrasts between Precambrian rocks of the North American craton and Phanerozoic belts of the Cordilleran, Appalachian, Ouachita and Inuitian orogens; interrelations between sedimentation, deformation, metamorphism and magmatism in a plate tectonic context. Prerequisite: EOSC 323 or permission of the instructor. [3-0-0]

EOSC 333 (3) ELEMENTAL AND ISOTOPIC GEOCHEMISTRY. Analytical methods in geochemistry, major and trace element geochemistry, radiogenic isotopes, geochemistry of seawater, the mantle, basalts, subduction zones, sedimentary rocks, continental crust. Prerequisite: EOSC 220.

EOSC 350 (3) ENVIRONMENTAL, GEOTECHNICAL, AND EXPLORATION GEOPHYSICS I. Principles of geophysical survey design, data acquisition, processing and interpretation with emphasis on near-surface problems. Magnetic, seismic reflection/refraction, electromagnetic and ground penetrating radar surveys. Case history analysis of environmental and geotechnical problems. Prerequisite: One of MATH 200, MATH 253 and third-year standing or higher in Science or Applied Science. [3-2-0]

EOSC 351 (3) ENVIRONMENTAL, GEOTECHNICAL, AND EXPLORATION GEOPHYSICS II. Geophysical techniques for near surface and deeper structure DC resistivity, induced polarization, gravity and electromagnetic surveys. Case history analysis of environmental, geotechnical and exploration problems. Prerequisite: EOSC 350. [3-2-0]

EOSC 352 (3) GEOPHYSICAL CONTINUUM DYNAMICS. Introduction to tensor calculus and continuum mechanics. Stress, strain and strain-rate tensors. Mass, momentum and energy balance. Applications to problems of geophysical heat transport, elasticity and fluid dynamics illustrated using MATLAB. Prerequisite: One of EOSC 250, EOSC 251, MATH 317. [3-0; 0-0]

EOSC 353 (3) SEISMOLOGY. Hooke's law for isotropic continua, elastic wave equation, reflection and refraction methods for imaging the Earth's internal structure, plane waves in an infinite medium and interaction with boundaries, body wave seismology, inversion of travel-time curves, generalized ray theory, crustal seismology, surface waves and earthquake source studies. Prerequisite: EOSC 352. [0-0; 3-3*]

EOSC 354 (3) ANALYSIS OF TIME SERIES AND INVERSE THEORY FOR EARTH SCIENTISTS. Continuous and discrete Fourier transforms, correlation and convolution, spectral estimates, optimum least-squares filters, deconvolution and prediction, frequency-wave number filtering. A practical course on computer techniques applied to the analysis of a wide range of geophysical phenomena. Prerequisite: Either (a) SCIE 001 or (b) one of MATH 101, MATH 103, MATH 105, MATH 121 and one of PHYS 101, PHYS 107. [3-2-0; 0-0-0]

EOSC 370 (3) INTRODUCTION TO PHYSICAL AND CHEMICAL OCEANOGRAPHY. History and development of oceanography; methods; ocean basin structure; properties of seawater; salinity, temperature and density distributions; circulation; waves and tides; acoustics, the oceans and climate. Prerequisite: Completion of first-year Science is required. [3-0-0]

EOSC 371 (3) INTRODUCTION TO BIOLOGICAL AND GEOLOGICAL OCEANOGRAPHY. Organisms in the sea and their relation to the physical and chemical environment; marine sediments and their relationships to biologic and physical processes. Prerequisite: EOSC 370 is recommended. Equivalency: BIOL 305. [3-0-0]

EOSC 398 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in the Summer Session (Terms 1 and 2) following second year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Earth and Ocean Sciences.

EOSC 399 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in Winter Session (Term 1) in third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Earth and Ocean Sciences.

EOSC 420 (3) VOLCANOLOGY. Field and lab-based studies in volcanology concentrating on physical and chemical aspects of volcanic processes. Prerequisite: All of EOSC 220, EOSC 221. [2-3-0]

EOSC 421 (3) ADVANCED SEDIMENTOLOGY. Description and interpretation of ancient and modern sediments, with emphasis on the origin, composition, textures, structures, diagenesis and chemistry of biogenic sediments. Prerequisite: EOSC 320 or permission of instructor. [2-2-0]

EOSC 422 (3) STRUCTURAL GEOLOGY II. Studies of natural deformation using advanced techniques. Prerequisite: EOSC 323. [2-3-0]

EOSC 424 (3) ADVANCED MINERAL DEPOSITS AND ORE PETROLOGY. Metal solubility and transport, chemical activity diagrams, fluid inclusions, stable isotopes, radiogenic isotopes, geothermometry, geobarometry, alteration and metal zonation, and mineral exploration. Minerals of ore deposits studied using optical microscopy. Corequisite: EOSC 331. [2-3-0]

EOSC 425 (3) PALEONTOLOGY. Assessment of the geological impact of life both before and after the advent of hard skeletons. Fossilization processes; skeletal composition and structure; numerical taxonomy; bioerosion; biostratigraphy; and paleobiogeography in the context of plate tectonics. Offered in alternate years. Prerequisite: One of EOSC 222, EOSC 326. [2-3-0]

EOSC 428 (3) FIELD TECHNIQUES IN GROUNDWATER HYDROLOGY. Hydraulic head measurements, water-quality sampling, pump and slug testing, infiltration measurements, profiling techniques. Held over five days after spring term at the Richmond groundwater hydrology field-school site. Enrollment limitations. Prerequisite: EOSC 329 or permission of the instructor.

EOSC 429 (3) GROUNDWATER CONTAMINATION. Contaminant transport processes in groundwater flow systems; aqueous and multiphase transport; mathematical models describing migration and chemical evolution of contaminant plumes; case studies. Prerequisite: EOSC 329. [2-2-0]

EOSC 430 (3) AQUEOUS GEOCHEMISTRY. Quantitative approaches to practical aqueous geochemistry problems. Equilibrium thermodynamics, kinetics, complexation, oxidation reduction, cation exchange, sorption and partitioning of organics. Case Studies. Prerequisite: One of EOSC 327, CHEM 301. [2-2-0]

EOSC 431 (3) GROUNDWATER REMEDIATION. Methods for containment and remediation of subsurface contaminants; including groundwater control, groundwater extraction, and in situ treatment. Experience with common design approaches. Prerequisite: EOSC 429. [2-2-0]

EOSC 432 (3) FOSSIL FUELS. Origin, geochemistry and distribution of petroleum and coal in the stratigraphic record. Sedimentation of organic matter, organic diagenesis, migration and accumulation of hydrocarbons. Principles of exploration and development. Techniques for measurement of organic maturation and source rock analyses. Corequisite: EOSC 320. [2-2-0]

EOSC 433 (3) GEOTECHNICAL ENGINEERING PRACTICE. Application of rock/soil engineering principles and techniques used in geotechnical design. Influence of geological factors, design of ground support, and use of geotechnical instrumentation and numerical analyses for tunneling and slope stability projects. Case histories. Prerequisite: All of EOSC 329, CIVL 210, MINE 303. [2-2-0]

EOSC 434 (3) PRINCIPLES OF GEOLOGICAL ENGINEERING. Role of geology and hydrogeology in siting, design, and construction of engineering structures; synthesis of rock mechanics and soil mechanics methods in various geological environments; introduction to computer applications in geological engineering. Prerequisite: All of EOSC 329, CIVL 310, CIVL 311 or permission of the department head. [2-2-0]

EOSC 447 (6) THESIS. For B.A.Sc. Topic to be approved by the Department. [0-3-0; 0-3-0]

EOSC 448 (3/6) C DIRECTED STUDIES. Investigation of a topic to be agreed upon by a member of the faculty and the student. Permission of an undergraduate adviser and of the supervising faculty member is required before registration.

EOSC 449 (6) THESIS. All Honours students are required to submit a thesis involving original research on a subject approved by the Department. Restricted to students in the Honours program.

EOSC 450 (3) POTENTIAL FIELDS IN EARTH AND PLANETARY SCIENCES. Theory, application and quantitative interpretation of potential field methods in Earth and planetary sciences. Topics drawn from problems in geophysical exploration, geodesy, geodynamics of the planets, geomagnetism, planetary magnetic fields, heat flow and fluid flow. Prerequisite: One of PHYS 312, MATH 316, MATH 257 and one of PHYS 102, PHYS 108, SCIE 001. [3-0-0]

EOSC 453 (3) ADVANCED PHYSICS OF THE EARTH. Quantitative methods for determining the physical properties and structure of the earth. Basic inversion interpretation techniques for gravity, magnetic, seismic, paleomagnetic, radiometric methods. Thermal history and the evolution of the earth. Prerequisite: One of PHYS 312, MATH 316, MATH 257. [3-0-0]

EOSC 454 (3) APPLIED GEOPHYSICS. Using geophysics to characterize the Earth's subsurface for resource exploration, engineering, environmental, and other tasks. Data acquisition, processing, inversion, and interpretation of individual and multiple surveys, including electrical, electromagnetic, seismic, gravity, and magnetic methods. Prerequisite: All of EOSC 352, EOSC 353, EOSC 450 and one of PHYS 301, PHYS 354. [3-2-0]

EOSC 470 (3) BIOLOGICAL OCEANOGRAPHY. A quantitative examination of processes regulating the abundance, distribution and production of phytoplankton, zooplankton, microbes and fish. Controls of primary and secondary production, ecosystem dynamics and foodwebs. Prerequisite: EOSC 371. [3-0-0]

EOSC 471 (3) DYNAMIC BIOLOGICAL OCEANOGRAPHY. Examination of the links between physical processes and biological populations in the ocean environment. The influence of time and length scales, turbulence, coastal upwelling, fronts, tidal mixing and internal waves on the distribution of biological populations. Prerequisite: All of EOSC 370, EOSC 371. [3-0-0]

EOSC 472 (3) INTRODUCTION TO MARINE CHEMISTRY AND GEOCHEMISTRY. Elemental abundance in seawater and marine sediments; solution chemistry of seawater; chemical and mineralogical composition of sediments; the carbonate system; organic matter in the sea; gases; the nutrient elements; heavy metals; geochemical balance in the oceans. Prerequisite: One of EOSC 370, EOSC 371, CHEM 301. [3-0-0]

EOSC 473 (3) METHODS IN OCEANOGRAPHY. Methods of data acquisition, study and analysis required in solving oceanographic problems. Includes a field school held during the mid-term break. A fee is to be paid by January 31. Open to third- and fourth-year students in Oceanography, or with permission of the Department Head. Prerequisite: EOSC 370. [0-3-0]

EOSC 474 (3) MARINE POLLUTION. An interdisciplinary study of pollution, with examples drawn from coastal and oceanic environments, including areas of local interest. Intended for third and fourth year students with a background in the sciences. [3-0-0]

EOSC 475 (3) MARINE MICROBIOLOGY. Advanced biology, ecology and diversity of marine microbes. Emphasis on the roles of bacteria and viruses in marine foodwebs and geochemical cycles. Prerequisite: A minimum of 6 credits of third-year level life science courses. [3-0-0]

EOSC 476 (3) ESTUARIES. An interdisciplinary study of the features and the physical, chemical, biological and geological processes in estuaries. Prerequisite: All of EOSC 370, EOSC 371 and fourth-year standing or permission of the department head is required. [3-0-2*]

EOSC 477 (3) GEOPHYSICAL FLUID DYNAMICS. The fundamental principles governing the flow of a density-stratified fluid on a rotating planet, with applications to the motions of the ocean and atmosphere. Prerequisite: One of PHYS 312, MATH 316. Equivalency: ATSC 414. [3-0-0]

EOSC 478 (3) INTRODUCTION TO FISHERIES SCIENCE. An introduction to the ecology and management of freshwater and marine fisheries. Topics include: population dynamics, species interactions, communities, environmental influences, stock assessment, economics and sociology of fisheries. Laboratories will consist of numerical analyses and simulations. [2-0-3]

EOSC 498 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in the Summer Session (Terms 1 and 2) following third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Earth and Ocean Sciences.

EOSC 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised technical work experience in an industrial, university or government setting for a minimum of 14 weeks. Normally taken in the Summer Session (Terms 1 and 2) following fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Earth and Ocean Sciences.

EOSC 510 (3) DATA ANALYSIS IN ATMOSPHERIC, EARTH AND OCEAN SCIENCES. [3-0-0]

EOSC 511 (3) NUMERICAL TECHNIQUES FOR OCEAN, ATMOSPHERE AND EARTH SCIENTISTS. This course is Web-based. Credit will not be granted for both ATSC 409 and ATSC 506/EOSC 511. Equivalency: ATSC 506.

EOSC 512 (3) ADVANCED GEOPHYSICAL FLUID DYNAMICS.

EOSC 513 (3) IMAGING AND ESTIMATION WITH WAVELETS.

EOSC 520 (3) ADVANCED MINERALOGY. Crystal structure, chemistry, origin and paragenesis of major rock-forming and ore minerals.

EOSC 521 (3) MICROBEAM AND DIFFRACTION METHODS FOR THE CHARACTERIZATION OF MINERALS AND MATERIALS. [2-3-0]

EOSC 522 (3) METHODS AND MODELING IN PETROLOGY AND GEOCHEMISTRY. [3-0-2]

EOSC 523 (3) ISOTOPE GEOLOGY.

EOSC 524 (3) PROBLEMS IN PALEONTOLOGY. Seminar. Given in alternate years.

EOSC 525 (3) EXPLORATION GEOCHEMISTRY. Distribution of elements in relation to mineralization; application of geochemical techniques to mineral exploration.

EOSC 526 (3) MECHANICS OF NATURAL DEFORMATION. Lectures and laboratory problems.

EOSC 527 (3) BIOGENIC SEDIMENTS AND EARTH'S ENVIRONMENTAL HISTORY.

EOSC 528 (3) ADVANCED COAL GEOLOGY. The origin and character of coal and associated strata. Petrology, chemistry and physical properties of coal. Sedimentology of peat, biochemical and geochemical stages of coalification and oxidation of coal. Use of organic matter as a geothermometer and inbasinal analysis. Structural analysis and character of coal deposits. Analytical methods applied to coal.

EOSC 529 (3) ADVANCED GEOTECHNICS. Advanced topics in engineering geology. Emphasis will be on the physics of geological failures and the mathematical modelling of such failures for the purposes of analysis, prediction and design at engineering sites. Prerequisite: EOSC 433.

EOSC 530 (3) ADVANCED IGNEOUS PETROLOGY. Lectures, seminars and laboratories on the application of physical chemistry to the origin of igneous rocks; crystallization processes in silicate magmas; melt physical properties, heat transfer and fluid flow.

EOSC 531 (3) EXPLORATION METHODOLOGY.

EOSC 532 (3) FIELD LABORATORY IN GROUNDWATER HYDROLOGY. Hydraulic head measurements, water-quality sampling, pump and slug testing, infiltration measurements, profiling techniques. Computer analysis of field data. Held after spring term at the Richmond groundwater hydrology field site. Enrollment limitations. Prerequisite: EOSC 533.

EOSC 533 (3) ADVANCED GROUNDWATER HYDROLOGY. Finite-difference models of steady-state and transient groundwater flow in the saturated and unsaturated zones; applications to regional groundwater flow, groundwater recharge, subsurface contributions to streamflow, and aquifer evaluation.

EOSC 534 (3) ADVANCED METAMORPHIC PETROLOGY. The characterization of metamorphic processes using mineral assemblages, mineral compositions, thermodynamics, and mass conservation equations.

EOSC 535 (3) TRANSPORT PROCESSES IN POROUS MEDIA. Transport of mass and heat in groundwater flow systems; modelling techniques including an introduction to the finite-element method; modelling of groundwater contamination.

EOSC 536 (3) APPLIED GROUNDWATER FLOW MODELLING. Mathematical principles of groundwater flow; detailed study of the equations of flow in confined and unconfined aquifers. Offered in alternate years. Prerequisite: EOSC 533.

EOSC 537 (3) TOPICS IN GROUNDWATER HYDROLOGY. A survey of the principal literature. Prerequisite: EOSC 533.

EOSC 538 (3) DIAMOND EXPLORATION.

EOSC 539 (3) GEOCHEMISTRY OF HYDROTHERMAL ORE DEPOSITS. Prerequisite: Completion of a course in Economic Geology

EOSC 540 (3) ADVANCED GROUNDWATER GEOCHEMISTRY.

EOSC 541 (3) MULTI-COMPONENT REACTIVE TRANSPORT MODELING IN GROUNDWATER. Prerequisite: Either (a) EOSC 430 or (b) EOSC 540; and EOSC 533.

EOSC 542 (3) ADVANCED VOLCANOLOGY.

EOSC 543 (1-3) D TOPICS IN SOLID EARTH SCIENCES.

EOSC 544 (3) GEODYNAMICS.

EOSC 545 (3) ADVANCED MODELS IN MINERAL DEPOSITS.

EOSC 546 (3) ADVANCED FIELD METHODS IN EARTH SCIENCE.

EOSC 548 (3) GRADUATING PAPER FOR MASTERS CANDIDATES WITHOUT THESIS.

EOSC 549 (6-12) D MASTER'S THESIS.

EOSC 550 (3) LINEAR INVERSE THEORY. Model construction, appraisal of nonuniqueness, and inference in linear problems. Tomographic inversions.

EOSC 551 (2-4) C EARTHQUAKE SEISMOLOGY. Seismic source theory, wave propagation in layered media, anelasticity, free oscillations, instrumentation, data analysis and interpretation.

EOSC 552 (2-4) C GEOMAGNETISM AND AERONOMY. Description of the geomagnetic field, dynamo theory of the origin of the geomagnetic field, transient magnetic variations, magnetic storms and ionospheric disturbances.

EOSC 553 (2-4) C GEOPHYSICAL ANALYSIS. Lectures and seminars on applications of statistical communication theory to analysis of geophysical data, time series analysis, optimum linear systems, and decision theory.

EOSC 554 (2-4) C THEORETICAL GLACIOLOGY. Lectures and seminars on theoretical aspects of glacier mechanics; flow, stress and temperature fields, sliding theory, flow instabilities.

EOSC 555 (2-4) C NONLINEAR INVERSE THEORY. Model construction, appraisal of nonuniqueness, and inference in nonlinear problems. Stochastic inverses, constrained optimization, joint inversions and image processing.

EOSC 556 (2-6) C STUDIES IN APPLIED GEOPHYSICS.

EOSC 557 (2-6) C INFORMATION PROCESSING OF GEOPHYSICAL DATA.

EOSC 558 (2-6) C STUDIES IN GLACIOLOGY.

EOSC 559 (3) ROCK PHYSICS. Topics include the material properties of porous rocks; the visco-elastic behaviour of rocks; elastic wave propagation and attenuation, and electrical properties.

EOSC 560 (3) THEORY OF THE EARTH. A quantitative approach to understanding the earth through elasticity and anelasticity, thermodynamics, geochemistry, and geomagnetism. Specific topics include free oscillations, geodynamics, evolution of the earth, and magnetohydrodynamics with dynamo theory.

EOSC 561 (2-6) C THEORY AND METHODS IN SEISMIC INTERPRETATION. Topics to be selected from the following: forward modelling, analysis and inversion procedures as used in multichannel reflection, wide-angle reflection and refraction studies of the lithosphere. Velocity analyses, wave equation migration, dip moveout, synthetic seismograms, tomographic inversion, one-dimensional synthetic seismograms, tau-p methods, waveform inversion, two-dimensional ray tracing and synthetic seismograms, tomographic inversion.

EOSC 562 (3) MECHANICS OF EARTHQUAKES AND FAULTING.

EOSC 570 (3) PALEOCEANOGRAPHY. [3-0-0]

EOSC 571 (2-6) D SEMINAR IN PHYSICAL OCEANOGRAPHY AND ATMOSPHERIC SCIENCE.

EOSC 572 (3) MARINE GEOCHEMISTRY. Geochemistry of marine sediments and geochemical cycles in the ocean.

EOSC 573 (3) METHODS IN OCEANOGRAPHY.

EOSC 574 (3) MARINE PHYTOPLANKTON ECOLOGY. Emphasis on the biology of the organisms and the physiological ecology of primary production by phytoplankton. EOSC 370 and EOSC 371 are recommended. Offered in alternate years.

EOSC 575 (2) BIOLOGICAL OCEANOGRAPHIC MECHANISMS. A study of components in the pelagic food chain of the sea including factors affecting the production and consumption of marine organisms. Prerequisite: EOSC 370.

EOSC 576 (3) INORGANIC CHEMICAL TRACERS IN THE STUDY OF MARINE SYSTEMS. The chemical composition of seawater, cycles of gases, trace metals and radionuclides within the sea, chemical tracers in the study of water mixing, water movement and changes in ocean currents over time.

EOSC 577 (3) INORGANIC CHEMICAL PROCESSES IN THE MARINE ENVIRONMENT. The solution chemistry of seawater, chemical speciation in natural waters, thermodynamic and kinetic modelling of marine chemical systems.

EOSC 578 (3) SEMINAR IN BIOLOGICAL OCEANOGRAPHY.

EOSC 579 (1) DYNAMIC OCEANOGRAPHY. Consult the Credit Exclusion List in the Faculty of Science section of the Calendar. Prerequisite: EOSC 512.

EOSC 580 (3) DYNAMIC METEOROLOGY. Applications of the equations of motion on a rotating sphere to selected large-scale atmospheric phenomena. Topics include the general circulation, wave generation and propagation, barotropic and baroclinic instability, climate modelling and the role of the oceans. Offered in alternate years.

EOSC 581 (3) SEMINAR IN MARINE SEDIMENT GEOCHEMISTRY. A review of selected areas of recent research on the geochemistry of marine sediments. This course is intended for graduate students with qualification in chemistry or geochemistry.

EOSC 582 (3) SATELLITE REMOTE SENSING: APPLICATIONS TO OCEANOGRAPHY AND METEOROLOGY. A review of the satellite-sensed data products used in research and operational aspects of oceanography and meteorology. Equivalency: GEOG 515.

EOSC 583 (3) CIRCULATION PROCESSES AND TRANSPORT MECHANISMS IN OBSERVATIONAL OCEANOGRAPHY.

EOSC 595 (2-6) D DIRECTED STUDIES. Advanced studies under the direction of a staff member may be arranged in special cases with the approval of the department head.

EOSC 598 (3) M.ENG. GRADUATING PAPER.

EOSC 599 (6-12) D THESIS. For M.A.Sc.

EOSC 649 (0) THESIS. For Ph.D. (Science).

EOSC 699 (0) THESIS. For Ph.D.

(Engineering).

EPSE — EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION FACULTY OF EDUCATION

EPSE 301 (3) INTRODUCTION TO EDUCATIONAL PSYCHOLOGY. [3-0]

EPSE 303 (3) TEACHING HIGHLY ABLE LEARNERS. Identification and appraisal of developmental and educational needs of highly able learners. [3-0]

EPSE 306 (2) EDUCATION DURING THE ADOLESCENT YEARS. Developmental characteristics of persons from pre-school age through adulthood. Physical, social, cognitive, moral, and emotional growth of both normal and exceptional children in grades 8-12. The teacher's role in assisting such students to deal with major developmental issues and problems. Pass/Fail. [2-0-0]

EPSE 312 (3) INTRODUCTION TO THE STUDY OF EXCEPTIONAL CHILDREN. An examination of all groups of exceptional children in terms of definition, incidence, characteristics, diagnosis and treatment. Prerequisite to most other courses in Special Education. Can be taken concurrently with several other introductory courses in Special Education. [3-0]

EPSE 313 (3) EDUCATIONAL APPLICATION OF DEVELOPMENTAL THEORIES. Theories of human development; physical, social, cognitive, moral, and emotional developmental characteristics from infancy to adolescence; implications for educational practice with students of different age and developmental status during the elementary school years. Pass/Fail. [3-0-0]

EPSE 314 (3) INTRODUCTION TO THE EDUCATION OF THE VISUALLY IMPAIRED. An introductory course reviewing the identification and education of blind and partially sighted children. Designed to aid teachers to accommodate visually impaired children in the regular class setting. Prerequisite: EPSE 312. Corequisite: EPSE 312. [3-0]

EPSE 315 (3) LANGUAGE DISORDERS OF EXCEPTIONAL CHILDREN. The course deals with severe language disabilities in children. Emphasis is placed on theories of language acquisition as applied to assessment. Prerequisite: One of EPSE 312, EPSE 317. Corequisite: One of EPSE 312, EPSE 317. [3-0]

EPSE 316 (3) LEARNING DISABILITIES. Identification, assessment and needs of children with learning disabilities. Prerequisite: One of EPSE 312, EPSE 317. [3-0-0]

EPSE 317 (3) DEVELOPMENT AND EXCEPTIONALITY IN THE REGULAR CLASSROOM. The teacher's role in dealing with major developmental and special educational issues and problems within the regular classroom program, including working with supportive services, parents, and communities. Designated sections will focus on early childhood, middle childhood or adolescence. Pass/Fail. Prerequisite: One of EPSE 306, EPSE 313. Corequisite: One of EPSE 306, EPSE 313. [3-0-0]

EPSE 320 (3) FOUNDATIONS OF EDUCATION FOR STUDENTS WITH VISUAL IMPAIRMENTS. This course is restricted to students enrolled in a program for Education of Visually Impaired children or those who hold the Diploma or its equivalent. [3-0]

EPSE 342 (3) FIELD EXPERIENCES WITH INDIVIDUAL ATYPICAL CHILDREN. Supervised experience working with several atypical children in a community setting. Diagnosing needs, planning programs and integrating instruction and materials on an individual basis. Prerequisite: Permission of the department is required. [1-9]

EPSE 344 (3) PROGRAMMING IN SPECIAL EDUCATION: DEVELOPING PERSPECTIVE. An examination of the range of educational methodologies and teaching procedures and a discussion of their implications for the establishment of programs useful in working with exceptional children. The course comprises a practical examination and a detailed comparison of the major special educational methodologies. [3-1]

EPSE 348 (3) FAMILY-CENTRED PRACTICE FOR CHILDREN WITH SPECIAL NEEDS.

EPSE 380 (3-12) C SELECTED TOPICS IN INFANT DEVELOPMENT AND SUPPORTED CHILD CARE.

EPSE 390 (3/6) D SPECIAL TOPICS. A study of innovative practices, ideas, and theories in special education. The specific topics may change yearly to reflect changing priorities and interests in special education, and the specific interest and competencies of visiting and regular faculty. Prerequisite: One of EPSE 312, EPSE 317. Permission of the instructor is required. [3-0]

EPSE 399 (3) EDUCATION AND CULTURE IN THE DEAF COMMUNITY. Designed for students intending to work with deaf persons.

EPSE 401 (3) INSTRUCTIONAL DESIGN. Principles of instructional design and their application to the development, analysis, and evaluation of instructional plans for selected settings, instructional formats, and age groupings of learners. [3-0]

EPSE 403 (3) EDUCATION OF STUDENTS WITH DEVELOPMENTAL DISABILITIES IN INCLUSIVE SETTINGS. [3-0]

EPSE 406 (3) TYPICAL AND ATYPICAL DEVELOPMENT IN INFANTS AND CHILDREN.

EPSE 408 (3) EDUCATIONAL PROGRAMMING FOR HIGHLY ABLE LEARNERS. Planning elementary and secondary level programs for highly able learners. [3-0]

EPSE 410 (3) ASSISTIVE TECHNOLOGIES IN SPECIAL EDUCATION. The use of microcomputers, adaptive technology, and software across age levels and areas of exceptionality in special education and health care settings. [2-1]

EPSE 411 (3) AUGMENTATIVE AND ALTERNATIVE COMMUNICATION FOR INDIVIDUALS WITH SEVERE SPEECH AND/OR PHYSICAL IMPAIRMENTS. [3-0-0]

EPSE 415 (3) TECHNOLOGY FOR THE VISUALLY IMPAIRED. Preparation of teachers to work with a variety of technological devices designed for students who are blind or visually impaired, e.g., computers, electronic reading devices, and closed circuit television. This course is restricted to students enrolled in a program for Education of Visually Impaired Children. [2-2]

EPSE 420 (3) ASSESSMENT OF INFANTS AND YOUNG CHILDREN WITH SPECIAL NEEDS. Risk indicators, risk assessment, tools and instruments for informal assessment, interpreting standardized observational skills, and roles as IDP/SCC consultants. Prerequisite: All of EPSE 348, EPSE 406.

EPSE 421 (3) ASSESSMENT OF LEARNING DIFFICULTIES. Theories of learning and instruction; principles and practices of diagnosis and assessment as these relate to students with relevant special needs. Corequisite: EPSE 316. [3-0]

EPSE 423 (3) LEARNING, MEASUREMENT AND TEACHING. Theories of learning and instruction; principles and practices in the

assessment of classroom learning. Pass/Fail. Prerequisite: One of EPSE 306, EPSE 313. [3-0]

EPSE 425 (6) PROVISIONS IN THE EDUCATION OF THE VISUALLY HANDICAPPED. Provisions, procedures and methodology in the teaching of specific curriculum for the blind and visually impaired. Life skills and adjustment to blindness. This course is restricted to students in a program of Education of Visually Impaired Children. [3-0]

EPSE 426 (3) PRINCIPLES OF TEACHING THE HEARING IMPAIRED. An introductory course reviewing methods of teaching, administration, and organization of the educational program for the hearing impaired. Pre or corequisite: EPSE 312 or 317. Prerequisite: EPSE 312. May be taken as a corequisite. [3-0]

EPSE 431 (3) PROGRAMMING FOR CHILDREN WITH SPECIFIC LEARNING DISABILITIES. Methods and programs for learning disabilities are reviewed. Practical experience in the development and execution of a remedial program is required. Prerequisite: EPSE 316. [3-0]

EPSE 432 (3) CLASSROOM MANAGEMENT. [3-0-0]

EPSE 433 (3) ASSESSMENT AND POSITIVE BEHAVIOURAL SUPPORT IN SCHOOL AND COMMUNITY SETTINGS. [3-0-0]

EPSE 436 (3) SURVEY OF BEHAVIOUR DISORDERS IN CHILDREN AND ADOLESCENTS. [3-0]

EPSE 437 (3) INTERVENTIONS FOR CHILDREN AND ADOLESCENTS WITH BEHAVIOUR DISORDERS. [3-0-0]

EPSE 440 (3) SUPPORTING SOCIAL AND COMMUNICATION DEVELOPMENT IN INFANTS AND YOUNG CHILDREN WITH SPECIAL NEEDS. Intervention and program planning for communication/language development, social/emotional development, and behavioural support. Prerequisite: All of EPSE 348, EPSE 406, EPSE 420.

EPSE 441 (3) EARLY INTERVENTION FOR INFANTS AND YOUNG CHILDREN WITH SENSORY LOSS AND MOTOR IMPAIRMENTS. Prerequisite: All of EPSE 348, EPSE 406, EPSE 420.

EPSE 448 (3) EDUCATION OF STUDENTS WITH MULTIPLE DISABILITIES IN INCLUSIVE SETTINGS. Prerequisite: One of EPSE 312, EPSE 317. [3-0]

EPSE 449 (3) EDUCATION OF STUDENTS WITH AUTISM. [3-0]

EPSE 455 (3) INTRODUCTION TO ORIENTATION AND MOBILITY FOR THE BLIND. Understanding the process of teaching independent travel to blind students, including orientation and mobility skills in school. Restricted to students enrolled in a program for Education of Visually Impaired Children or those who hold the Diploma or the equivalent. Prerequisite: EPSE 425. Corequisite: EPSE 425. [2-2]

EPSE 461 (3/6) C EDUCATIONAL DIAGNOSIS AND REMEDIAL INSTRUCTION. Interpretation of informal and standardized test scores in educational diagnosis; estimates of actual and optimum levels of individual achievement; individual differences as factors affecting performance; methods of encouraging the optimum achievement of individuals; methods and practice materials for remedial teaching.

EPSE 462 (3/6) C HUMAN DEVELOPMENT IN EDUCATION. Investigates selected concepts of developmental theory in terms of their influence upon instructional practice. Particular emphasis is placed on social and intellectual development. Prerequisite: One of EPSE 306, EPSE 313.

EPSE 481 (3) INTRODUCTION TO RESEARCH IN EDUCATION. The nature of scientific study and essentials of survey, experimental and other empirical research designs. Designed for students proceeding to graduate work. Prerequisite: EPSE 482. May also be taken as a corequisite.

EPSE 482 (3) INTRODUCTION TO STATISTICS FOR RESEARCH IN EDUCATION. Basic concepts and principles of descriptive and inferential statistics. Designed for students proceeding to graduate work involving quantitative methodology. Prerequisite: Proficiency in modern high school algebra. [3-0]

EPSE 483 (3) STATISTICS IN EDUCATION. Topical survey of various statistical methods used in research in Education. Designed to prepare students to read literature of empirical research. May not be used as prerequisite to EPSE 592. [3-0]

EPSE 484 (3) NONPARAMETRIC AND RELATED STATISTICS. Distribution-free statistical techniques for analysis of ranked data, and analysis of discrete observations. Prerequisite: EPSE 482. [3-0]

EPSE 501 (3) APPLICATIONS OF EDUCATIONAL PSYCHOLOGY.

EPSE 502 (3) COGNITION, LANGUAGE AND LITERACY PROCESSES IN EDUCATION.

EPSE 503 (3) CULTURAL PERSPECTIVES ON LEARNING, DEVELOPMENT AND MEDIA.

EPSE 505 (3) HUMAN DEVELOPMENT IN EDUCATION.

EPSE 506 (3) COLLEGE AND UNIVERSITY TEACHING.

EPSE 508 (3-12) D REVIEW OF RESEARCH IN EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION. Studies are made of recent research bearing on educational practice. Prerequisite: EPSE 482.

EPSE 509 (3) ORGANIZATION OF SPECIAL EDUCATION SERVICES. Prerequisite: One of EPSE 312, EPSE 317.

EPSE 510 (3) D ADVANCED APPLICATION OF ASSISTIVE TECHNOLOGIES IN SPECIAL EDUCATION.

EPSE 511 (3) SPECIAL TOPICS IN HUMAN DEVELOPMENT IN EDUCATION.

EPSE 512 (3) CRITICAL ISSUES IN SPECIAL EDUCATION.

EPSE 513 (3) SEMINAR IN DEVELOPMENTAL DISABILITIES.

EPSE 514 (3) SEMINAR IN BEHAVIOURAL ASSESSMENT AND INTERVENTION. Prerequisite: EPSE 433.

EPSE 515 (3-6) D SEMINAR IN BEHAVIOUR DISORDERS.

EPSE 516 (3) SEMINAR IN THE DEVELOPMENT AND EDUCATION OF HIGHLY ABLE AND CREATIVE LEARNERS.

EPSE 517 (3) ACOUSTIC ENVIRONMENTS AND AMPLIFICATION IN THE CLASSROOM. Prerequisite: AUDI 598. Corequisite: AUDI 598.

EPSE 518 (3) SPEECH DEVELOPMENT OF DEAF AND HARD OF HEARING STUDENTS. Prerequisite: AUDI 598. Corequisite: AUDI 598.

EPSE 519 (3) DEVELOPMENT OF ENGLISH LANGUAGE SKILLS OF DEAF AND HARD OF HEARING STUDENTS. Prerequisite: EPSE 521. LING 320 is recommended. Corequisite: EPSE 521.

EPSE 520 (3) CURRICULUM DEVELOPMENT IN THE EDUCATION OF DEAF AND HARD OF HEARING STUDENTS. Prerequisite: EPSE 519.

EPSE 521 (3) PSYCHOSOCIAL ASPECTS OF HEARING LOSS.

EPSE 522 (3) DESIGNING ENGLISH LANGUAGE PROGRAMS FOR DEAF AND HARD OF HEARING STUDENTS. Prerequisite: EPSE 519.

EPSE 524 (3) PRACTICUM IN SPEECH AND ENGLISH LANGUAGE DEVELOPMENT WITH DEAF AND HARD OF HEARING STUDENTS. Pass/Fail. Prerequisite: All of EPSE 518, EPSE 522.

EPSE 525 (3) STUDIES IN SIGN LANGUAGE. Prerequisite: EPSE 399. [3-0]

EPSE 526 (3) SEMINAR IN SPECIFIC LEARNING DISABILITIES. Prerequisite: EPSE 316.

EPSE 528 (3) BASIC PRINCIPLES OF MEASUREMENT. Prerequisite: One of EPSE 482, EPSE 483 and an introductory course in measurement.

EPSE 529 (3) TEST CONSTRUCTION. Prerequisite: EPSE 528.

EPSE 530 (3) SEMINAR IN EDUCATION OF THE DEAF AND HARD OF HEARING.

EPSE 533 (3) PSYCHOSOCIAL ASPECTS OF EXCEPTIONALITY. Prerequisite: One of EPSE 312, EPSE 317.

EPSE 534 (3) ACADEMIC ASSESSMENT IN SCHOOL PSYCHOLOGY. Prerequisite: EPSE 528. Permission of the instructor is required.

EPSE 535 (3) SOCIAL AND EMOTIONAL ASSESSMENT IN SCHOOL PSYCHOLOGY. Prerequisite: EPSE 528. Permission of the instructor is required.

EPSE 536 (3/6) D INDIVIDUAL INTELLIGENCE TESTS. Prerequisite: EPSE 528. Admission to the school psychology graduate program.

EPSE 537 (3) SEMINAR IN MULTIPLE DISABILITIES. Prerequisite: EPSE 448.

EPSE 538 (3) SEMINAR IN ORIENTATION AND MOBILITY FOR THE BLIND.

EPSE 539 (3) RESEARCH ISSUES AND TRENDS IN THE EDUCATION OF STUDENTS WITH VISUAL IMPAIRMENTS.

EPSE 540 (3) SEMINAR IN LOW VISION.

EPSE 541 (3) BRAILLE READING AND WRITING.

EPSE 542 (3) WORKING WITH INFANTS AND PRESCHOOLERS WHO ARE BLIND OR VISUALLY IMPAIRED.

EPSE 543 (3) WORKING WITH STUDENTS WITH VISUAL IMPAIRMENTS: ELEMENTARY AND SECONDARY CURRICULUM.

EPSE 544 (3) LITERACY INSTRUCTION FOR STUDENTS WHO ARE VISUALLY IMPAIRED. Prerequisite: EPSE 541.

EPSE 545 (3) TEACHING INDEPENDENT LIVING SKILLS TO STUDENTS WITH VISUAL IMPAIRMENTS.

EPSE 547 (3) ADVANCED COMMUNICATION SKILLS INSTRUCTION FOR STUDENTS WITH VISUAL IMPAIRMENTS. Prerequisite: EPSE 541.

EPSE 549 (3) SEMINAR IN AUTISM. Prerequisite: EPSE 449.

EPSE 550 (3) PROFESSIONAL, ETHICAL AND LEGAL ISSUES IN SCHOOL PSYCHOLOGY.

EPSE 551 (3-6) D SCHOOL-BASED CONSULTATION. Same as CNPS 551.

EPSE 552 (3-6) D INTERVENTIONS IN SCHOOL PSYCHOLOGY.

EPSE 561 (3-12) C LABORATORY PRACTICUM.

EPSE 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD.

EPSE 568 (3) SPECIAL EDUCATION OF CHILDREN WITH NEUROPSYCHOLOGICAL DYSFUNCTIONS. Prerequisite: One of EPSE 312, EPSE 317.

EPSE 571 (3/6) C SEMINAR IN RESEARCH IN EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION. Prerequisite: EPSE 501 or approved graduate course work.

EPSE 573 (3) ADVANCED SEMINAR IN RESEARCH ON EXCEPTIONAL CHILDREN.

EPSE 580 (3-12) D INVESTIGATION AND REPORT OF A PROBLEM IN EDUCATION.

EPSE 581 (3-12) D SPECIAL TOPICS IN RESEARCH DESIGN AND ANALYSIS. Prerequisite: All of EPSE 481, EPSE 482.

EPSE 584 (3) MOTIVATION IN EDUCATION.

EPSE 585 (3) SOCIAL-EMOTIONAL DEVELOPMENT IN EDUCATION. Prerequisite: EPSE 505.

EPSE 590 (3) GRADUATING PAPER/ SEMINAR. Pass/Fail.

EPSE 591 (3) THEORY AND PRACTICE OF PROGRAM EVALUATION. Prerequisite: EPSE 592.

EPSE 592 (3) EXPERIMENTAL DESIGNS AND ANALYSIS IN EDUCATIONAL RESEARCH. Prerequisite: EPSE 482.

EPSE 593 (3) DESIGN AND ANALYSIS OF RESEARCH WITH SMALL SAMPLES AND SINGLE SUBJECTS. Prerequisite: EPSE 592.

EPSE 594 (3) META-ANALYSIS: QUANTITATIVE RESEARCH SYNTHESIS. Prerequisite: EPSE 592.

EPSE 595 (3) QUALITATIVE METHODOLOGIES IN EDUCATIONAL PSYCHOLOGY AND SPECIAL EDUCATION.

EPSE 596 (3) CORRELATIONAL DESIGNS AND ANALYSIS IN EDUCATIONAL RESEARCH. Prerequisite: EPSE 592.

EPSE 597 (3) FACTOR ANALYSIS AND ITS APPLICATION TO BEHAVIOURAL SCIENCES. Prerequisite: EPSE 596.

EPSE 598 (3–12) D FIELD EXPERIENCES. Pass/Fail.

EPSE 599 (6) C MASTER'S THESIS.

EPSE 601 (3/6) C DOCTORAL SEMINAR.

EPSE 604 (3/6) D SPECIAL TOPICS IN LEARNING, DEVELOPMENT AND INSTRUCTION.

EPSE 630 (3) ADVANCED HUMAN LEARNING AND INSTRUCTION.

EPSE 681 (3–12) D TOPICS IN EDUCATIONAL RESEARCH AND MEASUREMENT. Prerequisite: All of EPSE 528, EPSE 592, EPSE 596.

EPSE 682 (3) MULTIVARIATE DESIGNS AND ANALYSIS IN EDUCATIONAL RESEARCH. Prerequisite: EPSE 596.

EPSE 699 (0) DOCTORAL THESIS. Pass/Fail.

ETEC — EDUCATIONAL TECHNOLOGY FACULTY OF EDUCATION

ETEC 500 (3) RESEARCH METHODOLOGY IN EDUCATION.

ETEC 510 (3) DESIGN OF TECHNOLOGY-SUPPORTED LEARNING ENVIRONMENTS.

ETEC 511 (3) FOUNDATIONS OF EDUCATIONAL TECHNOLOGY.

ETEC 512 (3) APPLICATIONS OF LEARNING THEORIES TO THE ANALYSIS OF INSTRUCTIONAL SETTINGS.

ETEC 520 (3) PLANNING AND MANAGING LEARNING TECHNOLOGIES IN HIGHER EDUCATION.

ETEC 521 (3) INDIGENEITY, TECHNOLOGY AND EDUCATION.

ETEC 522 (3) BUSINESS OF E-LEARNING.

ETEC 530 (3) CONSTRUCTIVISM STRATEGIES FOR E-LEARNING.

ETEC 531 (3) CURRICULUM ISSUES IN CULTURAL AND NEW MEDIA STUDIES.

ETEC 532 (3) TECHNOLOGY IN THE ARTS AND THE HUMANITIES CLASSROOM.

ETEC 533 (3) TECHNOLOGY IN THE MATHEMATICS AND SCIENCE CLASSROOM.

ETEC 540 (3) TEXT TECHNOLOGIES: THE CHANGING SPACES OF READING AND WRITING.

ETEC 545 (0) TEC DE MONTERREY.

ETEC 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD.

ETEC 580 (3–12) C PROBLEMS IN EDUCATION.

ETEC 590 (3) GRADUATING PROJECT.

FDNS — FOUNDATIONS PROGRAM FACULTY OF ARTS

FDNS 101 (8) ROUTES TO THE TWENTY-FIRST CENTURY. Historical foundations of the contemporary world, examined through a variety of central themes.

FDNS 102 (8) KNOWLEDGE BASES. Means by which we seek to know the world; forms of knowledge and concepts underlying them.

FDNS 103 (8) APPROACHES TO SOCIAL UNDERSTANDING. Introduction to the questions and methods of the social sciences as applied to real-world issues and problems.

FILM — FILM FACULTY OF ARTS

FILM 100 (3) INTRODUCTION TO FILM STUDIES. Basic aesthetic, economic, sociological, and technological aspects of film.

FILM 200 (3) INTRODUCTION TO CANADIAN CINEMA. History and aesthetics of Canadian cinema.

FILM 210 (3) SILENT CINEMA. Aesthetics, economics, history, and technological characteristics of international Silent film, 1895–1929.

FILM 220 (3) HOLLYWOOD CINEMA 1930–1960. Analysis of the aesthetics, economics, history and technological characteristics of the Classical Hollywood period.

FILM 233 (3) INTRODUCTORY VIDEO PRODUCTION. Basic introduction to video cameras, lighting, sound, and editing for students without previous video production experience. Open only to second-year students during Winter Session.

FILM 331 (3) STUDIES IN FILM THEORY. A seminar introducing the many theoretical approaches to film: formalist, historical, Marxist, psychoanalytic, semiotic and structuralist.

FILM 332 (3) STUDIES IN GENRE OR PERIOD. A seminar examining one or more genres or periods, such as the Western, Film Noir, Science Fiction, Films of the 1980's. Also includes study of national cinemas.

FILM 333 (6) MOTION PICTURE PRODUCTION I. Practical film/video production with instruction in 16mm cinematography

and sound recording, lighting, and editing. Open only to Film Majors by application to the Department.

FILM 334 (3) SEMINAR IN DOCUMENTARY. An analysis of the representational strategies and ethics of the form.

FILM 335 (3) DIRECTING. Script development and analysis, scene and shot design, working with actors and crew, preparation of shooting scripts. Open only to Film Majors.

FILM 336 (3) SEMINAR IN EUROPEAN CINEMA. Topics may include a study of a European national cinema.

FILM 338 (3) ASIAN AND AUSTRALASIAN CINEMA. Topics may include an analysis of a national cinema, such as that of China, India, or Australia.

FILM 339 (3) POST-PRODUCTION TECHNIQUES I. Instruction in current motion picture and sound editing practices. Restricted to Film Majors.

FILM 430 (3) STUDIES IN AUTEURISM. A seminar examining the work of one or more directors, such as John Ford, François Truffaut, Denys Arcand, Margarethe Von Trotta; or of a screenwriter over many films.

FILM 432 (3) SEMINAR IN MOTION PICTURE FORMS. Animation, documentary, experimental, and/or multimedia.

FILM 433 (6) MOTION PICTURE PRODUCTION II. Advanced instruction in professional film production techniques. Prerequisite: FILM 333.

FILM 434 (3–12) D STUDIES IN FILM. A seminar devoted to a topic of current interest in film. Topic will change from year to year. May be repeated for credit when topics differ.

FILM 436 (3) SEMINAR IN AMERICAN CINEMA SINCE 1960. Topics may include an analysis of a specific period.

FILM 437 (3) CINEMATOGRAPHY, LIGHTING AND SOUND RECORDING. Instruction in professional film and/or electronic camera operation, advanced lighting, location sound recording and other production techniques. Open only to Film Majors.

FILM 438 (3) SEMINAR IN CANADIAN CINEMA. Topics may include an analysis of the Canadian Governmental agencies supporting Film Production.

FILM 439 (3) POST-PRODUCTION TECHNIQUES. Instruction in advanced post-production techniques including picture and sound editing, liaison with the lab and other film services, preparations for sound mixing. Open only to Film Majors.

FILM 500 (3) BIBLIOGRAPHY AND RESEARCH METHODS.

FILM 531 (3/6) D SEMINAR: STYLES IN FILM. Studies and experimentation in styles or film genres such as narrative, documentary, ethnographic, experimental, etc. Topics will vary from year to year.

FILM 532 (3/6) D SEMINAR: STUDY OF MAJOR FILM ARTISTS. Investigations into the biographical, social, and national backgrounds of two or three major artists, with attention to the specific nature of their work in its historical, psychological, and cultural contexts. Topics will vary from year to year.

FILM 533 (3/6) D ADVANCED PROBLEMS IN DIRECTING. Problems in directing narrative film. Through seminars, workshops with acting students and production exercises, problems in scripting, performance, shot design and editing are explored.

FILM 534 (3/6) D SEMINAR IN FILM STUDIES. Topics to be arranged.

FILM 547 (3/6) D DIRECTED STUDIES IN FILM.

FILM 549 (6–18) D THESIS.

FISH — FISHERIES RESEARCH FACULTY OF GRADUATE STUDIES

FISH 500 (3) ISSUES IN FISHERIES RESEARCH: SEMINARS – FISHERIES MANAGEMENT.

FISH 501 (3) ISSUES IN FISHERIES RESEARCH: ECOSYSTEM MODELLING.

FISH 502 (3) ISSUES IN FISHERIES RESEARCH: MARINE AND FRESHWATER.

FISH 503 (3) ISSUES IN FISHERIES RESEARCH: POLICY AND EVALUATION.

FISH 504 (3) QUANTITATIVE ANALYSIS OF FISHERIES I.

FISH 505 (3) QUANTITATIVE ANALYSIS OF FISHERIES II.

FISH 506 (3) CRITICAL ISSUES IN FISHERIES: RESEARCH AT THE FISHERIES CENTRE.

FMED — FOUNDATIONS OF MEDICINE FACULTY OF MEDICINE

FMED 401 (6) HOST DEFENSES AND INFECTION. An introduction to the anatomic and physiologic basis of host defense against infection. The classification and pathogenic mechanisms of micro-organisms will be taught as will the biological and pharmacological bases of treatment and prevention. [7-10-0]

FMED 402 (6) CARDIOVASCULAR. An introduction to human cardiovascular anatomy, physiology and relevant biochemistry and genetics. Disordered function of the system will be taught by integration of discussion with the normal. As appropriate, pharmacological and other therapeutic and preventative modalities will be taught. [7-10-0]

FMED 403 (6) PULMONARY. An introduction to human respiratory medicine. The relevant anatomy, physiology, biochemistry and genetics will be taught. Instruction in disordered function of the system will be taught by integration of discussion with the normal. As appropriate, pharmacological, therapeutic and other preventative modalities will be introduced. [7-10-0]

FMED 404 (6) FLUIDS, ELECTROLYTES, RENAL AND GU. An introduction to the anatomy, histology, anatomical and histopathology of the kidney and urinary system and renal physiology and the major fluid and electrolyte disorders associated with renal dysfunction. Students are also introduced to the principles of diagnosis and management of genitourinary and renal disorders. [7-10-0]

FMED 421 (2) BLOOD AND LYMPHATICS. Blood and lymphatic system; anatomy, physiology and relevant biochemistry; normal and disordered function; pharmacological and other therapeutic and preventative modalities. [7-10-0]

FMED 422 (1) INTEGUMENT. A one-week block covering the basic science and common clinical issues of skin, hair, nails, and accessible mucosae. Normal anatomy and physiology, common clinical and pathophysiological changes and dysfunction, and psychosocial relevance of integumentary diseases are the three principal areas explored. [7-10-0]

FMED 423 (4) MUSCULOSKELETAL AND LOCOMOTOR. The student is introduced to the basic science components which underlie common clinical conditions. Case-based themes involving normal and abnormal bone metabolism, rheumatoid and osteoarthritis, ligament and muscle contributions, and overall joint mechanics are highlighted. [7-10-0]

FMED 424 (6) GASTROINTESTINAL. Introduces the student to the clinically relevant basic sciences and pathophysiological events of the human gastrointestinal (GI) tract comprising the oral cavity and teeth, esophagus, stomach, bowel, exocrine pancreas, liver and biliary tree as well as the fundamental principles of human nutrition. [7-10-0]

FMED 425 (6) ENDOCRINE AND METABOLISM. This block will focus on normal and abnormal carbohydrate and lipid metabolisms as well as the physiological function and disorders of the pituitary, thyroid and adrenal. Relevant pathology, anatomy, genetics, biochemistry, pharmacology, and radiology will be included as learning issues. [7-10-0]

FMED 426 (10) BRAIN AND BEHAVIOUR. Structure and functional interrelationship within the central nervous system; normal and abnormal functions. [7-10-0]

FMED 427 (4) REPRODUCTION. Reproduction, human sexuality, pregnancy, lactation and aging. [7-10-0]

FMED 428 (5) GROWTH & DEVELOPMENT. Human growth, neurodevelopmental maturation, embryology, neonatal physiology, somatic growth, cognitive and pubertal development.

FMPR — FAMILY PRACTICE FACULTY OF MEDICINE

FMPR 401 (6) FAMILY PRACTICE CONTINUUM. Principles and skills of patient interviewing, history taking, physical examination are learned and practiced under supervision in office, home, hospital and community settings. Seminars and lectures support students

in this clinical endeavour. The role of the Family Physician in the provision of comprehensive patient care is explored. [0-3-0]

FMPR 420 (6) FAMILY PRACTICE CONTINUUM II. This clinical course is a continuation of FMPR 401. Supervised patient interviewing, history taking, and physical examinations in the Family Practice setting. A period of time will be spent in family practice settings demonstrating focused care in a particular area. [0-3-0]

FMPR 428 (6) RURAL AND UNDERSERVED COMMUNITY PRACTICE. A 4 week full time course that allows medical students in Phase III of the undergraduate program to apprentice with family physicians in rural and underserved community practices. This course is the start of year 3 clerkships and takes place at the end of second year.

FMPR 562 (3) HEALTH PROMOTION AND DISEASE PREVENTION IN FAMILY PRACTICE. Identification of preventive strategies in different age groups and their implementation in Family Practice. Examination of health belief models in caregivers and patients which inhibit or facilitate preventive measures. Admission to course at discretion of the Department of Family Practice. Prerequisite: HCEP 502.

FMST — FAMILY STUDIES FACULTY OF ARTS

FMST 200 (3) CONTEMPORARY FAMILY RELATIONSHIPS. An introduction to contemporary family relationships.

FMST 210 (3) FAMILY CONTEXT OF HUMAN DEVELOPMENT. The influence of family dynamics and social conditions on human development.

FMST 238 (3) FAMILY RESOURCE MANAGEMENT. Conceptual models of resource management as related to families.

FMST 312 (3) PARENT-CHILD RELATIONSHIPS. Parent-child interaction over the life span. Prerequisite: One of FMST 200, FMST 210.

FMST 314 (3) RELATIONSHIP DEVELOPMENT. The study of the development, course, and decline of personal relationships. Prerequisite: One of FMST 200, PSYC 100, SOCI 240.

FMST 316 (3) HUMAN SEXUALITY. An examination of human sexual development and behaviour. Prerequisite: One of FMST 200, PSYC 100, SOCI 240.

FMST 320 (3) FAMILY DIVERSITY. An examination of the ethnic, social, class, regional and other diversities of families in North America. Prerequisite: FMST 200.

FMST 322 (3) MARITAL INTERACTION. Interactional processes within marital and common-law relationships. Prerequisite: One of FMST 200, SOCI 240.

FMST 323 (3) FAMILY RESEARCH METHODS. Introduction to research methods used in family studies. Prerequisite: All of

FMST 200, STAT 203. Equivalency: FMST 422.

FMST 324 (3) FAMILY TRANSITIONS. The study of family relationships over the life course. Prerequisite: One of FMST 200, SOCI 240.

FMST 326 (3) FAMILY COMMUNICATION. Overview of communication in families. Prerequisite: FMST 200.

FMST 340 (3) FAMILY FINANCIAL DECISIONS. Major financial and consumer decisions of families over the life course. Prerequisite: FMST 238 or permission.

FMST 342 (3) FAMILY CONSUMER PATTERNS. Role and function of consumers in contemporary market economics; consumer socialization; factors affecting consumer choice as it varies at various periods of the life span for different family types. Prerequisite: One of ECON 100, ECON 309 or 6 credits in Sociology or Psychology.

FMST 350 (3) CLOTHING AND HUMAN BEHAVIOUR. Human needs and the cultural factors which influence clothing consumption and use. Application of sociological and psychological theories that help to explain clothing behaviour of an individual, as a unique being and as a member of a group. Prerequisite: 12 credits in Sociology or Psychology (may also be taken as corequisites).

FMST 364 (3) HOUSING FOR THE FAMILY. A study of the physical, social and economic aspects of housing. The course includes: housing as an economic asset; national housing needs and conditions; personal and social needs of families; housing and the family income; government's role in housing; community planning. Corequisite: One of ANTH 100, SOCI 100 or permission of the instructor.

FMST 404 (3/6) D FAMILY STUDIES SEMINAR. Current developments in selected areas of Family Studies. Open to third- and fourth-year students with permission of the instructor.

FMST 414 (3) AGING AND THE FAMILY. Examination of families in later life. Prerequisite: One of FMST 200, PSYC 100, ANTH 214, SOCI 214.

FMST 415 (3-6) D FAMILY STUDIES PRACTICUM. A supervised practicum in an assigned human service setting. Enrolment is limited to students in the FMST program pursuing certification as a Family Life Educator. Prerequisite: FMST 436 and fourth year standing

FMST 420 (3) FAMILY THEORIES. Major theoretical approaches to the study of the family relationships. Prerequisite: All of FMST 200, FMST 323.

FMST 436 (3) FAMILY LIFE EDUCATION. Examination of rationale, implementation, and evaluation of family education programs. Prerequisite: All of FMST 312, FMST 316, FMST 322.

FMST 440 (3) FAMILY ECONOMIC ISSUES. The study of the impact of economic issues on families. Prerequisite: FMST 238.

FMST 441 (3) SOCIAL CONTEXT OF CHILD DEVELOPMENT. The ways in which the familial, physical, and social environment effects the life structures, opportunities and outcomes of epigenetic developmental processes. Equivalency: SOWK 441.

FMST 442 (3) FAMILIES AND WORK. The effect of combining family and work roles. Prerequisite: FMST 200 and at least one additional course in social science.

FMST 464 (3/6) D SPECIAL PROBLEMS IN FAMILY STUDIES. Current topics in a specific area of Family Studies, based on original laboratory or field research.

FMST 474 (3) DIRECTED STUDY IN FAMILY STUDIES. Investigation of a problem, requiring a written or oral report of findings. Prerequisite: Satisfactory standing and permission of faculty members supervising the investigation. Fourth-year Family Studies students only.

FMST 504 (3-9) D CURRENT TOPICS IN FAMILY STUDIES.

FMST 520 (3) THEORIES ABOUT THE FAMILY. An examination of contemporary theories of the family.

FMST 521 (3) FORMULATING THEORIES ABOUT THE FAMILY. Fundamental issues and techniques in formulating theories about the family. Prerequisite: FMST 520 or permission of the instructor.

FMST 522 (3) RESEARCH METHODS IN FAMILY STUDIES. Designing research and collecting data for studying families. Prerequisite: Pre-req course no longer offered (FMST 422), so pre-req deleted at request of the School.

FMST 523 (3) ANALYZING DATA IN FAMILY STUDIES. Data analysis issues and computer applications in the study of families. Prerequisite: FMST 422.

FMST 524 (3) FAMILY DEVELOPMENT. An examination of research and theory on the timing and sequencing of the course of family life in North American families.

FMST 525 (3) INTERACTION IN THE FAMILY SETTING. Selected aspects of marital, parental and intergenerational interaction.

FMST 538 (3) FAMILY RESOURCES. Conceptual and empirical perspectives on family resource management.

FMST 547 (3-6) C DIRECTED STUDIES.

FMST 549 (6/12) C THESIS.

FNH — FOOD, NUTRITION AND HEALTH FACULTY OF LAND AND FOOD SYSTEMS

FNH 200 (3) EXPLORING OUR FOOD.

Chemical and physical properties of foods; issues pertaining to safety, nutritive value and consumer acceptability; government regulations pertaining to food safety, quality and additives; preservation techniques and transformation of agricultural commodities to food products; foods of the future. Prerequisite: At least second year standing required. [3-0-0]

FNH 250 (3) NUTRITION CONCEPTS AND CONTROVERSIES. Fundamental concepts and principles of human nutrition applied to current nutrition issues. Credit can only be obtained for 1 of FNH 250 or FNH 255. Prerequisite: First-year Biology. At least second-year standing required. [1-0-3] or [3-0]

FNH 255 (3) NUTRITION AND YOUR HEALTH. Fundamental concepts and principles of nutrition applied to current nutrition issues and trends. The focus is on human nutrition. At least second year standing required. Prerequisite: Not open to students in the Faculty of Science, the Faculty of Agricultural Sciences or to students who have completed a first year biology course. [3-0]

FNH 300 (3) PRINCIPLES OF FOOD ENGINEERING. Units and dimensions, mass balance, energy balance, steady state and transient heat flow, fluid handling and measurement. Prerequisite: One of PHYS 101, PHYS 121. [3-0-1]

FNH 301 (3) FOOD CHEMISTRY I. Constituents of food and related chemical physical properties including water, carbohydrates, proteins, lipids, minerals, and vitamins. Credit given for only one of FNH 301 and FNH 340. Prerequisite: Either (a) all of CHEM 203, CHEM 204 or (b) all of CHEM 231, CHEM 232 or (c) all of CHEM 205, CHEM 233. [3-0-0]

FNH 302 (3) FOOD ANALYSIS. Principles of and procedures for analysis of the chemical, physical and sensory properties of food; proximate analysis; introduction to instrumental analysis; introduction to anatomy and physiology of sensory perception, reporting and analysis of data. Prerequisite: Either (a) all of CHEM 205, CHEM 233 or (b) all of CHEM 231, CHEM 232. [3-0-1]

FNH 309 (3) FOOD PROCESS SCIENCE. Preservation of tissue and fluid food systems by selected physical and chemical treatments with emphasis on product-process interactions. [3-0-1]

FNH 313 (3) MICROORGANISMS IN FOOD SYSTEMS. Microorganisms of importance in safety, spoilage and preservation of foods; factors affecting growth, survival and inactivation of microorganisms in fermented food systems; food processing plant cleaning and sanitation. Prerequisite: BIOL 112. [3-0-0]

FNH 325 (3) FOOD SCIENCE LABORATORY I. Integrated laboratory introducing techniques used in food processing and analysis. Enrolment restricted to Food Science students. Prerequisite: All of FNH 300, FNH 301, FNH 302. These courses can be taken as corequisites. [0-3-1]

FNH 326 (3) FOOD SCIENCE LABORATORY II. Integrated laboratory encompassing the processing and analysis of foods. Enrolment restricted to Food Science students. Prerequisite: FNH 325. [0-3-1]

FNH 330 (3) INTRODUCTION TO WINE SCIENCE. Principles of viticulture, enology, and wine microbiology and chemistry; marketing, regulation and classification of wines from

selected regions of the world; social, economic and health aspects of wine consumption; wine appreciation. Prerequisite: Third-year standing. [2-1-0]

FNH 340 (3) FOOD THEORY. Principles of food preparation based on the physical and chemical properties of food. Credit given for only one of FNH 301 or FNH 340. Prerequisite: FNH 200 and either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123. [3-0-0]

FNH 341 (3) FOOD THEORY APPLICATIONS. Experimental and practical application of scientific principles and theories to problems of food preparation. Corequisite: One of FNH 301, FNH 340. [1-3-0]

FNH 342 (3) CONSUMER ASPECTS OF FOOD. Economic, physiological, social, cultural, and environmental factors influencing food choices and consumption. Legislation governing food; food markets and merchandising techniques; criteria for food selection. Prerequisite: At least third year standing required. [3-3]

FNH 350 (3) FUNDAMENTALS OF NUTRITION. Fundamentals of energy and macronutrient metabolism. Prerequisite: One of BIOL 201, BIOC 300 or Corequisite: BIOC 300. [3-0-0]

FNH 351 (3) VITAMINS, MINERALS, AND HEALTH. Vitamin and mineral nutrition and their role in maintaining and promoting health. Prerequisite: One of BIOL 201, BIOC 300 or Corequisite: BIOC 300. [3-0-0]

FNH 355 (3) WORLD PROBLEMS IN NUTRITION. Conceptualization and scientific analyses of global problems in food and nutrition; complexities of food habits and malnutrition in various cultures around the world. [3-0-0]

FNH 370 (2) NUTRITION ASSESSMENT. The use of dietary, anthropometric, biochemical and related information for the assessment of nutritional status of individuals and populations. Prerequisite: FNH 250. [1-0-2]

FNH 371 (3) HUMAN NUTRITION OVER THE LIFE SPAN. Nutritional requirements and dietary patterns of healthy individuals throughout the life span. Prerequisite: FNH 350. [3-0-0]

FNH 380 (1) PROFESSIONAL DIETETIC PRACTICE I. Restricted to students in the Dietetics Major. [1-0-0]

FNH 381 (3) PROFESSIONAL DIETETIC PRACTICE II. Themes include: nutrition communications, professional practice, and dietetic practice environments. Restricted to students in the Dietetics Major. Prerequisite: FNH 380.

FNH 401 (3) FOOD CHEMISTRY II. Chemistry and function of natural and synthetic food ingredients, including additives, colourings, flavourings and enzymes in multi-phase food systems. Prerequisite: One of CHEM 232, CHEM 233. [3-0-0]

FNH 402 (3) FUNCTIONAL FOODS AND NUTRACEUTICALS. Functional food and nutraceutical concepts related to ingredient safety and quality; examples of nutrient-disease relationships, requirements for standards of efficacy for health claims; market determinants of functional food and nutraceutical industries. Prerequisite: third-year standing [3-0-0]

FNH 403 (3) FOOD LAWS, REGULATIONS AND QUALITY ASSURANCE. Canadian and international laws governing food composition, grading, quality and safety; hazard analysis critical control points; statistical quality assurance. Prerequisite: AGSC 350 or equivalent background in statistics. [3-0-1]

FNH 425 (6) FOOD SCIENCE LABORATORY III. Integrated course designed to illustrate principles of research and product development in the food industry. Prerequisite: All of FNH 325, FNH 326. [0-3-1;0-3-1]

FNH 440 (3) FOOD SERVICE SYSTEMS MANAGEMENT. Management responsibilities in quantity food production with emphasis on menu planning, purchasing and service. Includes planning and equipping food services. Not available for credit to students in the Faculty of Science. Restricted to students in the Dietetics major. Prerequisite: One of FNH 301, FNH 340. [3-0-0]

FNH 450 (3) NUTRITION LABORATORY. Nutritional principles and concepts illustrated through a hands-on laboratory experience; skills and techniques commonly used in modern nutritional research. Prerequisite: FNH 350. [0-3-1]

FNH 451 (3) NUTRIENT METABOLISM AND IMPLICATIONS FOR HEALTH. Integration of nutrient and energy metabolism on a whole-body and individual tissue basis and the implication for health. Emphasis will be on regulation of nutrient metabolism. Prerequisite: One of BIOC 300, BIOC 302 and one of BIOL 355, PHYL 301 and FNH 350. Also acceptable as corequisites. [3-0-0]

FNH 452 (3) RUMINANT NUTRITION. Application of biological principles of nutrition to the feeding and management of ruminant animals. Prerequisite: FNH 350. [1-0-3]

FNH 453 (3) MONOGASTRIC NUTRITION. Application of biological principles of nutrition to the feeding and management of monogastric animals (e.g. horses, poultry, swine, companion animals, fish- depending on student interest). Prerequisite: FNH 350. [1-0-3]

FNH 454 (3) FISH NUTRITION. Physiology of digestion and excretion, nutrient requirements, sources of nutrients, diet formulation, feeding management. Prerequisite: FNH 350. [3-0-0]

FNH 470 (4) NUTRITION AND DISEASE. The role of nutrition and the application of therapeutic diets in the prevention, etiology, and treatment of gastrointestinal complications/disorders, cardiovascular disease, diabetes and obesity. Prerequisite: FNH 350. [4-0-0]

FNH 473 (3) NUTRITION EDUCATION IN THE COMMUNITY. Theory and methods in nutrition education; factors affecting behaviour

modification and health promotion. The practice of nutrition education through education, health care delivery or media systems. Prerequisite: FNH 250 and fourth-year standing. [3-0-0]

FNH 475 (3) ADVANCED TOPICS IN CLINICAL NUTRITION. The role of nutrition and the application of therapeutic diets in the prevention, etiology and treatment of specialized areas of clinical nutrition. Prerequisite: FNH 350. [3-0-0]

FNH 490 (3) TOPICS IN FOOD, NUTRITION, AND HEALTH. Analysis and interpretation of current issues in food, nutrition and health. Prerequisite: FNH 350 and fourth-year standing. [3-0-1]

FNH 497 (2-6) C DIRECTED STUDIES IN FOOD, NUTRITION AND HEALTH.

FNH 498 (3) UNDERGRADUATE ESSAY. Preparation of a comprehensive and analytical review of an approved topic under the supervision of a faculty member. Consultation with a program advisor is required.

FNH 499 (6) UNDERGRADUATE THESIS. Design and execution of an experimental/analytical research project leading to preparation of a thesis. Prerequisite: Approval of a program advisor; consult before the end of classes in third year.

FNLG — FIRST NATIONS LANGUAGES FACULTY OF ARTS

FNLG 100 (3/6) D FIRST NATIONS LANGUAGE. An introduction to one of the First Nations languages of British Columbia. Emphasis on accurate pronunciation and listening skills, conversational ability, basic literacy skills, an understanding of basic grammatical structures, and the study of oral traditions in their cultural context. No prior knowledge of the language is assumed.

FNLG 200 (3/6) D FIRST NATIONS LANGUAGE. An intermediate level study of one of the First Nations languages of British Columbia. Emphasis on increasing fluency in conversational ability, enhancing pronunciation and comprehension skills, expanding vocabulary, extending literacy and grammatical understanding, and further study of oral traditions in their cultural context. Prerequisite: FNLG 100. Must be in the same language.

FNLG 300 (3/6) D FIRST NATIONS LANGUAGE: ADVANCED. Emphasis on developing advanced comprehension and production skills in one of the First Nations languages of British Columbia. Extended focus on skills in oral traditions, transcription, literacy, and on deepening the understanding of grammatical structures and dialectal variation. Prerequisite: FNLG 200. Must be in the same language.

FNLG 448 (3-12) C DIRECTED STUDIES IN A FIRST NATIONS LANGUAGE. Supervised by a faculty member. Prerequisite: Agreement of Supervisor and approval of Director of FNLG program, c/o Dean of Arts.

FNSP — FIRST NATIONS STUDIES PROGRAM FACULTY OF ARTS

FNSP 200 (3–6) D FIRST NATIONS OF NORTH AMERICA. An historical and contemporary survey of First Nations issues including culture, identity, language, political issues, social structures, colonialism and resistance; an introduction to First Nations Studies as an academic discipline emphasizing First Nations perspectives.

FNSP 310 (3) THEORY SEMINAR. Current conceptual paradigms within the social sciences, humanities and performing arts with a consideration of their appropriateness and applicability for First Nations Studies. Conceptualizations from a First Nations perspective will be central to the course. Prerequisite: FNSP 200. May be taken as a corequisite.

FNSP 320 (3) METHODS SEMINAR. Training in the design and implementation of research appropriate for First Nations Studies. Possible topics include archival research, oral traditions, interviewing, textual analysis, documentary analysis, Geographical Information Systems, protocol arrangements, and computer techniques. Corequisite: FNSP 200.

FNSP 400 (6) PRACTICUM/ADVANCED RESEARCH SEMINAR. Applied research/community oriented project designed and implemented in collaboration with student, faculty and First Nations community. Emphasis on examining ethical issues and developing culturally respectful and academically rigorous forms of research. Prerequisite: All of FNSP 310, FNSP 320.

FNSP 401 (3–6) D SPECIAL TOPICS.

FNSP 433 (3/6) C DIRECTED STUDY.

FOOD — FOOD SCIENCE FACULTY OF LAND AND FOOD SYSTEMS

Undergraduate courses have been re-named as Food, Nutrition and Health (FNH). Please see this section.

FOOD 500 (3) M.SC. SEMINAR.

FOOD 520 (1–3) C ADVANCES IN FOOD ANALYSIS.

FOOD 521 (3) ADVANCES IN FOOD BIOTECHNOLOGY.

FOOD 522 (3) ADVANCES IN FOOD CHEMISTRY.

FOOD 523 (3) ADVANCES IN FOOD MICROBIOLOGY.

FOOD 524 (3) ADVANCES IN FOOD PROCESS SCIENCE.

FOOD 525 (3) ADVANCES IN FOOD TOXICOLOGY.

FOOD 526 (3) RESEARCH METHODS IN FOOD SCIENCE.

FOOD 527 (1 6) D SPECIAL TOPICS IN FOOD SCIENCE.

FOOD 528 (3) INTERNATIONAL FOOD LAWS AND REGULATIONS.

FOOD 530 (2–6) C DIRECTED STUDIES.

FOOD 531 (6) PROJECT.

FOOD 549 (12) MASTER'S THESIS.

FOOD 600 (3) PH.D. SEMINAR.

FOOD 649 (0) PH.D. THESIS.

FOPR — FOREST OPERATIONS FACULTY OF FORESTRY

FOPR 162 (2) BASIC FOREST GEOMATICS. Basic techniques of measuring and surveying with an emphasis on forest applications. [2-2-0]

FOPR 260 (3) FOREST ENGINEERING ECONOMICS. Detailed methods of planning and analysis of economic problems encountered in harvesting operations. Corequisite: All of ECON 101, ECON 102. [2-2; 0-0]

FOPR 262 (3) FOREST OPERATIONS I. Introduction to forest road design and location, harvest, and transportation systems. Prerequisite: FOPR 162. [2-3-0]

FOPR 263 (2) BASIC FOREST SURVEYING. An introduction to the basic techniques of surveying with emphasis on forest harvesting. This course should be taken in the week preceding lectures in second year.

FOPR 288 (3) ANALYTICAL METHODS IN FOREST HYDROLOGY. Analytical methods in forest hydrology and their applications in the planning of forest operations with a focus on the hydrologic and hydraulic design procedures of stream crossings. Prerequisite: All of FRST 231, FOPR 361. [3-2-0]

FOPR 352 (2) HARVESTING FIELD TRIP. A five-day field trip immediately prior to the Fall term of third year to demonstrate current harvesting practices and their implications on silviculture, management, protection and utilization in representative forest types. A substantial written report is required as part of the course. Fees will be assessed to meet expenses.

FOPR 359 (3) NONLINEAR STRUCTURES. Mechanics of cables with significant self-weight, buckling of columns, impact problems, and basic bridge stringer design. Prerequisite: PHYS 170. [2-2-0]

FOPR 362 (3) FOREST OPERATIONS II. Detailed analysis of the engineering, economic, environmental, and aesthetic factors influencing forest operations planning. Available only through Distance Education. Prerequisite: FOPR 262.

FOPR 363 (3) FOREST SOIL MECHANICS. Physical and hydraulic properties of soils for engineering design, seepage and erosion control, and strength parameters for slope stability analysis. Prerequisite: All of PHYS 170, FOPR 361. Corequisite: WOOD 376. [3-2-0]

FOPR 365 (2) FOREST OPERATIONS II. Detailed analysis of the engineering, economic, environmental, and aesthetic factors influencing forest operations planning. Prerequisite: FOPR 262. [2-1-0]

FOPR 459 (3) ECONOMICS, CONTRACTS, AND FINANCES IN FOREST OPERATIONS. A capstone project-based course with applications of engineering economics, contract preparation, and financial planning in the context of Forest Operations. Restricted to students registered in their fourth year. Prerequisite: FRST 318. [2-2]

FOPR 463 (3) FOREST ROADS AND SLOPE STABILITY. Slope stability, bearing capacity of roads, design of bridge abutments, settlement, piled foundations. Prerequisite: FOPR 363 and one of WOOD 376, CIVL 228. [3-2-0]

FOPR 464 (3) FOREST TRANSPORTATION SYSTEMS. Technical, economic and environmental aspects of forest transportation methods. Topics include vehicle performance and design, transportation network analysis, facilities location and materials handling processes. Prerequisite: All of PHYS 170, FOPR 361. [2-2-0]

FRE — FOOD AND RESOURCE ECONOMICS FACULTY OF LAND AND FOOD SYSTEMS

FRE 295 (3) MANAGERIAL ECONOMICS. Economic foundations of managerial decision-making. Organization of the firm, demand theory, cost and production, market structure, competitive strategy, welfare-economic foundations of business regulation. Credit may be obtained for only one of ECON 201, ECON 206, FRE 295, COMM 295. Prerequisite: Either (a) ECON 100 or (b) all of ECON 101, ECON 102; and MATH 105. [3-0-0]

FRE 302 (3) SMALL BUSINESS MANAGEMENT IN AGRI-FOOD INDUSTRIES. Emphasizes the building of a business plan by exploring topics such as the planning process and financing, marketing and human resource concepts, as applied to an agri-food business, domestically and internationally. Prerequisite: One of ECON 101, ECON 310. [3-0-1]

FRE 306 (3) INTRODUCTION TO GLOBAL FOOD MARKETS. An overview of global food markets including recent trends (e.g., vertical coordination, strategic alliances, multinationals and small firms in niche markets), marketing and trade institutions such as state-trading enterprises and WTO regulations, issues specific to developing nations, and case studies. Prerequisite: One of ECON 101, ECON 310. [3-0-1]

FRE 340 (3) INTERNATIONAL AGRICULTURAL DEVELOPMENT. Characteristics, processes and sources of economic growth, role of agricultural and resource sectors in economic growth, analysis of output and input markets in those sectors, policy failures, tools for empirical analysis of rural markets, growth, and the environment. Prerequisite: One of ECON 100, ECON 101. [3-0]

FRE 374 (3) LAND ECONOMICS. Economic analysis applied to problems of land use rent theory, land evaluation, and land conservation. Techniques for assessing economic efficiency of land use. Effects of institutions and public policies on land use. Prerequisite: All of ECON

101, ECON 102. Equivalency: ECON 374. [3-0]

FRE 385 (3) QUANTITATIVE METHODS FOR BUSINESS AND RESOURCE MANAGEMENT. Applied problem solving using spreadsheet and database software. Cases concern statistical analysis, data manipulation, financial statements, linear programming and simulation. Prerequisite: One of ECON 101, ECON 310 and either (a) one of FRST 231, BIOL 300 or (b) AGSC 350. [2-1-0]

FRE 420 (3) TRADE AND DOMESTIC POLICY IN GLOBAL FOOD MARKETS. Food policy-making process in Canada and other countries, application of analytical tools to domestic and trade policies, market power and domestic policy distortions, major policies and instruments in Canadian agriculture and resource sectors. Prerequisite: One of ECON 210, FRE 295, COMM 295 or 6 credits of upper-level FRE or ECON. [3-0]

FRE 475 (3) REGULATING FOOD SAFETY IN GLOBAL FOOD MARKETS. Analysis of food safety issues such as the political economy of genetically modified food, economic consequences of microbial or pesticide contamination, design and enforcement of food safety standards, and regulating the safety of imported food. Prerequisite: One of ECON 201, FRE 295, COMM 295 or 6 credits of upper-level FRE or ECON. [0-0-0; 3-0-1]

FRE 490 (3) CURRENT ISSUES IN FOOD AND RESOURCE ECONOMICS. Prerequisite: One of ECON 101, ECON 310. [3-0]

FREN — FRENCH FACULTY OF ARTS

All French courses titled “Studies in”, as well as FREN 498, may be taken twice for credit with different content, to a maximum of 6 credits.

FREN 101 (3) BEGINNERS' FRENCH I. Grammar, composition, reading and oral practice. Not available to students with the prerequisite for FREN 102.

FREN 102 (3) BEGINNERS' FRENCH II. Grammar, composition, reading and oral practice. Not available to students with prerequisite for FREN 111. Prerequisite: FREN 101 or equivalent.

FREN 111 (3) BEGINNERS' FRENCH III. Not available for credit to students with FREN 12, FREN 112 or equivalent. Prerequisite: One of FREN 11, FREN 102 or equivalent.

FREN 112 (3) BEGINNERS' FRENCH IV. Not available for credit to students with FREN 12. Prerequisite: FREN 111 or equivalent.

FREN 121 (3) CONTEMPORARY FRENCH LANGUAGE. Preparation for first-year university French, for students with French 12 who are not at the level required for FREN 122. Not available to students with credit for FREN 122 or higher.

FREN 122 (3) CONTEMPORARY FRENCH LANGUAGE AND LITERATURE I. A review of French grammar and an introduction to contemporary literature written in French, with emphasis on essay writing and textual analysis.

Prerequisite: One of FREN 12, FREN 112, FREN 121 or equivalent..

FREN 123 (3) CONTEMPORARY FRENCH LANGUAGE AND LITERATURE II. Continuation of FREN 122 with emphasis on literature, essay writing and textual analysis. Prerequisite: FREN 122 or assignment based on placement test.

FREN 215 (6) ORAL FRENCH PRACTICE. Course designed to provide opportunities for students already well-grounded in grammar to improve their oral skills. Credit will not be given for both FREN 215 and FREN 224 or FREN 225. Prerequisite: FREN 123.

FREN 220 (3) INTRODUCTION TO EARLY FRENCH LITERATURE AND TO TEXTUAL ANALYSIS. Students will familiarize themselves with techniques of literary analysis, as applied to representative works from the Middle Ages to the 17th century, including theatre, fiction, poetry and non-fiction prose. To be taken by all students intending to proceed to the Minor, Major or Honours program. Prerequisite: FREN 123 or assignment based on placement test.

FREN 221 (3) INTRODUCTION TO MODERN LITERATURE WRITTEN IN FRENCH AND TO TEXTUAL ANALYSIS. Students will familiarize themselves with techniques of literary analysis, as applied to representative works from the 18th century to the present, including theatre, fiction, poetry and non-fiction prose. To be taken by all students intending to proceed to the Minor, Major or Honours program. Prerequisite: FREN 123 or assignment based on placement test.

FREN 222 (3) STUDIES IN FRENCH LANGUAGE AND STYLE I. Grammar, vocabulary, composition, language in context. To be taken by all students intending to proceed to the Minor, Major or Honours program. Credit will not be given for both FREN 222 and FREN 224 or FREN 222 and FREN 342. Prerequisite: FREN 123 or assignment based on placement test.

FREN 223 (3) STUDIES IN FRENCH LANGUAGE AND STYLE II. Grammar, vocabulary, composition, language in context. To be taken by all students intending to proceed to the Minor, Major or Honours program. Credit will not be granted for both FREN 223 and FREN 225 or FREN 223 and FREN 343. Prerequisite: FREN 222 or assignment based on placement test.

FREN 224 (3) AN INTERDISCIPLINARY APPROACH TO FRENCH I. French language for ex-immersion students. Credit will not be granted for FREN 222, FREN 342 and FREN 224 or for FREN 215 and FREN 224. Prerequisite: FRAL 12.

FREN 225 (3) AN INTERDISCIPLINARY APPROACH TO FRENCH II. French language for ex-immersion students. Credit will not be granted for FREN 223, FREN 343 and FREN 225 or for FREN 215 and FREN 225. Prerequisite: FREN 224.

FREN 320 (3) ADVANCED STUDIES IN FRENCH LITERATURE FROM 1000 TO 1700. Representative texts will be studied to help students broaden their understanding of significant literary movements in their cultural and historical contexts and develop strategies for the careful reading of literary texts. Prerequisite: One of FREN 220, FREN 221.

FREN 321 (3) ADVANCED STUDIES IN FRENCH LITERATURE FROM 1700 TO THE PRESENT. Representative texts will be studied to help students broaden their understanding of significant literary movements in their cultural and historical contexts and develop strategies for the careful reading of literary texts. Prerequisite: One of FREN 220, FREN 221.

FREN 330 (3) QUEBECOIS LITERATURE. Prerequisite: One of FREN 220, FREN 221.

FREN 333 (3) FRENCH CIVILIZATION I. A historically based approach to French civilization and culture from their origins to the Third Republic (1875). Prerequisite: One of FREN 220, FREN 221, FREN 223 or permission of the department.

FREN 334 (3) FRENCH CIVILIZATION II. A historically based approach to French civilization and culture from the Third Republic to the present, completed by a thematic study of contemporary French culture. Prerequisite: One of FREN 220, FREN 221, FREN 223 or permission of the instructor.

FREN 335 (3) FRENCH-CANADIAN CIVILIZATION. A thematic approach to selected topics in French-Canadian culture and civilization. Prerequisite: One of FREN 220, FREN 221, FREN 223 or permission of the instructor.

FREN 341 (6) FRENCH FOR READING KNOWLEDGE. Training in the reading of French texts for study and research. Not available for credit toward a Minor, Major, or Honours Program in French. Prerequisite: For undergraduates: no less than FREN 12 nor more than FREN 123. Graduate students should consult the instructor.

FREN 342 (3) FRENCH PRACTICE FOR NON-SPECIALISTS I. The program of FREN 222, for students not specializing in French. Credit will not be granted for both FREN 222 and FREN 342, nor for FREN 224 and FREN 342. Prerequisite: FREN 123 and at least third-year standing. Equivalency: FREN 222.

FREN 343 (3) FRENCH PRACTICE FOR NON-SPECIALISTS II. The program of FREN 223 for students not specializing in French. Credit will not be granted for both FREN 223 and FREN 343 nor for FREN 225 and FREN 343. Prerequisite: One of FREN 222, FREN 342. Equivalency: FREN 223.

FREN 344 (3) TECHNIQUES OF ORAL EXPRESSION IN FRENCH I. Training in formal oral presentation in French. Emphasis on structured expression and oral delivery. Not available for credit toward a Major or Honours Program in French. Prerequisite: One of FREN 215, FREN 225. 68% or better in FREN 215 is recommended.

FREN 345 (3) TECHNIQUES OF ORAL EXPRESSION IN FRENCH II. Further training in formal oral presentation in French. Emphasis on structured expression and oral delivery. Not available for credit toward the Honours Program in French. Prerequisite: FREN 344.

FREN 348 (3) FRENCH LITERATURES IN TRANSLATION I. Literary works from the Middle Ages to the French Revolution. Not available for credit towards a Minor, Major or Honours program in French. Prerequisite: 6 credits of first-year English, ARTS 001, or Foundations, and at least second year standing.

FREN 349 (3) FRENCH LITERATURES IN TRANSLATION II. Literary works since the French Revolution. Topics may include literature from France, Quebec, Africa, the Caribbean. Not available for credit towards a Minor, Major or Honours program in French. Prerequisite: 6 credits of first year English, ARTS 001 or Foundations and at least second-year standing.

FREN 351 (3) CORRECTIVE FRENCH PHONETICS. Theory and practice of French pronunciation, corrective phonetics; foundation for the phonetic transcription of international French. Prerequisite: One of FREN 220, FREN 221, FREN 223.

FREN 353 (3) FRENCH GRAMMAR. Systematic study of the fundamental principles of French grammar. Prerequisite: FREN 223 or equivalent.

FREN 355 (3) ADVANCED COMPOSITION. Development of essay writing skills in French. Prerequisite: FREN 223 or equivalent.

FREN 357 (3) TRANSLATION I. Comparative study of French and English through translation. Prerequisite: FREN 223 or equivalent.

FREN 370 (3) INTRODUCTION TO FRENCH LINGUISTICS. A survey of basic terminology, methods, problems, and theoretical trends in French linguistics, specifically designed to provide students with a foundation for advanced language study in French. Prerequisite: FREN 223.

FREN 407 (3) STUDIES IN MEDIEVAL FRENCH LITERATURE. Literary texts from the eleventh to the fifteenth century. Topics may include the epic, Tristan texts, Arthurian texts, the short narrative, satirical texts, religious drama, secular drama, lyric poetry, didactic poetry, François Villon. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 408 (3) STUDIES IN FRENCH LITERATURE OF THE SIXTEENTH CENTURY. Topics may include works by Rabelais, Montaigne, Scève, Labé, Ronsard, and DuBellay. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 409 (3) STUDIES IN FRENCH LITERATURE OF THE SEVENTEENTH CENTURY. Topics may include works by Corneille, Racine, Molière, Descartes, Pascal, La Fontaine, and Mme de la Fayette. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 410 (3) STUDIES IN FRENCH LITERATURE OF THE EIGHTEENTH CENTURY. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 413 (3) STUDIES IN FRENCH LITERATURE OF THE NINETEENTH CENTURY. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 416 (3) STUDIES IN FRENCH LITERATURE SINCE 1900. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 418 (3) STUDIES IN AFRICAN AND/OR CARIBBEAN LITERATURES OF FRENCH EXPRESSION. An introduction to representative works. Topics include Negritude, the evolution of post-colonial literature, and the socio-historical context of each work. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 419 (3) STUDIES IN WOMEN'S WRITING. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 420 (3) C SELECTED TOPICS IN FRENCH LITERATURE AND CULTURE. Course content will vary. May be taken up to 3 times for a total of 9 credits. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 423 (3) STUDIES IN THEATRE. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 424 (3) STUDIES IN PROSE FICTION. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 427 (3) STUDIES IN CINEMA. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 429 (3) STUDIES IN NON-FICTION PROSE. Prerequisite: One of FREN 320, FREN 321, FREN 330.

FREN 430 (3) STUDIES IN QUEBECOIS LITERATURE. Prerequisite: One of FREN 320, FREN 321, FREN 330, FREN 335.

FREN 457 (3) TRANSLATION II. Advanced translation. Prerequisite: FREN 357.

FREN 460 (3) STUDIES IN HISTORICAL FRENCH LINGUISTICS. Topics may include historical phonetics and phonology, morphology and syntax, lexicology. Prerequisite: FREN 370.

FREN 465 (3) INTRODUCTION TO OLD FRENCH. An introduction to the phonetics, grammar and vocabulary of major Old French dialects; corpus of various literary texts (9th–14th c). Prerequisite: FREN 353.

FREN 468 (6) ROMANCE LINGUISTICS. The Indo-European background; Classical and Vulgar Latin; the origin development and spread of the Romance Languages, their vocabulary, phonology, morphology, syntax; vernacular Latin texts and Romance texts. Prerequisite: Two years study of each of two Romance Languages or two years of one Romance Language and one year of Latin. Equivalency: SPAN 468, RMST 468.

FREN 470 (3) STUDIES IN MODERN FRENCH LINGUISTICS. Prerequisite: FREN 370.

FREN 472 (3) MORPHOLOGY OF THE FRENCH LANGUAGE. The morphological markings of French (gender, number, tense, mode, person, etc) and their underlying semantic systems. Prerequisite: All of FREN 353, FREN 370. Corequisite: FREN 370 may be taken concurrently with the permission of the instructor.

FREN 473 (3) SYNTACTIC DESCRIPTION OF THE FRENCH LANGUAGE. The syntactic markings of French (word order, agreement, pronominalisation, etc) and their underlying semantic systems. Prerequisite: All of FREN 353, FREN 370. Corequisite: FREN 353 and 370 may be taken concurrently with the permission of the instructor.

FREN 474 (3) SYNCHRONIC LEXICOLOGY. An introduction to the study of the vocabulary of modern French, focusing on basic principles in lexical semantics, lexicology, phraseology, lexicography, terminology and new technologies, neology. Prerequisite: All of FREN 353, FREN 370.

FREN 475 (3) CANADIAN FRENCH: A DESCRIPTIVE APPROACH. The phonetics, phonology, lexicon, and syntax of spoken and written Canadian French. Prerequisite: All of FREN 351, FREN 353, FREN 370. Corequisite: FREN 351 may be taken concurrently with the permission of the instructor.

FREN 498 (3) DIRECTED READING. May be taken twice for credit, with different content, to a maximum of 6 credits.

FREN 499 (3) HONOURS ESSAY.

FREN 501 (3/6) C STUDIES IN THE LITERATURE OF MEDIEVAL FRANCE.

FREN 502 (3/6) C STUDIES IN SIXTEENTH-CENTURY LITERATURE.

FREN 503 (3/6) D STUDIES IN SEVENTEENTH-CENTURY LITERATURE.

FREN 504 (3/6) D STUDIES IN THE SEVENTEENTH-CENTURY NOVEL.

FREN 505 (3/6) D STUDIES IN SEVENTEENTH-CENTURY DRAMA.

FREN 506 (3/6) D STUDIES IN THE EIGHTEENTH-CENTURY NOVEL.

FREN 507 (3/6) C STUDIES IN THE FRENCH ENLIGHTENMENT.

FREN 508 (3/6) D STUDIES IN FRENCH ROMANTIC LITERATURE.

FREN 509 (3/6) D STUDIES IN POST-ROMANTIC NINETEENTH-CENTURY LITERATURE.

FREN 510 (3/6) D BAUDELAIRE AND THE SYMBOLISTS.

FREN 511 (3/6) D STUDIES IN CONTEMPORARY FRENCH LITERATURE.

FREN 512 (3/6) D STUDIES IN LITERARY CRITICISM.

FREN 513 (3/6) D STUDIES IN FRENCH-CANADIAN LITERATURE.

FREN 514 (3/6) D PROBLEMS RELATING TO THE FRENCH NOVEL.

FREN 515 (3) METHODS OF BIBLIOGRAPHY AND RESEARCH.

FREN 519 (3/6) C THE LANGUAGE AND LITERATURE OF OLD PROVENÇAL.

FREN 520 (3-12) D STUDIES IN FRENCH LITERATURE.

FREN 521 (3/6) D STUDIES IN THE LITERATURE OF THE FRENCH-SPEAKING WORLD.

FREN 540 (3/6) D STUDIES IN FRENCH AND COMPARATIVE STYLISTICS.

FREN 548 (3) MAJOR ESSAY.

FREN 556 (3-12) D STUDIES IN FRENCH LANGUAGE.

FREN 560 (3/6) D STUDIES IN FRENCH PHONETICS AND PHONOLOGY.

FREN 561 (3/6) D STUDIES IN FRENCH MORPHOLOGY.

FREN 562 (3/6) D STUDIES IN FRENCH SYNTAX.

FREN 564 (3/6) D STUDIES IN FRENCH LEXICOLOGY.

FREN 566 (3/6) D STUDIES IN FRENCH SEMANTICS.

FREN 575 (3/6) D STUDIES IN CANADIAN FRENCH.

FREN 576 (3/6) D STUDIES IN GALLO-ROMANCE DIALECTOLOGY.

FREN 578 (3/6) D STUDIES IN ROMANCE PHILOLOGY.

FREN 599 (6) MASTER'S THESIS.

FREN 699 (0) PH.D. THESIS.

FRST — FORESTRY FACULTY OF FORESTRY

FRST 100 (2) INTRODUCTION TO FORESTRY. An overview of forestry. History of forestry and the forestry profession, present status and role of forestry, forest policy and future trends in use of forest resources. [1-2-0]

FRST 200 (7) FOREST PLANT BIOLOGY. An integrated course dealing with the structure, function and classification of forest plants. Prerequisite: All of BIOL 121, BIOL 140. [3-2-1; 3-2-1]

FRST 201 (7) FOREST ECOLOGY AND SILVICS. An integrated course dealing with the structure, function, and classification of forest ecosystems. Corequisite: All of FRST 200, SOIL 200, AGRO 244 or GEOG 204 is recommended. [3-2-1; 3-2-1]

FRST 202 (3) FOREST ECOLOGY. The Ecosystem concept; energy biomass and nutrient cycling; the physical environment; population and community ecology; succession, Biogeoclimatic classification and some coastal ecosystems. Available only through Distance Education. Corequisite: One of FRST 111,

FRST 200 and one of SOIL 200, SOIL 300. [3-2]

FRST 203 (3) SILVICS OF FOREST TREES OF WESTERN CANADA. Ecological and silvical characteristics of forest trees; assessment of ecological site quality and biogeoclimatic classification; application of silvics in silviculture. A plant herbarium of at least 50 species is required. Only available through Distance Education. Prerequisite: FRST 202. [3-2]

FRST 231 (3) INTRODUCTION TO BIOMETRICS. Basic theories of probability and statistics. Sampling distribution, methods of estimation and hypothesis testing; goodness of fit and tests for independence; analysis of variance, regression and correlation. Corequisite: One of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184. [3-2-0]

FRST 232 (3) COMPUTER APPLICATIONS IN FORESTRY. Techniques involved in solving forestry problems with microcomputers using word processing, spreadsheet, procedural language, and database management tools. [3-2]

FRST 237 (3) INTRODUCTION TO FOREST MENSURATION AND PHOTOGRAMMETRY. Measuring and estimating tree volumes, form and taper. Timber scaling and grading. Computer applications. Basic photogrammetry, mapping for photography and photo-based inventory systems. Prerequisite: FRST 231. Corequisite: FRST 232. [3-2]

FRST 238 (3) FOREST MENSURATION. Forest inventory methods. Growth and yield prediction. Applications of multiple linear regressions and sampling techniques. Regeneration and residue surveys. Introduction to multiple resource inventories. Prerequisite: FRST 237 and one of MATH 101, MATH 103, MATH 105. [3-2]

FRST 239 (3) TREE AND STAND LEVEL MEASUREMENTS. An introduction to measurement of individual trees and stands; use of aerial photographs, maps, and various measurement instruments. Prerequisite: All of FRST 231, FRST 232. [3-2-0]

FRST 248 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in an approved organization for a minimum of 15 weeks. Restricted to students in the Co-operative Education Program in the Faculty of Forestry. Orientation workshops required. Final work term report required.

FRST 290 (3) RECREATION RESOURCE ADMINISTRATION AND MANAGEMENT. Study of the nature of management and conservation of wildland recreation resources; basic elements of recreation land use planning; recreation in forest management plans on public lands; tools of recreational land management. [2-2]

FRST 292 (3) RECREATION SITE PLANNING. Fundamentals of recreation site selection, site planning and conservation of non-timber values in wildland settings; inventory of recreational features and related habitat, visual, heritage

and subsistence resources; analysis of sensitivity of wildland recreation areas. [2-2]

FRST 300 (6) PRINCIPLES OF FOREST SCIENCES AND MANAGEMENT. Introduction to the biology underlying tree and stand growth and development, silvics and silviculture and techniques for managing the forest for a diversity of products and benefits. Not available for credit to undergraduate forestry students; no prerequisites. [3-0; 3-0]

FRST 302 (3) FOREST GENETICS. Population genetics and conservation of genetic resources; principles of genetics and their application to forestry. [2-2]

FRST 303 (3) PRINCIPLES OF FOREST SCIENCE. Introduction to growth of trees and forests with emphasis on evolutionary, ecological and environmental aspects. Not available for credit to undergraduate students in the Faculty of Forestry. [3-0-0]

FRST 304 (3) THE SCIENCE UNDERLYING FORESTRY ISSUES. Examination of current forestry issues with specific reference to their scientific basis. Not available for credit to undergraduate students in the Faculty of Forestry. [3-0-0]

FRST 305 (3) SILVICULTURE I. Silviculture concepts and principles; artificial regeneration and stand establishment; principles of forest tree improvement, seed handling, nursery practices, site preparation and vegetation management. Prerequisite: All of FRST 201, FRST 351. Third year standing in the BSF program is also acceptable. [3-4*]

FRST 306 (3) SILVICULTURE II. Stand tending practices; stand density management, pruning and fertilization; silvicultural systems; silviculture guides and development of prescriptions; elements of decision making, monitoring and control systems; connections to forest level planning. Prerequisite: All of FRST 305, FRST 351. [3-4*-0]

FRST 308 (2) FOREST ENTOMOLOGY. An introduction to insects which cause damage to forests and forest products; how insects live; life cycles and attack symptoms of representatives of major groups of insects; principles for control and management. [2-2]

FRST 309 (2) FOREST PATHOLOGY. Biology and management of forest tree diseases. Prerequisite: FRST 201. [2-4*-0]

FRST 310 (3) SOIL BIOLOGY. The diversity and interactions of soil organisms (bacteria, protozoa, fungi, animals, plants) in natural and managed ecosystems; roles in primary production, nutrient cycling, decomposition and reclamation; responses to environmental change. Prerequisite: BIOL 121. Corequisite: AGRO 342. [2-3-0]

FRST 311 (4) PLANT PHYSIOLOGY I. Mechanisms and regulation of functional processes contributing to the assimilation, transport and utilization of water, mineral nutrients and carbon by plants. CHEM 230 is recommended. Equivalency: BIOL 351, AGRO 324. [3-3-0]

FRST 312 (3) FOREST SOILS. Forest soil properties, processes, and fertility; forest soils in relation to resource management. Same as SOIL 403. Prerequisite: SOIL 200. Equivalency: SOIL 303. [3-2]

FRST 318 (3) FOREST AND CONSERVATION ECONOMICS. Practical problem solving of economic issues related to forestry and conservation, touching on investment analysis, capital budgeting, non-timber economics, ecosystem services, and forest certification. Completion of FRST 232 or intermediate knowledge of MS Excel essential. Prerequisite: ECON 101. [3-0-1]

FRST 319 (3) PRINCIPLES OF FORESTRY ECONOMICS. Introduction to the economics of production, distribution and consumption of goods and services produced by, and dependent on, the forest resource. Available only through Distance Education. Prerequisite: One of ECON 101, ECON 301.

FRST 327 (2) FOREST FIRE SCIENCE AND MANAGEMENT. Ecological effects of fire; fire behaviour; fire danger rating; principles of fire management and prescribed fire use. Prerequisite: All of SOIL 200, FRST 201. [2-4*-0]

FRST 332 (3) INTRODUCTION TO APPLIED MATHEMATICAL PROGRAMMING FOR FORESTRY. Decision analysis, linear programming, and computer simulation applied to forestry problems. Prerequisite: All of MATH 101, FRST 232. [3-1]

FRST 339 (3) FOREST LEVEL MEASUREMENT AND PRODUCTIVITY. Obtaining and forecasting information for stands and forests. Prerequisite: Third year standing in the B.S.F. program. [3-2-0]

FRST 346 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in an approved organization for a minimum of 15 weeks. Restricted to students in the Co-operative Education Program in the Faculty of Forestry. Final work term report required.

FRST 347 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in an approved organization for a minimum of 15 weeks. Restricted to students in the Co-operative Education Program in the Faculty of Forestry. Final work term report required.

FRST 348 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in an approved organization for a minimum of 15 weeks. Restricted to students in the Co-operative Education Program in the Faculty of Forestry. Final work term report required.

FRST 351 (2) INTERIOR FIELD SCHOOL. Field study at an interior BC location concentrating on land use, management and silviculture. Fees will be assessed to meet expenses. Prerequisite: FRST 201.

FRST 352 (2) INTEGRATED FIELD STUDIES IN FORESTRY. A series of one- to three-day field trips to forest sites in southwest British Columbia to demonstrate current practices and problems. Prerequisite: Third year standing in B.S.F. program.

FRST 385 (3) WATERSHED HYDROLOGY. Measurement and analysis of hydrological processes in response to forest management activities. Prerequisite: Third or fourth year standing in the Faculty of Forestry or Geography. [3-2-0]

FRST 386 (3) AQUATIC ECOSYSTEMS AND FISH IN FORESTED WATERSHEDS. Effects of forest management activities on fish and aquatic ecosystems. Prerequisite: Third year standing in the Faculty of Forestry. [3-2-0]

FRST 392 (3) RECREATION AND RESOURCE PLANNING. Lectures and demonstrations outlining concepts, and component elements of regional recreation planning in theory and in practice. [2-2]

FRST 395 (3) FOREST WILDLIFE ECOLOGY AND MANAGEMENT. Biology of important bird and mammal species resident in forested regions, with particular emphasis on the influences of silvicultural and logging practices. Prerequisite: One of FRST 201, BIOL 303. [3-2-0]

FRST 399 (3) INTRODUCTION TO RESEARCH METHODS. Lectures and seminars in research philosophies and the scientific method, with special emphasis on field research. [2-1]

FRST 403 (3) THE SUSTAINABILITY OF PRODUCTION IN MANAGED FOREST ECOSYSTEMS. Study of the functional and dynamic characteristics of forest ecosystems and their response to forest management using ecosystem-level microcomputer simulation models. Prerequisite: FRST 201. [3-2-0]

FRST 404 (4) ADVANCES IN SILVICULTURE. Fundamental silvicultural problems; the application of research findings to the practice of silviculture. Prerequisite: All of FRST 305, FRST 306. [4-0]

FRST 405 (3) FOREST ECOSYSTEMS. Ecosystem classification of BC forest land. The biogeoclimatic classification of BC as a basis for forest land management. [2-2]

FRST 406 (3) ADVANCED FOREST PATHOLOGY. Hereditary, physiological, anatomical, environmental, and microbiological factors influencing forest tree diseases. Given in alternate years. [2-2]

FRST 407 (1) VEGETATION MANAGEMENT. Theory of plant competition and vegetation dynamics; the biology of weedy and invasive species; assessment of vegetation problems; principles and techniques of forest vegetation control; impacts of vegetation management methods. Prerequisite: One of FRST 305, PLNT 304, FRST 338, BIOL 302, FRST 303. [1-0]

FRST 408 (3) PROBLEMS OF FOREST ENTOMOLOGY. Decision-making in the protection of forests from insects. Insect problems viewed from other disciplines of forestry. Bases of biological and economic evaluation, and choice of control methods. [2-2]

FRST 413 (3) ECOLOGICAL PLANT BIOCHEMISTRY. The structure, biosynthesis, distribution and biological function of

secondary plant metabolites. Prerequisite: All of BIOL 200, BIOL 201, BIOL 209 or BIOL 210 is recommended. Equivalency: BIOL 462. [3-0-0]

FRST 415 (3) FOREST POLICY. The development, implementation and analysis of forest policy. Prerequisite: Third or fourth year standing. [3-0-0]

FRST 418 (3) ECONOMICS OF SILVICULTURE. Economic analysis of individual silvicultural practices and silvicultural regimes; economic impact of large scale reforestation and silvicultural programs; institutional incentives and disincentives for silviculture investments. Prerequisite: One of FRST 318, FOPR 261. Corequisite: FRST 306. [3-0-0]

FRST 419 (3) ECONOMICS OF THE FOREST SECTOR. Basic economic constructs used to analyze key features of the forest sector including product prices, input prices, production levels, trade patterns and aggregate levels of product consumption. Prerequisite: ECON 101 and one of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184. [3-0-0]

FRST 420 (3) FOREST ENVIRONMENTAL MANAGEMENT. Forestry impacts upon environment; man's relationship to the forest; interactions of industrial forest practice with other resource uses, their economic implications and relevance; approaches to and problems of maintaining environmental quality. [2-2]

FRST 421 (3) INTEGRATED RESOURCES MANAGEMENT I. Introduction to the quantitative tools necessary in forest management. Prerequisite: All of FRST 238, FRST 332. Corequisite: One of FRST 319, FOPR 260. [3-2; 0-0]

FRST 422 (3) LAND INFORMATION SYSTEMS. Philosophy and methods of data collection, analysis and classification of land for multiple uses. Laboratories emphasize Geographic Information Systems. Same as SOIL 417. Equivalency: SOIL 417. [2-4]

FRST 423 (3) INTEGRATED RESOURCES MANAGEMENT II. The design of forests with respect to the availability of an array of values across time and across the geographic area of the forest. Prerequisite: FRST 421. [2-4]

FRST 424 (10) SUSTAINABLE FOREST MANAGEMENT. Integration of biophysical and socio-economic components of forest management. Prerequisite: Fourth year standing in the B.S.F. program. [0-0-20]

FRST 427 (3) ADVANCES IN FOREST FIRE SCIENCE AND MANAGEMENT. Fire in ecosystems; forest fire management policies; advanced fire management and use of prescribed fire; the application of research findings to fire management. Prerequisite: FRST 327. [2-4]

FRST 430 (3) ADVANCED BIOMETRICS. Analysis of variance, multiple regression and analysis of covariance. Design and analysis of experiments. Prerequisite: FRST 231. [3-2]

FRST 431 (3) SAMPLING METHODS. Theory and design of sampling techniques with

emphasis on application to natural resources. Prerequisite: FRST 231. [3-0-1]

FRST 436 (3) GROWTH AND YIELD.

Techniques of growth and yield projection and discussion of modelling approaches. Exploration of stand dynamics, quantitative implications of management treatments and environmental limitations to tree and stand growth. Prerequisite: FRST 339. [2-2-0]

FRST 439 (3) INTERNATIONAL FORESTRY.

The socio-economic, biological and technological aspects of forestry within the international frame, in both the developed and developing world. Regional studies and the role of national and international agencies. [2-2-0]

FRST 442 (3) PHOTO-INTERPRETATION OF FOREST LANDS.

Landform identification and terrain analysis from air photographs, application to forest and agricultural land mapping. [2-2-0]

FRST 443 (3) REMOTE SENSING IN FORESTRY AND AGRICULTURE.

Basic biological concepts related to interpretation of remote sensing data for land management, including the use of films and filters, and interpretation of air photographs, and other imagery. [2-2-0]

FRST 444 (3) AGROFORESTRY.

Integration of farms and forests, including tropical agroforestry systems, non-timber forest products, forest farming, woodlot management, silvopastoralism, riparian buffers, windbreaks, soil fertility improvement and nutrient cycling. Prerequisite: One of FRST 201, AGSC 260, BIOL 302. Equivalency: AGRO 444. [3-2-0]

FRST 445 (1) SEMINAR.

Oral presentation techniques and discussion of current forestry topics; reviews of important papers in forest periodicals. [0-1; 0-1]

FRST 446 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised work experience in an approved organization for a minimum of 15 weeks. Restricted to students in the Co-operative Education Program in the Faculty of Forestry. Final work term report required.

FRST 447 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised work experience in an approved organization for a minimum of 15 weeks. Restricted to students in the Co-operative Education Program in the Faculty of Forestry. Final work term report required.

FRST 448 (3) CO-OPERATIVE WORK PLACEMENT.

Supervised work experience in an approved organization for a minimum of 15 weeks. Restricted to students in the Co-operative Education Program in the Faculty of Forestry. Final work term report required.

FRST 449 (1-6) C DIRECTED STUDIES IN FORESTRY.

In special cases and with the approval of the instructor concerned, a student may carry on directed studies of specific problems in forestry.

FRST 451 (3) FIELD WORK IN HARVESTING, SILVICULTURE AND MENSURATION.

To be taken immediately prior to the commencement of fourth year. Fees will be assessed to meet the

expenses. Prerequisite: All of FRST 238, FRST 305, FRST 351.

FRST 452 (2) COASTAL FIELD SCHOOL.

Site diagnosis and preparation of management options in coastal forests. Extrasectional course; fees will be assessed to meet expenses. Prerequisite: Third or fourth year-standing in the B.S.F. program.

FRST 462 (3) INDUSTRIAL FOREST MANAGEMENT.

The relationships, interactions, functions, and objectives of the companies, governments, unions, and associations which make up the forest industry. [2-2]

FRST 465 (2) BUSINESS FUNDAMENTALS IN THE FORESTRY SECTOR.

Financial and marketing aspects of the forest industry. Prerequisite: Fourth year standing in the B.S.F. program. [2-1-0]

FRST 470 (3) FORESTS AND SOCIETY.

Social aspects of forestry and forest communities. Prerequisite: Third- or fourth-year standing. [3-0-1]

FRST 485 (3) FOREST WATERSHED MANAGEMENT.

Effects of land management on quality, quantity and timing of water flow. Prerequisite: FRST 385. [3-2-0]

FRST 490 (3) VISUAL RESOURCE MANAGEMENT.

Methodologies for analysis, design and management of the visual guidelines; operational policies of resource extraction industries and the implication on multiple land use management. Equivalency: LARC 340, LARC 542. [2-2]

FRST 491 (3) VISUALIZATION AND FOREST DESIGN.

GIS-based spatial planning and 3D landscape visualization for forest management. Prerequisite: Fourth year standing in the B.S.F. program. [3-0-1]

FRST 495 (3) BIOLOGICAL DIVERSITY AND FOREST MANAGEMENT.

Principles, problems, and practices of managing forests and nature reserves for biological diversity; integration of forestry and wildlife with particular emphasis on diversity of all life forms. Prerequisite: All of FRST 201, FRST 395. [2-2-0]

FRST 497 (2) GRADUATING ESSAY OR TECHNICAL REPORT.

A technical description of a study or a detailed literature review of at least 4,000 words, developed under the guidance of a Faculty member. Available only to students in their graduating year.

FRST 498 (6) B.S.C. THESIS IN FORESTRY.

An independent study or research project of a subject of special interest to the student under the direction of a staff member. The subject must be appropriate to the student's area of concentration.

FRST 499 (6) B.S.F. THESIS.

An independent study or research project on an approved topic, developed under the guidance of a Faculty member. Available only to students in their graduating year.

FRST 503 (3) PLANT MOLECULAR BIOLOGY LABORATORY.

Techniques of purification, cloning, sequencing, restriction-hybridization analysis of plant nucleic acids, in-vitro labeling

of plant nucleic acids and proteins, and electrophoresis and immunodetection of plant proteins. Offered by the Biotechnology Teaching Laboratory in cooperation with the Department of Forest Sciences. Admission to the course is limited and requires recommendation from the department head.

FRST 504 (3) LANDSCAPE ECOLOGY.

FRST 505 (1-6) C DIRECTED STUDIES IN FOREST SCIENCE.

FRST 506 (3) ADVANCED FOREST PATHOLOGY.

Hereditary, physiological, anatomical, environmental, and microbiological factors influencing forest tree diseases.

FRST 507 (1-6) D TOPICS IN FOREST SCIENCE.

FRST 508 (3) FOREST INSECT ECOLOGY.

Interactions between insects and forests; evaluation of current approaches to research in forest entomology; examination of theories and axioms; application of ecological principles in pest management.

FRST 509 (3) PLANT GENETIC ENGINEERING LABORATORY.

Techniques of vector preparation, electroporation, microprojectile bombardment, and Agrobacterium-mediated plant transformation; selection of transformants, plant regeneration and confirmation of gene transfer at the DNA, RNA and enzyme levels. Limited enrolment; consent of instructors. Equivalency: PLNT 514, BOTA 545. [0-0; 1-6]

FRST 510 (3) APPLIED POPULATION GENETICS.

Equivalency: BIOL 510.

FRST 512 (3) BELOWGROUND FOREST ECOSYSTEMS.

Review of current literature on specific topics in forest soil ecology, including bacterial endophytes, microbial diversity, nutrient cycling, and mycorrhizae.

FRST 513 (3) BIOTECHNOLOGY IN TREE IMPROVEMENT.

Advanced research topics and their application to forest genetics.

Emphasis on molecular genetics and experimental protocols. Prerequisite: BIOL 335 or permission of the instructor.

FRST 516 (3) TREE PHYSIOLOGY.

Growth and development of woody plants; physiological responses to abiotic and biotic environmental factors; consequences of silvicultural practices on physiological processes. Prerequisite: One of FRST 311, BIOL 351, PLNT 324. [3-2]

FRST 518 (3) ECOLOGICAL ECONOMICS.

Emphasis on forested ecosystems. Prerequisite: ECON 301.

FRST 518 (3) ECOLOGICAL ECONOMICS.

Emphasis on forested ecosystems. Prerequisite: ECON 301 or equivalent.

FRST 520 (3) LAND AND FOREST RESOURCE ECONOMICS.

Applications of advanced theory and quantitative analysis to problems in forest resource and land economics; multiple land use; institutions for sustainable land use; optimal management and policy. Equivalency: AGECE 520. [3-0]

FRST 521 (1–6) C TOPICS IN FORESTS AND SOCIETY.

FRST 522 (3) INDIGENOUS PEOPLES AND FOREST LAND MANAGEMENT. A survey of the conceptual and practical issues when indigenous peoples use forested lands and participate in the management of those lands.

FRST 523 (3) FOREST AND ENVIRONMENTAL POLICY.

FRST 524 (3) ENVIRONMENTAL PERCEPTION. Perceptual processes mediating behaviour in humans, with special attention given to the emotional processing of visual stimuli.

FRST 525 (3) VISUALISATION THEORY AND APPLICATIONS.

FRST 525 (1–6) D TOPICS IN FOREST MANAGEMENT.

FRST 526 (1–6) C DIRECTED STUDIES IN FORESTS AND SOCIETY.

FRST 530 (3) MULTIPLE REGRESSION METHODS. Matrix algebra; algebra and inference of multiple linear and multiple curvilinear regressions for solution of problems in forestry and related fields. Non-linear regression. Methods of least squares for analysis of variance and covariance.

FRST 531 (3) MULTIVARIATE STATISTICAL METHODS. Multivariate analysis of variance, cluster, principal components, factor, canonical and discriminant analysis. Theory and conceptual background are presented but emphasis is on selection of appropriate analysis and interpretation of results. Examples from forestry and related fields are analysed by computer programs at UBC.

FRST 532 (1–6) C DIRECTED STUDIES IN FOREST MANAGEMENT.

FRST 533 (1–6) C PROBLEMS IN STATISTICAL METHODS. Directed studies in problems of advanced statistical techniques as a tool in forest research.

FRST 536 (1–6) C ADVANCED STUDIES IN FOREST MENSURATION. Development and analysis of forest inventory systems; sequence and patterns of tree growth; analysis of crown development; improvement of stand growth and yield; methods of biomass analysis.

FRST 538 (2) TOPICS IN REMOTE SENSING.

FRST 539 (1–6) C PROBLEMS IN FOREST SAMPLING.

FRST 544 (2) TECHNICAL COMMUNICATION SKILLS I. Principles and practice of oral presentations.

FRST 545 (2) TECHNICAL COMMUNICATION SKILLS II. Theory and practice of technical communication necessary for preparation of effective scientific reports, reviews, grant proposals, journal articles and theses.

FRST 546 (6) RESEARCH METHODS AND PHILOSOPHIES IN SCIENCE. Lectures and seminars in research philosophies and methods with special emphasis on field and applied research. [3-0; 3-0]

FRST 547 (3) FORESTRY IN BRITISH COLUMBIA.

FRST 548 (3) MAJOR ESSAY. For non-thesis master's Degree Programs.

FRST 549 (6–18) C MASTER'S THESIS.

FRST 550 (6–18) D M.A.SC. THESIS.

FRST 553 (3) INTERNATIONAL TRADE IN FOREST PRODUCTS. Theory and practices of international trade and its application in timber and non-timber forest products, as well as environmental services.

FRST 556 (3) SOCIAL SCIENCE RESEARCH METHODS FOR STUDYING FORESTS AND SOCIETY.

FRST 560 (3) APPLICATION OF OPERATIONAL RESEARCH METHODS IN FOREST MANAGEMENT. Use of operational research methods in forest planning models; emphasis on algorithms, problem formulation and interpretation of results.

FRST 561 (3) SIMULATION MODELLING OF FOREST OPERATIONS AND PROCESSING FACILITIES. Principles and methodology for performing simulation experiments; emphasis on building, running, and analyzing simulation-based models applicable to forest operations and wood products processing.

FRST 570 (1–6) C DIRECTED STUDIES IN WOOD SCIENCE AND FOREST PRODUCTS.

FRST 572 (1–6) D TOPICS IN WOOD SCIENCE AND FOREST PRODUCTS.

FRST 573 (3) WOOD-FLUIDS RELATIONSHIPS. Wood sorption theories and thermodynamics, hygroexpansion; Darcian and non-Darcian flow of fluids in wood; coupled heat and moisture transfer; electrical and acoustical properties of wood.

FRST 575 (3) WOOD STRUCTURE. An investigation of the macroscopic, microscopic and ultrastructural characteristics of wood as a material and its resultant properties.

FRST 576 (3) ADVANCED WOOD MECHANICS. Analysis and design of structural wood products, influences of material inhomogeneity and variability; creep and time dependent fracture phenomena; structural performance of wood products such as panel products, lumber, glued laminated timber and I-Beams. Impact of codes on marketing of structural wood products.

FRST 578 (1–6) C DIRECTED STUDIES IN FOREST BUSINESS AND MANAGEMENT.

FRST 579 (3) FOREST PRODUCTS BIOTECHNOLOGY. Uses of genomic tools, microbiology and enzymology to enhance the processing and value of forest products. [3-3]

FRST 580 (1–6) D TOPICS IN FOREST BUSINESS AND MANAGEMENT.

FRST 581 (3) GLOBALIZATION AND THE MARKETING OF WOOD PRODUCTS. This course explores globalization, its impact on developing and developed countries, what this means to world trade in forest products and

emerging trends in globalization and the environment.

FRST 582 (4) CHEMICAL AND BIOLOGICAL ASPECTS OF WOOD. The chemical nature of wood; the chemical aspects of protective treatments and the fundamental interactions between bacteria/fungi and wood. The application of micro-organisms and enzymes to wood processing.

FRST 583 (3) WOOD PHYSICS AND MECHANICS. Wood-water interactions: thermal and electrical properties and heat transfer in wood; stress-strain relationships; fracture mechanisms (static and dynamic); the influence of material variability, changing resource characteristics, temperature, time and moisture content on mechanical properties and structural use of wood. [3-0]

FRST 588 (3) HEADWATER SYSTEMS. Hydrology, geomorphology and ecology of headwater streams and their catchments; significance of headwater streams to downstream reaches; management issues, particularly in the context of forest harvesting.

FRST 589 (4) RESEARCH METHODS IN FOREST HYDROLOGY.

FRST 590 (3) STATISTICAL METHODS IN HYDROLOGY.

FRST 592 (3) HYDROLOGICAL MODELLING APPLICATIONS IN FORESTRY.

FRST 593 (1–6) C PROBLEMS IN FOREST AND WILDLAND RECREATION. Analysis of and solutions to problems in administration and management of recreation resources in forests, wildlands and non-urban parks.

FRST 597 (1–6) C PROBLEMS IN FOREST WILDLIFE MANAGEMENT.

FRST 598 (3) TRACER METHODS IN HYDROLOGY. Application and modeling of natural and artificial tracers in hydrological systems to study transport behavior and watershed processes.

FRST 649 (0) PH.D. THESIS.

GENE — GENETICS FACULTY OF GRADUATE STUDIES

GENE 501 (3) GENETICS. A lecture series intended to acquaint graduate genetics students and those in related areas with advances in genetics and an overview of genetics in a variety of systems. The emphasis is on molecular genetics. Optional for students in the graduate genetics program. Prerequisite: All of BIOL 334, BIOL 335 or equivalent, and a third-year course in Biochemistry.

GENE 502 (3) GENETICS. A lecture series intended to acquaint graduate genetics students and those in related areas with advances in genetics and an overview of genetics in a variety of systems. The emphasis is on eukaryotic genetics. Required of students in the graduate genetic program. Prerequisite: All of BIOC 334, BIOC 335 or equivalent, and a third year course in Biochemistry.

GENE 549 (6/12) C M.SC. THESIS.

GENE 649 (0) PH.D. THESIS.

GEOG — GEOGRAPHY FACULTY OF ARTS

Students registered in the B.Sc. program in Geography may receive Arts credit for no more than two of the following courses: GEOG 290, 321, 327, 328, 329, 350, 360, 361, 362 and 363. These are the only Geography courses that will be considered as Arts electives for the B.Sc. in Geography. The following Geography courses may not be used for either Arts or Science designated credit but may be used as free electives: GEOG 210, 310, 311, 312, 315, 316, 317, 318, 319, 371, 374, 375, 410, 412, 475. The following GEOG courses have Science credit: 101, 102, 103, 200, 204, 205, 207, 270, 300, 304, 306, 307, 308, 309, 370, 372, 373, 376, 401, 402, 403, 404, 405, 406, 407, 408, 409, 444, 449, 471, 472, 500, 501, 502, 503, 504, 505, 506, 507, 508, 509. Additional fees are charged for some courses.

GEOG 101 (6) INTRODUCTION TO PHYSICAL GEOGRAPHY. Physical principles of climate, hydrology, geomorphology and biogeography, including human-induced changes. (Consult Credit Exclusion list within the Faculty of Science section of the Calendar).

GEOG 102 (3) INTRODUCTION TO PHYSICAL GEOGRAPHY: CLIMATE AND VEGETATION. Circulations and characteristics of the atmosphere including weather and global climates; biophysical processes governing vegetation on Earth; and human impacts. (Consult Credit Exclusion list with the Faculty of Science section in the Calendar.)

GEOG 103 (3) INTRODUCTION TO PHYSICAL GEOGRAPHY: WATER AND LANDSCAPES. The rock cycle, water cycle and hydrology; landforms and geomorphology; physical processes acting on the Earth's surface; and human impacts. (Consult Credit Exclusion list with the Faculty of Science section in the Calendar.)

GEOG 121 (3) GEOGRAPHY, MODERNITY AND GLOBALIZATION I. Human geography of the modern world, c. 1750–1945, including: pre-industrial societies, global encounters and conflicts, urbanization and regional growth; global migrations, trade and communications; imperialism and anti-imperialism; environment and war.

GEOG 122 (3) GEOGRAPHY, MODERNITY AND GLOBALIZATION II. The human geography of the modern world since 1945: global interdependence in economic geography, geopolitics, and cultural geography; consequences of modernization, including demography, urbanization and environmental effects; regional case studies; reactions to modernization. May be taken separately from GEOG 121.

GEOG 200 (3) ATMOSPHERIC ENVIRONMENTS. Physical principles underlying weather and climates. Thermal, moisture and wind climates at scales from valleys to the globe. Daily weather, air pollution, global change. Credit will be given for one only of

GEOG 200 or 204 or AGRO 244. Prerequisite: One of GEOG 101, GEOG 102 or first-year science.

GEOG 204 (3) FOREST AND AGRICULTURAL CLIMATOLOGY. Basic principles and processes of climatology. Energy and water balance concepts. Weather systems and climate change, microclimate of soils, crops, forests and animals. Credit will be given for only one of GEOG 200, 204, 300, or AGRO 244. Equivalency: AGRO 244.

GEOG 205 (3) INTRODUCTION TO HYDROLOGY. Principles of hydrology at site, watershed, and larger regional scales. Introduction to techniques of measurement and analysis. Emphasizes surface water hydrology of western North America. Prerequisite: One of GEOG 101, GEOG 102. GEOG 200 is recommended.

GEOG 207 (3) INTRODUCTION TO BIOGEOGRAPHY. Geographical ecology emphasizing plant distributions, abiotic-biotic interactions, effects of disturbance, succession, and human impacts across scales. Labs and field trips examine a local site. Prerequisite: Either (a) GEOG 101 or (b) all of GEOG 102, GEOG 103.

GEOG 210 (3) VANCOUVER AND ITS REGION. An integrated approach to the physical and human geography of the Lower Mainland of British Columbia. Field trips.

GEOG 250 (3) CITIES. An interdisciplinary introduction to the city in the context of contemporary globalization. Analysis of urban patterns and processes from the theoretical perspectives of various disciplines and methodologies. Equivalency: URST 200.

GEOG 270 (3) INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS. Computer-based graphical methods of data input and analysis. Emphasis on data visualization techniques such as cartographic modelling and exploratory data analysis. Prerequisite: Not available to those who completed GEOG 370 before September 2005.

GEOG 281 (3) GEOGRAPHY OF THE PACIFIC RIM. An introduction to changing geographies (social, economic, and political) of the Pacific Rim, with special emphasis on the relationships between Canada and Japan. Equivalency: ASTU 202.

GEOG 290 (3) INTRODUCTION TO THE GEOGRAPHY OF CANADA. Selected topics in human geography focusing on the regional distribution of natural resources, population, urban systems, and economic activities.

GEOG 300 (3) MICROSCALE WEATHER AND CLIMATE. Meteorology and climatology at the micro-, local, and meso-scales. Transfers and balances of heat, mass and momentum. Microclimates on scales of a leaf to those of a large valley. Credit will only be given for one of GEOG 204 or 300 or AGRO 244. Prerequisite: One of GEOG 200, ATSC 201.

GEOG 304 (3) SYNOPTIC METEOROLOGY AND CLIMATOLOGY. Analysis of meteorological fields, diagnostic analysis of synoptic

weather systems, applications of synoptic meteorology. Requires participation in weekly weather map discussion. Prerequisite: One of GEOG 200, ATSC 201.

GEOG 306 (3) PRINCIPLES OF GEOMORPHOLOGY. Processes and principles of landform development; morphological and historical analysis of landforms at various space and time scales; applications in engineering and resource development. Credit will be given for only one of GEOG 306, GEOL 351 and its predecessor GEOL 251. Prerequisite: One of GEOG 101, GEOG 103, EOSC 110. Equivalency: EOSC 330.

GEOG 307 (3) BIOGEOGRAPHY AND GLOBAL CHANGE. Biogeographic concepts in understanding responses in ecosystems to environmental change at global, regional and local scales. Conservation issues such as the loss of biodiversity and endangered species. Prerequisite: Either (a) one of GEOG 207, BIOL 302, BIOL 303 or (b) FRST 202.

GEOG 308 (3) QUATERNARY AND APPLIED GEOMORPHOLOGY. Quaternary landscape development emphasizing the history of glaciation with special reference to western North America; applications of geomorphology in resource development and land management; interpretation of quaternary materials. Weekend field trips required. Prerequisite: One of GEOG 306, EOSC 330.

GEOG 309 (3) PHYSICAL GEOGRAPHY FIELD COURSE. Field sampling, instrumentation, surveying and mapping techniques; data analysis and report writing; 1 lecture per week during term and 2 weeks at field camp in late April; special fees required; enrolment limited. Students will be responsible for transportation to and from the field camp and for liability insurance. Prerequisite: One of GEOG 200, GEOG 204 and GEOG 205.

GEOG 310 (3) ENVIRONMENT AND RESOURCES. Concepts of environment and resource; the role of physical geography in understanding the interaction of humans and the environment; introduction to the management of environment-resource systems. Prerequisite: GEOG 101 or 6 credits from GEOG 102, 103, 210.

GEOG 311 (3) PHYSICAL ENVIRONMENT OF THE CITY. The impact of urban development on the natural environment and vice versa. Urban ecology including hydrology, landforms, soils, vegetation, and wildlife. Urban pollution. Ecology and urban design. Prerequisite: 6 credits of first and second year physical geography (may also be taken as co-requisites).

GEOG 312 (3) THE GLOBAL CLIMATE SYSTEM. Climates over the geological, historical and instrument periods. Theories of climatic change. Monitoring and modelling the climate system. Impacts of change on environmental and socio-economic systems. Prerequisite: GEOG 101.

GEOG 315 (3) ENVIRONMENTAL INVENTORY AND CLASSIFICATION. Classification and inventory of those biophysical elements which influence people's use of air,

land, and water. Prerequisite: 6 credits from GEOG 101, GEOG 102, GEOG 103, GEOG 200 or 204, GEOG 205, GEOG 207.

GEOG 316 (3) GEOGRAPHY OF NATURAL HAZARDS. The role of geophysical events, human ecology, environmental perception, world social and political order in explaining the risk of natural disasters. Assessment of acceptable risk, disaster relief and reconstruction and contrasts between developed and developing nations. Prerequisite: Either (a) GEOG 101 or (b) all of GEOG 102, GEOG 103.

GEOG 317 (3) THE PHYSICAL ENVIRONMENT OF BRITISH COLUMBIA. The biophysical processes which are shaping and have shaped British Columbia; characteristic associations between landforms, climate, soil, and vegetation; biophysical constraints on air, land and water use. Prerequisite: 6 credits from GEOG 102 (or GEOG 200 or GEOG 204), GEOG 101, GEOG 103, GEOG 205, GEOG 207.

GEOG 318 (3) ENVIRONMENTAL CHANGE AND QUALITY. The physical and human causes of environmental change at various temporal and spatial scales. The impact of such change on the interpretation and measurement of environment quality. Will alternate with GEOG 319. Prerequisite: GEOG 310.

GEOG 319 (3) ENVIRONMENTAL IMPACT ASSESSMENT. The role of environmental impact assessment within the context of environmental management. Institutional arrangements for EIA in Canada and BC will be examined through the use of evaluative criteria and critical case studies. Will alternate with GEOG 318. Prerequisite: GEOG 310.

GEOG 321 (3) HISTORICAL GEOGRAPHY OF URBANIZATION. Geographic perspectives on the growth of urban regions; pre-industrial cities, urban growth during industrialization, anti-urban reaction. Prerequisite: GEOG 121 or the former GEOG 260.

GEOG 327 (3) HISTORICAL GEOGRAPHY OF CANADA, I: CANADA BEFORE 1850. Canada from the beginning of European contact to the mid-19th century, stressing the changing geographical patterns of settlement, economy, and culture.

GEOG 328 (3) HISTORICAL GEOGRAPHY OF CANADA, II: CANADA AFTER 1850. The spread of settlement, the growth of towns, and the development of economic and cultural regions in a Canada increasingly influenced by industrialization.

GEOG 329 (3) INTRODUCTION TO POLITICAL GEOGRAPHY. The heritage of political geography; the spatial structure of political organization including regional and global structures. Prerequisite: One of GEOG 121, GEOG 122 or the former GEOG 260; also open without this prerequisite to Major and Honours students in History, International Relations or Political Science.

GEOG 331 (3) GEOGRAPHY OF HEALTH AND HEALTH CARE. Explores the geographical dimensions of contemporary population health and health services research and policy.

GEOG 345 (3) GEOGRAPHIC THOUGHT AND PRACTICE. Major intellectual traditions of human and physical geography. Geographers and geography in society.

GEOG 350 (3) INTRODUCTION TO URBAN GEOGRAPHY. City systems and theories of urban location; internal spatial structure of the city; commercial and industrial location; social areas; neighbourhood and land use change; urban trends and public policy. Prerequisite: One of GEOG 121, GEOG 122, URST 200 or the former GEOG 260.

GEOG 352 (3) URBANIZATION IN THE GLOBAL SOUTH. Urbanization in the developing countries of Latin America, Africa, and Asia; the role of cities in the development process and the features and problems of rapid urbanization.

GEOG 353 (3) GEOGRAPHIES OF MIGRATION AND SETTLEMENT. International regimes regulating migration, changes in global demographics, immigration policies of nation states, international migration patterns, settlement policies and outcomes.

GEOG 357 (3) INTRODUCTION TO SOCIAL AND BEHAVIOURAL GEOGRAPHY. The development of social and behavioural geography; focus on such topics as environmental perception and microgeography, approached from institutional and interactionist perspectives. Prerequisite: One of GEOG 121, GEOG 122.

GEOG 360 (3) GEOGRAPHY OF RETAIL, WHOLESALE, AND SERVICE ACTIVITIES. Contemporary patterns of economic activity. The geographical and policy factors which shape them. Introduction to spatial analysis of consumer demand and industrial organization and policy. Focus on such topics as the location of shopping centres and office complexes. Prerequisite: GEOG 122 or the former GEOG 260.

GEOG 361 (3) INTRODUCTION TO ECONOMIC GEOGRAPHY. History and methods of economic geography. Location of resource industries, manufacturing, and service activities with emphasis on British Columbia in its North American and world setting. Recommended for students with no previous exposure to Economic Geography, before taking other courses in the 36x and 46x series. Prerequisite: GEOG 122.

GEOG 362 (3) GEOGRAPHY OF ECONOMIC DEVELOPMENT. Geographical approaches to economic development; models of economic development and spatial change; influences on spatial economic change; case studies from the developed, third, and socialist worlds. Prerequisite: Either (a) GEOG 122 or (b) GEOG 260.

GEOG 363 (3) THE GEOGRAPHY OF RESOURCE INDUSTRIES. Geographical analysis of selected resource industries of importance to Canada. Each year a selection will be made from the agriculture, forestry, fishing, mining, energy, and recreation sectors which will be dealt with in international and national contexts. Prerequisite: Either (a) GEOG 122 or (b) GEOG 260.

GEOG 371 (3) RESEARCH STRATEGIES IN HUMAN GEOGRAPHY. Formulating a research problem and selecting an appropriate research strategy. Research strategies range from social scientific survey methods to ethnography. Priority enrollment for Honours and Major students in Geography.

GEOG 372 (3) CARTOGRAPHY. Cartographic methods: development of cartography; projections; data ordering, compilation and symbolization; cartographic design, map reproduction. Prerequisite: 6 credits from GEOG 101, GEOG 102, GEOG 103, GEOG 200 or GEOG 204, GEOG 205, GEOG 207.

GEOG 373 (3) INTRODUCTORY REMOTE SENSING. Aerial photography; measurement from aerial photographs; photo-interpretation in geographic analysis; remote sensing of the earth's surface and atmosphere. Prerequisite: GEOG 270. Or third year standing in a Geography B.Sc. degree program.

GEOG 374 (3) STATISTICS IN GEOGRAPHY I. Introduction to statistical techniques and their application to geographical problems. Priority enrollment for Honours and Major students in Geography.

GEOG 376 (3) ADVANCED GEOGRAPHIC INFORMATION SYSTEMS. Theoretical and practical aspects of Geographic Information Systems, including cartographic modelling, digital terrain models, management issues and spatial interpolation. Prerequisite: Not available to those who completed GEOG 470 before September 2005. Prerequisite: GEOG 270 or completed second year of Geography B.Sc. with some introductory knowledge of GIS.

GEOG 379 (3/6) D FIELD COURSE IN HUMAN GEOGRAPHY. As announced by the department a year in advance. Prerequisite: The relevant core course(s).

GEOG 380 (3) INTRODUCTION TO THE GEOGRAPHY OF ASIA. A comparative regional analysis stressing the historical development and changing cultural, economic, and political patterns of the area. Special reference to India, Indonesia, China, and Japan.

GEOG 390 (3/6) D GEOGRAPHY OF SELECTED REGIONS. A geographical analysis of selected regions not regularly included in the Department's offerings in regional geography (e.g., tropical Africa, Oceania). Students should consult the Department regarding regions to be covered.

GEOG 391 (3) GEOGRAPHY OF EUROPE. An introductory survey, focusing on the origins of the present-day human geography of the area between the Atlantic and the Ural Mountains.

GEOG 395 (3) INTRODUCTION TO THE GEOGRAPHY OF THE AMERICAS. Physical environment, demographic and cultural patterns, trends in settlement and resource use. Frequent interamerican comparisons, especially along critical contact zones and regarding implications of liberalized relations.

GEOG 401 (3) URBAN METEOROLOGY. The impact of urbanization upon atmospheric processes and climates. The energy and water

balances of cities. Meteorological effects (urban heat island, precipitation modification, etc) and their significance. Models of the urban atmosphere. Prerequisite: One of GEOG 204, GEOG 300, AGRO 244.

GEOG 402 (3) AIR POLLUTION

METEOROLOGY. The nature of atmospheric pollutants. The ability of the atmosphere to disperse, transform and remove pollutants. Air pollution dispersion models. Air quality monitoring, criteria and standards. Prerequisite: GEOG 300.

GEOG 403 (3) CATCHMENT HYDROLOGY.

Hydrometeorology ; runoff processes; stream-water chemistry in relation to runoff processes; effects of climate variations and land cover change on streamflow regimes; models of catchment hydrology. Prerequisite: One of GEOG 200, GEOG 204 and one of GEOG 205, FRST 385 and one of STAT 200, FRST 231, BIOL 300.

GEOG 404 (3) NATURAL HAZARDS

ANALYSIS. Description, analytical methods, case histories and environmental aspects of natural hazard mitigation. Extreme event statistics, mountain slope hazards, flooding, earthquake, risk mapping and decisions, zoning, vulnerability analysis. Field trip required. Open to fourth-year students only.

GEOG 405 (3) FLUVIAL GEOMORPHOLOGY.

Introduction to open channel flow and sediment transport. River morphology and channel types. Palaeohydrology. The development of channel networks. Prerequisite: GEOG 306.

GEOG 406 (3) HILLSLOPE GEOMORPH.

Hillslope processes and their rates of operation. Spectrum of geomorphic events on slopes and phenomena resulting from instability on soil and snow slopes. Slope evolution over long periods. Prerequisite: GEOG 306.

GEOG 407 (3) VEGETATION DYNAMICS: DISTURBANCE, CLIMATE AND HUMAN IMPACTS.

Investigation of vegetation dynamics integrating theory and research to address contemporary issues of global environmental change. Students will conduct fieldwork and learn to analyze data and interpret results. Prerequisite: Either (a) one of GEOG 207, BIOL 302 or (b) one of BIOL 303, FRST 201.

GEOG 408 (3) SNOW AND ICE PROCESSES.

Formation of snow and ice masses and their evolution including snowpacks, glaciers and sea ice. Relationships between snow, ice and climate including avalanche forecasting. Weekend field trips. Prerequisite: All of GEOG 205, PHYS 101.

GEOG 410 (3) ENVIRONMENT AND SOCIETY.

Geographical analysis of society-environment relations. Relates resource management to environmental politics, political economy, and sustainable development. Perspectives drawn from social and natural sciences. Prerequisite: GEOG 310.

GEOG 411 (3) ENVIRONMENT AND EMPIRE.

Environmental changes since 1500, as a consequence of cultural contact, 'ecological

revolutions,' colonial settlement, resource development and biophysical processes. Perspectives drawn from geography, environmental history and ecological sciences. Prerequisite: Third or fourth year standing and 6 credits of first and second year physical geography (may be taken as corequisites).

GEOG 412 (3) WATER MANAGEMENT: THEORY, POLICY, AND PRACTICE.

Prerequisite: GEOG 310.

GEOG 422 (3) MODES OF SUBSISTENCE. The nature of subsistence systems antedating or alternative to modern commercial systems.

Introductory survey with basic readings; focus on problems such as the development of complex cultures without agriculture, the ambiguity of hunting and gathering, agricultural and other "intensification," "orchestration" of the use of adjacent microenvironments. Of interest to students of archaeology, anthropology and cultural geography. Same as ANTH 422. Equivalency: ANTH 422.

GEOG 423 (3) DEVELOPMENT OF ENVIRONMENTAL THOUGHT. An examination of attitudes that have influenced land use and environmental change in the past and present. Prerequisite: GEOG 310.

GEOG 424 (3) FEMINIST GEOGRAPHIES. An introductory survey of contemporary feminist approaches to human geography.

GEOG 425 (3) HISTORICAL GEOGRAPHY OF CHINA. China from the Neolithic, stressing the beginnings and changing geographical patterns of various technologies and economies, institutions, and cultures. Normally alternates with GEOG 485.

GEOG 426 (3) HISTORICAL GEOGRAPHY OF BRITISH COLUMBIA, I. Colonialism, resistance, and land use in early British Columbia. Prerequisite: GEOG 327 and GEOG 328 are recommended.

GEOG 428 (3) HISTORICAL GEOGRAPHY OF BRITISH COLUMBIA, II: RESEARCH SEMINAR. Approaches to research in historical geography. Field trip: participation recommended but not required. This course is not open to students who have taken GEOG 427. Limited enrolment for non-Geography majors. Prerequisite: GEOG 426 and one of GEOG 321, GEOG 327, GEOG 328, GEOG 445, HIST 404, ANTH 304, ANTH 332, HIST 400.

GEOG 440 (3) POWER, KNOWLEDGE AND HUMAN GEOGRAPHY. Geography as discourse; power, modernity and the production of space; imaginative geographies and the representation of space. Prerequisite: GEOG 345.

GEOG 444 (3/4) C DIRECTED STUDIES IN PHYSICAL GEOGRAPHY. For fourth-year students in Geography to permit investigation of a topic to be agreed upon by a member of the faculty and the student. Permission of the department head and of a supervisory faculty member is required. Credit will be given for only one of GEOG 444 and 448.

GEOG 446 (3) TOPICS IN GEOGRAPHY. See the departmental undergraduate adviser for details.

GEOG 447 (3) DIRECTED STUDIES: OFF CAMPUS RESEARCH. Based on project work outside the university. Not available to co-op students. See the departmental undergraduate adviser for details. Prerequisite: Permission of the department head and at least 15 credits of relevant 300- or 400- level Geography courses.

GEOG 448 (3) DIRECTED STUDIES IN GEOGRAPHY. For fourth-year students in Geography to permit investigation of a topic to be agreed upon by a member of the faculty and the student. Prerequisite: Permission of the department head and supervising faculty member is required. Equivalency: GEOG 444.

GEOG 449 (3/6) D HONOURS ESSAY. Carries 6 Science credits for students in the Faculty of Science, except for Honours Climatology students, who will receive only three Science credits.

GEOG 450 (3) URBAN ANALYSIS.

Geographic analysis of selected problems of the internal structure of cities and urban systems. Prerequisite: GEOG 350 or permission of the instructor.

GEOG 453 (3) POLITICAL GEOGRAPHIC ANALYSIS. Analysis of the political organization of space at selected geographic scales (international to urban); development of political policy, organization, and behaviour, and their locational consequences; decision making and conflict resolution. Prerequisite: One of GEOG 329, GEOG 350.

GEOG 456 (3) FILM AND THE CITY. The complex interrelations between film and the city; dominant urban theories, film technologies and viewing practices and the intersections between them. Equivalency: FINA 445, ARTH 445.

GEOG 457 (3) SOCIAL AND BEHAVIOURAL GEOGRAPHY. Traditions in social geography; the French school; the concept of place; social space; class, caste, and spatial behaviour; urban perception; controlling urban space; territorial groups; urban behaviour settings; decision-making worlds in the city; urban microstudies in North America and Europe; the meaning of the city. Prerequisite: One of GEOG 350, GEOG 357.

GEOG 460 (3) GEOGRAPHY OF MANUFACTURING. Industrial location theory; factors in the location of the firm; manufacturing and regional development. Case studies. Field trip. Prerequisite: GEOG 361 or the former GEOG 260.

GEOG 464 (3) SPATIAL INTERACTION. The concepts of distance and accessibility; theories relating to diffusion, commodity flow, and human travel behaviour, and their application to economic activity analysis. Prerequisite: One of GEOG 350, GEOG 361.

GEOG 468 (3) GEOGRAPHY OF INTERNATIONAL ECONOMIC SYSTEMS: CANADA AND THE PACIFIC BASIN. An introduction to the study of international economic systems illustrated by the study of Canada's relations with the countries located in the Pacific Basin. Normally alternates with GEOG 481.

GEOG 471 (3) APPLIED CONCEPTS IN GEOGRAPHIC INFORMATION SYSTEMS. Applications in conservation biology, crime analysis, and health geography; theoretical and practical aspects considered in a hands-on environment. Prerequisite: GEOG 376.

GEOG 472 (3) ADVANCED CARTOGRAPHY. Seminar course to discuss a wide range of contemporary topics in cognitive, social and technical cartography and data visualization. Includes reading assignments, discussions and computer mapping projects. Prerequisite: One of GEOG 270, GEOG 372 or permission of instructor.

GEOG 475 (3) SPATIAL DATA ANALYSIS. Introduction to computer programming and techniques for managing, analyzing, and mapping spatial data; complemented by assignments using package computer programs and GIS. Prerequisite: GEOG 270 or completed second year of a Geography B.Sc. with some introductory knowledge of GIS.

GEOG 481 (3) GEOGRAPHY OF JAPAN. A critical analysis of significant human adaptations to changing ecological conditions in the Japanese archipelago. Normally alternates with GEOG 468. Prerequisite: GEOG 380 is recommended.

GEOG 484 (3) GEOGRAPHY OF SOUTHEAST ASIA. A critical analysis of significant features of political, economic, and cultural development in the region from pre-colonial times to the present. Prerequisite: GEOG 380 is recommended.

GEOG 485 (3) GEOGRAPHY OF CHINA. An introduction to the changing cultural, social and economic geography of China. Normally alternates with GEOG 425. Prerequisite: GEOG 380 is recommended.

GEOG 493 (3) GEOGRAPHIES OF POST COLD WAR EUROPE. Political, economic, and social geographies of post Cold War Europe with a special emphasis on east-central Europe: societal transformations in the formerly socialist states; European Union and NATO enlargement; the external relations of these two organizations. Prerequisite: GEOG 391 is recommended.

GEOG 494 (3) GEOGRAPHY OF THE EX-SOVIET STATES. Soviet policies for economic and social development: their regional impact and their legacy for the ex-Soviet states. Current regional development problems in the ex-Soviet realm. Topics and regions examined vary from year to year. Normally alternates with GEOG 493. Prerequisite: GEOG 391.

GEOG 495 (3) CHANGING LATIN AMERICAN LANDSCAPES. Contemporary environmental issues in Latin America, including differing forms of environmental degradation and

proposed solutions such as protected area conservation. Prerequisite: GEOG 395 is recommended.

GEOG 496 (3) GEOGRAPHY OF AFRICA. A critical introduction to social, political and economic geographies of Africa from pre-colonial times to the present, with a focus on contemporary environmental and development issues. Prerequisite: One of GEOG 329, GEOG 350. GEOG 362 recommended.

GEOG 497 (3) ARCTIC GEOGRAPHY. Physical and biological characteristics of the circumpolar Arctic, emphasizing terrestrial environments and the impacts on and by humans, including: glacial history; climatology; biogeography/ecology of arctic tundra; human-environment interactions, settlement and exploration; and current environmental, social and economic problems.

GEOG 499 (3) ECONOMIC AND SOCIAL GEOGRAPHY OF CANADA. An examination of the political economy of regionalism in Canada. Geographical attributes of selected contemporary issues. Open to fourth-year students only. Prerequisite: GEOG 290 and one of GEOG 327, GEOG 328.

GEOG 500 (3) CONTEMPORARY RESEARCH TRENDS IN PHYSICAL GEOGRAPHY. Contemporary research trends in physical geography. Description and identification of environmental systems. Appropriate measurement and sampling designs in physical geography. Students from outside Geography and Atmospheric Science require the permission of the Head of the department.

GEOG 501 (3) PROCESSES IN GEOMORPHOLOGY. Theoretical and empirical analyses of the major processes of landscape evolution with particular emphasis on fluvial and glacial processes and mass movement.

GEOG 503 (3) TOPICS IN GEOMORPHOLOGY AND HYDROLOGY. Experimental methods and scale problems in geomorphology and hydrology; runoff and sediment and solute source analysis; watershed mass balance and management. Topics chosen to fit student needs in any given year.

GEOG 504 (3) TOPICS IN CLIMATOLOGY. An introduction to the historical context, theory, and methods associated with current research topics in climatology. Topics chosen to fit the needs of the students in any given year.

GEOG 505 (3) PERMAFROST. Occurrence and characteristics of frozen ground, with particular reference to ground ice. Climatic and other environmental determinants of geocryological phenomena. Theory of ground ice formation. Patterned ground.

GEOG 506 (3) TREE-RING RESEARCH: THEORY AND APPLICATION.

GEOG 507 (3-6) C DIRECTED STUDIES IN PHYSICAL GEOGRAPHY.

GEOG 508 (3/6) D ADVANCED SEMINAR IN GEOMORPHOLOGY.

GEOG 509 (3/6) D ADVANCED SEMINAR IN CLIMATOLOGY.

GEOG 512 (3) CLIMATE CHANGE IN THE 21ST CENTURY. Historical, methodological, and policy dimensions of climate change in the 21st century. Application of natural and social science literature to climate science, impacts on ecosystems and societies, and response options. Equivalency: RMES 520.

GEOG 514 (3) TOPICS IN ENVIRONMENTAL GEOGRAPHY. Prerequisite: GEOG 520.

GEOG 515 (3) SATELLITE REMOTE SENSING APPLICATIONS TO OCEANOGRAPHY AND METEOROLOGY. A review of the many satellite-sensed data products used in both research and operational aspects of oceanography and meteorology. Equivalency: EOSC 582.

GEOG 517 (3) ENVIRONMENTAL SUSTAINABILITY. Environmental sustainability is examined through conceptual literature and empirical examples. Emphasis on resources and livelihoods in the South and North. Case studies are used to discuss sustainable development, and the distribution of costs and benefits associated with resources allocation, with perspectives drawn from political ecology and economy, environmental history and philosophy.

GEOG 519 (3) ENVIRONMENT, DEVELOPMENT AND SECURITY. Analysis of environment-development-security linkages in relation to livelihoods and conflicts in poor countries, with a focus on Africa.

GEOG 520 (3) THEMES AND INTERPRETIVE ISSUES IN MODERN HUMAN GEOGRAPHY. Themes and interpretive issues in modern human geography. Students from outside Geography require the permission of the Head of the department.

GEOG 521 (3) PHILOSOPHY, SOCIAL THEORY, AND HUMAN GEOGRAPHY.

GEOG 522 (3) FEMINISM AND GEOGRAPHY. Feminist critiques of the discipline of geography and feminist reconstructions of geography.

GEOG 523 (3/6) ADVANCED SEMINAR IN HUMAN GEOGRAPHY.

GEOG 524 (3/6) D CULTURAL GEOGRAPHY.

GEOG 525 (3) CULTURES OF NATURE IN CONTEMPORARY POLITICAL ECOLOGIES.

GEOG 527 (3) REMAKING NORTH AMERICA: HISTORICAL GEOGRAPHIES OF CHANGING ENVIRONMENTS.

GEOG 528 (3) SOCIETY AND ENVIRONMENT IN BRITISH COLUMBIA.

GEOG 533 (3) POLITICAL GEOGRAPHY.

Investigate how politics is bound with territorial definition. Examine how the management of political issues is intertwined with the ways in which these issues are understood in geographical and territorial terms.

GEOG 545 (3/6) D TOPICS IN HUMAN GEOGRAPHY.

GEOG 547 (3/6) D DIRECTED READING IN HUMAN GEOGRAPHY.

GEOG 548 (0) MAJOR ESSAY.

GEOG 551 (3) URBAN SOCIAL GEOGRAPHY.

GEOG 552 (3) URBAN SYSTEMS IN DEVELOPED COUNTRIES.

GEOG 553 (3) URBANIZATION IN DEVELOPING COUNTRIES.

GEOG 554 (3) HISTORICAL URBAN GEOGRAPHY.

GEOG 560 (3/6) D ECONOMIC GEOGRAPHY.

GEOG 570 (3) ADVANCED GEOGRAPHIC INFORMATION SYSTEMS.

GEOG 572 (3/6) D SPATIAL AND CARTOGRAPHIC TECHNIQUES.

GEOG 599 (15) MASTER'S THESIS.

GEOG 699 (0) PH.D. THESIS.

GERM — GERMAN FACULTY OF ARTS

GERM 100 (3) BEGINNERS' GERMAN I.

Introduction to the language. Ability to communicate accurately in a variety of everyday situations. See also GERM 433.

GERM 110 (3) BEGINNERS' GERMAN II.

Introduction to the language. Ability to communicate accurately in a variety of everyday situations, speak about past events and express ideas and hypotheses in German. See also GERM 433. Prerequisite: GERM 100.

GERM 200 (3) INTERMEDIATE GERMAN I.

Competence and fluency in everyday situations; ability to report and narrate past events fluently and to express opinions; familiarity with contemporary issues in the German-speaking societies. Prerequisite: Either (a) GERM 110 or (b) GERM 12.

GERM 210 (3) INTERMEDIATE GERMAN II.

Competence and fluency in everyday situations; ability to report and narrate past events fluently and to express opinions; familiarity with contemporary issues in the German-speaking societies; introduction to German for professional purposes. Prerequisite: GERM 200.

GERM 213 (3) REFRESHER I. Grammar-based course for students with previous untutored exposure to German and students with a first-year knowledge in need of grammar review.

GERM 300 (3) INTERMEDIATE GERMAN III.

Fluency in many relevant situations; competence in the most important areas of cultural life; familiarity with study resources and study skills. Review and expansion of grammar; fostering of speaking and writing skills. Prerequisite: GERM 210.

GERM 301 (3) TWENTIETH-CENTURY GERMAN LITERATURE (IN ENGLISH).

Reading and discussion of selected works against the background of literary, social, and political developments in twentieth-century Germany with special emphasis on plays and novels dealing with the First World War and Nazism.

GERM 302 (3) CONTEMPORARY GERMAN LITERATURE (IN ENGLISH). Reading and discussion of selected literary works from West, East, and the United Germany, as well as from Austria and Switzerland.

GERM 310 (3) INTERMEDIATE GERMAN IV. Fostering of the ability to discuss controversial issues, express ideas clearly in writing and write essays on selected topics in German. Ongoing grammar review and expansion. Prerequisite: GERM 300.

GERM 313 (3) CONVERSATIONAL

GERMAN II. Emphasis on the study of oral communication skills and strategies. Fluency in many situations, communicative competence in important areas of cultural life, ability to participate in discussions of current as well as controversial issues to express ideas clearly in spoken word. Prerequisite: GERM 210 or equivalent.

GERM 314 (3) BUSINESS GERMAN. Review of the most important grammatical patterns in application to business geography, import-export trade, marketing, finance, accounting, taxation, workplace conditions and requirements; oral and written forms of presentation for work with German business. Prerequisite: GERM 210.

GERM 319 (3) CANADIAN GERMAN CULTURAL DIALOGUES. Analysis of intercultural theory; examination of Canadian and German print and video materials. Includes direct audio/visual intercultural online discussion with German-speaking students at the University of Kiel. Prerequisite: GERM 210.

GERM 339 (3/6) D THIRD-YEAR HONOURS TUTORIAL.

GERM 360 (3) HEAVEN AND EARTH: STUDIES IN GERMAN CULTURE AND LITERATURE BEFORE 1700. Masterpieces and major trends of the German literature of the Middle Ages, Renaissance and Baroque against the larger background of the political and social developments of the period.

GERM 370 (3) REASON AND REVOLUTION: STUDIES IN THE 18TH CENTURY. Masterpieces and major trends of eighteenth-century German literature against the larger background of the political and social developments of the period.

GERM 380 (3) TRADITION AND CHANGE: STUDIES IN THE 19TH CENTURY. Masterpieces and major trends of nineteenth-century German literature against the larger background of the political and social developments of the period.

GERM 390 (3) PROGRESS AND DISASTER: STUDIES IN THE 20TH AND 21ST CENTURIES. Masterpieces and major trends of 20th and 21st-century German literature against the larger background of the political and social developments of the period.

GERM 400 (3) ADVANCED GERMAN I. Near-native competence and thorough understanding of critical contemporary topics in a limited number of areas fostering study skills. All skills will be fostered but the course focuses on

accurate writing and conversation in particular. Prerequisite: GERM 310.

GERM 401 (3) THE CULT OF THE HERO AND ITS PARODY IN GERMAN LITERATURE. The glorification and satirization of heroes and heroism in a variety of genres and periods. Works and authors to be studied might include Nibelungenlied, Faust, Gryphius, Kleist, Fontane, Brecht, Remarque.

GERM 402 (3) WORDS AND MUSIC IN GERMAN LITERATURE. Study of individual works and of genres in which words and music have achieved symbiosis. Emphasis will be on the words, but the works as a whole will also be studied. Possible works and authors or composers: Lutheran hymn, Volkslied, Bach cantata, Romantic Lied, Zauberflöte, Richard Strauss, Brecht songs. The scope may be expanded to include music and the musician as a subject in literature.

GERM 403 (3/6) D STUDIES IN MODERN GERMAN CULTURE (IN ENGLISH). Topics of special interest, varying from year to year.

GERM 405 (3) THE LITERATURE OF GROWING SOCIAL CONSCIOUSNESS. Concentrates on the late 18th to the early 20th century. This course traces the reflections in German literature of changes in social, political, cultural and gender concepts. Readings are drawn from a variety of genres.

GERM 406 (3/6) D SELECTED TOPICS IN GERMAN LITERATURE. A study in depth of one topic of special interest, varying from year to year depending on interests of faculty and students. Possible topics: literature and film, the image of the outside world in German literature, individualism and conformism.

GERM 407 (3) THE GERMAN LYRIC FROM GOETHE TO THE PRESENT. Reading and discussion of selected texts against their cultural, social and political background.

GERM 408 (3) SELECTED ISSUES IN GERMAN CULTURE. In depth study of one topic from German cultural history, varying from year to year. Possible topics: Germany of the New Europe; Gender and nation in German culture; topics from theory, such as the Frankfurt School.

GERM 410 (3) ADVANCED GERMAN II. Development of capabilities to deal with a variety of authentic texts from and about Germany, Austria and Switzerland; fostering of communicative skills, cross-cultural analysis and critical thinking; effective and accurate communication in both spoken and written German. Prerequisite: GERM 400.

GERM 414 (3) BUSINESS GERMAN. Review of the most important grammatical patterns in application to business geography, import-export trade, marketing, finance, accounting, taxation, workplace conditions and requirements; oral and written forms of presentation for work with German business. Formerly GERM 314. Prerequisite: GERM 300 or equivalent.

GERM 420 (3) ADVANCED GERMAN III. Near-native competence and an advanced and transferable understanding of contemporary issues. Prerequisite: GERM 420.

GERM 430 (3) ADVANCED GERMAN IV. Near-native competence and an advanced and transferable understanding of contemporary issues, intercultural comparisons and analyses in a variety of fields using German as the focus and means of communication. Prerequisite: GERM 400.

GERM 433 (3) GERMAN FOR READING KNOWLEDGE I. A multimedia introduction to reading skills in German leading to a second year reading knowledge in just one term. Students are expected to work largely independently. Course restricted to beginners or to students with no more than one term of beginner's German (or equivalent).

GERM 434 (3) GERMAN FOR READING KNOWLEDGE II (LANGUAGES FOR SPECIAL PURPOSES). Multimedia teaching of reading skills in German for special purposes. Students are expected to work largely independently. Focuses on specific topics of the student's choice in the humanities, the natural sciences, economics/business and music and enhances skills in technical reading. Prerequisite: GERM 433 or no more than one year of beginner's German.

GERM 439 (3/6) D FOURTH-YEAR HONOURS SEMINAR.

GERM 449 (6) HONOURS ESSAY.

GERM 500 (3/6) D RESEARCH METHODS.

GERM 501 (3/6) C CRITICAL APPROACHES TO LITERATURE.

GERM 502 (3/6) D HISTORY OF THE GERMAN LANGUAGE.

GERM 503 (3/6) D INTRODUCTION TO MIDDLE HIGH GERMAN.

GERM 505 (3) THE ACQUISITION OF GERMAN AS A FOREIGN LANGUAGE. Foundations, methods, and findings of second-language acquisition research in the field of German as a foreign language Taught in German. An introductory 6-credit course in linguistics is recommended as preparation for this course.

GERM 506 (3/6) D INTERCULTURAL COMPETENCE AND SECOND LANGUAGE ACQUISITION.

GERM 511 (3/6) D STUDIES IN MEDIEVAL LITERATURE.

GERM 512 (3/6) D STUDIES IN RENAISSANCE LITERATURE.

GERM 513 (3/6) D STUDIES IN BAROQUE LITERATURE.

GERM 514 (3/6) D STUDIES IN THE LITERATURE OF THE 18TH CENTURY.

GERM 515 (3/6) D STUDIES IN THE CLASSICAL PERIOD.

GERM 516 (3/6) D STUDIES IN ROMANTICISM.

GERM 517 (3/6) D STUDIES IN THE LITERATURE OF THE 19TH CENTURY.

GERM 518 (3/6) D STUDIES IN EXPRESSIONISM.

GERM 519 (3/6) D STUDIES IN THE LITERATURE OF THE EARLY 20TH CENTURY.

GERM 520 (3/6) D STUDIES IN LITERATURE AFTER 1945.

GERM 531 (3/6) D SPECIAL TOPICS.

GERM 532 (3/6) D GENRE STUDIES.

GERM 533 (3/6) D STUDIES IN INDIVIDUAL AUTHORS.

GERM 534 (3/6) D STUDIES IN AUSTRIAN LITERATURE.

GERM 547 (3/6) C GUIDED RESEARCH.

GERM 548 (3) MAJOR ESSAY.

GERM 549 (9) MASTER'S THESIS.

GERM 649 (0) PH.D. THESIS.

GREK — GREEK FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnrs.ubc.ca.

GREK 100 (6) FIRST-YEAR CLASSICAL AND HELLENISTIC GREEK.

GREK 200 (6) SECOND-YEAR CLASSICAL GREEK. Prerequisite: GREK 100.

GREK 301 (6) GREEK LITERATURE OF THE CLASSICAL PERIOD. Readings in the major authors in prose and verse. Prerequisite: GREK 200.

GREK 325 (6) HELLENISTIC GREEK. Prerequisite: GREK 100.

GREK 401 (3–12) C GREEK PROSE. Studies in history, philosophy and/or oratory. Corequisite: GREK 301.

GREK 402 (3–12) C GREEK VERSE. Studies in epic, tragedy and/or comedy. Corequisite: GREK 301.

GREK 501 (3/6) C GREEK PROSE. History, philosophy and/or oratory. Credit will not be given for both GREK 401 and GREK 501.

GREK 502 (3/6) C GREEK VERSE. Epic, tragedy and/or comedy. Credit will not be given for both GREK 402 and GREK 502.

GREK 521 (3/6) C STUDIES IN GREEK LITERATURE.

GREK 525 (3/6) D SEMINAR IN GREEK LITERATURE.

GREK 530 (3/6) D SEMINAR IN GREEK ARCHAEOLOGY.

GREK 535 (3/6) D SEMINAR IN GREEK HISTORY.

GREK 540 (3/6) D SEMINAR IN GREEK PALAEOGRAPHY.

GREK 545 (3/6) D SEMINAR IN GREEK EPIGRAPHY.

GREK 548 (0) MAJOR ESSAY.

GREK 549 (6/12) C MASTER'S THESIS.

GREK 550 (3/6) C DIRECTED STUDIES.

GREK 649 (0) PH.D. THESIS.

GRS — GLOBAL RESOURCE SYSTEMS FACULTY OF LAND AND FOOD SYSTEMS

GRS 290 (2) GLOBAL ISSUES IN CULTURAL CONTEXT. Students interact face-to-face and on-line as a community of learners to discuss global issues in agriculture, food, and natural resources in cultural context. Typically taken prior to studying abroad. Prerequisite: Open only to students in the B.Sc. (GRS) program. [0-0-2; 0-0-2]

GRS 390 (2) GLOBAL ISSUES IN CULTURAL CONTEXT. Students interact face-to-face and on-line as a community of learners to discuss global issues in agriculture, food, and natural resources in cultural context. Typically taken while studying abroad. Prerequisite: GRS 290. [0-0-2; 0-0-2]

GRS 397 (2–6) C REGIONAL DIRECTED FIELD STUDIES. Participating students may be assessed a fee.

GRS 490 (2) GLOBAL ISSUES IN CULTURAL CONTEXT. Students interact face-to-face and on-line as a community of learners to discuss global issues in agriculture, food, and natural resources in cultural context. Typically taken after studying abroad. Prerequisite: GRS 390. [0-0-2; 0-0-2]

GRS 497 (2–6) C REGIONAL DIRECTED FIELD STUDIES. Participating students may be assessed a fee. Prerequisite: GRS 397.

HCEC — HEALTH CARE AND EPIDEMIOLOGY AND COMMERCE FACULTY OF MEDICINE

HCEC 501 (1.5) BASIC FINANCE. Fundamental concepts of asset pricing and corporate finance.

HCEC 502 (1.5) MANAGERIAL ACCOUNTING. Development and use of accounting information for management planning and control, and the development of cost information for financial reports.

HCEC 503 (1.5) FINANCIAL REPORTING. Preparation of external financial reports.

HCEC 510 (1.5) CANADIAN HEALTH POLICY AND THE HEALTHCARE SYSTEM. Analysis of topical Canadian health policy issues including an historical overview of the health care system, health care funding, public / private financing, health care personnel and pharmaceutical policy challenges.

HCEC 511 (1.5) GOVERNMENT, BUSINESS AND HEALTH CARE POLICY.

HCEC 521 (1.5) ORGANIZATIONAL BEHAVIOR. The effects of individual and group behaviour on organizational processes and outcomes. The organization as an actor

and how it behaves in different types of environments.

HCEC 521 (1.5) ORGANIZATIONAL BEHAVIOUR. The effects of individual and group behaviour on organizational processes and outcomes. The organization as an actor and how it behaves in different types of environments.

HCEC 522 (1.5) STRATEGIC HUMAN RESOURCES MANAGEMENT. Aligning the management of human resources with organizational strategy.

HCEC 530 (1.5) MANAGERIAL ECONOMICS. Analysis of an organization's economic environment, the constraints this environment places on the organization's pursuit of its goals and how these constraints may change with time. Application of economic reasoning to internal decision making.

HCEC 531 (1.5) ECONOMIC EVALUATION. Maximizing health benefits from health care budgets.

HCEC 532 (1.5) HEALTH ECONOMICS. Economic strengths and weaknesses of current arrangements, and the prospects and objectives of various proposals for reform.

HCEC 542 (1.5) OPERATIONS AND LOGISTICS. The application of management tools and principles to production and allocation problems.

HCEC 543 (1.5) INFORMATION TECHNOLOGY FOR MANAGEMENT. A general introduction to the role of IT in management, how IT has changed the nature of the modern business world, how IT can be used to achieve strategic advantages, how IT can improve one's own effectiveness as a manager.

HCEC 544 (1.5) HEALTH INFORMATION SYSTEMS. Information systems in planning and management of health care services provided through single-purpose units, comprehensive clinics and hospitals. Emphasis on computerized systems.

HCEC 551 (1.5) DESIGN AND MEASUREMENT 1. Basic concepts and methods in Epidemiology.

HCEC 552 (1.5) DESIGN AND MEASUREMENT 2. Clinical Epidemiology, trials and the evaluation of diagnostic tools and therapeutic interventions.

HCEC 553 (1.5) PROGRAM PLANNING AND EVALUATION. Basic concepts and principles underlying program planning and evaluation in health services.

HCEC 554 (1.5) APPLICATION OF STATISTICS IN MANAGEMENT. Data analysis and statistical inference. Applications in assessment of the legitimacy and significance of reports.

HCEC 555 (1.5) BIOSTATISTICS. Data collection, numeric and graphic summarization, and elementary statistical analysis. Examples primarily from health sciences.

HCEC 556 (1.5) SOCIAL DETERMINANTS OF HEALTH. Health planning and delivery models based on population health frameworks.

HCEC 557 (1.5) QUALITY OF HEALTH CARE. Current concepts, methods, and applications in health care quality assessment and improvement.

HCEC 561 (1.5) STRATEGIC MANAGEMENT. An integrative perspective on managing an organization.

HCEC 562 (1.5) HEALTH CARE LAW.

HCEC 563 (1.5) ETHICS AND ETHICAL DECISION MAKING IN HEALTH CARE.

HCEC 564 (1.5) LEADERSHIP AND MANAGEMENT SKILLS. Personal assessment, team building, interpersonal skills and leadership development. Same as BAHR 505, credit will not be given for both.

HCEC 580 (1.5) SELECTED TOPICS. Current and emerging trends and issues.

HCEC 581 (1.5-3) D DIRECTED STUDIES. Opportunity to focus on a selected topic under faculty supervision.

HCEC 590 (1.5-6) D RESEARCH PROJECT. Completion of a bounded project within a health agency and under individual faculty supervision.

HCEP — HEALTH CARE AND EPIDEMIOLOGY FACULTY OF MEDICINE

HCEP 400 (3) STATISTICS FOR HEALTH RESEARCH. Planned collection, numeric and graphic summarization, and elementary statistical analysis of data. Examples primarily from health sciences illustrate standard techniques for parametric and non-parametric hypothesis testing; regression and correlation; contingency tables. Also randomization, "blindfolding" and other specifically biomedical topics in statistics. Class size may be limited. Prerequisite: Ability to use high school Algebra and simple graphs. [3-0; 0-0]

HCEP 401 (3) BASIC EPIDEMIOLOGY FOR INFECTION CONTROL. Epidemiology, study, design and analysis, and outbreak investigation as it applies to institutional infection control. Equivalency: PATH 477.

HCEP 500 (3) ANALYTICAL METHODS IN EPIDEMIOLOGICAL RESEARCH. Basic epidemiological designs as a framework for commonly used biostatistical techniques such as the Mantel-Haenszel, chi-squared, linear and logistic regression, and survival analysis. Computer packages will be available for computation of assignments. Prerequisite: All of HCEP 400, HCEP 502 or their equivalents.

HCEP 501 (3) ANALYSIS OF LONGITUDINAL DATA FROM EPIDEMIOLOGICAL STUDIES. To explore and compare methods of analyzing continuous and categorical longitudinal data. The issues of missing data and errors in measurement/misclassification will be covered in depth. The material will be taught by reading and discussing a selection of papers and by analyzing data sets using different techniques and comparing the results. Prerequisite: All of HCEP 400, HCEP 500, HCEP 502, HCEP 503.

HCEP 502 (3) EPIDEMIOLOGICAL METHODS I. Sources and uses of epidemiologic data for health services planning and administration including methods of data collection and study design. Prerequisite: Enrolment in a Health Care and Epidemiology graduate program, or permission of instructor. Corequisite: Designed to be taken in series with HCEP 503.

HCEP 503 (3) EPIDEMIOLOGICAL METHODS II. Critical thinking in epidemiology; principles and methods of study design; context for epidemiological investigations of human health. Prerequisite: All of HCEP 400, HCEP 502.

HCEP 504 (3) APPLICATION OF EPIDEMIOLOGICAL METHODS. This second level course will teach research trainees to apply methods taught in prior courses towards the development of a fundable research protocol and the analysis and interpretation of real epidemiologic data. Prerequisite: All of HCEP 400, HCEP 500, HCEP 502, HCEP 503, HCEP 505.

HCEP 505 (1.5) SCIENTIFIC BASIS FOR EPIDEMIOLOGICAL THINKING. The course will provide a framework for students to use epidemiological and other scientific evidence to make decisions about causation and to recommend policy actions. Prerequisite: Restricted to students enrolled in a Health Care and Epidemiology graduate program.

HCEP 506 (1.5) INTRODUCTION TO PROGRAM AND ECONOMIC EVALUATION. The course will provide an overview of the basic concepts and principles of program evaluation and economic evaluation in clinical and community health settings. Prerequisite: All of HCEP 400, HCEP 502.

HCEP 507 (1.5) M.SC. RESEARCH SEMINAR. HCEP 507 in conjunction with HCEP 607 is a required course for students in the M.Sc. program. Students present and discuss their research and other topics of interest.

HCEP 510 (3) MEASUREMENT OF HEALTH CARE. Concepts and techniques of measurement in epidemiological research. Topics covered include validity, reliability and misclassification, scale design and the construction of questionnaires and indices for both health outcomes and exposures. Prerequisite: One of HCEP 400, HCEP 502, HCEP 513 or permission of instructor.

HCEP 511 (3) CANCER EPIDEMIOLOGY. Collection and analysis of epidemiological data on cancer; occupational and other risk factors; analytic techniques and mathematical modelling relevant to oncology. Prerequisite: All of HCEP 400, HCEP 502 or equivalent.

HCEP 512 (3) THE DESIGN AND ANALYSIS OF CLINICAL TRIALS. Ethical considerations, intention-to-treat versus efficacy trials, principles of sampling and exclusion, methods of allocation and techniques of randomization, parallel versus cross over design, monitoring treatment outcomes, adverse effects, stopping rules, analytic techniques and data interpretation, and logistical issues in the management of

clinical trials. Prerequisite: One of HCEP 502, HCEP 513.

HCEP 513 (3) CLINICAL EPIDEMIOLOGY. Principles and methods of epidemiology are applied to clinical problems. Evaluation and design of laboratory and clinical tests and of therapeutic interventions. Prerequisite: One of HCEP 400, HCEP 502.

HCEP 514 (3) CLINICAL DECISION ANALYSIS. Methodology in and applicability of clinical decision analysis. Applications in problem solving (screening or prevention program assessment, test of treatment trade-offs, interpreting uncertain clinical data etc). Techniques include decision tree design, sub-trees, marker models, sensitivity analysis, Monte Carlo simulation, threshold analysis, utility assessment including the DEALE. Prerequisite: One of HCEP 502, HCEP 513.

HCEP 515 (3) DEMOGRAPHIC PRINCIPLES AND METHODS IN HEALTH. Designed to introduce graduate students in the health field to demographic techniques and principles through the discussion of the applications of various measures, case studies, and theoretical papers. The emphasis is on applying techniques and principles in class to undertake a demographic evaluation.

HCEP 516 (3) SYSTEMATIC OVERVIEWS. Systematic reviews of literature. Combining data to estimate risk for end points.

HCEP 517 (3) CLINICAL RESEARCH METHODS FOR SURGICAL PROCEDURES.

HCEP 520 (3) CONTROL OF COMMUNICABLE DISEASE. Epidemiology of viral, bacterial and parasitic infections with emphasis on the control of these infections in human populations. Immunization programs will be stressed.

HCEP 521 (3) SOCIO-ECONOMIC FACTORS AND INTERNATIONAL HEALTH DEVELOPMENTS. Defining poverty and health (including mental health). Measurements absolute and relative. World distribution of resources. Special problems of developing and developed countries. Canadian problems of poverty and health. Methods of financing health services, problems of distribution. Health professionals and semi-professionals. Communication problems.

HCEP 522 (3) TOPICS IN ENVIRONMENTAL HEALTH. Role of air, water, food and solid waste as sources of human health risks; global environmental health issues; sustainability.

HCEP 523 (3) GLOBAL HEALTH AND HUMAN SECURITY. Global threats to human health stemming from conflict, poverty and environmental degradation.

HCEP 529 (0) MAJOR ESSAY. Required for all MHSc students.

HCEP 530 (1.5) EPIDEMIOLOGY OF OCCUPATIONAL AND ENVIRONMENTAL HEALTH. Design and analysis of etiologic research in occupational health. Prerequisite: One of HCEP 502, OCCH 509 or permission of instructor.

HCEP 531 (1.5) OCCUPATIONAL AND ENVIRONMENTAL EXPOSURE ASSESSMENT METHODS FOR EPIDEMIOLOGY. Additional exploration of the design and analysis of etiologic research into occupational health. Prerequisite: HCEP 502 or permission of instructor.

HCEP 532 (1.5–3) D ENVIRONMENTAL HEALTH RISK ASSESSMENT AND COMMUNICATION.

HCEP 533 (3) OCCUPATIONAL AND ENVIRONMENTAL TOXICOLOGY. Mechanism of action of commonly encountered occupational toxic agents; relevance of laboratory and epidemiological evidence. Prerequisite: Permission of instructor.

HCEP 534 (3) CURRENT TOPICS IN TOXICOLOGY. Effects of individual toxic agents on complete organ system, problems of specific industries. Prerequisite: HCEP 533.

HCEP 535 (3) PRINCIPLES OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE. Introduction to Occupational Hygiene and Safety. Equivalency: OCCH 501.

HCEP 540 (3) HEALTH SERVICES RESEARCH I: EVALUATIVE RESEARCH. Examines the concept of evaluation in health services and how various methodological approaches can be used in evaluative studies.

HCEP 541 (3) HEALTH SERVICES RESEARCH II: ECONOMIC EVALUATION. Economic evaluation of health service interventions and programs, with emphasis on methods and components of program costing. Prerequisite: One of HCEP 506, HCEP 540 or permission of instructor.

HCEP 542 (3) SEMINAR: ISSUES IN CANADIAN HEALTH POLICY. Analysis of topical Canadian health policy issues in international context. Topics variable but include public/private financing, health care personnel, and pharmaceutical policy challenges.

HCEP 543 (3) OUTCOME EVALUATION: HEALTH TECHNOLOGY ASSESSMENT FOR POPULATION HEALTH POLICY. This course is an advanced program evaluation course. Prerequisite: All of HCEP 502, HCEP 506.

HCEP 544 (3) SOCIAL DETERMINANTS OF POPULATION HEALTH IN INDUSTRIALIZED SOCIETIES. Population health has emerged as an important framework for thinking about factors affecting health in Canada and other developed nations. This course will build upon the tradition of “social medicine” within public health and epidemiology.

HCEP 545 (1.5) COMMUNITY HEALTH PROMOTION: THEORETICAL BASIS. Seminar applying social and behavioural theories to research on planning, implementation and health care, and health promotion

HCEP 546 (1.5) COMMUNITY HEALTH PROMOTION: PRACTICE. Seminar that critically examines the practice of community health promotion, including its historical and philosophical roots.

HCEP 548 (3) HEALTH SERVICES RESEARCH METHODS. Assessing health services and systems, research design, measurement reliability and validity, common data sources used, measurement of quality of care and effectiveness and outcomes.

HCEP 550 (3) ANALYSIS OF HEALTH CARE ORGANIZATIONS. Analysis of models of organizational structures and processes in health care. Using open and closed systems theories of organizations (contingency, rational-bureaucratic, human relations, resource dependency and population ecology) as a framework, relevant organizational factors and intra-organizational processes will be examined.

HCEP 551 (3) ADVANCED HEALTH INFORMATION SYSTEMS. Information systems in planning and management of health care services provided through single-purpose units, comprehensive clinics and hospitals. Emphasis on computerized systems.

HCEP 552 (3) PLANNING FOR HEALTH SERVICES. A critical analysis of planning activities in health service institutions. The course is organized around case studies of program planning.

HCEP 553 (3) SEMINAR IN HEALTH CARE MANAGEMENT. Assessment of approaches and development of sound strategies for addressing current problems and issues.

HCEP 558 (3) HEALTH MANAGEMENT PROJECT. Implementation of planning theory through the completion of a bounded project within a health agency, and under individual faculty supervision. Prerequisite: HCEP 553.

HCEP 559 (3) MAJOR ESSAY. Required for Master of Health Administration (MHA) non-thesis program.

HCEP 560 (3) SEMINARS IN THE PHILOSOPHY OF SCIENCE AND RESEARCH. Topics of current interest will be presented and discussed by students and instructor.

HCEP 580 (3/6) D DIRECTED STUDIES.

HCEP 581 (1.5/3) D SELECTED TOPICS. By seminar and directed readings, certain topics of current interest are explored in depth.

HCEP 599 (12) M.SC. THESIS.

HCEP 607 (1.5) PH.D. RESEARCH SEMINAR. Required course in PhD program. Topics of current interest will be presented and discussed by students and various faculty.

HCEP 699 (0) PH.D. THESIS.

HCEP 710 (0) INTRODUCTION TO COMMUNITY MEDICINE PRACTICE. An introductory survey to Community Medicine.

HCEP 711 (0) FIELD EXPERIENCE. A series of visits to facilities and organizations related to Community Medicine Practice. Directed by Faculty. At least four hours per month.

HCEP 712 (0) SUPERVISED WORK. A weekly review by Faculty of the work carried out by the resident with discussion on the objectives, planning, method of operation and outcome. Two hours per week.

HCEP 713 (0) COMMUNITY HEALTH TUTORIALS. Topics of Public Health interest presented throughout the year by Faculty and guest lecturers. Two hours per month.

HCEP 714 (0) COMMUNITY MEDICINE SEMINARS. Selected topics of current interest in Community Medicine Practice or in its basic sciences. Presented by residents and discussed with Faculty and invited guests. Three hours per month.

HCEP 715 (0) JOURNAL SEMINARS. A monthly two-hour seminar on selected journal articles of Community Medicine interest are presented by the residents and discussed with Faculty and invited guests.

HCEP 716 (0) RESEARCH IN COMMUNITY MEDICINE OR ITS BASIC SCIENCES BY A RESIDENT. Up to two days per week. Supervised by Faculty.

HCEP 717 (0) INTRODUCTION TO OCCUPATIONAL MEDICINE PRACTICE. An introductory survey to Occupational Medicine practice.

HCEP 718 (0) FUNDAMENTALS OF CLINICAL EPIDEMIOLOGY. Seminar series covering critical appraisal of the medical literature and basic research methods for residents in any post-graduate training program.

HEBR — HEBREW FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnrs.ubc.ca.

HEBR 305 (6) ELEMENTARY HEBREW (BIBLICAL). Elements of grammar and translation of prose and poetry. Open to first- and second-year students with permission of the instructor.

HEBR 405 (6) INTERMEDIATE HEBREW (BIBLICAL). Second year of Biblical Hebrew with emphasis on rapid reading of poetry and prose. Prerequisite: HEBR 305.

HEBR 479 (3/12) C SUPERVISED STUDY IN CLASSICAL HEBREW. Prerequisite: HEBR 405.

HEBR 509 (3/12) C ADVANCED READINGS IN CLASSICAL HEBREW. Credit will not be given for both HEBR 479 and HEBR 509.

HECO — HUMAN ECOLOGY FACULTY OF LAND AND FOOD SYSTEMS

HECO 200 (3) INTRODUCTION TO HUMAN ECOLOGY. History, profession, theory and practice of Human Ecology. For students who plan to enter Home Economics Education, those in Agricultural Sciences, Human Ecology and Family Studies. [3-0-0]

HECO 476 (3) DIRECTED STUDY IN HUMAN ECOLOGY. Directed investigation of a problem, requiring a written or oral report of findings. Fourth year Human Ecology and Home Economics Students only. Prerequisite: Satisfactory standing and permission of faculty member supervising the investigation.

HESO — HEALTH & SOCIETY FACULTY OF ARTS

HESO 400 (3/6) D SOCIOCULTURAL DETERMINANTS OF HEALTH. Methods for analyzing population health data and medical research reporting.

HESO 449 (3/6) D TOPICS IN HEALTH AND SOCIETY.

HINU — HINDI-URDU FACULTY OF ARTS

HINU 102 (6) INTRODUCTORY HINDI-URDU. Spoken Hindi and Urdu, and written Hindi.

HINU 200 (6) INTERMEDIATE HINDI-URDU. Conversation and grammar; an introduction to Hindi literature; an introduction to the Urdu script. Prerequisite: HINU 102. Background in Hindi or Punjabi.

HINU 205 (1) INTRODUCTION TO THE DEVANAGARI SCRIPT. The writing system of Hindi for those with some background in the spoken language. May be taken at the same time as HINU 200.

HINU 300 (6) ADVANCED HINDI-URDU. Further study of the grammar of Hindi and Urdu; advanced conversation; literary readings in Hindi and Urdu; Hindi film. Prerequisite: HINU 200.

HINU 305 (2) INTRODUCTION TO THE PERSO-ARABIC (URDU) SCRIPT. The writing system of Urdu for those with some background in the spoken language. Corequisite: One of HINU 300, HINU 400.

HINU 400 (6) INTRODUCTION TO HINDI AND URDU LITERATURE. Readings of various literary genres in Hindi, Urdu and their medieval equivalents. Modern fiction from India and Pakistan; the Urdu ghazal; medieval Hindi bhakti poetry; readings from the Adi Granth of the Sikhs Hindi film. Discussion in Hindi-Urdu of all materials. Prerequisite: HINU 300.

HIST — HISTORY FACULTY OF ARTS

HIST 101 (6) WORLD HISTORY TO OCEANIC CONTACT. Origins and diffusion of the world's great religions; cultural contact along overland trade routes; emergence of civilizations such as the Inca, Chinese, and Christian European; ordering of societies and their political development.

HIST 102 (6) WORLD HISTORY FROM 1500 TO THE TWENTIETH CENTURY. The civilizations of, and the demographic, ecological, economic, and intellectual links between Africa, America, Asia, Europe, and the Pacific.

HIST 103 (6) WORLD HISTORY SINCE 1900. International relations; changes in the nation-state system; the emergence and impact of major political ideologies; genocide; decolonization; the globalization of trade; and the dynamics of economic, social, cultural, and environmental change in a global context.

HIST 104 (3) TOPICS IN WORLD HISTORY. Thematically-organized topics will explore global aspects of human experience across time. Each section will examine a single theme.

Check with the department for course offerings.

HIST 105 (3) CONTEMPORARY GLOBAL ISSUES IN HISTORICAL PERSPECTIVE. Places issues and problems of current relevance such as disease, terrorism, drugs, or ethnic conflict in historical perspective. Each section will explore a single theme. Check with department for course offerings.

HIST 120 (6) EUROPEAN HISTORY FROM THE RENAISSANCE TO THE PRESENT. A survey of continuity and change in the economic and social foundations, and in the political, administrative, and military spheres, as well as some of the accompanying scientific, philosophical, literary, artistic, architectural and other cultural achievements of European civilization.

HIST 170 (6) INTRODUCTION TO SOUTH ASIA. Geographical, cultural, and historical backgrounds to India, Pakistan, and Bangladesh. Problems of political, economic, and social development since 1947.

HIST 171 (6) INTRODUCTION TO EAST ASIA. Geographical, ethnic and historical backgrounds of China, Japan, and Korea. Survey of twentieth-century East Asian history.

HIST 200 (6) ASIA AND THE WORLD. The political, economic, social, cultural, and human interactions between Asia and the world, inter-Asian relations, Asian diaspora, colonialism, war and the social consequences of conflict, decolonization, industrial growth, and developing world issues.

HIST 201 (6) THE COLONIAL EXPERIENCE IN THE AMERICAS. A comparative study of selected colonial societies from their foundation into the 19th century.

HIST 202 (6) MODERNIZATION IN HISTORICAL PERSPECTIVE. Explores the transition from pre-industrial to modern society in western Europe from 1700 to the present, with some examination of the impact of this process on Asia, Africa, and Latin America in the nineteenth and twentieth centuries.

HIST 205 (3) INTRODUCTION TO HISTORICAL ARCHAEOLOGY. An introduction to the study of medieval and modern material culture, with special emphasis on Canada, using archaeological evidence to illustrate the principles, aims, and techniques of historical archaeology and related disciplines.

HIST 215 (6) TECHNOLOGY IN HISTORY. An introduction to the history of technology and society from antiquity to the present.

HIST 220 (6) HISTORY OF EUROPE. European politics, society, and economy in their intellectual and cultural contexts.

HIST 235 (6) HISTORY OF CANADA. Canadian politics, society, and economy in their intellectual and cultural contexts.

HIST 237 (6) MAJOR ISSUES IN AMERICAN HISTORY. A general course, from the colonial period to the modern, examining the political system, slavery and the Civil War, Manifest Destiny and the frontier, urban and industrial

America, and American foreign policy in the twentieth century.

HIST 250 (3/6) D LATIN AMERICAN HISTORY. A general course designed to show by discussion of the major issues how the modern society and culture of Latin America came into being.

HIST 252 (3) MODERN CARIBBEAN HISTORY. A survey of social, cultural and political history of Anglophone, Francophone and Spanish Caribbean from the Haitian Revolution to the present.

HIST 260 (3) SCIENCE AND SOCIETY. An introduction to the historical development, conceptual foundations, and cultural significance of contemporary science. Themes will vary from year to year. Equivalency: PHIL 260.

HIST 270 (6) MODERN CHINA AND THE WEST. The invasion of China since the 1600s by western civilization; the impact of Chinese culture and of the modern Chinese revolution on the West, Canadian relations with China included. Open to students with no previous knowledge of China. Equivalency: ASIA 270.

HIST 271 (3) JAPAN AND THE WORLD, 1550–1900. Thematic study of comparisons and relations between Japan and the world outside (primarily Europe and China). Commercial expansion, systems of world order, social institutions, religious and ideological expression, and state organization.

HIST 302 (6) HISTORY OF THE NATIVE PEOPLES OF CANADA. The native people (status and non-status) of Canada from contact to the present. Topics include native involvement in the fur trade and later economic developments, the emergence of the Metis, the treaty-making process, and the evolution of government policies for native peoples.

HIST 303 (6) HISTORY OF THE CANADIAN WEST. Selected topics in the history of the Canadian West with an emphasis on the prairie west: the Indian and the fur trade, Louis Riel, prairie settlement, and western social and political protest.

HIST 304 (3) RESEARCHING LOCAL HISTORY FROM THE GROUND UP. Sources and methods for reconstructing local history that can be used by Social Studies teachers in B.C. The aim is to develop an appreciation of the formative processes and past experiences that created one's familiar community.

HIST 306 (6) HISTORY OF FRANCE, 1461–1715. The development of absolute monarchy in France, with emphasis on change and conflict in French society; spiritual and intellectual "crisis"; the place of France in the emerging European state system; and opposition to the monarchy.

HIST 307 (6) FRENCH NORTH AMERICA TO 1803. A historical background for understanding the French-speaking peoples of North America: Acadians, Franco-Quebecois, French-Canadians and Cajuns. It deals extensively with French-Amerindian relations and introduces the student to the historiography of French North America.

HIST 310 (3) THE BRITISH EMPIRE. Rise of the British imperial system within a global context from its beginnings to 1850. Focuses on economic and social themes with emphasis on settlements in the southern hemisphere as well as the West Indies.

HIST 311 (3) THE BRITISH EMPIRE AFTER 1850. Transformation of the British imperial system from the mid-nineteenth century to decolonization and neo-colonialism after the second World War.

HIST 313 (6) THE RENAISSANCE. The interplay between new and traditional ideas, styles and institutions from the fourteenth to the mid-sixteenth century, primarily in Italy, with emphasis upon the relationship of social, economic, and political factors to intellectual and cultural change.

HIST 316 (6) EUROPEAN SOCIAL HISTORY. A study of the changes in economic activity, social structure, family life, religious attitudes, and popular behaviour which accompanied the transformation of Europe from a pre-industrial to an industrial society.

HIST 317 (3) HISTORY OF SOUTHERN AFRICA. Pre-colonial, colonial, and contemporary, emphasizing South Africa.

HIST 321 (6–12) D HONOURS TUTORIAL.

HIST 322 (6–12) D HONOURS TUTORIAL.

HIST 324 (6) HISTORY OF EAST CENTRAL EUROPE IN THE 19TH AND 20TH CENTURIES. Covers the region between Germany and Russia as well as Southeast Europe. Emphasis on comparisons with Western Europe and features that make the area significant to Europe as a whole.

HIST 326 (6) THE BRITISH NORTH AMERICAN COLONIES, 1749–1873. A comparative study of the British North American colonies that became provinces of the Dominion of Canada. Regional distinctions as well as shared characteristics are examined in the light of literature, folklore, social structure, art, architecture, and politics.

HIST 327 (3) AMERICAN COLONIAL HISTORY, 1607–1763. A comparative study of the social, economic and political characteristics of the thirteen colonies as they changed from small European outposts to more mature societies.

HIST 328 (3) THE AMERICAN REVOLUTION AND THE FORMATION OF THE UNITED STATES. A study of the revolutionary origins of the United States of America and of the establishment of the American republic.

HIST 329 (6) CANADIAN SOCIAL HISTORY. A study of selected topics in the history of Canadian society, including frontier settlement, rural life, religion, social and institutional structures, immigration and ethnicity, social movements, ideology, family life and life cycles, demographic change, labour, industrialization and urbanization.

HIST 330 (3) THE UNITED STATES, 1812–1865. Political development in the new American nation, with special emphasis on

expansion, regionalism, Jacksonian democracy, social reform, and the Civil War.

HIST 331 (3) THE UNITED STATES, 1865–1896. Political and social development in Post-Civil War America, with special emphasis on Reconstruction, industrialization, and the Gilded Age.

HIST 332 (6) AFRICAN-AMERICAN HISTORY. The experience of African-Americans from the time of their enslavement through the late 20th Century from an interdisciplinary perspective.

HIST 333 (6) THIRD-YEAR HONOURS SEMINAR.

HIST 334 (6) EUROPE IN THE 19TH CENTURY. An investigation of main themes in European history from the French Revolution to the beginning of the 20th century. Topics of particular importance are: domestic politics; the interaction of states; the formation of new states; social and economic transformations affecting the whole civilization; major cultural expressions of the century.

HIST 335 (6) GENDER, POLITICS, AND CULTURE IN MODERN EUROPE. Relationships between changing gender roles and other historical processes from the French and industrial revolutions to imperialism, nationalism, and the rise of consumer cultures in Europe from the eighteenth century to the present.

HIST 338 (6) THE UNITED STATES IN THE 20TH CENTURY. American history from the First World War to the 1970s. While foreign affairs are treated in some depth, the course focuses primarily on the domestic scene. Economic developments, the current of ideas, social and political change receive special attention.

HIST 341 (3) MEDIEVAL JEWISH HISTORY. A survey of the political, social, economic, and cultural history of the Jews from the time of the Christianization of the Roman Empire to the expulsion of professing Jews from Spain and Portugal at the end of the fifteenth century.

HIST 342 (3) MODERN JEWISH HISTORY. A survey of the political, social, economic, and cultural history of the Jews from the beginning of the sixteenth century to the present with special emphasis on changing attitudes to Jews and Judaism, social and cultural transformations.

HIST 351 (3) FAMILY AND COMMUNITY IN LATIN AMERICA. The role of family and community from the colonial period to the present. Emergence of the nation state as it affected community and family structures.

HIST 352 (3) CLASS AND CULTURE IN LATIN AMERICA. The relationship between culture and class formation from the late colonial period to the present.

HIST 355 (3) GENDER AND SEXUALITY IN LATIN AMERICA. Examines the construction of gender ideologies and gendered and sexual identities, including masculine, feminine and transgendered, in modern Latin America.

HIST 356 (3) RACE AND NATION IN MODERN LATIN AMERICA. Racial formation and nationalism in comparative perspective from the 19th century to the present.

HIST 360 (3) INTRODUCTION TO HISTORY AND PHILOSOPHY OF SCIENCE. An examination of historical, conceptual, and methodological conditions of scientific knowledge through detailed consideration of important episodes in the history of science.

HIST 370 (6) SOCIAL AND CULTURAL HISTORY OF MEDIEVAL EUROPE. A general survey of developments in social structures, of patterns of public and private behaviour, and of major cultural changes.

HIST 371 (3) EUROPE IN THE EARLY MIDDLE AGES. A survey of the development of institutions, ideas and the economy in Europe from about 400 through about 1000 CE.

HIST 372 (3) EUROPE IN THE CENTRAL MIDDLE AGES. A survey of the development of institutions, ideas and the economy in Europe from about 1000 CE through the fourteenth century.

HIST 373 (3) WOMEN IN THE MIDDLE AGES. A study of women's roles in the family, society, law, religion, the economy, and literature from about 500 to 1500 CE.

HIST 374 (3) IDEAS AND RELIGIONS OF THE MIDDLE AGES. A survey and exploration of the development, interpenetration, conflict, and transformation of various intellectual and religious traditions during the Middle Ages.

HIST 375 (3) ECONOMIC HISTORY OF PRE MODERN EUROPE. Background, causes and effects of economic change in Europe before the 18th century. Evolution of social and economic institutions, relationship to the environment, changes in the distribution of income, and the origins of modern economic growth.

HIST 376 (3) MEDIEVAL LEGAL HISTORY. The development of the western legal tradition including English common law, civil (Roman) law, and canon law.

HIST 377 (3) CONSTITUTIONAL HISTORY OF MEDIEVAL EUROPE. The evolution of political institutions, the emergence of royal governments as well as representative assemblies and urban republic and conflicts within and among them leading to the emergence of modern structures.

HIST 378 (3) MEDIEVAL PORTRAITS AND PERSONALITIES. The lives of leading and controversial figures in the Middle Ages and the means by which they have portrayed themselves and been portrayed by others.

HIST 380 (6) MODERN CHINESE HISTORY SINCE 1840. An analysis of changes in institutions and ideas in China from the late Imperial Period to the most recent developments of the Chinese Revolution. Approaches are thematic, by periods, and by problems. Equivalency: ASIA 380.

HIST 381 (6) HISTORY OF LATER IMPERIAL CHINA. History of China from the end of Tang to the eve of its modern transformation. Students will acquire the analytical skills and

tools to understand the political, socio-economic, and cultural changes in imperial China. Equivalency: ASIA 321.

HIST 382 (3) HISTORY OF EARLY CHINA. History of China from the earliest times to the disintegration of the Tang empire. Students will acquire the analytical skills and tools to understand the origins and foundations of Chinese society. Equivalency: ASIA 311.

HIST 383 (6) HISTORY OF JAPANESE CIVILIZATION. Japanese political, social, and cultural history from earliest times to 1868.

HIST 384 (6) HISTORY OF INDIAN CIVILIZATION. Political and cultural history from the earliest times to the medieval period.

HIST 385 (6) HISTORY OF INDIA SINCE 1800. Developments in Indian society and culture under the British Raj, the origins and growth of the freedom struggle, the emergence of independent states on the sub-continent, and problems of nation-building and modernization since 1947.

HIST 386 (6) HISTORY OF KOREAN CIVILIZATION.

HIST 387 (3) MEDIEVAL INDIA. The history, culture, and social and economic organization of South Asia from the decline of the classical Hindu empires through the Sultanate period.

HIST 388 (3) MUGHAL INDIA. History of the politics, economy, society, and culture of South Asia from the Great Mughals to the British conquest. Equivalency: ASIA 428.

HIST 389 (6) THE SIKHS: HISTORY, RELIGION AND SOCIETY. A historical study of the social and cultural forces that helped shape Sikh religious beliefs and ritual practices over the past four centuries. In dealing with the evolution of Sikh identity, attention will be given to Sikh ideals, social organization, religious institutions and sacred literature. Equivalency: ASIA 379.

HIST 400 (6) SELF AND SOCIETY FROM THE RENAISSANCE TO THE ENLIGHTENMENT. Examines ideas of individual life and social experience in early modern Europe. Emphasizes careful reading of primary texts, drawn from history, biography, travel, philosophy, and fiction.

HIST 401 (6) FRENCH CANADA FROM THE END OF THE 18TH CENTURY TO THE PRESENT. Examines the relations between the English and the Canadians prior to the Rebellions of 1837–38, the emergence of the “state of siege” mentality after 1840, the impact of industrialization in Quebec, the Quiet Revolution, and independence movement.

HIST 402 (3) PROBLEMS IN INTERNATIONAL RELATIONS: DIPLOMACY AND THE ORIGINS OF WARS. Study of the relationship of the diplomatic factor to other factors in the origins of the First and Second World Wars. This seminar is open only to fourth-year students in the Major program in International Relations.

HIST 403 (3) SEMINAR IN THE HISTORY OF INTERNATIONAL RELATIONS. Selected topics, such as the role of diplomacy and its relation to other factors in international affairs, Canadian external relations, third-world international politics, Cold-War historiography, and area studies. Open only to fourth-year students in the Major program in International Relations.

HIST 404 (6) BRITISH COLUMBIA. Selected themes in the history of the region, primarily during the post-confederation years. Topics will emphasize changes in the economic, social, and institutional structures of the province.

HIST 405 (6) RUSSIA BEFORE 1917. Beginning with the medieval period, the course will concentrate on the era from Peter the Great to the 1917 Revolution, emphasizing domestic developments, particularly the tensions between continuity and change in this epoch of transformation, crisis, and revolutionary movements.

HIST 406 (3) FRANCE, 1715–1900. Explores the political, social, and cultural history of France from 1715 to 1900. Topics include the French Revolution, 1848, the arts, the Dreyfus Affair, and French nationalism.

HIST 407 (6) HISTORY OF MODERN GERMANY. The political, social and intellectual history of modern Germany from 1789 to the present, with some emphasis on the preceding centuries.

HIST 408 (3) HISTORY OF THE HABSBURG MONARCHY. An examination of the growth and development of the monarchy with emphasis on the eighteenth and nineteenth centuries. Some discussion of the successor states after 1918.

HIST 409 (3) FRANCE, 1900 TO THE PRESENT. Explores the history of twentieth-century France. Topics include the two world wars; cultural movements; colonialism; decolonization; and France in a new Europe.

HIST 413 (6) REFORMATION EUROPE. An examination of European history, 1450–1650, which places both the Protestant Reformation and the Catholic Reformation in the broader context of the political, social, cultural, and economic changes during the early modern era.

HIST 415 (6) EARLY MODERN BRITAIN. A study of the social, economic, political, religious, cultural and intellectual history of Britain between the Reformation and the Industrial Revolution with special reference to the rise of modern industrial society.

HIST 416 (3) BRITAIN, 1750–1850. Emergence of the world's first industrial society, and the political, economic, and cultural struggles accompanying this transformation.

HIST 417 (3) BRITAIN, 1850–1918. Britain from the Great Exhibition to the Great War: the creation of a mass electorate, the “New Imperialism,” the “New Woman,” and the ways that class, race, gender, and sexuality shaped modern Britain.

HIST 418 (3) EARLY TWENTIETH-CENTURY BRITAIN. British society and politics in the era of the two world wars: the liberal reforms before the Great War, war experiences, the Great Depression, and the impact of new political movements.

HIST 419 (3) CONTEMPORARY BRITAIN, 1945 TO THE PRESENT. Survey of recent British history, with emphasis on de-colonization, emergence of the welfare state, new social movements and patterns of immigration, and Britain's changing relationship with Europe.

HIST 421 (6–12) D HONOURS TUTORIAL.

HIST 422 (6) MODERN JAPANESE HISTORY SINCE 1800. The building of a modern state, its crisis in the 1930s, and its postwar recovery; topics include business institutions, politics, imperialism, intellectual syncretism, social change, and Japan's growing influence in the world. Equivalency: ASIA 422.

HIST 423 (6) ECONOMIC AND BUSINESS HISTORY OF MODERN JAPAN. From 1800 to the present; emphasis on the business strategies of Japan's largest companies; attention also to broader economic topics such as international trade, government policy, social impact of industry, business and politics, labour, and post-1971 multi-nationalism.

HIST 425 (6) WAR AND SOCIETY. Continuity and change in the relations of war and society, the connections between the economy, society, the military, and government in peacetime as well as war; not a course in military history.

HIST 426 (6) TWENTIETH-CENTURY CANADA. A survey of the political, social, and economic developments which have shaped contemporary Canada.

HIST 427 (3) SEMINAR IN NATIVE HISTORY OF CANADA. Major interdisciplinary themes in the history of Canada's Aboriginal Peoples after European contact, including historical demography, economic interdependency, missionary encounters, and relations with the Canadian state.

HIST 428 (6) INTELLECTUAL HISTORY OF THE UNITED STATES OF AMERICA FROM THE COLONIAL PERIOD TO THE PRESENT DAY. Examines the evolution of the American mind from the colonial period to the present, with emphasis on patterns of thought that have developed in response to American conditions.

HIST 429 (3–6) D TOPICS IN CANADIAN HISTORY. Topics might include immigration, French-English relations, the growth of the state, health and welfare, or the family.

HIST 430 (6) DEVELOPMENT OF CANADIAN EXTERNAL POLICY SINCE CONFEDERATION. Examines the history of Canada's external relations since Confederation with particular emphasis on Canada's changing international status and role in the twentieth century.

HIST 431 (6) POPULATION IN HISTORY. Examines selected demographic themes in world-wide historical perspective, the history of the family, urbanization, overpopulation,

population growth and industrialization, Malthusian theory, and related problems of Third World countries.

HIST 432 (6) INTERNATIONAL RELATIONS OF THE GREAT POWERS IN THE TWENTIETH CENTURY. The international relations of the great powers from the end of the First World War to the end of the Cold War.

HIST 433 (6) FOURTH-YEAR HONOURS SEMINAR.

HIST 434 (6) HISTORY OF SOUTHEAST ASIA SINCE 1800. The modern history of Vietnam, Laos, Cambodia, Thailand, Malaysia, Indonesia, and the Philippines. Special attention to the revolutions in Vietnam and Indonesia. Equivalency: ASIA 434.

HIST 435 (6) COMMUNIST MOVEMENTS IN EASTERN EUROPE SINCE 1900. Emphasis on the smaller countries of the Communist orbit. Deals with the Soviet Union for background and for comparative perspectives. Equivalency: POLI 425.

HIST 437 (6) THE AMERICAN IMPACT ON CANADA. An examination of the influence of the United States' rise to continental, hemispheric, and world power upon Canada in the areas of economics, culture, defence, and foreign policy.

HIST 438 (6) HISTORY OF THE SOVIET UNION. The role of the Communist party, the evolution of Soviet society, the transformation of the Soviet economy, and the techniques of government under Lenin, Stalin, and Khrushchev.

HIST 441 (3) HISTORY OF THE HOLOCAUST. A study of the systematic attempt to destroy European Jewry during the Nazi regime, 1933–1945. Topics of special importance include: the motivations and behaviour of the perpetrators; the reactions of the victims; the roles of bystanders.

HIST 442 (3) GENDER, TECHNOLOGY AND SOCIETY IN HISTORY. The historical dimensions of current debates about technology, focusing on the interdisciplinary theme of gender.

HIST 444 (3) SLAVE SOCIETIES IN THE AMERICAS. A comparative analysis of the institution of chattel slavery, its growth, its effects on slaves and masters, its relation to the larger society, and the causes of its decline, in the various cultures of the Americas.

HIST 445 (3) AMERICAN FOREIGN POLICY, 1870–1945. Selected topics in political and economic aspects of American foreign policy, from 1870 to 1945.

HIST 446 (3) AMERICAN FOREIGN POLICY, 1945 TO PRESENT. Selected topics in the history of American foreign policy, 1945 to the present.

HIST 447 (3) SELECTED TOPICS IN UNITED STATES HISTORY. Examines in depth a significant period, theme, or topic in the history of the United States. Possible subjects include The West, the Great Depression, the Sixties, and Class, Race, and Gender.

HIST 448 (3) DIPLOMACY AND CONFLICT IN THE MIDDLE EAST, 1914 TO THE PRESENT. International relations in the Middle East in the aftermath of the Ottoman Empire, with special attention to the conflicts between the Jews of Palestine/Israel and their Arab neighbours.

HIST 449 (12) HONOURS ESSAY.

HIST 450 (3/6) D SELECTED TOPICS IN LATIN AMERICAN HISTORY. A study in depth of one major topic (such as the Cuban Revolution or Peronismo) in the recent history of Latin America.

HIST 451 (3) SELECTED TOPICS IN THE HISTORY OF BRAZIL. Examines the formation of the largest, most populous nation in Latin America, the establishment and rapid growth of its industrial economy.

HIST 452 (3) SELECTED TOPICS IN THE HISTORY OF MEXICO. Examines a major theme in Mexican history such as Spanish-Indian contact, church-state relations, Mexico's integration into the world economy, struggles for land and social justice, state formation, and the role of ritual, myth and cultural values in Mexican history.

HIST 454 (3) STATE AND SOCIETY IN 20TH CENTURY CUBA. The history and historiography of 20th century Cuba, with particular attention to changing state structures and their impact on everyday life.

HIST 455 (3) THE ORIGINS OF MODERN SCIENCE. Science and Society in the 17th and 18 Centuries. [3-0-0]

HIST 456 (3) HISTORY AND SOCIAL RELATIONS OF MODERN SCIENCES. Science and society in the 19th to 21st Centuries. [3-0-0]

HIST 461 (3) POLITICS AND CULTURE IN FIN-DE-SIECLE EUROPE (1890–1914). Explores relationship between politics, culture and social change in Europe. Topics include the changing role of intellectuals: literary aestheticism; painting; design and the city; origins of psychoanalysis.

HIST 462 (3) EUROPE, 1900–1945. A study of the political, social and cultural history of Europe from 1900 to 1945, dealing with such themes as the imperialist system, the First World War, the new political and social movements of the interwar years, the impact of the Depression, the crisis of liberal democracy, and the Second World War.

HIST 463 (3) EUROPE SINCE 1945. A study of the political, social and cultural history of Europe from 1900 to 2000, dealing with such themes as the origins of the Cold War, the development of separate social and political systems in Western and Eastern Europe, the emergence of the welfare state, the end of the Cold War, the problems of European integration and the nationalist conflicts of the 1990s.

HIST 465 (6) CULTURE AND SOCIETY IN LATE IMPERIAL CHINA. An in-depth examination of how beliefs and practices were created and transmitted in imperial China from 1500 to 1800. Equivalency: ASIA 465.

- HIST 470 (6) SEMINAR IN MEDIEVAL HISTORY.** Annually changing topics of medieval studies with special attention to research methods on primary sources.
- HIST 475 (3) FIRST CONTACTS IN THE PACIFIC.** An interdisciplinary history of early European contact with the Aboriginal Peoples of the northwest coast of North America and the Pacific Islands.
- HIST 480 (6) SOCIAL HISTORY OF MODERN CHINA.** Changes and continuities in Chinese society and culture from the late Imperial Period to the present; rural and urban life, social stratification, social movements and ideology, family and community, popular beliefs and cultural values. Equivalency: ASIA 480.
- HIST 481 (3) EDUCATION AND SOCIETY IN MODERN CHINA.** The relationship between education and society in China since 1600; classical learning and the civil service examination system; popular literacy; sino-foreign interactions in education; education and gender; nationalism and education; the education revolution in China after 1949.
- HIST 482 (3) CHINESE MIGRATION.** This history of Chinese migrations from the founding of the state to the present day. Migration is used as a focus through which to examine some key themes of Chinese history; ethnicity, boundary creation, economic growth and international relations.
- HIST 483 (3) ASIAN MIGRATIONS TO THE AMERICAS.** Examines both the historical and contemporary contexts for migration from Asia to Canada and the Americas.
- HIST 484 (3) EAST ASIAN MILITARY SYSTEMS AND WARFARE CHINA.** Confucian societies are often thought of as ones in which the brush is mightier than the sword. In fact the military has been a crucial factor in East Asia, and warfare has been the engine which has driven many of the most significant changes in East Asian history. This course will look at the evolution of East Asian military systems, and at the impact of recurrent warfare on East Asia societies.
- HIST 485 (3) ASIAN MIGRANT COMMUNITIES IN VANCOUVER.** This course will examine the history of Asian migration to Vancouver and British Columbia, focusing on the development of local communities and provide a background in historical research methods that will enable the students to conduct research on the history of these communities.
- HIST 486 (3) KOREA IN THE 20TH CENTURY.** History of the Korean people in the 20th century; the traditional cultural history; Japanese colonial rule; the Korean war; the two Korean states; economic, social, and cultural change.
- HIST 487 (3) HISTORY OF HEALTH IN THE MODERN WEST.** Changing conditions of health in Europe and North America from the beginning of the modern mortality decline to the recent past.
- HIST 490 (3) SEMINAR FOR MAJORS IN HISTORY.** Selected problems in the theory and practice of historical work. Check with the department for course offerings. Restricted to fourth year students majoring in History. Also open to History Honours students.
- HIST 495 (3/6) D THEORY AND PRACTICE OF HISTORY.** Approaches to the history of historical enquiry in its social, cultural, intellectual, methodological, economic and political contexts. Not open to Dept of History honours students.
- HIST 500 (3) READINGS IN CANADIAN HISTORY.**
- HIST 501 (3-12) D TOPICS IN CANADIAN HISTORY.**
- HIST 502 (3) SEMINAR IN CANADIAN HISTORY.**
- HIST 505 (3) READINGS IN AMERICAN HISTORY.**
- HIST 506 (3-12) D TOPICS IN AMERICAN HISTORY.**
- HIST 507 (3) SEMINAR IN AMERICAN HISTORY.**
- HIST 510 (3) READINGS IN BRITISH HISTORY.**
- HIST 511 (3-12) D TOPICS IN BRITISH HISTORY.**
- HIST 512 (3) SEMINAR IN BRITISH HISTORY.**
- HIST 515 (3) READINGS IN IMPERIAL-COMMONWEALTH HISTORY.**
- HIST 516 (3-12) D TOPICS IN IMPERIAL-COMMONWEALTH HISTORY.**
- HIST 517 (3) SEMINAR IN IMPERIAL-COMMONWEALTH HISTORY.**
- HIST 520 (3) READINGS IN MEDIEVAL HISTORY.**
- HIST 521 (3-12) D TOPICS IN MEDIEVAL HISTORY.**
- HIST 522 (3) SEMINAR IN MEDIEVAL HISTORY.**
- HIST 525 (3) READINGS IN RENAISSANCE-REFORMATION HISTORY.**
- HIST 526 (3-12) D TOPICS IN RENAISSANCE-REFORMATION HISTORY.**
- HIST 527 (3) SEMINAR IN RENAISSANCE-REFORMATION HISTORY.**
- HIST 530 (3) READINGS IN FRENCH HISTORY.**
- HIST 531 (3-12) D TOPICS IN FRENCH HISTORY.**
- HIST 532 (3) SEMINAR IN FRENCH HISTORY.**
- HIST 535 (3) READINGS IN GERMAN HISTORY.**
- HIST 536 (3-12) D TOPICS IN GERMAN HISTORY.**
- HIST 537 (3) SEMINAR IN GERMAN HISTORY.**
- HIST 540 (3) READINGS IN RUSSIAN AND EAST EUROPEAN HISTORY.**
- HIST 541 (3-12) D TOPICS IN RUSSIAN AND EAST EUROPEAN HISTORY.**
- HIST 542 (3) SEMINAR IN RUSSIAN AND EAST EUROPEAN HISTORY.**
- HIST 545 (3) PHILOSOPHY OF HISTORY AND CANADIAN HISTORIOGRAPHY.**
- HIST 546 (3) CONTEMPORARY CANADIAN HISTORIOGRAPHY.**
- HIST 547 (3-12) D READINGS: SPECIAL TOPICS IN HISTORY.**
- HIST 548 (3-12) D HISTORIOGRAPHY.**
- HIST 549 (12) MASTER'S THESIS.**
- HIST 550 (3) READINGS IN EARLY MODERN EUROPEAN HISTORY.**
- HIST 551 (3-12) D TOPICS IN EARLY MODERN EUROPEAN HISTORY.**
- HIST 552 (3) SEMINAR IN EARLY MODERN EUROPEAN HISTORY.**
- HIST 554 (3) READINGS IN MODERN EUROPEAN HISTORY.**
- HIST 555 (3-12) D TOPICS IN MODERN EUROPEAN HISTORY.**
- HIST 556 (3) SEMINAR IN MODERN EUROPEAN HISTORY.**
- HIST 558 (3) READINGS IN COMPARATIVE ASIAN HISTORY.**
- HIST 559 (3) SEMINAR IN COMPARATIVE ASIAN HISTORY.**
- HIST 560 (3) READINGS IN CHINESE HISTORY (TO 1911).**
- HIST 561 (3) READINGS IN CHINESE HISTORY (POST-1911).**
- HIST 562 (3-12) D TOPICS IN CHINESE HISTORY.**
- HIST 563 (3) METHODOLOGY AND SOURCES IN CHINESE HISTORY.**
- HIST 564 (3) SEMINAR IN CHINESE HISTORY.**
- HIST 565 (3) READINGS IN JAPANESE HISTORY TO 1914.**
- HIST 566 (3) READINGS IN 20TH-CENTURY JAPANESE HISTORY.**
- HIST 567 (3-12) D TOPICS IN JAPANESE HISTORY.**
- HIST 568 (3) READINGS IN EARLY MODERN JAPANESE AND WORLD HISTORY.**
- HIST 569 (3) METHODOLOGY AND SOURCES IN JAPANESE HISTORY.**
- HIST 570 (3) SEMINAR IN JAPANESE HISTORY.**
- HIST 573 (3) READINGS IN SOUTHEAST ASIAN HISTORY.**
- HIST 574 (3-12) D TOPICS IN SOUTHEAST ASIAN HISTORY.**

HIST 575 (3) SEMINAR IN SOUTHEAST ASIAN HISTORY.

HIST 577 (3) READINGS IN SOUTH ASIAN HISTORY.

HIST 578 (3-12) D TOPICS IN SOUTH ASIAN HISTORY.

HIST 579 (3) SEMINAR IN SOUTH ASIAN HISTORY.

HIST 580 (3) READINGS IN LATIN AMERICAN HISTORY.

HIST 581 (3-12) D TOPICS IN LATIN AMERICAN HISTORY.

HIST 582 (3) SEMINAR IN LATIN AMERICAN HISTORY.

HIST 585 (3-12) D TOPICS IN CULTURAL HISTORY.

HIST 586 (3-12) D TOPICS IN INTELLECTUAL HISTORY.

HIST 587 (3-12) D TOPICS IN ECONOMIC HISTORY.

HIST 588 (3-12) D TOPICS IN SOCIAL HISTORY.

HIST 590 (3-12) D TOPICS IN DIPLOMATIC HISTORY.

HIST 591 (3) SEMINAR IN DIPLOMATIC HISTORY.

HIST 592 (3-12) D TOPICS IN RELIGIOUS HISTORY.

HIST 593 (3-12) D TOPICS IN MILITARY HISTORY.

HIST 596 (3) ORAL HISTORY.

HIST 597 (3-12) D TOPICS IN COMPARATIVE HISTORY.

HIST 649 (0) PH.D. THESIS.

HKIN — HUMAN KINETICS SCHOOL OF HUMAN KINETICS

HKIN 103 (3) ACTIVE HEALTH. Role of physical activity in the maintenance of a healthy life. Application of basic physical fitness and exercise methods, exercise techniques and fitness appraisal. [2-2]

HKIN 115 (3/6) D PERFORMANCE ANALYSIS OF SELECTED INDIVIDUAL SPORTS AND ACTIVITIES. Specific topics to be announced each year. HKIN 115 and 215 can be taken in any order. Equivalency: HKIN 210. [2-2]

HKIN 161 (3) LEISURE AND SPORT IN SOCIETY. Introduction to the political, economic and social basis of leisure and sport; concepts, theories and problems. [3-0]

HKIN 190 (3) ANATOMY & PHYSIOLOGY I. Structure and function of the neuromuscular and skeletal systems of the human body. Special emphasis on movement analysis and the physiological effects of exercise. Equivalency: HKIN 290. [2-2]

HKIN 191 (3) ANATOMY & PHYSIOLOGY II. Structure and function of the digestive, endocrine, urinary, circulatory and respiratory systems. Special emphasis on effects of exercise. Equivalency: HKIN 291. [2-2]

HKIN 215 (3/6) D PERFORMANCE ANALYSIS OF SELECTED TEAM SPORTS AND ACTIVITIES. Specific topics to be announced each year. HKIN 115 and 215 can be taken in any order. Equivalency: HKIN 220. [2-2]

HKIN 230 (3) HUMAN MOTOR BEHAVIOUR I. Processes underlying human movement and learning motor skills and factors influencing acquisition, performance and movement control. Prerequisite: Second-year standing. Equivalency: HKIN 368. [3-0-0]

HKIN 231 (3) SPORT AND EXERCISE PSYCHOLOGY. Psychological theories and research related to sport and exercise behavior. Prerequisite: Second-year standing. Equivalency: HKIN 364. [3-0-0]

HKIN 252 (3) CONTEMPORARY HEALTH ISSUES. Examination of health issues, relevant to contemporary lifestyle, physical activity, and careers in the health and fitness field. The development of skills in critical thinking and consumerism as they relate to health and fitness. Prerequisite: Second-year standing. [3-0]

HKIN 261 (3) HEALTH POLICY AND SOCIETY. The Canadian leisure and sport delivery system and related policies. Prerequisite: HKIN 161 and second-year standing. [3-0]

HKIN 275 (3) EXERCISE PHYSIOLOGY I. Acute and chronic effects of exercise on body systems; basic concepts of cardiovascular, respiratory and muscular responses to physical activity. Prerequisite: All of HKIN 190, HKIN 191 and second-year standing. [2-0-2]

HKIN 280 (3) THE RISE OF MODERN SPORT. Selected topics in the growth of modern sport from 1800 to the present, with an examination of developments in Britain, the United States, and Canada. Prerequisite: HKIN 161 and second-year standing. [3-0]

HKIN 284 (3) PHYSICAL GROWTH AND MOTOR DEVELOPMENT. Characteristics of physical growth and motor development related to physical activity; factors affecting, and measurement of, physical growth and motor development. Prerequisite: Second-year standing required. [3-0]

HKIN 292 (3) LEISURE AND SPORT EVENT MANAGEMENT. Issues and strategies of leisure and sport event management are examined. Prerequisite: HKIN 161 and second-year standing. [3-0]

HKIN 293 (3) PLANNING, PROVISION AND MANAGEMENT OF FACILITIES. Planning, provision and management of leisure and sport facilities including policies, funding, design and technological development. Prerequisite: Second-year standing. [3-0]

HKIN 300 (3) AN INTRODUCTION TO PROFESSIONAL STUDIES IN PHYSICAL EDUCATION. An introduction to the profession of physical education, including its evolution, the responsibilities of professionals

in physical education, and the relationship between theory and practice. Prerequisite: Third-year standing. [3-0]

HKIN 303 (3) HIGH PERFORMANCE CONDITIONING IN PHYSICAL ACTIVITY AND SPORT. Conditioning methods, exercise techniques and appraisal methods for fitness in high performance physical activity and sport. Prerequisite: HKIN 103 and either (a) all of HKIN 190, HKIN 191 or (b) all of HKIN 290, HKIN 291 and third-year standing. [2-2]

HKIN 330 (3) HUMAN MOTOR BEHAVIOUR II. Acquisition, performance, and control of skilled movements. Processes and underlying mechanisms involved in learning and performing motor skills. Students can receive credit for only one of HKIN 330 or HKIN 468. Prerequisite: Third-year HKIN standing. Equivalency: HKIN 368, HKIN 468. [2-2]

HKIN 340 (3) POPULAR DANCE AND CULTURE. A thematic approach to dance in varied socio-cultural contexts which focuses on style, celebration, identity, and gender. Prerequisite: Third-year standing. [3-0]

HKIN 343 (3) DANCE FOR CHILDREN. The development of dance from ages 3 to 12. Play, imagery and dance from representational to symbolic interpretation, assimilation of rhythm and movement patterns; the folk tradition; the growth of technical skill; fundamental elements of dance composition. Prerequisite: Third-year standing. [2-2]

HKIN 351 (3) BIOMECHANICS II MECHANICAL PROPERTIES OF TISSUES. Mechanics of muscular contraction and how the mechanical properties of the muscle, ligaments, tendons, and bone work synergistically. Students can receive credit for only one of HKIN 351 or HKIN 473. Prerequisite: Third-year standing. Equivalency: HKIN 473. [2-0-2]

HKIN 353 (3) HUMAN BODY COMPOSITION. Examination of techniques for measuring the amounts of adipose tissue, muscle and bone in the body, and factors affecting body composition, with particular emphasis on physical activity. Prerequisite: Third-year standing. [3-0]

HKIN 355 (3/6) D FIELD EXPERIENCE. Analytical observations and supervised professional practice in physical activity and leisure settings as required for each specific program of study. See Undergraduate Advising Centre for specific prerequisites for each section. Students must take the section relevant to their programs of study. Prerequisite: Third-year standing and specific section prerequisites. [1-0-2]

HKIN 360 (3) INTERNATIONAL PERSPECTIVES ON LEISURE AND SPORT. Leisure and sport systems, policies and programs in selected countries. Prerequisite: HKIN 261 and third-year standing. [3-0]

HKIN 361 (3) INTRODUCTION TO ATHLETIC TRAINING. Recognition, prevention, and first aid treatment of common sports injuries. Laboratory sessions emphasize principles and techniques of basic protective taping and

strapping. Prerequisite: Either (a) all of HKIN 190, HKIN 191 or (b) all of HKIN 290, HKIN 291 and third-year standing. [2-2]

HKIN 362 (3) ADAPTED PHYSICAL ACTIVITY. For persons with disabilities; a developmental, lifelong approach to programming. Includes field work. Prerequisite: Third-year standing. [2-0-2]

HKIN 364 (3) HUMAN BEHAVIOUR IN SPORT AND PHYSICAL ACTIVITY. Current issues, research and practical considerations in the study of human behaviour associated with performance management and participant satisfaction in sport and physical activity. Prerequisite: Third-year standing. [3-0]

HKIN 365 (3) FOUNDATIONS OF COACHING. Methods of athletic conditioning, planning the program, psychology of training and coaching, athletic evaluation. Prerequisite: Third-year standing. [3-0]

HKIN 366 (3) MOVEMENT EXPERIENCES FOR YOUNG CHILDREN. The design and implementation of movement experiences for children in early childhood years. Prerequisite: Third-year standing. [3-0]

HKIN 367 (3) LEISURE AND DISABLED PERSONS. Policy issues relating to leisure opportunities for persons with disabilities. Prerequisite: Third-year standing. [3-0]

HKIN 369 (3) INSTRUCTIONAL ANALYSIS AND DESIGN IN SPORT AND PHYSICAL ACTIVITY PROGRAMS. Instructional design and technologies applied to sport and physical activity programs. Prerequisite: Third-year standing. [2-2]

HKIN 371 (3) INTRODUCTION TO STATISTICS IN HUMAN KINETICS. Basic concepts and principles of descriptive and inferential statistics, and distribution-free statistical techniques. Prerequisite: Third-year standing. [3-0-0]

HKIN 372 (3) RESEARCH APPLICATIONS IN LEISURE AND SPORT MANAGEMENT. Research methodologies commonly used in social and managerial studies in leisure and sport. An emphasis will be placed on qualitative methods. Prerequisite: Third-year standing. [3-0]

HKIN 373 (3) RESEARCH METHODS IN HUMAN KINETICS. Critical evaluation of research studies and methods with emphasis on the physical activity context. Prerequisite: Third-year standing. Equivalency: HKIN 370, HKIN 372. [3-0]

HKIN 374 (3) PERSPECTIVES ON PLAY. Play theories and behaviour. Prerequisite: HKIN 161 and third-year standing. [3-0]

HKIN 381 (3) LEISURE, SPORT AND POPULAR CULTURE. Selected aspects of leisure and sport examined in relation to modern social structures and cultures. Students can receive credit for only one of HKIN 281 or HKIN 381. Prerequisite: HKIN 161. And third-year standing. [3-0-0]

HKIN 382 (3) MEANING AND VALUES IN SPORT. An analysis of the experience of sports activities. Prerequisite: HKIN 261 and third-year standing. [3-0]

HKIN 383 (3) THE OLYMPIC GAMES: ANCIENT AND MODERN. Prerequisite: Third-year standing. [3-0]

HKIN 389 (3) NEUROMUSCULAR INTEGRATION OF HUMAN MOVEMENT. The neurophysiological and functional neuroanatomical processes involved in the sensory and motor control of movement, posture and balance in the human. Peripheral and central sensorimotor structures, and neurological diseases that effect human movement and balance control will be discussed. Prerequisite: One of HKIN 191, HKIN 291 and third-year standing. [3-0]

HKIN 392 (3) THE LEISURE AND SPORT INDUSTRY. Economic and financial issues in the leisure and sport industry. Topics include entrepreneurship, economic impact, commercialization, patterns of ownership and control, and selected financial practices. Prerequisite: COMM 457 and third-year standing. [3-0]

HKIN 400 (3) PLANNING PHYSICAL EDUCATION, SPORT AND EXERCISE PROGRAMS. Processes, techniques and considerations in the planning, implementation and evaluation of physical education, sport and exercise programs in both public and private agencies. Prerequisite: Third-year standing. [3-0]

HKIN 420 (3/9) D COACHING EFFECTIVENESS IN SELECTED SPORTS AND ACTIVITIES. Specific topics to be announced each year. Prerequisite: Appropriate 200-level Performance Analysis course and third-year standing. [3-0]

HKIN 448 (3/6) D DANCE CHOREOGRAPHY. Term 1: foundations of choreography; Term 2: (optional) advanced concepts in choreography for stage and film production. Prerequisite: HKIN 115B (Dance) and third-year standing. [2-2; 2-2]

HKIN 455 (15) FIELD WORK AND FIELD RESEARCH PRACTICUM. Field work and a field research project will be undertaken concurrently in a cooperating leisure, sport or other agency over one term in fourth year (30 hours per week). Students will also attend weekly seminars to discuss field work and the field research projects. Limited enrolment. Prerequisite: One of HKIN 371, HKIN 372. Fourth-year standing and approval from Program Coordinator.

HKIN 456 (3) DIRECTED STUDIES ABROAD. A program of lectures, seminars, visits and directed study of selected topics on site in a foreign country. Prerequisite: Third-year standing.

HKIN 461 (3) PREVENTION OF SPORTS INJURIES I. Training and safety strategies for the prevention of injuries to the musculoskeletal system and sense organs. Credit will be given for only one of HKIN 461 and FMPR 480. Prerequisite: All of HKIN 361, HKIN 363 and either (a) all of HKIN 190, HKIN 191 or (b) all of HKIN 290, HKIN 291 and third-year standing. Corequisite: HKIN 463. [3-0]

HKIN 462 (3) SKELETAL MUSCLE ADAPTABILITY TO EXERCISE AND FATIGUE. The mechanism(s) underlying skeletal muscle adaptation to physiological overloads as with physical activity will be discussed. The etiology of muscle fatigue resulting from exercise will be discussed in light of substrate supply, end-product accumulations and protein functions. Prerequisite: HKIN 463 and either (a) all of HKIN 190, HKIN 191 or (b) all of HKIN 290, HKIN 291 and third-year standing. [3-0]

HKIN 463 (3) PHYSIOLOGY OF EXERCISE. Study of the acute and chronic effects of exercise on body systems; and relationship of the functional capacity of individual systems to maximal human performance. Students can receive credit for only one of HKIN 375 or HKIN 463. Prerequisite: Either (a) all of ANAT 390, BIOL 353 or (b) all of HKIN 190, HKIN 191 or (c) all of HKIN 290, HKIN 291 and third-year standing. [2-2]

HKIN 464 (3) HEALTH PROMOTION AND PHYSICAL ACTIVITY. Current perspectives on health promotion and health education; design and implementation of health promotion strategies in a variety of arenas, particularly health promotion/education strategies aimed at encouraging physical activity. Prerequisite: HKIN 252 and third-year standing. [3-0]

HKIN 467 (3) PHYSICAL ACTIVITY AND MENTALLY HANDICAPPED PERSONS. A developmental approach to physical activity programs for mentally handicapped people of all ages; fieldwork. Prerequisite: Third-year standing. [2-2]

HKIN 468 (3) HUMAN MOTOR PERFORMANCE. Acquisition, performance and control of skilled movements. Processes and underlying mechanisms involved in learning and performing motor skills. Students can receive credit for only one of HKIN 330 or HKIN 468. Prerequisite: Third-year standing. [2-2]

HKIN 469 (3) EXERCISE PRESCRIPTION. Theory and methods of fitness appraisal and exercise prescription for normal and special populations. Pre- or corequisites: HKIN 370 and 463. Prerequisite: Third-year standing. [3-0]

HKIN 471 (3) PREVENTION OF SPORTS INJURIES II. Training and safety strategies for the prevention of injuries or disorders of internal organs and central nervous system. Environmental and nutritional factors in conditioning and pre-event preparation. Credit will be given for only one of HKIN 471 and FMPR 481. Prerequisite: HKIN 461 and third-year standing. [3-0]

HKIN 473 (3) HUMAN BIOMECHANICAL ANALYSIS. Advanced quantitative analysis of human motion. Prerequisite: HKIN 363 or first-year Physics. And third-year standing. [3-0]

HKIN 481 (3) SPORT MARKETING AND COMMUNICATION. A seminar on the application of social science theories and methods to sport marketing and communica-

tion. Prerequisite: COMM 465 and third-year standing. [3-0]

HKIN 489 (3-9) D SEMINAR. Current topics and research in specific areas. Prerequisite: Fourth-year standing. [3-0-0; 3-0-0]

HKIN 492 (3) HUMAN RESOURCE DEVELOPMENT IN LEISURE AND SPORT AGENCY. Human resource development issues and strategies are examined in leisure and sport environments. Prerequisite: COMM 329 and third-year standing. [3-0]

HKIN 499 (3) PROJECTS IN HUMAN KINETICS. Provides opportunities to perform research pertaining to a chosen area of human kinetics. Prerequisite: Fourth year standing and permission of Associate Director, Undergraduate Affairs.

HKIN 500 (3-12) D SPECIAL TOPICS IN HUMAN KINETICS.

HKIN 530 (3/6) D DIRECTED STUDIES. Topics selected by the student, with the approval of the Graduate Advisor, can be studied under the supervision of a member of the faculty.

HKIN 551 (3) MATHEMATICAL APPLICATIONS IN THE STUDY OF SPORT AND PHYSICAL ACTIVITY. A selection of topics from: Stochastic models applied to the study of motor learning, involvement in sport, socialization through sport, etc; the assessment of change; analyses of scoring systems and playoff procedures used in various sports; game theory.

HKIN 560 (3) MODELS OF SPORT ORGANIZATION. An analysis and comparison of models of sport organization in selected countries.

HKIN 562 (3) BIOENERGETICS OF PHYSICAL ACTIVITY. Basic energy systems of the human body; primarily concentrating on the bioenergetics of the skeletal muscle cell, recovery from muscular work, substrate utilization, muscle fiber types, strength, endurance and the physiological assessment of maximal performance.

HKIN 563 (3) MEASUREMENT OF HUMAN MOTION. A critical evaluation of research tools used to measure and assess human motor performance including electromyography, anthropometry, ergometers, indirect calorimetry, cinematography, and indirect dynamics.

HKIN 564 (3) PSYCHO-SOCIAL ASPECTS OF PHYSICAL ACTIVITY. Selected psycho-social considerations in sport: initial and continuing involvement in the competitive sport environment.

HKIN 565 (3) PHYSIOLOGICAL ASPECTS OF PHYSICAL ACTIVITY. Survey of research regarding the physiological aspects of activity; the effects of altitude and environmental temperature on man's performance in exercise and sports.

HKIN 567 (3) HUMAN MOTOR PERFORMANCE. Processes underlying the ability to learn and perform motor skills.

HKIN 568 (3) SEMINAR IN HUMAN MOTOR PERFORMANCE. Reports and discussions of research literature concerning theories and

findings in human performance. Special emphasis is given to understanding the basic mechanisms underlying motor performance within the framework of man as a component system.

HKIN 570 (3) RESEARCH METHODS IN HUMAN KINETICS. Research methods applied to the study of sport and physical activity, the nature of scientific inquiry, the design of experiments, the survey as a research medium, the historical and philosophical methods of inquiry, the writing of the research report.

HKIN 571 (3) DEVELOPMENTAL AND ADAPTED PHYSICAL EDUCATION. The theory and practice of adapted physical education. Programs of general class activities, special adapted physical education and recreation for the disabled, handicapped and aged. The laboratory period affords practical experience in individual and group methods for conducting developmental conditioning and corrective exercises.

HKIN 573 (3) SEMINAR IN MECHANICAL ANALYSIS OF HUMAN MOVEMENT. An investigation of human movement using cinematographical and other research methods. The case study approach will be used to examine kinesiological concepts and principles.

HKIN 574 (3) SEMINAR IN HEALTH PROMOTION THROUGH PHYSICAL ACTIVITY. The relationship of new concepts in health to the promotion of health through physical activity; the application of research findings from a number of disciplines to the identification, selection, and targeting of health promotion/education strategies related to physical activity.

HKIN 580 (3) SEMINAR IN CURRENT PROBLEMS IN HUMAN KINETICS. Objectives; programs; leadership; history and trends; professional status; community organizations and auspices; attitudes and philosophy.

HKIN 581 (3) SPORT, LEISURE AND CONSUMER CULTURE. Sport and leisure are viewed in the context of theoretical debates about mass society and consumer culture.

HKIN 582 (3) SEMINAR IN CANADIAN SPORT HISTORY. Selected topics in Canadian sport history; emphasis on the twentieth century.

HKIN 583 (3) PHYSICAL EDUCATION, SPORT AND EXERCISE PROGRAMS. The development of curricula, implementation and evaluation techniques in physical education, sport and exercise programs; relationships of programs in schools, community centres and other institutions.

HKIN 584 (3) PHYSICAL GROWTH AND MOTOR DEVELOPMENT. The process of human physical growth and the relationship between growth/maturation and physical activity; sequential development of locomotor and manipulative skills and the application of critical period/optimal period literature to developmental skills.

HKIN 585 (3) COACHING SCIENCE I. The application of research findings from exercise physiology, human growth and motor develop-

ment, biomechanics and sport medicine, to the coaching of athletes.

HKIN 586 (3) COACHING SCIENCE II. The application of research findings from sport psychology, sport sociology and human motor learning, to the coaching of athletes.

HKIN 590 (3) SEMINAR IN RESEARCH ON TEACHING IN PHYSICAL EDUCATION. Development, methods and results of research on teaching physical education.

HKIN 591 (3) SEMINAR IN THE ORGANIZATIONAL ANALYSIS OF LEISURE. Selected topics in organizational theory as applied to the analysis of leisure and sport organizations.

HKIN 595 (3) MASTER'S GRADUATING PAPER.

HKIN 598 (3) DIRECTED FIELD STUDIES IN SPORT AND PHYSICAL ACTIVITY AGENCIES.

HKIN 599 (12) MASTER'S THESIS. Pass/Fail.

HKIN 601 (3/12) C DOCTORAL SEMINAR.

HKIN 699 (0) PH.D. THESIS. Pass/Fail.

HMEC — HOME ECONOMICS FACULTY OF LAND AND FOOD SYSTEMS

HMEC 352 (3) INTRODUCTORY TEXTILE SCIENCE. Textile performance concepts. Interrelationships of fibres, yarns, fabric construction, dyes and finishes with a focus on consumer apparel and household textile products. Textile legislation. [3-0]

HMEC 360 (3) DESIGN FUNDAMENTALS. Visual elements and principles of design, the nature of aesthetics and the influence of design on our physical environment. [2-3]

HMEC 366 (3) TEXTILE DESIGN. Design, structures, and techniques of decorative textiles; influence of historic textiles on contemporary fabrics; textile design techniques of selected cultures. Prerequisite: HMEC 360. [1-3]

HMEC 450 (3) HISTORY OF COSTUME. A survey of the aesthetic, economic, cultural, social, and political significance of costume in history from ancient Egypt to contemporary times. [3-0]

HMED — HOME ECONOMICS EDUCATION FACULTY OF EDUCATION

HMED 306 (3) TEACHING AND LEARNING HOME ECONOMICS ACROSS THE CURRICULUM: ELEMENTARY AND MIDDLE YEARS.

HMED 314 (4/5) D CURRICULUM AND INSTRUCTION IN HOME ECONOMICS: SECONDARY. Pass/Fail. Prerequisite: A completed concentration in home economics or permission of the Head.

HMED 414 (3) CURRICULUM AND INSTRUCTION IN HOME ECONOMICS. Curriculum development with an emphasis on reflection on practice and current curriculum issues. Prerequisite: HMEC 314. [3-0]

HMED 440 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: TEXTILE STUDIES. Topics in a subject field relevant to teaching and not covered in previous undergraduate work. Pass/Fail.

HMED 441 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: FOODS STUDIES. Topics in a subject field relevant to teaching and not covered in previous undergraduate work. Pass/Fail.

HMED 442 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: FAMILY STUDIES. Topics in a subject field relevant to teaching and not covered in previous undergraduate work. Pass/Fail.

HMED 465 (3-12) D SPECIAL TOPICS IN HOME ECONOMICS EDUCATION. Prerequisite: HMED 314 and some teaching experience.

HMED 508 (3-6) D REVIEW OF RESEARCH IN HOME ECONOMICS EDUCATION. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

HMED 514 (3) CURRICULUM AND INSTRUCTION IN HOME ECONOMICS. Advanced studies of curriculum and instruction theories, and research. Prerequisite: HMED 414.

HMED 545 (3) FOUNDATIONS OF HOME ECONOMICS EDUCATION. A review and critical analysis of the history and philosophy of school home economics programs.

HMED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

HMED 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

HMED 590 (3) GRADUATING PAPER. Pass/Fail.

HMED 598 (3-12) C FIELD EXPERIENCES. For those on master's, doctoral and diploma programs.

HMED 599 (6/12) C MASTER'S THESIS.

HUNU — HUMAN NUTRITION FACULTY OF LAND AND FOOD SYSTEMS

Most of the undergraduate courses have been renamed as Food, Nutrition and Health (FNH). Please see this section

HUNU 500 (3) RESEARCH METHODS IN HUMAN NUTRITION. Experimental design, methods of survey research, nutritional epidemiology, clinical research, and laboratory animal research. Issues such as animal models, ethics in animal and human research, statistical methods, and preparation of written reports and manuscripts, etc, will be addressed. Required of all graduate students in Human Nutrition. [3-0]

HUNU 503 (3) CURRENT ISSUES IN NUTRITION AND METABOLISM.

HUNU 505 (3) CURRENT ISSUES IN NUTRITION AND DISEASE.

HUNU 507 (3) CURRENT ISSUES IN NUTRITION OVER THE LIFE SPAN.

HUNU 509 (3) BEHAVIOURAL ASPECTS OF HUMAN NATURE.

HUNU 531 (3) M.SC. SEMINAR.

HUNU 547 (2-6) C DIRECTED STUDIES. In special cases, directed studies on certain aspects of nutrition may be arranged for graduate students in attendance.

HUNU 549 (6/12) C M.SC. THESIS.

HUNU 631 (3) PH.D. SEMINAR.

HUNU 649 (0) PH.D. THESIS.

IAR — ASIAN RESEARCH FACULTY OF GRADUATE STUDIES

IAR 500 (6) PERSPECTIVES AND METHODS IN ASIA PACIFIC POLICY STUDIES.

IAR 505 (3) THE NEW INSTITUTIONALISM IN ASIA.

IAR 506 (3) CULTURE & GLOBALIZATION IN ASIA-PACIFIC. Interdisciplinary investigation of the idea that globalization is not limited to the economic sphere but also includes popular culture, communications, travel, food and desire of the other.

IAR 507 (3) EAST ASIAN ORGANIZATIONS IN COMPARATIVE PERSPECTIVE. Contemporary theories of organizational behavior applied to economic organizations in Japan, with some comparisons to South Korean, Taiwanese and Chinese firms. Historical and theoretical conceptualizations of business organizations with empirical applications as applied to East Asian firms.

IAR 511 (3) CROSS-NATIONAL COMPARISONS IN THE SOCIAL SCIENCES. The methodological and epistemological underpinnings of cross-national comparative research across the social sciences. Focused on but not limited to Northeast Asia. Equivalency: SOCI 511.

IAR 515 (2-6) C TOPICS IN ASIA PACIFIC POLICY STUDIES.

IAR 520 (12) MASTER'S THESIS.

IAR 525 (12) PRACTICUM IN ASIA PACIFIC POLICY STUDIES.

IEST — EUROPEAN STUDIES FACULTY OF GRADUATE STUDIES

IEST 500 (0) PRO-SEMINAR EUROPEAN STUDIES.

IEST 501 (3) INTERNSHIP/EUROPEAN EXCHANGE.

IEST 502 (3-9) D DIRECTED READING.

IEST 505 (3-6) D TOPICS IN EUROPEAN STUDIES.

IEST 511 (3) EXTENDED ESSAY.

IEST 512 (9) MASTER'S THESIS.

IEST 521 (3) THE ECONOMICS OF EUROPEAN INTEGRATION.

IEST 531 (3) EXTERNAL RELATIONS OF THE EUROPEAN UNION.

IEST 541 (3) POLITICAL AND LEGAL FOUNDATIONS OF THE EUROPEAN UNION. Credit will not be given for both IEST 541 and LAW 341.

IEST 551 (3-6) D POLITICS AND CULTURE IN EUROPE.

IEST 561 (3) CITIZENSHIP AND MIGRATION IN CONTEMPORARY EUROPE.

IEST 591 (3) GEOGRAPHY OF EUROPE. Credit will not be given for both IEST 591 and GEOG 493.

IHHS — INTERPROFESSIONAL HEALTH & HUMAN SERVICE COLLEGE OF HEALTH DISCIPLINES

IHHS 200 (3) UNDERSTANDING THE SOCIOCULTURAL DETERMINANTS OF THE HEALTH OF POPULATIONS. The idea of "population health," and the implementation and evaluation of programs or policies to improve health. Open to all students. [3-0-0]

IHHS 300 (3) WORKING IN INTERNATIONAL HEALTH. Tutored, web based course on planning/preparing for work in a developing country. Causes of ill health amongst populations living in poverty; analysis of available solutions. Health Science background not essential.

IHHS 301 (3) FIRST NATIONS HEALTH AND THE TRADITIONAL ROLE OF PLANTS. First Nations medical systems and medicinal plants. Bridging the traditional with modern sciences. Prerequisite: Enrollment in a health and human service program.

IHHS 400 (3) HEALTH CARE TEAM DEVELOPMENT. Skills, knowledge, roles and issues involved with working successfully in interprofessional health and human service teams. Intended for upper division students in any health and human service program.

IHHS 401 (3) HEALTH CARE ETHICS. An interprofessional approach using case studies to illustrate the application of bioethical principles and theories. Intended for students in health and human service programs. [3-0]

IHHS 402 (6) HIV/AIDS PREVENTION AND CARE. Preparation for senior students to respond effectively to the HIV/AIDS epidemic and its consequences. The knowledge and skills required for interprofessional and discipline-specific work are explored. Intended for students in health and human service programs.

IHHS 403 (3) INTERDISCIPLINARY PRACTICE WITH CHILDREN AND FAMILIES. Interprofessional perspectives, challenges, and strategies. Clinical experience and some knowledge of child protection issues required. [3-0-0]

IHHS 404 (3) FIRST NATIONS HEALTH: HISTORICAL AND CONTEMPORARY ISSUES. An epistemological approach that considers the determinants of health and spiritual-environmental-cultural perspectives. [3-0-0]

IHHS 405 (6) PALLIATIVE CARE. Attitudes, knowledge, skills and abilities necessary for interprofessional and discipline-specific work in palliative care. For students registered in health and human service programs only.

IHHS 406 (3) AGING FROM AN INTERDISCIPLINARY PERSPECTIVE. Issues associated with aging in our society. For students registered in health and human services programs only.

IHHS 407 (3) DISABILITY AND JUSTICE.

INDE — INTERDEPARTMENTAL MEDICINE FACULTY OF MEDICINE

INDE 410 (6) INTRODUCTORY CLINICAL SKILLS AND SYSTEMS I. Small group sessions may be supplemented by self-study resources. Students will be introduced to communication skills, components of health history, and the physical exam, and will develop basic skills of examination of the cardiovascular, respiratory and genito-urinary systems. [0-0-2]

INDE 420 (6) CLINICAL SKILLS SYSTEMS II. Small group sessions may be supplemented by self-study resources. Students will further develop general and specific communications skills, while learning a systemic approach to the remaining body systems. Experience with both pediatric and adult patients will be provided. [0-0-2]

INDE 421 (0) CLINICAL SKILLS II. Final examination in course administered by the Departments of Medicine, Surgery, Obstetrics/Gynaecology, Paediatrics and Psychiatry. Exam is an OSCE (Objective Structured Clinical Examination).

INDE 430 (1) PROFESSIONAL DIMENSIONS IN MEDICINE. Ethics, jurisprudence, medical office procedures, physician well-being in relation to professional practice of medicine. Introduction to clinical procedures. Prerequisite: Medicine II.

INDE 440 (4) ADVANCED CLINICAL ELECTIVE I. Electives/Selectives in clinical departments with increased responsibility.

INDE 441 (4) ADVANCED CLINICAL ELECTIVE II. Electives/Selectives in clinical departments with increased responsibility.

INDE 442 (4) ADVANCED CLINICAL SELECTIVE I. Electives/Selectives in clinical departments with increased responsibility. Prerequisite: Phase IV (Junior Clerkship).

INDE 443 (4) ADVANCED CLINICAL SELECTIVE II. Electives/Selectives in clinical departments with increased responsibility. Prerequisite: Phase IV (Junior Clerkship).

INDE 450 (4) SENIOR CLERKSHIP. A four-week senior clinical elective for fourth year students. Students will participate in all activities including rounds, admissions and case

presentations associated with the particular clinical rotation.

INDE 451 (0) CLINICAL SKILLS III. Final examination for third year encompassing all clinical subjects.

INDE 452 (2) CLINICAL ELECTIVE IN THIRD YEAR. Study in approved ambulatory or community setting during the 3rd year of the MD program.

INDE 453 (10) EFFECTIVE LEARNING SKILLS FOR MEDICAL PRACTICE. A 10-week full-time course that consists of 6 components: weekly themes with associated 2-hour lecture series; therapeutics; health care and epidemiology; advanced communication skills; cross-cultural healthcare ethics/law and politics.

INDO — INDONESIAN FACULTY OF ARTS

INDO 102 (6) INTRODUCTORY INDONESIAN. Spoken and written Indonesian.

INDO 200 (6) INTERMEDIATE INDONESIAN. Study of the grammar and introduction to Indonesian literature. Prerequisite: INDO 102.

INDS — INTERDISCIPLINARY STUDIES FACULTY OF GRADUATE STUDIES

INDS 501 (0) INSTRUCTIONAL SKILLS WORKSHOP. Introduction to concepts and practice in higher education instruction; emphasis on lesson planning, student participation and instructional aides; includes videotaped practice teacher/peer feedback 28 classroom hours.

INDS 502 (1-6) D INTERDISCIPLINARY STUDIES: THEMATIC SEMINARS. Seminars, lectures, and discussions of topics involving several faculties. Contact the Individual Interdisciplinary Studies Program for specific topics (www.iisgp.ubc.ca).

INDS 530 (3-6) C DIRECTED STUDIES. A series of directed readings related to student's area of interdisciplinary studies. This advanced course may be taken upon approval of the Program head.

INDS 549 (6/12) C MASTER'S THESIS.

INDS 649 (0) PH.D. THESIS.

ISCI — INTEGRATED SCIENCES FACULTY OF SCIENCE

ISCI 300 (1) INTERDISCIPLINARY SEMINAR. Critical analysis of recent scientific literature that combines disciplines that students are integrating in their Integrated Sciences Curriculum. Prerequisite: Registration in Integrated Sciences Program [0-0-1.5*; 0-0-1.5*]

ISCI 311 (3) THE SIZE OF THINGS. Scaling as a general approach to laws governing the geometry, kinematics and dynamics of systems. Dimensional analysis, isometry and allometry applied to topics from Biology, Physics, Earth Science and Economics. Priority to students in the Integrated Sciences Program. Prerequisite: Third-year standing in the Faculty of Science. [2-0-2]

ISCI 320 (3) INTERDISCIPLINARY SCIENCES FIELD COURSE. Pre-trip preparation, field research/exploration, followed by integration of key concepts and presentation of results. Course content/location will vary; fee payable six weeks prior to start of course. Prerequisite: Third-year standing in the Faculty of Science.

ISCI 322 (3) SCIENCE OF MEASUREMENT AND INSTRUMENTATION. Interactive course integrating diverse aspects of science: semi-quantitative overview of physical principles underlying modern measurement technology; philosophy of measurement; accuracy and limits to measurement, and resultant scientific, sociological and economic consequences. Priority to students in the Integrated Sciences Program. Prerequisite: Third-year standing in the Faculty of Science.

ISCI 330 (3) TOPICS IN INTEGRATED SCIENCES. Interactive examination of a theme common to all areas of science. Themes will change from year to year. Priority to students in the Integrated Sciences Program. Prerequisite: Third-year standing in the Faculty of Science [3-0-0]

ISCI 333 (3) PRINCIPLES OF BIOLOGICAL AND ARTIFICIAL CONTROL SYSTEMS. Interactive exploration of information networks. Integrated principles of neural and computational control systems encompassing scientific, social and philosophical perspectives. Priority to students in the Integrated Sciences Program. Prerequisite: Third-year standing in the Faculty of Science. [2-0-2]

ISCI 345 (3) INTEGRATIVE BIOINFORMATICS. Storage and processing of information in biological systems. Computational methods for recovering and interpreting stored genetic information. Priority to students in the Integrated Sciences Program. Prerequisite: Third-year standing in the Faculty of Science. [2-0-2]

ISCI 350 (3) DARWINIAN MEDICINE. Using the Darwinian theory of natural selection to explore explanations of infectious diseases, allergies, cancer, mental illness, and other human diseases. Priority to students in the Integrated Sciences Program. Prerequisite: Third-year standing in the Faculty of Science. [2-0-2]

ISCI 398 (3) CO-OPERATIVE WORK PLACEMENT I. Industrial or academic work experience for a minimum of 4 months. Normally taken in Winter Session of third year or Summer Session after third year. Technical report required. Restricted to students in the ISP Co-op program. Prerequisite: One term in ISP.

ISCI 399 (3) CO-OPERATIVE WORK PLACEMENT II. Industrial or academic work experience for a minimum of 4 months. Technical report required. Restricted to students admitted to the Co-op Program in ISP. Prerequisite: ISCI 398.

ISCI 411 (3) SCIENTIFIC UNCERTAINTY AND RISK. Examines theory and practice of analyzing risk in many fields and disciplines. Topics include assessing, communicating, and

managing risks. Emphasis on dealing with scientific uncertainty. Priority to ISP students. Prerequisite: Third-year standing in Faculty of Science and a statistics course. [3-0-0]

ISCI 422 (3) MODELS IN SCIENCE. Meaning, nature, use, strengths and limitations of models as investigative tools in all scientific disciplines. Detailed investigation of selected model systems from different scientific disciplines. Priority to students in the Integrated Sciences Program. Prerequisite: Third-year standing in the Faculty of Science. [2-0-2]

ISCI 448 (3-6) D DIRECTED STUDIES. Permission of the Director is required.

ISCI 451 (3) COMPLEXITY. Structure, function, evolution and manipulation of complex systems from various disciplines. Tools for analysis and synthesis of complexity. Case studies include real (e.g., weather, human brain, economics) and formal (e.g., chaos, artificial neural networks, genetic algorithms) systems. Prerequisite: Third-year standing in the Faculty of Science. [3-0-0]

ISCI 490 (3) STUDENT DIRECTED SEMINARS. Self-directed, collaborative studies, in a group-learning environment, initiated and coordinated by senior undergraduate students with the supervision of a faculty advisor. Course structure, enrolment and delivery methods will comply with the Handbook for Student Directed Seminars. Prerequisite: Third-year standing in the Faculty of Science. [3-0-0]

ISCI 498 (3) CO-OPERATIVE WORK PLACEMENT III. Industrial or academic work experience for a minimum of 4 months. Technical report required. Restricted to students admitted to the Co-op Program in ISP. Prerequisite: ISCI 399.

ISCI 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Industrial or academic work experience for a minimum of 4 months. Technical report required. Restricted to students admitted to the Co-op Program in ISP. Prerequisite: ISCI 498.

ITAL — ITALIAN FACULTY OF ARTS

Students with Italian 11 or 12 or exposure to the Italian language or dialects must consult the Italian undergraduate advisor for placement in appropriate courses. Some 400-level ITAL courses may be taken as ITST courses and be conducted in English (see details below). Majors and Honours must take such courses as ITAL and will be expected to do their reading and assignments in Italian language. Supplementary tutorials in Italian will be provided as needed for such courses. Credit in ITAL will preclude credit in ITST and vice versa.

ITAL 101 (3) FIRST-YEAR ITALIAN I. Grammar, reading, writing, and oral practice for beginners without previous exposure to the Italian language or dialects.

ITAL 102 (3) FIRST-YEAR ITALIAN II. Grammar, reading, writing and oral practice for beginners. Prerequisite: ITAL 101.

ITAL 103 (6) INTENSIVE FIRST-YEAR ITALIAN. An accelerated course. Grammar, reading, writing, comprehension. This course is equivalent to ITAL 101 plus 102 offered in the same semester.

ITAL 201 (3) SECOND-YEAR ITALIAN I. Reading, writing and oral practice, with constant and systematic reference to the grammatical structure of the language. Prerequisite: ITAL 102.

ITAL 202 (3) SECOND-YEAR ITALIAN II. Reading, writing and oral practice, with constant and systematic reference to the grammatical structure of the language. Prerequisite: ITAL 201.

ITAL 203 (6) INTENSIVE SECOND-YEAR ITALIAN. An accelerated course. Grammar review, reading, composition, comprehension. This course is equivalent to ITAL 201 plus 202 offered in the same semester.

ITAL 301 (3) ADVANCED COMPOSITION: TRANSLATION AND STYLISTICS I. Prerequisite: All of ITAL 202, ITAL 203. Or permission of the department.

ITAL 302 (3) THIRD-YEAR ITALIAN II. Reading, writing, speaking, comprehension. Special emphasis on oral practice and on composition. Prerequisite: ITAL 301, or permission of the department. Prerequisite: ITAL 301.

ITAL 303 (6) ITALIAN LITERATURE AND CULTURE OF THE MEDIEVAL AND EARLY MODERN PERIOD. A thematic approach to Italian literary works from the origins to the end of the 16th century considered in a broad cultural context. Alternates with ITAL 304. Prerequisite: ITST 231 Corequisite: ITST 231

ITAL 304 (3/6) D ITALIAN LITERATURE AND CULTURE OF THE MODERN AND CONTEMPORARY AGE. The development of modern and contemporary Italian literature and culture against the background of social and historical events. Alternates with ITAL 303. Prerequisite: ITST 232 Corequisite: ITST 232

ITAL 342 (3) INTRODUCTION TO ITALIAN FOR SENIOR STUDENTS I. An intensive course in spoken and written Italian. Grammar, conversation, reading of literary texts. Prerequisite: proficiency in another Romance language or Latin. Not considered a third-year course for purposes of satisfying degree requirements. Prerequisite: Proficiency in another Romance Language or in Latin

ITAL 343 (3) INTRODUCTION OR ITALIAN FOR SENIOR STUDENTS II. An intensive course in spoken and written Italian. Grammar, conversation, progressive reading of various texts. Prerequisite: Proficiency in another Romance language or Latin. Not considered a third-year course for purposes of satisfying degree requirements.

ITAL 401 (3) ADVANCED STUDIES IN ITALIAN LANGUAGE AND STYLE I. Advanced reading, writing, speaking, comprehension. Special emphasis on oral practice.

Alternates with ITAL 402. Prerequisite: ITAL 302.

ITAL 402 (3) ADVANCED STUDIES IN ITALIAN LANGUAGE AND STYLE II. Advanced reading, writing, speaking, comprehension. Special emphasis on composition. Alternates with ITAL 401. Prerequisite: ITAL 401.

ITAL 403 (3) DANTE ALIGHIERI'S DIVINE COMEDY. A close reading of Dante's masterpiece, along with excerpts from some of his other works: *Vita Nuova*, *Convivio*, *Monarchia*, *Epistles*.

ITAL 404 (3) ITALIAN LITERATURE OF THE MIDDLE AGES. Italian literature of the Middle Ages in its intellectual, socio-political and cultural context. Dante and his contemporaries and/or immediate followers (may include Petrarch and Boccaccio). Precludes credit for ITST 414.

ITAL 405 (3) TOPICS IN THE ITALIAN LITERATURE AND CULTURE OF THE RENAISSANCE. Italian literature of the Renaissance in its intellectual, socio-political and cultural context. Authors may range from Dante, Petrarch and Boccaccio to Machiavelli, Ariosto and Tasso. Precludes credit for ITST 415.

ITAL 408 (3) TOPICS IN NINETEENTH-CENTURY ITALIAN LITERATURE AND CULTURE. Italian literature of the 19th century in its intellectual, socio-political and cultural context. Precludes credit for ITST 418.

ITAL 409 (3) TOPICS IN MODERN AND CONTEMPORARY ITALIAN LITERATURE AND CULTURE. Italian literature of the 20th century in its intellectual, socio-political and cultural context. Precludes credit for ITST 419.

ITAL 420 (3/6) D SPECIAL TOPICS IN ITALIAN LANGUAGE, LITERATURE AND CULTURE. Course content will vary. May be taken twice for a total of 6 credits.

ITAL 420 (3-12) D SPECIAL TOPICS IN ITALIAN LANGUAGE AND LITERATURE. A maximum of 6 credits is available in any one topic.

ITAL 430 (3) ITALIAN CINEMA IN ITS CULTURAL BACKGROUND. A survey of major films in their intellectual, socio-political and cultural context.

ITAL 449 (6/12) C HONOURS ESSAY.

ITAL 499 (3) HONOURS ESSAY.

ITAL 501 (3/6) D DANTE: THE MINOR WORKS.

ITAL 502 (3/6) D DANTE: THE DIVINE COMEDY.

ITAL 505 (3/6) D STUDIES IN THE LITERATURE OF THE RENAISSANCE.

ITAL 507 (3/6) D STUDIES IN ROMANTICISM.

ITAL 508 (3/6) D STUDIES IN MODERN ITALIAN LITERATURE.

ITAL 515 (3/6) D TOPICS IN ITALIAN LANGUAGE.

ITAL 520 (3/12) D ITALIAN LANGUAGE AND LITERATURE. A maximum of 6 credits is available in any one topic.

ITAL 548 (3) GRADUATING ESSAY.

ITAL 549 (6/12) C MASTER'S THESIS.

ITST — ITALIAN STUDIES FACULTY OF ARTS

All Italian Studies courses are conducted in English.

ITST 231 (3) INTRODUCTION TO ITALIAN CULTURE I: FROM THE MIDDLE AGES TO THE EARLY MODERN PERIOD.

ITST 232 (3) INTRODUCTION TO ITALIAN CIVILIZATION II: FROM THE MODERN TO THE POST-COLONIAL AGE.

ITST 310 (3/6) D THE DIVINE COMEDY IN TRANSLATION.

ITST 413 (3) DANTE ALIGHIERI'S DIVINE COMEDY IN TRANSLATION. A close reading of Dante's masterpiece, along with excerpts from some of his other works: *Vita Nuova*, *Convivio*, *Monarchia*, *Epistles*. Precludes credit for ITAL 403.

ITST 414 (3) TOPICS IN THE ITALIAN LITERATURE AND CULTURE OF THE MIDDLE AGES IN TRANSLATION. Italian literature of the Middle Ages in its intellectual, socio-political and cultural context.

ITST 415 (3) TOPICS IN THE ITALIAN LITERATURE AND CULTURE OF THE RENAISSANCE IN TRANSLATION. The Renaissance in its intellectual, socio-political and cultural context. Authors may range from Dante, Petrarch and Boccaccio to Machiavelli, Ariosto and Tasso. Precludes credit for ITAL 405.

ITST 418 (3) TOPICS IN NINETEENTH-CENTURY ITALIAN LITERATURE AND CULTURE IN TRANSLATION. Italian literature of the 19th century in its intellectual, socio-political and cultural context.

ITST 419 (3) TOPICS IN MODERN AND CONTEMPORARY ITALIAN LITERATURE AND CULTURE IN TRANSLATION. Italian literature of the 20th century in its intellectual, socio-political and cultural context.

ITST 421 (3) SPECIAL TOPICS IN ITALIAN STUDIES. Course content will vary. May be taken twice for a total of 6 credits.

ITST 431 (3/6) D LITERATURE OF THE ITALIAN RENAISSANCE IN TRANSLATION.

ITST 432 (3) ITALIAN CINEMA AND ITS CULTURAL BACKGROUND. Films with English subtitles. Precludes credit for ITAL 430.

JAPN — JAPANESE FACULTY OF ARTS

JAPN 100 (3) BEGINNING JAPANESE I. An introduction to modern spoken and written Japanese with emphasis on both form (grammar and syntax) and functions (Non-intensive).

JAPN 101 (3) BEGINNING JAPANESE I. Continuation of JAPN 100 (Non-intensive). Prerequisite: JAPN 100.

JAPN 102 (3) BEGINNING JAPANESE IIA. Continuation of JAPN 101 (Non-intensive). Prerequisite: One of JAPN 101, JAPN 150.

JAPN 103 (3) BEGINNING JAPANESE IIB. Continuation of JAPN 102 (Non-intensive). Prerequisite: JAPN 102.

JAPN 104 (6) BASIC JAPANESE GRAMMAR. Emphasis on grammar, writing and reading. Intended for students with a background in spoken Japanese.

JAPN 150 (6) INTENSIVE BEGINNING JAPANESE I. An introduction to modern spoken and written Japanese with emphasis on both form (grammar and syntax) and functions. Offered in Term 1. Corequisite: JAPN 150 and 151 are normally taken in the same year.

JAPN 151 (6) INTENSIVE BEGINNING JAPANESE II. Continuation of JAPN 150. Offered in Term 2. Prerequisite: One of JAPN 101, JAPN 150.

JAPN 180 (12) INTENSIVE SUMMER COURSE IN JAPANESE. Equivalent to JAPN 100 and 101.

JAPN 210 (3) INTERMEDIATE JAPANESE I A. Prerequisite: JAPN 210. Corequisite: JAPN 210 and 211 normally taken in the same year.

JAPN 211 (3) INTERMEDIATE JAPANESE IB. Continuation of JAPN 210. Prerequisite: JAPN 210. Corequisite: JAPN 210 and 211 are normally taken in the same year.

JAPN 212 (3) INTERMEDIATE JAPANESE II A. Prerequisite: One of JAPN 211, JAPN 250. Corequisite: JAPN 212 and JAPN213 normally taken in the same year.

JAPN 213 (3) INTERMEDIATE JAPANESE II B. Prerequisite: JAPN 212. Corequisite: JAPN212 and JAPN213 normally taken in the same year.

JAPN 250 (6) INTENSIVE INTERMEDIATE JAPANESE. Topics involving cross-cultural communication designed for students who wish to develop linguistic, socio-linguistic, and strategic competence in speaking, listening, reading, and writing modern Japanese. Offered in Term 1. Equivalent to JAPN210 and JAPN211. Prerequisite: One of JAPN 103, JAPN 151. Corequisite: JAPN251 normally taken in same year.

JAPN 251 (6) INTENSIVE INTERMEDIATE JAPANESE II. Continuation of JAPN250. Offered in Term 2. Equivalent to JAPN212 and JAPN213. Prerequisite: One of JAPN 211, JAPN 250. Corequisite: JAPN250 and JAPN251 normally taken in same year.

JAPN 280 (12) INTENSIVE SUMMER COURSE IN INTERMEDIATE JAPANESE. Prerequisite: One of JAPN 103, JAPN 151, JAPN 104 or equivalent. Equivalency: JAPN 200, JAPN 201, JAPN 202, JAPN 203.

JAPN 300 (3) ADVANCED MODERN JAPANESE: READING AND WRITING. Prerequisite: JAPN 201.

JAPN 301 (3) ADVANCED MODERN JAPANESE: READING AND WRITING. Prerequisite: JAPN 300.

JAPN 302 (3) ADVANCED MODERN JAPANESE: CONVERSATION AND COMPOSITION. Improvement of speaking and writing in modern Japanese through grammatical analysis, oral practice, conversation, and composition. Prerequisite: JAPN 203.

JAPN 303 (3) ADVANCED MODERN JAPANESE: CONVERSATION AND COMPOSITION. Prerequisite: JAPN 302.

JAPN 310 (6) JAPANESE FOR SPECIALISTS OF CHINA. Readings in Japanese material dealing with Chinese for students who have a reading knowledge of Chinese. Prerequisite: One of JAPN 103, JAPN 151 or their equivalents.

JAPN 311 (3) CLASSICAL JAPANESE I.

JAPN 312 (3) CLASSICAL JAPANESE I. Prerequisite: JAPN 311.

JAPN 315 (6) JAPANESE FOR PROFESSIONAL LIFE. Technical Japanese as it is used in business, commerce, industry, science, technology, law, etc. Emphasis on grammatical and syntactical features of these special uses of the language and on specialized, current vocabulary. Prerequisite: One of JAPN 201, JAPN 203, JAPN 280.

JAPN 342 (6) READING COURSE IN JAPANESE FOR HONOURS STUDENTS.

JAPN 401 (6) CLASSICAL JAPANESE II. Advanced reading in classical Japanese literary, historical, and philosophical texts. Prerequisite: All of JAPN 311, JAPN 312 or their equivalents.

JAPN 402 (6) READINGS IN JAPANESE POETRY. Translation and analysis of selected works from classical, medieval, and modern periods. Prerequisite: All of JAPN 300, JAPN 301.

JAPN 406 (3) READINGS IN MODERN JAPANESE ESSAYS. An advanced course in the reading and analysis of scholarly texts in modern Japanese drawn from history, sociology, economics, etc. Advanced conversation, composition, and practice in the use of standard reference tools as preparation for independent research in Japanese. Prerequisite: JAPN 301. It is recommended that students complete JAPN 303 prior to taking JAPN 406.

JAPN 408 (3) READINGS IN MODERN JAPANESE LITERATURE. An advanced course in the reading and analysis of literary texts in modern Japanese. Advanced conversation, translation into English and practice in the use of standard reference tools as preparation for advanced research in Japanese. Prerequisite: JAPN 406 and instructor's permission.

JAPN 410 (3) ADVANCED ORAL COMMUNICATION. Oral communication skills appropriate for studying and working in a Japanese-speaking environment either formal or informal. Prerequisite: All of JAPN 301, JAPN 303.

JAPN 411 (3) ADVANCED ORAL COMMUNICATION. Prerequisite: JAPN 410.

JAPN 416 (3) NEWSPAPER JAPANESE. The aim of the course will be to develop fluency in reading contemporary Japanese newspapers. Concentration on current and emerging vocabulary, evolving grammatical features, and style of presentation. Prerequisite: All of JAPN 301, JAPN 303.

JAPN 417 (3) NEWSPAPER JAPANESE. Prerequisite: JAPN 416.

JAPN 420 (3) GRAMMATICAL ANALYSIS OF JAPANESE. Analysis of the grammatical structure of modern Japanese. Contrastive analysis of Japanese and English as well as error analysis. Prerequisite: All of JAPN 301, JAPN 303.

JAPN 421 (3) GRAMMATICAL ANALYSIS OF JAPANESE. Prerequisite: JAPN 420.

JAPN 440 (3-18) C SUPERVISED STUDY IN THE JAPANESE LANGUAGE. Primarily for graduate students.

JAPN 442 (12) TUTORIAL IN JAPANESE FOR HONOURS STUDENTS. This course will require the presentation of at least one research paper.

JRNL — JOURNALISM SCHOOL OF JOURNALISM

JRNL 503 (3-9) D NEWSROOM PRACTICE AND STANDARDS.

JRNL 505 (3-9) D PRINCIPLES OF INVESTIGATIVE JOURNALISM.

JRNL 510 (3) NEWS WRITING AND REPORTING.

JRNL 520 (3-9) D ISSUES IN CONTEMPORARY JOURNALISM.

JRNL 523 (3) AUDIENCE RESEARCH AND RECEPTION THEORIES.

JRNL 525 (3) CRITICAL THINKING FOR JOURNALISTS.

JRNL 533 (3-9) D ETHICS AND THE LAW.

JRNL 535 (3) THE PRESS AND SOCIETY.

JRNL 539 (3-9) D DIRECTED STUDIES.

JRNL 549 (6-12) D THESIS PROJECT.

KORN — KOREAN FACULTY OF ARTS

KORN 102 (6) BASIC KOREAN. An introduction to the grammar and syntax of modern spoken and written Korean.

KORN 104 (6) BASIC KOREAN GRAMMAR. Emphasis on grammar, writing and reading. For heritage learners and students with prior background in spoken Korean. Prepares students for KORN 300.

KORN 200 (6) INTERMEDIATE KOREAN. Reading and writing of modern colloquial Korean at an intermediate level. Prerequisite: KORN 102.

KORN 300 (6) READINGS IN KOREAN TOPICS. Readings in intermediate-level Korean on aspects of Korean culture, customs, and contemporary life, along with structured conversations based on those readings. Prerequisite: KORN 200.

KORN 301 (3/6) D INTRODUCTION TO SINO-KOREAN READINGS. Chinese characters in their Korean pronunciations and shapes. Students learn approximately 600 characters, related vocabulary, and do structured readings in mixed scripts on aspects of Korean culture and contemporary life. Prerequisite: Permission of instructor.

KORN 410 (3/6) D MODERN KOREAN SHORT FICTION. Prerequisite: KORN 300.

KORN 411 (3/6) D ADVANCED READINGS IN KOREAN NON-FICTION. Guided readings on contemporary affairs from the Korean press and/or selected readings in Korean academic prose. Prerequisite: KORN 300.

KORN 412 (3/6) D KOREAN-TO-ENGLISH TRANSLATION. Translation into English of Korean writing in various literary genres, including short story, poetry, personal essay, and academic essay. Supplementary readings in translation studies and translation theory.

KORN 415 (3/6) D KOREAN CONVERSATION AND COMPOSITION. Structured conversation practice and weekly composition assignments based on viewing one designated Korean television program per week. Prerequisite: KORN 300.

KORN 440 (3/6) D SUPERVISED STUDY IN THE KOREAN LANGUAGE. Primarily for students in Asian Studies and Linguistics.

LARC — LANDSCAPE ARCHITECTURE SCHOOL OF ARCHITECTURE AND LANDSCAPE ARCHITECTURE

LARC 316 (3) TREES AND SHRUBS IN LANDSCAPE. Culture and identification of landscape materials with emphasis on woody plants. Elementary principles of landscape composition. Suitable for students of other faculties and departments interested in landscape materials and their uses, but priority given to Agroecology and Landscape Architecture students. [2-2]

LARC 415 (3) STRUCTURE, FORM AND ADAPTABILITY IN PLANTING DESIGN. Lectures and exercises dealing with plants as structural elements in landscape. Plant associations. Horticultural adaptations. Planning relation to subsequent maintenance. Prerequisite: LARC 316. [2-2]

LARC 421 (3) CREATIVITY AND DESIGN APPLIED. An exploration of creativity and design and their application to a number of design disciplines. Web based. [3-0-0]

LARC 422 (3) LANDSCAPE ARCHITECTURAL HISTORY. History, principles and theory of landscape architecture in Europe, America and

Asia. Influence of cultural attitudes and societal change upon natural environments, parks, gardens and town planning. [3-0]

LARC 431 (3) SITE ANALYSIS AND PLANNING 1. A final lecture course/studio course in technology examines the making of a complete set of working drawings for the purposes of tendering and construction. Open only to B.En.D. students. Credit will be given for only one of LARC 431, LARC 531.

LARC 440 (3) SITE ANALYSIS AND PLANNING II. Site analysis and planning of relatively complex sites, emphasizing storm water management design. Open only to B.En.D. students. Credit will be given for only one of LARC 440, LARC 540.

LARC 500 (1) LANDSCAPE ARCHITECTURE SEMINAR. A forum for the exchange of ideas and the presentation of papers by faculty, students, and visitors.

LARC 501 (12) DESIGN STUDIO 1: INTRODUCTION. Landscape design, process, and representation explored through several small scale projects. Restricted to M.L.A. students.

LARC 502 (9) DESIGN STUDIO 2: DESIGN METHODS. Prerequisite: LARC 501. [2-10]

LARC 503 (9) DESIGN STUDIO 3: DESIGN DEVELOPMENT. Prerequisite: LARC 502.

LARC 504 (9) DESIGN STUDIO 4: URBAN AND REGIONAL PUBLIC REALMS. Vertical design studio. Prerequisite: Either (a) LARC 502 or (b) ARCH 500 or equivalent.

LARC 505 (9) DESIGN STUDIO 5: PATTERNS, POLICIES, AND TYPES. Prerequisite: LARC 504. [2-10]

LARC 510 (2-9) D ADVANCED FIELD STUDIES IN LANDSCAPE ARCHITECTURE.

LARC 511 (1) INTRODUCTORY WORKSHOP. All incoming students are required to attend this late summer workshop prior to enrolling in their autumn courses.

LARC 520 (3) THEORIES IN EXPERIENCE AND PLACE. Exploration in the experience of landscape and various place theories, including the systems, attitudes and ideas that influence the design and functioning of good place. [3-2]

LARC 521 (3) DESIGN THINKING. Study of methods-theories of design knowledge. Includes design as reflective-iterative process, idea generation, visual-visual and visual verbal transformation, design criticism and project evaluation methods. [3-2]

LARC 525 (3) DESIGN-RESEARCH METHODS IN LANDSCAPE IN LANDSCAPE ARCHITECTURE. An examination of various quantitative, qualitative and design research methods in landscape architecture using case studies, lectures and seminars. [2-2]

LARC 531 (3) LANDSCAPE TECHNOLOGIES I: SITE ENGINEERING. Terrain design, drainage and stormwater management. [2-3]

LARC 532 (3) LANDSCAPE TECHNOLOGIES II: STRUCTURES AND MATERIALS. [2-3]

LARC 533 (3) ADVANCED LANDSCAPE TECHNOLOGY. Prerequisite: LARC 532. [2-3]

LARC 535 (1-4) D INTRODUCTION TO COMPUTERS IN LANDSCAPE ARCHITECTURE. Students may take a maximum of four 1-credit sections.

LARC 540 (3) SITE ANALYSIS AND PLANNING II. Site analysis and planning of relatively complex sites, emphasizing stormwater management design. [3-2]

LARC 541 (3) LANDSCAPE PLANNING AND MANAGEMENT. [2-3]

LARC 542 (3) VISUAL RESOURCE MANAGEMENT. Study of history, aesthetic theory, legislative role and practice of VRM. Equivalency: FRST 490. [3-2]

LARC 551 (3) PROFESSIONAL PRACTICE IN LANDSCAPE ARCHITECTURE. [3-2]

LARC 580 (2-6) D DIRECTED STUDIES IN DESIGN ANALYSIS, PROGRAMMING AND THEORY.

LARC 581 (2-6) D DIRECTED STUDIES IN LANDSCAPE PLANNING AND SUSTAINABILITY.

LARC 582 (1-3) D SPECIAL TOPICS SEMINAR.

LARC 595 (3) GRADUATE PROJECT DEVELOPMENT. Prerequisite: LARC 525.

LARC 598 (12) DESIGN THESIS. Open only to M.L.A. candidates.

LARC 599 (12) RESEARCH THESIS. Open only to M.A.S.L.A. candidates.

LAST — LATIN AMERICAN STUDIES FACULTY OF ARTS

LAST 100 (3) INTRODUCTION TO LATIN AMERICAN STUDIES. An overview of the culture and society of Latin America from ancient to contemporary times and from Argentina to Mexico.

LAST 201 (3) POPULAR CULTURE IN LATIN AMERICA. The culture of everyday life, both rural and urban: issues of identity, popular memory, resistance, negotiation, as expressed through ritual, crafts, the body, social movements, films, music, and literature.

LAST 205 (3) ISSUES OF DEVELOPMENT IN MODERN LATIN AMERICA. Theory of development in the Latin American context: current problems and development alternatives.

LAST 301 (3) HUMAN AND CIVIL RIGHTS IN LATIN AMERICA. Focuses on human rights movements; state violence and impunity; reform of criminal justice systems; rights of indigenous peoples, women, and minorities; international protection of human rights; the UN and inter-American systems.

LAST 303 (3) INDIGENOUS PEOPLES OF LATIN AMERICA. Ethnohistory and contemporary cultures of the indigenous peoples of Mexico, Middle America, and South America. Different cultural areas or regions may be selected to illustrate the course's principal themes.

LATN — LATIN FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnr.ubc.ca.

LATN 100 (6) FIRST-YEAR LATIN. For students with no previous knowledge of Latin.

LATN 200 (3-6) SECOND-YEAR LATIN. Prerequisite: LATN 100.

LATN 300 (6) INTRODUCTION TO LATIN FOR SENIOR STUDENTS. An intensive course in the fundamentals of Latin grammar and syntax. Designed for students who need to acquire a knowledge of basic Latin in one year for background in their own discipline or who plan to proceed to LATN 305. Not for credit towards a Major or Honours in Classics. Students may not receive credit for both LATN 100 and 300.

LATN 301 (6) LATIN LITERATURE OF THE CLASSICAL PERIOD. Readings in the major Latin authors in prose and verse. Prerequisite: LATN 200.

LATN 305 (3/6) D MEDIEVAL LATIN. Introduction to Medieval Latin language and literature. Development of a reading knowledge of Medieval Latin through selections from major authors and genres after 400 AD. Prerequisite: One of LATN 200, LATN 300.

LATN 401 (3-12) C LATIN PROSE. Studies in history, oratory and/or philosophy. May be repeated for up to 12 credits. Corequisite: LATN 301.

LATN 402 (3-12) C LATIN VERSE. Studies in narrative verse, comedy, satire, elegiac and lyric poetry. May be repeated for up to 12 credits. Corequisite: LATN 301.

LATN 501 (3/6) C LATIN PROSE. History, oratory and/or philosophy. Credit will not be given for both LATN 401 and LATN 501.

LATN 502 (3/6) C LATIN VERSE. Narrative verse, comedy, satire, elegiac and lyric poetry. Credit will not be given for both LATN 402 and LATN 502.

LATN 521 (3/6) C STUDIES IN LATIN LITERATURE.

LATN 525 (3/6) D SEMINAR IN LATIN LITERATURE.

LATN 530 (3/6) D SEMINAR IN ROMAN ARCHAEOLOGY.

LATN 535 (3/6) D SEMINAR IN ROMAN HISTORY.

LATN 540 (3/6) D SEMINAR IN LATIN PALAEOGRAPHY.

LATN 545 (3/6) D SEMINAR IN LATIN EPIGRAPHY.

LATN 548 (0) MAJOR ESSAY.

LATN 549 (6/12) C MASTER'S THESIS.

LATN 550 (3/6) C DIRECTED STUDIES.

LATN 649 (0) PH.D. THESIS.

LAW — LAW FACULTY OF LAW

LAW 100 (6) CANADIAN CONSTITUTIONAL LAW. The general principles of Canadian constitutional law; the nature of Canadian federalism, with emphasis on the division of powers; the protection of civil liberties, with primary emphasis on the Charter of Rights and Freedoms. [3-0; 3-0]

LAW 110 (5) D CONTRACTS. Historical development; formation and enforceability of contracts; parties; contractual terms; changes of circumstances; remedies for breach. [2-0; 3-0]

LAW 120 (5) D CRIMINAL LAW AND PROCEDURE. Bases of criminal responsibility; principles and objectives of the criminal law and procedure; pre-trial procedure. [2-0; 3-0]

LAW 130 (5) D PROPERTY LAW. The legal concept of property and its changing nature and application. Surveying various aspects of property including the acquisition and transfer of interests, the regulation of use, Aboriginal title, and systems for registering interests in land. [2-0; 3-0]

LAW 140 (5) D TORTS. A study of the bases of civil liability for intentionally and accidentally caused harms. [2-0; 3-0]

LAW 150 (3) TRANSNATIONAL LAW. Introduction to principles of public and private international law and research methods for international legal materials.

LAW 160 (3) THE REGULATORY STATE. Statutory interpretation and research methods.

LAW 170 (3) LAW IN CONTEXT. The legal profession and professional ethics. Critical theoretical perspectives on the law.

LAW 200 (3) ABORIGINAL PEOPLES AND CANADIAN LAW. Survey of the history and present status of the legal relationships between Canada's Aboriginal peoples and the state. [3-0]

LAW 210 (3) ADMINISTRATIVE LAW. The system of legal control exercised through non-judicial agencies and the relationship of the courts to the administrative process. [3-0]

LAW 220 (3) TAXATION I. A survey of the law and practice of income and capital gains taxes. [3-0]

LAW 230 (3-4) D CORPORATIONS I. The law of corporations, including the rights and duties of directors and shareholders. [3-0]; [2-0; 2-0] or [4-0]

LAW 240 (3) FAMILY LAW. The law relating to family relationships, including the law of marriage, divorce, maintenance, custody, matrimonial property, and related matters. [3-0]

LAW 250 (3) TRUSTS. History and nature of trusts; express, resulting, implied and constructive trusts; charitable and purpose trusts; administration of trusts; breach of trust. [3-0]

LAW 260 (2-3) D ADVANCED CRIMINAL PROCEDURE. Selected topics relating to procedural law and practice in criminal matters. [2-0] or [3-0]

LAW 270 (2-3) D CIVIL PROCEDURE.

Problems in the conduct of civil litigation including: ethical considerations; substantive problems such as notice, pleading, and discovery; and selected procedural problems. [2-0] or [3-0]

LAW 280 (4) EVIDENCE. The admissibility and use of evidence in litigation. [2-0; 2-0] or [4-0]

LAW 301 (3) PHILOSOPHY OF LAW. An examination of the principal schools of legal theory, such as legal positivism, legal realism, sociological jurisprudence, and contemporary rights theory. Not offered each year, consult Faculty. [3-0]

LAW 302 (3) FUNDAMENTAL CONCEPTS OF LAW. A study of some of the fundamental principles and ideas that cut across many areas of the substantive law, including such concepts as fault, intent, legal personality, possession, ownership, justice, and causation. Not offered each year, consult Faculty. [3-0]

LAW 303 (3) THE WESTERN IDEA OF LAW. A comparative and interdisciplinary study of the evolution of Western law from its origins in mythology and patriarchy through to the present time. Not offered each year, consult Faculty. [3-0]

LAW 305 (2-4) D LAW, SOCIETY AND STATE. Theories of the relationship between the legal system, social relations and the state. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 307 (3) WOMEN, LAW AND SOCIAL CHANGE. A survey of feminist approaches to law, with reference to selected substantive areas of the law. [3-0]

LAW 308 (2-4) D FEMINIST LEGAL THEORY. Recent developments in feminist legal theory. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 309 (2-4) D TOPICS IN FEMINIST LEGAL STUDIES. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 310 (2-4) D ECONOMIC ANALYSIS OF LAW. Economic analysis used to explore, describe, evaluate and offer prescriptive suggestions for legal decision-making. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 312 (2-4) D TOPICS IN PHILOSOPHY OF LAW AND THEORETICAL PERSPECTIVES. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 313 (3) LEGAL HISTORY. The relationship between law, society and historical change, normally emphasizing 19th and 20th century issues. Not offered each year, consult Faculty. [3-0]

LAW 315 (2-4) D TOPICS IN LEGAL HISTORY. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 316 (3) INTERNATIONAL LAW. The history, sources and evidence of international law and its relation to municipal law; international personality; state jurisdiction; and

treaties. Students who have taken POLI 465 cannot take this course. [3-0]

LAW 318 (2-4) D MARINE RESOURCES LAW. Legal regimes governing the protection and exploitation of ocean resources. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 319 (2-4) D INTERNATIONAL HUMAN RIGHTS. The recognition and protection of human rights in international law. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 320 (2-4) D INDIGENOUS PEOPLES IN COMPARATIVE AND INTERNATIONAL LAW. The legal situation of indigenous peoples in various states and in modern international law. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 321 (2-4) D INTERNATIONAL LAW OF SOUTH-NORTH RELATIONS. Existence, applications and deficiencies of international law in sectors where the interests of industrialized and developing nations are linked. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 322 (2-4) D INTERNATIONAL LAW PROBLEMS. Selected issues in international law. Not offered each year, consult Faculty. Prerequisite: LAW 316. [2-0] or [3-0]

LAW 323 (2-4) D INTERNATIONAL ENVIRONMENTAL LAW. Customary international law and treaties relating to the environment; institutional structures. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 324 (2-4) D TOPICS IN INTERNATIONAL LAW AND TRANSACTIONS. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 325 (3) CONFLICT OF LAWS. A study of the private legal problems arising in cases in which the relevant facts cut across provincial or national boundaries. Recommended to be taken in third year. [3-0]

LAW 326 (4) D GLOBALIZATION AND LAW.

LAW 327 (2 3) D INTERNATIONAL TRADE LAW. Rules and regulatory systems that govern the international movement of capital, goods and services. [2-0] or [3-0]

LAW 328 (2-4) D INTERNATIONAL BUSINESS TRANSACTIONS. Legal problems in international financial and commercial transactions. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 329 (2-4) D INTERNATIONAL COMMERCIAL DISPUTES. International commercial arbitration and other means for resolving legal disputes relating to international commercial transactions. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 330 (3) CULTURAL PROPERTY AND ART LAW. National and international aspects of the law relating to the art trade and the protection and regulation of cultural property and cultural heritage. [2-0] or [3-0]

LAW 331 (2-4) D TOPICS IN CULTURAL HERITAGE AND ART LAW.

LAW 332 (2-3) D MARITIME LAW. Canadian maritime law and admiralty practice. [2-0] or [3-0]

LAW 334 (2-3) D INTRODUCTION TO ASIAN LEGAL SYSTEMS. Introduction to the comparative study of legal systems of East and South-East Asia, including those of China and Japan. [2-0] or [3-0]

LAW 335 (3) KOREAN LAW. Overview of Korean laws and legal systems with emphasis on South Korea [3-0-0]

LAW 336 (2-4) D CHINESE LAW. A comparative study of Chinese Law, emphasizing the role of law in the People's Republic of China. [2-0] or [3-0]

LAW 337 (2-4) D TRADE AND INVESTMENT IN THE PEOPLE'S REPUBLIC OF CHINA. The legal regime in The People's Republic of China governing trade and foreign investment. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 338 (2-3) D JAPANESE LAW. An introduction to the Japanese legal system from a comparative perspective. [2-0] or [3-0]

LAW 339 (2-4) D HUMAN RIGHTS IN ASIA. Legal issues relating to civil, political, social and cultural rights in particular areas in Asia. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 341 (2-4) D EUROPEAN UNION LAW. The legal system of the European Union as created by the treaties establishing the Union and by the Union's institutions. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 342 (2-4) D TOPICS IN COMPARATIVE LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 343 (2-4) D TOPICS IN PUBLIC LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 345 (3) CANADIAN CONSTITUTIONAL LAW A: FEDERALISM. The general principles of Canadian constitutional law; the nature of Canadian federalism, with emphasis on the division of powers. Credit may not be obtained for LAW 345 and LAW 344. [3-0]

LAW 346 (3) CANADIAN CONSTITUTIONAL LAW B: CHARTER OF RIGHTS. The constitutional protection of civil liberties in Canada, with primary emphasis upon the Charter of Rights and Freedoms. Credit may not be obtained for LAW 346 and LAW 344. [3-0]

LAW 349 (2-4) D TOPICS IN CONSTITUTIONAL LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 350 (2-4) D ISSUES OF EQUALITY AND SOCIAL JUSTICE. Selected topics related to the Charter right to equality and other rights related to social justice. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 351 (2-4) D TOPICS IN HUMAN RIGHTS. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 353 (2-3) D ABORIGINAL AND TREATY RIGHTS. Rights of First Nations people stemming from their aboriginal status and from treaties. Not offered each year, consult Faculty. Prerequisite: LAW 352. [2-0] or [3-0]

LAW 353 (2-3) D ABORIGINAL AND TREATY RIGHTS. Rights of First Nations people stemming from their aboriginal status and from treaties. Not offered each year, consult Faculty. Prerequisite: One of LAW 200, LAW 352. [2-0] or [3-0]

LAW 354 (2-4) D FIRST NATIONS SELF-GOVERNMENT. Issues relating to First Nations' assumption of self-government powers. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 355 (2-4) D FIRST NATIONS AND THE ADMINISTRATION OF JUSTICE. The justice system and its operation in relation to First Nations people. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 356 (2-4) D FIRST NATIONS AND ECONOMIC DEVELOPMENT. Legal issues affecting land use and economic activity involving First Nations' resources. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 358 (2-4) D TOPICS IN FIRST NATIONS LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 360 (3) CHILDREN AND THE LAW. The civil and criminal law affecting juveniles; custody, guardianship and adoption. Prerequisite: LAW 240 or LAW 359 is recommended [3-0]

LAW 362 (2-4) D TOPICS IN FAMILY LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 363 (2-4) D RACISM AND LAW. Legal issues relating to race and racism, including related issues of gender, culture or identity. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 364 (2-4) D TOPICS IN RACE AND LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 365 (2-4) D WOMEN, LAW AND FAMILY. Feminist and other critical perspectives on the relationship between unequal gender relations and laws embodying a concept of "family". Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 367 (2-4) D REPRODUCTION AND LAW. Legal issues relating to human reproduction. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 368 (2-4) D SEXUALITY AND LAW. Legal issues relating to sexual activity, orientation and identification. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 371 (2-4) D TOPICS IN LAW AND SOCIAL RELATIONS. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 373 (2-4) D TOPICS IN ADMINISTRATIVE LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 374 (3) MUNICIPAL LAW. The municipality as a legal entity; its creation, operation and powers; by-laws and their validity; contractual liability; judicial review; business regulation; expropriation and land use control. [3-0]

LAW 375 (2-3) D LAND USE PLANNING. The legal and administrative aspects of the regula-

tion of land use and development, especially at the local level. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 376 (2-4) D TOPICS IN MUNICIPAL AND PLANNING LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 377 (3) IMMIGRATION LAW. Admission of immigrants into Canada; refugee protection; practice and procedure before immigration tribunals and the courts. [3-0]

LAW 378 (2-4) D ISSUES IN IMMIGRATION AND REFUGEE LAW. Selected issues related to the law and process of immigration and refugee determination. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 381 (2-4) D DISABILITIES AND LAW. Legal issues relating to people with disabilities. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 382 (2-4) D LAW AND MEDICINE. Legal issues relating to medicine and the health care system. [2-0] or [3-0]

LAW 383 (2-4) D MENTAL HEALTH LAW. The law relating to commitment and treatment issues for persons with mental disabilities. [2-0] or [3-0]

LAW 384 (2-4) D LAW AND PSYCHIATRY. The interaction of psychiatry and criminal law; legal issues relating to those who enter the psychiatric system through the criminal justice system. Not offered each year; consult Faculty. [2-0] or [3-0]

LAW 385 (2-4) D SOCIAL WELFARE LAW. Aspects of the law structuring the provision of welfare and other social services in Canada. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 387 (2-3) D CANADIAN ENVIRONMENTAL LAW. The legal and regulatory framework for the protection of the environment. [2-0] or [3-0]

LAW 388 (2-4) D ENVIRONMENTAL LAW IN PRACTICE. Jurisdiction, remedies and administrative schemes as they apply in practice to selected environmental law problems. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 389 (2-4) D SELECTED ISSUES IN ENVIRONMENTAL LAW AND POLICY. Case studies of leading problems in environmental law and regulation. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 390 (4) ENVIRONMENTAL LAW WORKSHOP. Legal research and writing for environmental agency or NGO under supervision of faculty member and lawyer. Not offered every year, consult Faculty. [4-0]

LAW 391 (2-4) D TOPICS IN ENVIRONMENTAL LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 392 (2-3) D NATURAL RESOURCES. A foundation course dealing with legal problems common to the management of natural resources such as fisheries, mines and minerals, petroleum, forests, and water resources. [2-0] or [3-0]

LAW 393 (2) WATER LAW. The law relating to the acquisition and protection of water rights; public management and planning; water quality and conservation. Not offered each year, consult Faculty. Prerequisite: LAW 392 is recommended. [2-0]

LAW 394 (2) MINING LAW. Acquisition of mineral interests; development, financing and organization of mining companies; regulation of exploitation industry interests; management taxation. Not offered each year, consult Faculty. Prerequisite: LAW 392 is recommended. [2-0]

LAW 395 (2-3) D FOREST LAW. Acquisition of timber interests; development, financing and organization of timber companies; regulation of exploitation industry interests; management taxation. Not offered each year; consult Faculty. Prerequisite: LAW 392 is recommended. [2-0] or [3-0]

LAW 396 (2-3) D FISHERIES LAW. Legal regimes for the exploitation and regulation of fisheries. Not offered each year, consult Faculty. Prerequisite: LAW 392 is recommended. [2-0] or [3-0]

LAW 397 (2-3) D OIL AND GAS LAW. Legal regimes for the disposition of interests in petroleum; government regulation. Not offered each year, consult Faculty. Prerequisite: LAW 392 is recommended. [2-0] or [3-0]

LAW 398 (2-4) D TOPICS IN NATURAL RESOURCES. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 399 (2-3) D ADVANCED CRIMINAL LAW. Selected topics in advanced substantive criminal law and related issues. [2-0] or [3-0]

LAW 401 (2-4) D PENAL POLICY. Selected legal policy issues relating to punishment for crime. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 403 (2-4) D CRIMINOLOGY. Relations among the legislative, police, courts and penal organizations in the criminal justice system, and relations between the criminal justice system and other social institutions. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 405 (2-4) D TOPICS IN CRIMINAL LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 406 (2-4) D TOPICS IN CRIMINAL JUSTICE. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 408 (2-3) D TAXATION II. The taxation of corporations, the taxation of shareholders, and the tax implications of the reorganization of corporations. Prerequisite: One of LAW 220, LAW 407. [2-0] or [3-0]

LAW 410 (2-3) D INTERNATIONAL TAXATION. The tax aspects of international transactions. Not offered each year; consult Faculty. [2-0] or [3-0]

LAW 411 (2-4) D TAX POLICY. The policies underlying the creation and implementation of tax laws. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 413 (2-4) D TOPICS IN TAXATION

LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 414 (2-4) D COMPETITION POLICY.

The law and policy relating to the regulation of competition in Canada and other jurisdictions. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 415 (3) LABOUR LAW. Union-management relations; the collective bargaining process; the collective agreement, arbitration and conciliation procedure. The relationship between the union and its membership. [3-0]

LAW 417 (2-4) D LABOUR LAW AND POLICY. The role of the law in the operation of the labour market. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 418 (2-4) D RESOLUTION OF LABOUR DISPUTES. Labour arbitration and collective agreement negotiation and interpretation. Not offered each year, consult Faculty. Prerequisite: LAW 415. [2-0] or [3-0]

LAW 419 (2-4) D INDIVIDUAL EMPLOYMENT LAW. Legal aspects of employment relationships other than those arising by collective bargaining. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 421 (2-4) D TOPICS IN LABOUR LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 422 (3) INTELLECTUAL PROPERTY. Copyright, patents, trade marks, industrial design, the protection of computer software, and torts such as passing-off and breach of confidence. [3-0]

LAW 423 (2-4) D TOPICS IN INTELLECTUAL PROPERTY. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 424 (2-4) D COMMUNICATIONS LAW. Selected legal issues relating to the communications industries and their regulation. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 426 (2-4) D TOPICS IN LAW AND TECHNOLOGY. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 430 (2-4) D ADVANCED LEGAL RESEARCH. Research using electronic databases, information systems, and non-legal databases relevant to the resolution of legal issues. [2-0] or [3-0]

LAW 432 (2-4) D TOPICS IN PRIVATE LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 435 (2-4) D TOPICS IN TORT LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 436 (2-3) D RESTITUTION. Unjust enrichment as the basis of civil liability. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 437 (3) COMMERCIAL TRANSACTIONS. The law of sale of goods, bills of exchange, promissory notes, and cheques. [3-0]

LAW 438 (3) SECURED TRANSACTIONS. The law governing the creation, perfection and enforcement of security interests in personal property. [3-0]

LAW 439 (2-4) D CONSTRUCTION LAW.

Legal issues relating to the construction process. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 440 (2/3) D INSURANCE LAW. The general legal principles of life, automobile, fire and other types of insurance; the regulation of the insurance industry. [2-0]

LAW 441 (2-3) D CONSUMER PROTECTION. Relation of the legal process to the marketplace; history of market practices; appraisal of how the political process treats consumer proposals; the overcommitted debtor; adequacies of government services for the consumer. Not offered each year, consult Faculty. Prerequisite: LAW 437 and LAW 438 are recommended. [2-0] or [3-0]

LAW 443 (3) CREDITORS' REMEDIES. Remedies of an unsecured creditor; fraudulent conveyances and preferences; builders' liens; bankruptcy. Prerequisite: LAW 437 and LAW 438 are recommended. [3-0]

LAW 444 (2-4) D INSOLVENCY LAW. The law relating to insolvency, receivership and bankruptcy. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 447 (2-4) D TOPICS IN COMMERCIAL LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 448 (2-4) D SPORTS LAW. Legal issues relating to the sports industry and those who participate in it. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 449 (2-4) D MEDIA AND ENTERTAINMENT LAW. Selected legal issues relating to the media and entertainment industries and their regulation. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 450 (2-4) D TOPICS IN SPORTS, MEDIA, ENTERTAINMENT OR COMMUNICATIONS LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 452 (2-3) D SUCCESSION. The law of wills and intestate succession, variation of wills, principles of probate and administration of estates. Prerequisite: LAW 230 or LAW 451 is recommended. [2-0] or [3-0]

LAW 453 (2-3) D EQUITABLE REMEDIES. The history and development of equitable remedies such as specific performance, injunctions, declarations, relief against forfeiture, and tracing. [2-0] or [3-0]

LAW 454 (2-4) D TOPICS IN TRUSTS AND ESTATES. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 455 (3) REAL ESTATE TRANSACTIONS. The law relating to the sale and purchase of land, real estate agency, and mortgages. [3-0]

LAW 456 (2-3) D REAL ESTATE LEASE LAW. The law relating to residential and commercial tenancies. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 457 (2-4) D REAL ESTATE DEVELOPMENT. A study of the legal aspects of the development of real estate projects such as shopping centres, sports centres and

condominiums. Not offered each year, consult Faculty. Prerequisite: LAW 456. [2-0] or [3-0]

LAW 458 (2-4) D TOPICS IN REAL PROPERTY. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 460 (3) CORPORATIONS II. Selected topics such as the nature of shares, equity financing, corporate structure and reorganization, and shareholder squeezeouts. Prerequisite: One of LAW 230, LAW 459. [3-0]

LAW 461 (2-4) D CORPORATE TRANSACTIONS. Legal aspects of selected transactions relating to public corporations and corporate governance. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 462 (2-4) D CLOSE CORPORATIONS. The corporation, taxation, accounting, insurance and estate planning aspects of the close corporation. Not offered each year, consult Faculty. Prerequisite: One of LAW 230, LAW 459. [2-0] or [3-0]

LAW 463 (2-3) D SECURITIES REGULATION. The law relating to the distribution of securities. Continuous and timely disclosure requirements and civil liability. Prerequisite: LAW 459 is recommended. [2-0] or [3-0]

LAW 467 (2-4) D TOPICS IN CORPORATE LAW. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 468 (2-3) D PROFESSIONAL RESPONSIBILITY. The nature, role and organization of the legal profession; philosophical and ethical dimensions of the role of lawyers. [2-0] or [3-0]

LAW 472 (4) ADVANCED TRIAL ADVOCACY. Skills-training in all aspects of civil and criminal trial advocacy. Prerequisite: One of LAW 270, LAW 469, LAW 470 or LAW 280 recommended. [4-0-0]

LAW 473 (2-4) D APPELLATE ADVOCACY. Issues relating to advocacy before appellate courts; techniques of appellate advocacy. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 474 (3) TRIAL ADVOCACY. Techniques of advocacy in civil and criminal cases including interviewing, pre-trial preparation, tactical analysis, development of facts, direct and cross examination and various ethical considerations. A student who receives credit for LAW 488 or LAW 491 cannot receive credit for this course. Prerequisite: One of LAW 280, LAW 470. [3-0]

LAW 475 (2-4) D COMPETITIVE TRIAL ADVOCACY CREDIT. Trial advocacy. Restricted to students participating in one or more faculty approved trial advocacy competitions. Students enrolled in this course must also be enrolled in LAW 474.

LAW 476 (2-4) D PSYCHOLOGY AND LITIGATION. Human psychology as it is treated in different areas of law and litigation. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 477 (2-4) D NEGOTIATION AND DISPUTE RESOLUTION. Negotiation and bargaining; formulation of general principles

governing the negotiation process; negotiation in legal practice; alternative means of dispute resolution. [2-0] or [3-0]

LAW 478 (2-4) D ALTERNATIVE DISPUTE RESOLUTION. Theoretical premises underlying the dispute-resolving process; arbitration, other non-judicial means of resolving legal disputes, and their relationship to litigation. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 479 (2-4) D MEDIATION. Mediation of legal disputes; negotiation theory and practice as they relate to mediation. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 480 (2-4) D MEDIATION PRACTICUM. An opportunity to learn and practice mediation skills in real-life situations. Not offered every year, consult Faculty. [3-0]

LAW 481 (2-4) D TOPICS IN LITIGATION, DISPUTE RESOLUTION AND THE ADMINISTRATION OF JUSTICE. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 482 (2-4) D TOPICS IN PROCEDURE AND EVIDENCE. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 483 (3-6) D COMPETITIVE MOOTS AND ADVOCACY CREDIT A. Appellate and related forms of advocacy. Restricted to students representing the Faculty for the first time in an approved advocacy competition. [5-0]

LAW 484 (3-6) D COMPETITIVE MOOTS ADVOCACY AND CLIENT COUNSELLING CREDIT B. Appellate and related forms of advocacy and client counselling. Restricted to students representing the Faculty for a second time in an approved advocacy or client counselling competition. [5-0] or [6-0]

LAW 485 (3-6) D CLIENT COUNSELLING COMPETITION CREDIT. Interviewing, counselling and negotiating. Restricted to students representing the Faculty in an approved client counselling competition. [3-0]

LAW 486 (2) LAW REVIEW CREDIT. Study and practice of law journal editing and business operations. For students acting as senior editors or the business manager for the UBC Law Review, the Canadian Journal of Family Law or any other equivalent legal journal based in the Faculty of Law.

LAW 487 (2-4) D NEGOTIATION COMPETITION CREDIT A. Simulated legal negotiation. Restricted to students representing the Faculty for the first time in an approved legal negotiation competition. [4-0]

LAW 488 (11) CLINICAL TERM. Designed to explore the legal system in relation to disadvantaged members of society. Under supervision, students will act for clients in a range of legal matters and can expect to appear before courts and tribunals. Students will also work with community-based organisations. A student who receives credit for LAW 474, LAW 490 or LAW 491 cannot receive credit for this course. Prerequisite: One of LAW 280, LAW 470.

LAW 489 (4) CLINICAL TERM: PAPER. The graded component of LAW 488.

LAW 490 (6) CLINICAL CRIMINAL LAW. The aim of the course is to teach a basic familiarity with the skills required for the practice of criminal law. Students will represent defendants in summary conviction cases under supervision of an experienced lawyer. A student who receives credit for LAW 488 or LAW 491 cannot receive credit for this course. Prerequisite: Either (a) all of LAW 280, LAW 240 or (b) LAW 260 or (c) LAW 470. [6-0]

LAW 491 (4) LAW STUDENTS LEGAL ADVICE PROGRAM CREDIT. Restricted to a limited number of third year students who (a) in their first or second year have participated in the provision of legal services to the public through the Law Students Legal Advice. Program operated under the supervision of the Community Legal Assistance Society, and (b) continue that participation in their third year. A student who receives credit for LAW 474, LAW 488 or LAW 490 cannot receive credit for this course.

LAW 492 (2) MEDIATION MOOT. Simulated legal mediation. Students enrolled in this course must also be enrolled in a Mediation Advocacy section of Law 481. [2-0]

LAW 493 (2-4) D DIRECTED RESEARCH. Enrolment restricted.

LAW 494 (2-4) D DIRECTED RESEARCH. Enrolment restricted.

LAW 495 (2-4) D DIRECTED RESEARCH. Enrolment restricted.

LAW 496 (2-4) D DIRECTED RESEARCH. Enrolment restricted.

LAW 497 (2-4) D NEGOTIATION COMPETITION CREDIT B. Simulated legal negotiation. Restricted to students representing the Faculty for the second time in an approved legal negotiation competition. [4-0]

LAW 498 (2-4) D COMPETITIVE MEDIATION ADVOCACY CREDIT. Advocacy in a simulated legal mediation. Restricted to students representing the Faculty in approved legal mediation competitions. [4-0]

LAW 499 (2-4) D COMPETITIVE MEDIATION CREDIT. Simulated legal mediation. Restricted to students representing the Faculty as mediators in approved legal mediation competitions. [4-0]

LAW 500 (4) CURRENT LEGAL PROBLEMS.

LAW 501 (2-8) D DIRECTED RESEARCH. Students will be able to undertake advanced research into a topic approved by a faculty member, under the supervision of and in consultation with, that faculty member.

LAW 510 (2-4) D SENTENCING. Comparative sentencing structures; competing sentencing philosophies and principles; the exercise of discretion; sentencing law and practice; sentencing advocacy; aids to sentencing, such as computerized information systems; prescriptive guidelines; problematic issues in sentencing, such as wife and child abuse.

LAW 511 (2-4) D INTERNATIONAL CRIMINAL LAW. Analysis of topics such as jurisdiction, immunity from prosecution, mutual assistance

in penal matters, recognition and enforcement of foreign penal laws, and international police co-operation; examination of selected offences such as war crimes, crimes against humanity, genocide, terrorism, illicit drug trafficking and torture.

LAW 512 (2-4) D PROCEEDS OF CRIME. Criminal and civil law relating to the tracing, freezing and forfeiture of proceeds derived from crime; a comparative analysis of law from Canada, the US and other jurisdictions; bilateral and multilateral. Conventions dealing with issues such as money laundering, bank secrecy and tax havens.

LAW 518 (2-4) D FEMINIST LEGAL STUDIES: KEY THEMES AND CURRENT DEBATES. Diverse theoretical perspectives, key resources for feminist research on law, and the viability of different strategies or methods of engaging with law.

LAW 520 (2-4) D ASIAN LAW TUTORIAL.

LAW 521 (2-4) D LAW AND DEVELOPMENT. Law and legal institutions in development policy and practice; multilateral, state and NGO perspectives.

LAW 522 (2-4) D MODERN LEGAL CULTURE: HISTORICAL EXPLORATIONS. Aspects of the history of ideas relating to law in North America and elsewhere.

LAW 549 (20) MASTER'S THESIS.

LAW 550 (6) SEMINAR IN COMMON LAW THEORY AND PRACTICE. History and characteristics of the common law and how it differs from other systems of law.

LAW 552 (2-4) D TOPICS IN COMMON LAW THEORY AND PRACTICE: PUBLIC LAW I. Completion of a course from the cluster of public law I courses together with the fulfillment of a significant supplemental requirement involving advanced analysis.

LAW 553 (2-4) D TOPICS IN COMMON LAW THEORY AND PRACTICE: PUBLIC LAW II. Completion of a course from the cluster of public law II courses together with the fulfillment of a significant supplemental requirement involving advanced analysis.

LAW 554 (2-4) D TOPICS IN COMMON LAW THEORY AND PRACTICE: COMPARATIVE AND INTERNATIONAL LAW. Completion of a course from the cluster of Comparative and International Law courses together with the fulfillment of a significant supplemental requirement involving analysis.

LAW 555 (2-4) D TOPICS IN COMMON LAW THEORY AND PRACTICE: LEGAL THEORY AND PRACTICE. Completion of a course from the cluster of Legal Theory and Practice courses together with the fulfillment of a significant supplemental requirement involving advanced analysis.

LAW 556 (2-4) D TOPICS IN COMMON LAW THEORY AND PRACTICE: PRIVATE AND COMMERCIAL LAW. Completion of a course from the cluster of Private and Commercial Law courses together with the fulfillment of a

significant supplemental requirement involving advanced analysis.

LAW 557 (2-4) D TOPICS IN COMMON LAW THEORY AND PRACTICE: HUMAN AND GROUP RIGHTS LAW. Completion of a course from the cluster of Human and Groups Rights Law courses together with the fulfillment of a significant supplemental requirement involving advanced analysis.

LAW 560 (4) SEMINAR IN TOPICS IN COMMON LAW THEORY AND PRACTICE. Completion of an upper-level 300 or 400 level LL.B. seminar or workshop course 4 credit minimum, completion of a substantial research paper consisting of an advanced analysis relating to the subject matter of the particular seminar or workshop.

LAW 610 (2) DOCTORAL SEMINAR I: ISSUES IN LEGAL THEORY. This seminar will address salient issues of legal theory. Topics covered will include feminism and the law; Marxism and the law; post-modernism and the law; social theory and the law; law and the state; legal liberalism and its critics; and other jurisprudential discourses.

LAW 611 (2) DOCTORAL SEMINAR II: COMPARATIVE AND INTERDISCIPLINARY PERSPECTIVES ON LEGAL THEORY. Issues of legal theory in interdisciplinary and comparative perspective. Applicability of legal concepts in different cultures and societies, and the consequences for the form and structure of law. Topics such as “the origins and development of legal traditions in Europe and Asia,” and “the influence of religion in Asian and European legal systems,” could be included.

LAW 649 (0) DOCTORAL THESIS.

LIBE — TEACHER LIBRARIANSHIP FACULTY OF EDUCATION

LIBE 461 (3) ADMINISTRATION OF THE SCHOOL LIBRARY RESOURCE CENTRE. The role, philosophy, and management of school library resource centres in elementary and secondary schools. Equivalency: LIBE 381. [3-0-0]

LIBE 463 (3) SELECTION OF LEARNING RESOURCES I. Equivalency: LIBE 383. [3-0-0]

LIBE 464 (3) SELECTION OF LEARNING RESOURCES II. Prerequisite: One of LIBE 383, LIBE 463. Equivalency: LIBE 384. [3-0-0]

LIBE 465 (3) ORGANIZATION OF LEARNING RESOURCES. Equivalency: LIBE 385. [3-0-0]

LIBE 466 (3) CLASSIFICATION AND CATALOGUING OF LEARNING RESOURCES. Prerequisite: One of LIBE 385, LIBE 465. Equivalency: LIBE 386. [3-0-0]

LIBE 467 (3) INFORMATION SERVICES I. Equivalency: LIBE 387. [3-0-0]

LIBE 468 (3) INFORMATION SERVICES II. Prerequisite: One of LIBE 387, LIBE 467. Equivalency: LIBE 388. [3-0-0]

LIBE 477 (3/6) D SPECIAL TOPICS IN TEACHER LIBRARIANSHIP. In-depth study of selected topics in library education. [3-0-0]

LIBE 494 (3/6) C SUPERVISED STUDY IN TEACHER LIBRARIANSHIP. Equivalency: LIBE 449.

LIBE 508 (3/6) D THEORY AND RESEARCH IN TEACHER LIBRARIANSHIP.

LIBE 527 (3/6) D SEMINAR IN TEACHER LIBRARIANSHIP. Research and its application for school library resource centres.

LIBE 561 (3-12) C LABORATORY PRACTICUM.

LIBE 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

LIBE 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

LIBE 590 (3) GRADUATING PAPER. Pass/Fail.

LIBE 598 (3-12) C FIELD EXPERIENCES. For those on master's, doctoral and diploma programs.

LIBE 599 (6-12) D MASTER'S THESIS.

LIBR — LIBRARY AND INFORMATION STUDIES SCHOOL OF LIBRARY, ARCHIVAL & INFORMATION STUDIES

Core courses LIBR 500, 510, 540, and 560 are pre- or corequisite to most other courses. Some courses will have additional prerequisites. Specific information about course pre-requisites and course sequencing is available from the school.

LIBR 500 (3) FOUNDATIONS OF INFORMATION TECHNOLOGY.

LIBR 510 (3) FOUNDATIONS OF BIBLIOGRAPHIC CONTROL.

LIBR 512 (3) INDEXING.

LIBR 513 (3) ADVANCED BIBLIOGRAPHIC CONTROL: DESCRIPTION AND NAME ACCESS.

LIBR 514 (1-13) D TOPICS IN THE BIBLIOGRAPHIC CONTROL OF INFORMATION.

LIBR 516 (3) RECORDS MANAGEMENT.

LIBR 517 (3) ADVANCED BIBLIOGRAPHIC CONTROL: SUBJECT ANALYSIS.

LIBR 520 (3) COLLECTION MANAGEMENT.

LIBR 522 (1-13) D LITERATURE AND OTHER MATERIALS FOR CHILDREN.

LIBR 524 (3) LITERATURE AND OTHER MATERIALS FOR YOUNG ADULTS.

LIBR 538 (1-13) D SPECIALIZED LITERATURES.

LIBR 539 (1-13) D SPECIALIZED MATERIALS.

LIBR 540 (3) FOUNDATIONS OF INFORMATION SERVICES.

LIBR 541 (3) SUBJECT-BASED INFORMATION SERVICES.

LIBR 542 (1-13) D SERVICES FOR YOUTH.

LIBR 544 (1-13) D SERVICES FOR ADULTS.

LIBR 548 (1-13) D ISSUES IN INFORMATION SERVICES.

LIBR 550 (3) SYSTEMS ANALYSIS AND DESIGN OF INFORMATION SYSTEMS.

LIBR 554 (3) DATABASE DESIGN.

LIBR 557 (3) ADVANCED INFORMATION RETRIEVAL.

LIBR 559 (1-13) D TOPICS IN COMPUTER-BASED INFORMATION SYSTEMS.

LIBR 560 (3) FOUNDATIONS OF INFORMATION-BASED ORGANIZATIONS.

LIBR 569 (1-13) D CURRENT ISSUES AND TRENDS IN LIBRARY SERVICES AND INFORMATION SCIENCE.

LIBR 570 (3) MANAGEMENT OF LIBRARIES AND ARCHIVES. Equivalency: ARST 570.

LIBR 571 (3) HUMAN RESOURCES MANAGEMENT.

LIBR 578 (3) PLANNING AND DESIGN OF LIBRARIES.

LIBR 579 (1-13) D TOPICS IN THE MANAGEMENT OF LIBRARIES AND ARCHIVES.

LIBR 587 (3) PRESERVATION. Equivalency: ARST 587.

LIBR 590 (3) RESEARCH METHODS IN LIBRARIES AND ARCHIVES.

LIBR 591 (3) TOPICS IN RESEARCH METHODS.

LIBR 592 (3) DIRECTED RESEARCH PROJECT.

LIBR 593 (3/12) D SEMINAR.

LIBR 594 (3) DIRECTED STUDY.

LIBR 595 (0) PRACTICUM.

LIBR 596 (3) PROFESSIONAL EXPERIENCE.

LIBR 597 (3) RESEARCH COLLABORATION.

LIBR 599 (6/12) D THESIS.

LIBR 600 (6) ADVANCED SEMINAR IN RESEARCH METHODS.

LIBR 610 (6) THEORETICAL AND RESEARCH FOUNDATIONS OF LIBRARY AND INFORMATION STUDIES.

LIBR 620 (6) ADVANCED STUDY IN MINOR AREA.

LIBR 621 (6) ADVANCED STUDY IN MINOR AREA.

LIBR 699 (0) THESIS.

LING — LINGUISTICS FACULTY OF ARTS

LING 100 (3) INTRODUCTION TO LANGUAGE AND LINGUISTICS. An introduction to the study of language as a universal and uniquely human cognitive system: What universals do all languages share and how do languages differ? An investigation of sound systems, word-building, grammatical principles, language

change, dialect variation, language acquisition, neurolinguistics.

LING 101 (3) LANGUAGES OF THE WORLD. A survey of the linguistic map of the world, examining how languages are genetically classified and how different languages evolve. Principles underlying different writing systems and the decipherment of historical documents.

Issues of languages in contact, minority language endangerment, language death and the role of English as a world language.

LING 200 (3) LINGUISTIC THEORY AND ANALYSIS I. Introduction to phonetics and phonology; training in the identification and production of speech sounds; principles and methods for describing and writing the sound system of a language; phonological theory with reference to selected languages; the interface between phonology and morphology. Analytical practice and seminar discussion.

LING 201 (3) LINGUISTIC THEORY AND ANALYSIS II. Introduction to grammatical analysis; morphology, syntax, semantics; synchronic analysis and description with illustrations from various languages. Analytical practice and seminar discussion.

LING 300 (3) STUDIES IN GRAMMAR. Introduction to syntactic analysis and theory, with emphasis on description and analysis of data from a wide variety of languages. Prerequisite: Either (a) LING 201 or (b) ENGL 329.

LING 305 (3) MORPHOLOGY. Analytic problem-solving and discussion of theoretical questions concerning the development and present status of morphological theory and the principles governing morphosyntax and morphophonology. Not offered every year. Prerequisite: All of LING 200, LING 201.

LING 311 (3) STUDIES IN PHONOLOGY. Introduction to phonological analysis and theory, with a strong emphasis on description and analysis of data from a wide variety of languages. Prerequisite: Either (a) LING 200 or (b) ENGL 329.

LING 316 (3) INTRODUCTION TO PHONETICS AND SPEECH SCIENCE. Introduction to the speech chain, with examples from speech anatomy, physiological phonetics, acoustic phonetics, linguistic phonetics, and speech perception. Introduction to microcomputer acoustic analysis. Examples primarily from normal speech. Prerequisite: LING 200. Recommended: All of PSYC 100 (or PSYC 101 and 102), PSYC 217 and 218, PHYS 341.

LING 317 (3) INSTRUMENTAL PHONETICS. Physiological and acoustic phonetics, with limited discussion of the underlying anatomy. Source-filter theory. Acoustic analysis, linked to speech production data. Inter-articulator timing and coordination. Microcomputer acoustic analysis. Examples primarily from normal speech. Prerequisite: All of LING 200, LING 316. Recommended: All of PSYC 100 (or PSYC 101 and 102), PSYC 217 and 218, PHYS 341.

LING 319 (3) COMPARATIVE AND HISTORICAL LINGUISTICS. The historical study of language. Linguistic change. Language

families and evidence for genetic relationship. Comparative method and internal reconstruction. Emphasis on phonological and morphological reconstruction. Not offered every year. Prerequisite: All of LING 200, LING 201.

LING 327 (3/6) D INTRODUCTION TO SEMANTICS. Lexical analysis: the linguistic sign, language and thought, semantic fields and componential analysis, basic semantic relationships. Syntax and semantics: propositions and semantic cases, anaphora, negation, quantifiers, semantic interpretation in current syntactic theories. Prerequisite: LING 300. Equivalency: LING 427.

LING 420 (3) INTRODUCTION TO LINGUISTICS. General background to linguistic studies; the different approaches to the analysis of languages; synchronic and diachronic linguistics; phonetics, phonology, morphology, syntax, and semantics. Not available for credit toward a Major or Honours program in Linguistics.

LING 430 (3/6) D HONOURS SEMINAR IN LINGUISTICS. Research papers on general linguistic topics to be read and discussed.

LING 431 (3) FIELD METHODS I. Elicitation, transcription, organization, and analysis of linguistic data from a native speaker of a language not commonly studied. Practical experience in the use of fieldwork equipment. Prerequisite: LING 311.

LING 432 (3) FIELD METHODS II. Elicitation, transcription, organization, and analysis of linguistic data from a native speaker of a language not commonly studied. Practical experience in the use of fieldwork equipment. Prerequisite: LING 431.

LING 433 (3) NATIVE LANGUAGES OF THE AMERICAS. Survey of the indigenous languages of the Americas. Study of the basis of genetic classification and areal similarities. The structure of representative languages will be presented and contrasted. The present status of American Indian languages will be considered. Note: this course is not necessarily offered every year.

LING 436 (3) COMMUNITY-BASED LANGUAGE RESEARCH. Research methods and partnerships, ethical paradigms, the social, cultural and historical context of language research, and the relation of language research to pedagogy, policy and planning.

LING 445 (3) SOCIOLINGUISTICS. The systematic study of language as a social phenomenon.

LING 447 (3/6) D TOPICS IN LINGUISTICS. A capstone course for Linguistics and Speech Sciences majors. Individual sections will differ substantially; see online Course List for detailed descriptions and prerequisites. May be repeated for credit when content is different.

LING 448 (3/6) D DIRECTED STUDIES. Supervised by a faculty member chosen by the student. Agreement of Supervisor and approval of Head required.

LING 449 (6) HONOURS ESSAY.

LING 451 (3/6) D ACQUISITION OF PHONOLOGY. Infant speech perception, prelinguistic phases, word phonology, early phonology, and later morphophonology. Child language data will be informed by phonological theory (e.g., syllable structure, metrical structure, harmony processes, feature geometry, underspecification). Not offered every year. Prerequisite: LING 311.

LING 452 (3) ACQUISITION OF SYNTAX. The logical problem of language acquisition, learnability theory, early syntactic and semantic development (e.g., semantic bootstrapping, acquisition of lexical semantics) and later syntactic and morphological development (e.g., word order, control, coreference, movement). Not offered every year. Prerequisite: LING 300.

LING 502 (4) FORMAL FOUNDATIONS OF SYNTAX & SEMANTICS. Conceptual underpinnings of the study of sentence structure and meaning; core issues in syntax and semantics; the place of syntax and semantics in a model of grammar; interface issues. Prerequisite: LING 520 and 525 are recommended.

LING 505 (3/6) D ISSUES IN MORPHOLOGICAL THEORY AND ANALYSIS. Morphology from both historical and theoretical perspectives.

LING 507 (4) FORMAL FOUNDATIONS OF PHONETICS & PHONOLOGY. Conceptual underpinnings of the study of speech sounds; core issues in phonetics and phonology; the place of phonetics and phonology in a model of grammar; interface issues. Prerequisite: LING 508 and 510 are recommended.

LING 508 (3) PHONETIC THEORY & ANALYSIS. Discussion and critical analysis of current issues in linguistic phonetics; instrumental analysis.

LING 510 (3) PHONOLOGICAL THEORY AND ANALYSIS. Discussion and critical analysis of current issues in phonological theory.

LING 512 (3) TOPICS IN PHONETICS & PHONOLOGY. Advanced topics in phonetics and phonology; in-depth analysis of specific issues and problems. Prerequisite: One of LING 508, LING 510.

LING 518 (3-9) D ADVANCED RESEARCH SEMINAR. Prerequisite: One of LING 512, LING 522 or equivalent.

LING 519 (3/6) D PROBLEMS IN COMPARATIVE AND HISTORICAL LINGUISTICS.

LING 520 (3) SYNTACTIC THEORY AND ANALYSIS. Discussion and critical analysis of current issues in syntactic theory

LING 522 (3) TOPICS IN SYNTAX AND SEMANTICS. Advanced topics in syntax and semantics; in-depth analysis of specific issues and problems. Prerequisite: One of LING 520, LING 525.

LING 525 (3) SEMANTIC THEORY AND ANALYSIS. Discussion and critical analysis of current issues in semantic theory.

LING 530 (3–12) D LINGUISTIC PROBLEMS IN A SPECIAL AREA.

LING 531 (3) FIELD METHODS IN LINGUISTICS I.

LING 532 (3) FIELD METHODS IN LINGUISTICS II. Prerequisite: LING 531.

LING 533 (3/6) D INDIAN LANGUAGES OF THE NORTHWEST.

LING 538 (3/6) D SEMINAR ON LANGUAGE ACQUISITION IN CHILDREN. Linguistic analysis of data from children learning a first language. Intensive examination of a topic that will vary each year dealing with advanced research into phonological, syntactic, and semantic aspects of language acquisition.

LING 545 (3/6) D PROBLEMS IN SOCIOLINGUISTICS.

LING 546 (3/6) C DIRECTED READING IN TOPICS RELATED TO LINGUISTICS.

LING 548 (0) MAJOR ESSAY.

LING 549 (3–18) C MASTER'S THESIS.

LING 649 (0) PH.D. THESIS.

LLED — LANGUAGE AND LITERACY EDUCATION FACULTY OF EDUCATION

LLED 206 (3/6) D LANGUAGE FIELD EXPERIENCE. Guided individual and group projects related to concurrent studies. Field-based assignments related to language study.

LLED 226 (3/6) D INTRODUCTION TO LANGUAGE ACROSS THE CURRICULUM. Understanding text structure within, and language diversity among, subject areas. Analysis of oral and written language from various curriculum areas in which English is the medium of instruction; implications for learning and instruction. [1.5-3-0; 1.5-3-0]

LLED 300 (5) FOUNDATIONS OF LANGUAGE AND LITERACY EDUCATION: ELEMENTARY AND MIDDLE YEARS. [5-0-0]

LLED 301 (4) LANGUAGE ACROSS THE CURRICULUM IN MULTILINGUAL CLASSROOMS: SECONDARY. Pass/Fail. Equivalency: LANE 426. [4-0-0]

LLED 310 (3) INTRODUCTION TO READING AND LANGUAGE ARTS INSTRUCTION: ELEMENTARY AND MIDDLE YEARS. Pass/Fail. Corequisite: All of EDUC 310, E DUC 315. [3-0-0]

LLED 312 (4/5) D CURRICULUM AND INSTRUCTION IN FRENCH: SECONDARY. Taught in French. Pass/fail. Prerequisite: A completed concentration in French or permission of the Head. Equivalency: MLED 312.

LLED 313 (4/5) D CURRICULUM AND INSTRUCTION IN THEATRE AND DRAMA: SECONDARY. Pass/fail. Prerequisite: A completed concentration in theatre or drama or permission of the Head.

LLED 314 (4/5) D CURRICULUM AND INSTRUCTION IN ENGLISH: SECONDARY. Pass/Fail. Prerequisite: A completed concentration in English or permission of the Head.

LLED 315 (4/5) D CURRICULUM AND INSTRUCTION IN ENGLISH AS A SECOND LANGUAGE: SECONDARY. Pass/Fail. Prerequisite: One of LLED 489, ENGL 329, LING 420. Prerequisite must have been taken within the last five years.

LLED 318 (4/5) D CURRICULUM AND INSTRUCTION IN MODERN LANGUAGES: SECONDARY. A completed concentration in a modern language (Chinese, German, Italian, Japanese, Russian, Spanish, or Punjabi) or permission of the Head. Pass/Fail.

LLED 320 (4) CURRICULUM AND INSTRUCTION IN LANGUAGE AND LITERACY EDUCATION: ELEMENTARY AND MIDDLE YEARS. Pass/Fail. Prerequisite: LLED 310. [2-4-0]

LLED 323 (3) TEACHING AND LEARNING MODERN LANGUAGES: ELEMENTARY AND MIDDLE YEARS. (Formerly MLED 320.) Curriculum and methods of teaching in modern languages (including Chinese, French, German, Italian, Japanese, Punjabi, Russian and Spanish). [3-0-0]

LLED 324 (3) TEACHING AND LEARNING FRENCH AS A SECOND LANGUAGE: ELEMENTARY AND MIDDLE YEARS. For non-specialists. Pass/Fail. Note: For those planning to teach grade 7 or grade 8, university-level French courses within the past five years are also highly desirable. Prerequisite: French 12, graduation from French Immersion (secondary/high school), or equivalent prior French experience. Equivalency: LLED 325.

LLED 325 (3/6) D TEACHING AND LEARNING FRENCH IN ELEMENTARY SCHOOLS. Taught in French. Strategies, techniques, and materials for teaching and administration of Elementary French Immersion and French core programs. Pass/Fail. Prerequisite: Either (a) FREN 220 or (b) all of FREN 222, FREN 223 or approval of advisors in Modern Languages Education. Equivalency: LLED 324.

LLED 333 (3) DRAMA-IN-EDUCATION: KINDERGARTEN AND PRIMARY GRADES. Credit may not be obtained for both LANE or LLED 333 and 335. Pass/Fail. [3-0-0]

LLED 334 (3) DRAMA-IN-EDUCATION: INTERMEDIATE THROUGH SECONDARY. Credit may be obtained for only 1 of LLED 313, 333, 334 or 335. Pass/Fail. [3-0-0]

LLED 335 (3/6) D DRAMA-IN-EDUCATION: K–12. Credit may not be obtained for only one of LLED 313, 333, 334 or 335. Pass/Fail. [3-0-0]

LLED 336 (3) SPEECH COMMUNICATION FOR TEACHERS. Oral presentation skills. Effectiveness of the teacher's voice in the classroom. Pass/Fail. [3-0-0]

LLED 337 (3) REMEDIAL INSTRUCTION IN THE LANGUAGE ARTS. Instructional principles, materials and methods for teaching students whose literacy achievement is at a low level. Prerequisite: An introductory-level reading or language arts course. [3-0-0]

LLED 391 (3) THEORY AND PRACTICE IN READING INSTRUCTION. Credit may be obtained for only one of READ/LANE/LLED 310, READ/LANE/LLED 391, or LLED 300. [3-0-0]

LLED 392 (3) TRENDS AND ISSUES IN READING INSTRUCTION. Prerequisite: An introductory-level reading or language arts education course.

LLED 420 (3/4) D USING CANADIAN CHILDREN'S LITERATURE IN THE FRENCH EDUCATION CLASSROOM. Taught in French. Credit will be given for one of LLED 440, LLED 420.

LLED 426 (3) PRINCIPLES AND PRACTICE OF FRENCH PROGRAM DEVELOPMENT. Taught in French. The development and implementation of French Immersion, Program Cadre, and French as a Second language Programs for preschool, elementary, secondary, or adult.

LLED 428 (3) APPLIED LINGUISTICS FOR TEACHERS OF FRENCH. Prerequisite: Either (a) FREN 220 or (b) all of FREN 222, FREN 223. Equivalency: MLED 489. [3-0-0]

LLED 429 (3/6) C ADVANCED STUDIES IN MODERN LANGUAGE EDUCATION. Credit will be given for only 6 credits of LLED 480 and LLED 429.

LLED 435 (3/6) D ADVANCED STUDIES IN DRAMA-IN-EDUCATION. Pass/Fail. Prerequisite: One of LLED 313, LLED 333, LLED 334, LLED 335 or permission of the instructor. [2-2-0 or 2-2-0; 2-2-0]

LLED 436 (3/6) C ADVANCED SPEECH COMMUNICATION. Equivalency: LANE 416. [3-0-0]

LLED 438 (3) TEACHING WRITTEN COMPOSITION: ELEMENTARY AND SECONDARY. Pass/Fail. Prerequisite: or corequisite: Introductory-level reading, language arts or English education course.

LLED 439 (3) SHAKESPEARE IN THE CLASSROOM. Pass/Fail. Prerequisite: LLED 314. Recommended: at least 3 credit hours of Shakespeare study at the 300 or 400 level in the Faculty of Arts. [3-0-0]

LLED 440 (3) USING CANADIAN CHILDREN'S LITERATURE IN THE CLASSROOM. Equivalency: LLED 420.

LLED 441 (3) INTRODUCTION TO TEACHING CHILDREN'S LITERATURE.

LLED 442 (3) TRENDS AND ISSUES IN TEACHING CHILDREN'S LITERATURE.

LLED 443 (3) TEACHING FOLKLORE IN THE ELEMENTARY CLASSROOM.

LLED 444 (3) MULTICULTURAL CHILDREN'S LITERATURE IN THE ELEMENTARY CLASSROOM.

LLED 445 (3) POETRY IN EDUCATION: ELEMENTARY AND MIDDLE YEARS. Prerequisite: or corequisite: An introductory-level reading or language arts education course.

LLED 446 (3) TEACHING WITH ILLUSTRATED MATERIALS, K–12: FROM PICTURE BOOKS TO INFORMATION TEXTS.

LLED 449 (3) TEACHING ADOLESCENTS' LITERATURE. Prerequisite: or corequisite: An introductory-level reading, language arts or English education course.

LLED 450 (3) TEACHING AND LEARNING LANGUAGE AND LITERACY: KINDERGARTEN AND PRIMARY GRADES. Prerequisite: An introductory-level reading or language arts education course

LLED 451 (3) TEACHING AND LEARNING LANGUAGE AND LITERACY: INTERMEDIATE AND MIDDLE YEARS. Prerequisite: An introductory-level reading or language arts education course.

LLED 452 (3) LITERACY IN THE CONTENT AREAS: INTERMEDIATE THROUGH SECONDARY. Equivalency: LANE 472. [3-0-0]

LLED 453 (3) MATERIALS AND TEXTS OF LITERACY INSTRUCTION: ELEMENTARY. Prerequisite: An introductory-level reading or language arts education course.

LLED 454 (3) ADOLESCENT LITERACY. Prerequisite: or corequisite: an introductory-level reading, language arts, or English education course.

LLED 456 (3/6) D IDENTIFYING AND SUPPORTING LEARNERS WITH LITERACY DIFFICULTIES. Individualized assessment, diagnosis, and instructional planning for students with literacy difficulties. Intensive practicum is included in the 6-credit version of this course. Prerequisite: an introductory-level reading or language arts course; successful completion of an extended practicum or one year of teaching experience. Equivalency: LANE 476.

LLED 457 (3/6) D SPECIAL TOPICS IN READING. Equivalency: READ 477. [3-0-0]

LLED 462 (3) SCHOOL LIBRARY RESOURCE CENTRE PROGRAMS. Equivalency: READ 382. [3-0-0]

LLED 469 (3) RESOURCE-BASED TEACHING. Principles and practices of teachers and teacher-librarians planning and teaching the curriculum using the resources of the school library resource centre. Equivalency: LANE 389. [3-0-0]

LLED 478 (3/6) D INTRODUCTION TO TEACHING ENGLISH AS A SECOND LANGUAGE. Practicum normally required. Excellent oral proficiency in English is required for the teaching practicum. Prerequisite: 6 credits of LLED 489, ENGL 329, LING 420, LING 200, LING 201. Must have been taken within the last five years or may be taken as corequisite with consent of instructor.

LLED 479 (3) THE EDUCATION OF IMMIGRANT STUDENTS. An examination of the cultural backgrounds of major ethnic groups. Instructional techniques for meeting the needs of immigrant students in the regular

classroom with respect to culture and language. [3-0-0]

LLED 480 (3/6) C ADVANCED STUDIES IN LANGUAGE AND LITERACY EDUCATION. Credit will be given for only 6 credits of LLED 480 and LLED 429 (formerly LANE 480 and MLED 480.) [3-0-0]

LLED 481 (3) INTEGRATING COMPUTERS IN LANGUAGE ARTS PROGRAMS. Prerequisite: CSED 402 or experience with computers. [3-0-0]

LLED 482 (3) LANGUAGE, EDUCATION, AND GENDER. (Formerly LANE 360.) [3-0-0]

LLED 486 (3) SUPPORTING CHILDREN'S LANGUAGE DEVELOPMENT. Prerequisite: An introductory-level reading or language arts course. [3-0-0]

LLED 487 (3/6) D SPECIAL TOPICS IN ENGLISH EDUCATION. Prerequisite: One of LLED 300, LLED 310 and one of LLED 320, LLED 321, LLED 322, LLED 391, LANE 320. Equivalency: LANE 477. [3-0-0]

LLED 489 (3/6) D APPLIED LINGUISTICS FOR TEACHERS. [3-0-0; 3-0-0]

LLED 491 (3/6) D SUPERVISED STUDY IN ENGLISH EDUCATION. (Formerly ENED 449.)

LLED 492 (3/6) C SUPERVISED STUDY IN READING. Equivalency: READ 449.

LLED 493 (3/6) C SUPERVISED STUDY IN MODERN LANGUAGES EDUCATION. Equivalency: MLED 449.

LLED 510 (3) LANGUAGE, DISCOURSE AND IDENTITY. Prerequisite: Preference to students admitted to TESL graduate program.

LLED 511 (3/6) D SEMINAR IN CHILD LANGUAGE IN EDUCATION. Prerequisite: One of LING 350, LLED 300 or senior course work in verbal learning or human development. Equivalency: LANE 588.

LLED 520 (3/6) D THEORY AND RESEARCH IN TEACHING OF MODERN LANGUAGES. Equivalency: MLED 508.

LLED 522 (3) ASIA-PACIFIC NARRATIVES AS INQUIRY ON INTERCULTURAL ASPECTS OF LANGUAGE EDUCATION. Equivalency: MLED 540.

LLED 525 (3) BILINGUAL EDUCATION: THEORY AND PRACTICE. (Formerly MLED 575.) Equivalency: MLED 525.

LLED 526 (3) SECOND LANGUAGE ASSESSMENT: CONCEPTUAL AND EMPIRICAL APPROACHES.

LLED 534 (3/6) C THEORY AND RESEARCH IN TEACHING WRITTEN COMPOSITION.

LLED 535 (3) THEORY AND RESEARCH IN DRAMA IN EDUCATION. Prerequisite: LANE 435.

LLED 540 (3) INTRODUCTION TO RESEARCH IN THE TEACHING OF LITERATURE.

LLED 541 (3) THEORIES AND PERSPECTIVES IN TEACHING LITERATURE.

LLED 550 (3/6) C REVIEW OF READING RESEARCH. (Formerly READ 508.)

LLED 552 (3) THEORETICAL FOUNDATIONS OF READING RESEARCH AND PRACTICE.

LLED 553 (3) THEORETICAL FOUNDATIONS OF ESL/EL READING PEDAGOGY. Prerequisite: Admission into the TESL Graduate Program or permission of instructor.

LLED 554 (3/6) D ASSESSMENT IN READING AND OTHER LANGUAGE ARTS. Prerequisite: LLED 456. Corequisite: LLED 562. Equivalency: LLED 562.

LLED 555 (6) SUPERVISION OF READING. Curriculum analysis and planning. Implications for the administrator, the consultant and supervisor of reading. Equivalency: LLED 574.

LLED 556 (3–6) D THEORY AND RESEARCH IN EARLY LITERACY.

LLED 557 (3) FAMILY LITERACY: ISSUES AND PERSPECTIVES.

LLED 561 (3–12) C LABORATORY PRACTICUM.

LLED 562 (3) PRACTICUM IN ASSESSMENT IN READING AND OTHER LANGUAGE ARTS. Pass/Fail.

LLED 565 (3–12) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

LLED 570 (3) THEORY AND RESEARCH IN ENGLISH LANGUAGE EDUCATION: DISCOURSE PERSPECTIVES. Prerequisite: Admission into the TESL Graduate Program or permission of instructor.

LLED 571 (3) RESEARCH IN LANGUAGE CURRICULUM: SOCIAL PRACTICE PERSPECTIVES. Prerequisite: Admission into the TESL Graduate Program or permission of instructor.

LLED 572 (3/6) D THEORY AND RESEARCH IN TEACHING ENGLISH AS A SECOND LANGUAGE. Prerequisite: Admission into the TESL Graduate Program or permission of instructor.

LLED 573 (3/6) D THEORIES OF SECOND LANGUAGE ACQUISITION. Prerequisite: Admission into the TESL Graduate Program or permission of instructor.

LLED 574 (3) THEORY AND RESEARCH IN TEACHING SECOND LANGUAGE WRITING. Prerequisite: Admission into the TESL Graduate Program or permission of instructor.

LLED 580 (3/6) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

LLED 590 (3) GRADUATING PAPER. Pass/Fail.

LLED 598 (3–12) C FIELD EXPERIENCES. For those on master's, doctoral and diploma programs.

LLED 599 (6–12) D MASTER'S THESIS.

LLED 601 (3–12) D DOCTORAL SEMINAR.

LLED 699 (0) DOCTORAL THESIS.

MAED — MATHEMATICS AND SCIENCE EDUCATION FACULTY OF EDUCATION

MAED 300 (3) TEACHING AND LEARNING MATHEMATICS EDUCATION AND INFORMATION TECHNOLOGY ACROSS THE CURRICULUM: ELEMENTARY. [3-0-0]

MAED 314 (4/5) D CURRICULUM AND INSTRUCTION IN MATHEMATICS: SECONDARY. Pass/Fail. Prerequisite: A completed concentration in mathematics or permission of the Head.

MAED 320 (2) CURRICULUM AND INSTRUCTION IN MATHEMATICS: ELEMENTARY AND MIDDLE YEARS. Curriculum organization in mathematics; principles and methods of instruction applied to teaching mathematics. Pass/Fail. [1-2-0]

MAED 372 (3) MATHEMATICS TEACHING: PROBLEM SOLVING. Prerequisite: One of MAED 300, MAED 314, MAED 320. [3-0-0]

MAED 373 (3) MATHEMATICS TEACHING: GEOMETRY AND MEASUREMENT. Prerequisite: One of MAED 300, MAED 314, MAED 320. [3-0-0]

MAED 440 (3) TOPICS IN THE TEACHING AND LEARNING OF MATHEMATICS: SECONDARY. [3-0-0]

MAED 471 (3/6) D ASSESSMENT IN SCHOOL MATHEMATICS. Prerequisite: One of MAED 300, MAED 314, MAED 320. [1-3-0 or 2-6-0]

MAED 485 (3) MATHEMATICS HISTORY FOR TEACHERS. [3-0]

MAED 508 (3-6) D REVIEW OF RESEARCH IN MATHEMATICS EDUCATION. Studies are made of recent research bearing on educational practice.

MAED 545 (3) FOUNDATIONS OF MATHEMATICS EDUCATION.

MAED 547 (3) MATHEMATICS TEACHING IN THE ELEMENTARY SCHOOL. Recent theories and research.

MAED 548 (3) MATHEMATICS TEACHING IN THE SECONDARY SCHOOL. Recent theories and research.

MAED 549 (3) MATHEMATICS EDUCATION. An advanced course in curriculum and instruction.

MAED 561 (3/12) C LABORATORY PRACTICUM.

MAED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in variable subject matter fields designed to bring teachers up to date in recent findings in each field.

MAED 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

MAED 590 (3) GRADUATING PAPER. Pass/Fail.

MAED 598 (3/12) C FIELD EXPERIENCES. For those on master's, doctoral and diploma programs.

MAED 599 (6/12) C MASTER'S THESIS.

MATH — MATHEMATICS FACULTY OF SCIENCE

The first digit in the number of a course is intended to convey the level of mathematical maturity at which the course is conducted rather than the year in which it must be taken. Students wishing to enter a 300-level course must have obtained a grade of 51% or better in all prerequisite 200-level courses. Students who expect to follow an Honours Science program or one with high mathematical content are urged to apply for admission to MATH 120 and 121. The following courses are for students in the Faculty of Applied Science: MATH 152, MATH 253, MATH 255, MATH 256, MATH 257, MATH 263, MATH 265, MATH 267. Secondary-school calculus is a prerequisite for MATH 100, 102, and 104. Students with this qualification should see "UBC-SFU-UVIC-UNBC Calculus Examination Certificate" in the Admissions section. MATH 180 and 184 are designed for students without high-school calculus. Continuing Studies offers MATH 098 and 099, refresher courses in pre-calculus material. For further information see the department's website at www.math.ubc.ca.

MATH 98 (0) PRE-CALCULUS I.

MATH 99 (0) PRE-CALCULUS II.

MATH 100 (3) DIFFERENTIAL CALCULUS WITH APPLICATIONS TO PHYSICAL SCIENCES AND ENGINEERING. Derivatives of elementary functions. Applications and modeling: graphing, optimization. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: High-school calculus and a score of 67% or higher in Principles of Mathematics 12. [3-0-0]

MATH 101 (3) INTEGRAL CALCULUS WITH APPLICATIONS TO PHYSICAL SCIENCES AND ENGINEERING. The definite integral, integration techniques, applications, modeling, linear ODE's. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 111, MATH 120, MATH 180, MATH 184. [3-0-0]

MATH 102 (3) DIFFERENTIAL CALCULUS WITH APPLICATIONS TO LIFE SCIENCES. Functions, derivatives, optimization, growth and decay, oscillations and series. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: High-school calculus and a score of 67% or higher in Principles of Mathematics 12. [3-0-1*]

MATH 103 (3) INTEGRAL CALCULUS WITH APPLICATIONS TO LIFE SCIENCES. Antiderivatives and definite integrals, applications to probability and dynamical systems. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 111, MATH 120, MATH 180, MATH 184. [3-0-1*]

MATH 104 (3) DIFFERENTIAL CALCULUS WITH APPLICATIONS TO COMMERCE AND SOCIAL SCIENCES. Derivatives and rates of change, exponential and trigonometric

functions, Newton's method, Taylor series, maxima and minima, and graphing. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: High-school calculus and a score of 67% or higher in Principles of Mathematics 12. [3-0-0]

MATH 105 (3) INTEGRAL CALCULUS WITH APPLICATIONS TO COMMERCE AND SOCIAL SCIENCES. Antiderivatives, the definite integral, techniques of integration, partial derivatives, maxima and minima with constraints, discrete and continuous random variables. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 111, MATH 120, MATH 180, MATH 184. [3-0-0]

MATH 120 (4) HONOURS DIFFERENTIAL CALCULUS. Limits, derivatives, Mean Value Theorem and applications, elementary functions, optimization, Taylor series, approximation. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: High-school calculus and at least 95% on the Provincial Exam in Principles of Mathematics 12; or Principles of Mathematics 12 with a letter of invitation from the Math Dept. based on performance in the Euclid Contest; or permission from dept. head. [4-0-0]

MATH 121 (4) HONOURS INTEGRAL CALCULUS. Definite integrals and the Fundamental Theorem of Calculus, techniques and applications of integration, infinite series. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: Either (a) a score of 68% or higher in MATH 120 or (b) a score of 80% or higher in one of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184 or (c) a score of 5 in AP Calculus AB or (d) permission of the Department Head. [4-0-0]

MATH 152 (3) LINEAR SYSTEMS. 2D and 3D geometry, vectors and matrices, eigenvalues and vibration, physical applications. Laboratories demonstrate computer solutions of large systems. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Corequisite: MATH 101. [3-1*-0]

MATH 180 (4) DIFFERENTIAL CALCULUS WITH PHYSICAL APPLICATIONS. Topics as for Math 100; intended for students with no previous knowledge of Calculus. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Not for credit for students with High School Calculus, AP Calculus AB, AP Calculus BC, or a passing score on the UBC-SFU-UVIC-UNBC Calculus Challenge Examination. Prerequisite: A score of 67% or higher in one of Math 099, Principles of Mathematics 12. [4-0-0]

MATH 184 (4) DIFFERENTIAL CALCULUS FOR SOCIAL SCIENCE AND COMMERCE. Topics as for Math 104; intended for students with no previous knowledge of Calculus. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Not for credit for students with High School Calculus, AP Calculus AB, AP Calculus BC, or a passing

score on the UBC-SFU-UVIC-UNBC Calculus Challenge Examination. Prerequisite: A score of 67% or higher in one of MATH 099, Principles of Mathematics 12. [4-0-0]

MATH 200 (3) CALCULUS III. Analytic geometry in 2 and 3 dimensions, partial and directional derivatives, chain rule, maxima and minima, second derivative test, Lagrange multipliers, multiple integrals with applications. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001. [3-0-0]

MATH 210 (3) INTRODUCTION TO MATHEMATICAL COMPUTING. Introduction to numerical computation, computer algebra, mathematical graphics. Primarily for second year students taking a degree in mathematics. One hour laboratory each week. Corequisite: MATH 215 and one of MATH 220, MATH 226 and one of MATH 221, MATH 223. [3-1-0]

MATH 215 (3) ELEMENTARY DIFFERENTIAL EQUATIONS I. First-order equations; linear equations; linear systems; Laplace transforms; numerical methods; trajectory analysis of plane nonlinear systems. Applications of these topics will be emphasized. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001. Corequisite: One of MATH 200, MATH 217, MATH 226, MATH 253 and one of MATH 152, MATH 221, MATH 223. [3-0-0]

MATH 217 (4) MULTIVARIABLE AND VECTOR CALCULUS. Partial differentiation, extreme values, multiple integration, vector fields, line and surface integrals, the divergence theorem, Green's and Stokes' theorems. Intended for students in Honours Physics and Engineering Physics. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: A score of 68% or higher in one of PHYS 101, PHYS 107, PHYS 121, PHYS 153 and a score of 68% or higher in one of PHYS 102, PHYS 108, PHYS 122, PHYS 153 and a score of 68% or higher in one of MATH 101, MATH 103, MATH 105, MATH 121. [4-0-0]

MATH 220 (3) MATHEMATICAL PROOF. Sets and functions; induction; cardinality; properties of the real numbers; sequences, series, and limits. Logic, structure, style, and clarity of proofs emphasized throughout. Prerequisite: Either (a) a score of 64% or higher in one of MATH 101, MATH 103, MATH 105 or (b) one of MATH 121, MATH 200. [3-0-0]

MATH 221 (3) MATRIX ALGEBRA. Systems of linear equations, operations on matrices, determinants, eigenvalues and eigenvectors, diagonalization of symmetric matrices. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: Either (a) a score of 64% or higher in one of MATH 100, MATH 102, MATH 104, MATH 120, MATH 180, MATH 184 or (b) one of MATH 101, MATH 103, MATH 105,

MATH 121, SCIE 001 or (c) advanced credit for MATH 100. [3-0-0]

MATH 223 (3) LINEAR ALGEBRA. Matrices, eigenvectors, diagonalization, orthogonality, linear systems, applications. Intended for Honours students. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: Either (a) MATH 121 or (b) a score of 68% or higher in one of MATH 101, MATH 103, MATH 105, SCIE 001. [3-0-0]

MATH 226 (3) ADVANCED CALCULUS I. Functions of several variables: limits, continuity, differentiability; implicit functions; Taylor's theorem; extrema; Lagrange multipliers; multiple integration, Fubini's theorem; improper integrals. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: A score of 68% or higher in MATH 121 or permission of the department head. Corequisite: One of MATH 221, MATH 223. [3-0-0]

MATH 227 (3) ADVANCED CALCULUS II. Parametrization of curves and surfaces; line and surface integrals; theorems of Green, Gauss, Stokes; applications to physics and/or introduction to differential forms. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: A score of 68% or higher in MATH 226 or permission of the department head. [3-0-0]

MATH 230 (3) INTRODUCTION TO FINITE MATHEMATICS. Difference equations, number theory, counting. Intended primarily for students not in the Faculty of Science who wish to have some exposure to mathematical thinking. Students who obtain credit for MATH 100, MATH 102, MATH 104, MATH 111, or MATH 120 cannot in the same year or in later years obtain credit for MATH 230. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: Principles of Mathematics 11. [3-0-0]

MATH 231 (3) TOPICS IN FINITE MATHEMATICS. Probability, game theory, Markov chains, linear programming. Students who obtain credit for MATH 101, MATH 103, MATH 105, or MATH 121 cannot in the same year or in later years obtain credit for MATH 231. Prerequisite: MATH 230. [3-0-0]

MATH 253 (3) MULTIVARIABLE CALCULUS. Partial and directional derivatives; maxima and minima; Lagrange multipliers and second derivative test; multiple integrals and applications. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001. [3-0-0]

MATH 255 (3) ORDINARY DIFFERENTIAL EQUATIONS. Review of linear systems; nonlinear equations and applications; phase plane analysis; Laplace transforms; numerical methods. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001. Corequisite: One of MATH 152, MATH 221, MATH

223 and one of MATH 200, MATH 217, MATH 226, MATH 263. [3-0-0]

MATH 256 (3) DIFFERENTIAL EQUATIONS. Ordinary and partial differential equations. Particular examples from physics. Laboratories demonstrate graphical and numerical analysis of realistic examples. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001. Corequisite: One of MATH 200, MATH 217, MATH 226, MATH 263 and one of MATH 152, MATH 221, MATH 223. [3-1-1]

MATH 257 (3) PARTIAL DIFFERENTIAL EQUATIONS. Introduction to partial differential equations; Fourier series; the heat, wave and potential equations; boundary-value problems; numerical methods. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 215, MATH 255, MATH 265. [3-0-0]

MATH 263 (4) MULTIVARIABLE AND VECTOR CALCULUS. Partial and directional derivatives, multiple integrals, divergence, gradient, curl, vector fields, potentials, line and surface integrals, theorems of Gauss, Green and Stokes. For students in Electrical and Computer Engineering. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of SCIE 001, PHYS 101, PHYS 107, PHYS 153 and one of SCIE 001, PHYS 102, PHYS 108, PHYS 153 and one of SCIE 001, MATH 101, MATH 103, MATH 105, MATH 121. Corequisite: One of MATH 152, MATH 221, MATH 223. [4-0-0]

MATH 265 (2) LINEAR DIFFERENTIAL EQUATIONS. Linear ordinary differential equations. Complex numbers, Laplace transforms, frequency response, resonance, step response, systems. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, SCIE 001. Corequisite: One of MATH 152, MATH 221, MATH 223 and one of MATH 200, MATH 217, MATH 226, MATH 263. [2-0-1*]

MATH 267 (3) MATHEMATICAL METHODS FOR ELECTRICAL AND COMPUTER ENGINEERING. Fourier series and transforms, wave equation, d'Alembert's solution, modes. Discrete Fourier transform. Recurrence relations, z-transform, generating functions, applications. Prerequisite: One of MATH 215, MATH 255, MATH 256, MATH 265 and one of MATH 152, MATH 221, MATH 223. [3-0-1*]

MATH 300 (3) INTRODUCTION TO COMPLEX VARIABLES. Functions of a complex variable, Cauchy-Riemann equations, elementary functions, Cauchy's theorem and contour integration, Laurent series, poles and residues. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Corequisite: One of MATH 217, MATH 227, MATH 263, MATH 317. [3-0-0]

MATH 301 (3) APPLIED ANALYSIS. Integrals involving multi-valued functions, conformal mapping and applications, analytic continuation, Laplace and Fourier transforms. Prerequisite: MATH 300. Corequisite: One of MATH 257, MATH 316. [3-0-0]

MATH 302 (3) INTRODUCTION TO PROBABILITY. Basic notions of probability, random variables, expectation and conditional expectation, limit theorems. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 200, MATH 226. Equivalency: STAT 302. [3-0-0]

MATH 303 (3) INTRODUCTION TO STOCHASTIC PROCESSES. Discrete-time Markov chains, Poisson processes, continuous time Markov chains, renewal theory. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 302, STAT 302. [3-0-0]

MATH 307 (3) APPLIED LINEAR ALGEBRA. Dependence/independence, bases and orthogonality; linear transformations from \mathbb{R}^n to \mathbb{R}^m ; change of basis; triangularization; quadratic forms in n variables. Prerequisite: One of MATH 221, MATH 223, MATH 152. [3-0-0]

MATH 308 (3) EUCLIDEAN GEOMETRY. Classical plane geometry, solid geometry, spherical trigonometry, polyhedra, linear and affine transformations. Linear algebra proofs are used. It is suggested that MATH 307 be taken concurrently. Prerequisite: One of MATH 152, MATH 221, MATH 223 and one of MATH 220, MATH 226, CPSC 121. [3-0-0]

MATH 309 (3) TOPICS IN GEOMETRY. Topics chosen by the instructor. These may include conic sections, projective configuration, convexity, non-Euclidean geometries, fractal geometry, combinatorial problems of points in the plane. Prerequisite: One of MATH 152, MATH 221, MATH 223 and one of MATH 220, MATH 226, CPSC 121. [3-0-0]

MATH 312 (3) INTRODUCTION TO NUMBER THEORY. Euclidean algorithm, congruences, Fermat's theorem, applications. Some diophantine equations. Distribution of the prime numbers. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 220, MATH 226, CPSC 121 and 9 additional credits of Mathematics courses.

MATH 313 (3) TOPICS IN NUMBER THEORY. Topics chosen by the instructor. These might include: division algorithms, group theory, continued fractions, primality testing, factoring. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: MATH 312. [3-0-0]

MATH 314 (3) REAL VARIABLES. Riemann integral, uniform convergence, interchange of limits, orthogonal functions, other topics. Credit will be given for only one of MATH 314 and MATH 320. Prerequisite: MATH 220. [3-0-0]

MATH 316 (3) ELEMENTARY DIFFERENTIAL EQUATIONS II. Power series methods (ordinary and regular singular points, Bessel's equation); boundary value problems and separation of variables (Fourier series and other orthogonal series), applications to the vibrating string, heat flow, potentials. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 215, MATH 255, MATH 265. [3-0-0]

MATH 317 (3) CALCULUS IV. Parametrizations, inverse and implicit functions, integrals with respect to length and area; grad, div, and curl, theorems of Green, Gauss, and Stokes. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: MATH 200. MATH 221 is recommended. [3-0-0]

MATH 318 (3) PROBABILITY WITH PHYSICAL APPLICATIONS. Random variables, discrete and continuous distributions. Random walk, Markov chains, Monte Carlo methods. Characteristic functions, limit laws. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 152, MATH 221, MATH 223. Corequisite: One of MATH 257, MATH 316. [3-0-0]

MATH 320 (3) REAL VARIABLES I. The real number system; real Euclidean n -space; open, closed, compact, and connected sets; Bolzano-Weierstrass theorem; sequences and series. Continuity and uniform continuity. Differentiability and mean-value theorems. Prerequisite: Either (a) a score of 68% or higher in MATH 226 or (b) MATH 200 and a score of 80% or higher in MATH 220. [3-0-0]

MATH 321 (3) REAL VARIABLES II. The Riemann or Riemann-Stieltjes integrals. Sequences and series of functions, uniform convergence. Approximation of continuous functions by polynomials. Fourier series. Functions from \mathbb{R}^m to \mathbb{R}^n , inverse and implicit function theorems. Prerequisite: MATH 320. [3-0-0]

MATH 322 (3) INTRODUCTION TO ALGEBRA. Polynomials, rings, ideals, unique factorization, Euclidean rings, fields, groups, cosets, homomorphisms, permutations, matrix groups. Prerequisite: One of MATH 152 [with 80% or above], MATH 221 [with 80% or above], MATH 223 [with 68% or above] and one of MATH 220, CPSC 121, MATH 226. [3-0-0]

MATH 331 (3) PROBLEM SOLVING. Intended for honours students. A seminar on the techniques and art of solving problems based primarily on the mathematics curriculum of the first two years. Prerequisite: One of MATH 223, MATH 221, MATH 152 and one of MATH 226, MATH 200. [3-0-0]

MATH 335 (4) INTRODUCTION TO MATHEMATICS. Intensive course with required tutorial. Combinatorics, probability, geometry and elementary number theory. Not for credit in the Faculty of Science. Students who obtain credit at UBC for any other mathematics course cannot in the same or later

years obtain credit for MATH 335. (Consult the Credit Exclusion list in the Faculty of Science section of the Calendar.) [3-0-2]

MATH 336 (3) MATHEMATICS BY INQUIRY. A problem-based exploration of topics selected from the BC secondary school curriculum. Formal language and notation minimized. Intended for those with minimal background in Mathematics. Not for credit in the Faculty of Science. Prerequisite: Two years teaching experience, normally a teaching certificate, and permission of the department head. [3-0-0]

MATH 337 (3) MATHEMATICS FOR TEACHING. An overview of mathematical topics of the grade 8 to 10 BC school curriculum. Not for credit in the Faculty of Science. Prerequisite: MATH 336. [3-0-0]

MATH 340 (3) INTRODUCTION TO LINEAR PROGRAMMING. Linear programming problems, dual problems, the simplex algorithm, solution of primal and dual problems, sensitivity analysis. Additional topics chosen from: Karmarkar's algorithm, non-linear programming, game theory, applications. Prerequisite: One of MATH 152, MATH 221, MATH 223. [3-0-0]

MATH 342 (3) ALGEBRA, CODING THEORY, AND CRYPTOGRAPHY. Cryptography and error-correcting codes via groups, rings, and fields. Emphasis on both computation and simple proofs; congruences, RSA cryptosystems, linear codes. Prerequisite: One of MATH 152, MATH 221, MATH 223. [3-0-0]

MATH 345 (3) APPLIED NONLINEAR DYNAMICS AND CHAOS. Phase plane methods, bifurcation and stability theory, limit-cycle behavior and chaos for nonlinear differential equations with applications to the sciences. Assignments involve the use of computers. Prerequisite: A score of 68% or higher in one of MATH 215, MATH 255, MATH 256. [3-1-0]

MATH 361 (3) INTRODUCTION TO MATHEMATICAL BIOLOGY. Mathematical modeling of basic biological processes in ecology, physiology, neuroscience and genetics. Dynamic behavior of difference equations, differential equations, and partial differential equations, explained with reference to concrete biological examples. Prerequisite: BIOL 120 and one of BIOL 301, MATH 215, MATH 255, MATH 256 or permission of the instructor. [3-0-0]

MATH 398 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised technical work experience involving mathematics in industry for a minimum of 3.5 months. Technical report required. Restricted to students admitted to the Mathematics Co-operative Education Program.

MATH 399 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised technical work experience involving mathematics in industry for a minimum of 3.5 months. Technical report required. Restricted to students admitted to the Mathematics Co-operative Education Program. Prerequisite: MATH 398.

MATH 400 (3) APPLIED PARTIAL DIFFERENTIAL EQUATIONS. Laplace, wave, and diffusion equations. Conformal mapping with applications in fluid flow. Prerequisite: One of MATH 300, MATH 266 and one of MATH 316, MATH 257. [3-0-0]

MATH 401 (3) GREEN'S FUNCTIONS AND VARIATIONAL METHODS. Green's functions for partial differential equations. Calculus of variations. Eigenfunction expansions. Rayleigh-Ritz and finite element methods. Prerequisite: MATH 400. [3-0-0]

MATH 402 (3) CALCULUS OF VARIATIONS. Classical variational problems; necessary conditions of Euler, Weierstrass, Legendre, and Jacobi; Erdmann corner conditions, transversality, convex Lagrangians, fields of extremals, sufficient conditions for optimality, numerical methods; applications to classical mechanics, engineering and economics. Prerequisite: A score of 68% or higher in one of MATH 301, MATH 320. [3-0-0]

MATH 403 (3) STABILIZATION AND OPTIMAL CONTROL OF DYNAMICAL SYSTEMS. Dynamical systems; stability by Liapunov's direct method; controllability and eigenvalue assignment for autonomous linear systems; linear-quadratic regulator, time optimal control, Pontryagin maximum principle, dynamic programming; applications in engineering, economics and resource management. Prerequisite: A score of 68% or higher in one of MATH 320, MATH 301. MATH 402 is recommended. [3-0-0]

MATH 405 (3) NUMERICAL METHODS FOR DIFFERENTIAL EQUATIONS. Interpolation, numerical integration, numerical solution of ordinary and partial differential equations. Practical computational methods emphasized and basic theory developed through simple models. Prerequisite: One of MATH 257, MATH 316. [3-0-0]

MATH 407 (3) APPLIED MATRIX ANALYSIS. Numerical analysis of matrices, including solution of linear systems and eigenvalue/eigenvector calculations. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: MATH 307. [3-0-0]

MATH 412 (3) THEORY OF MODULES. Modules and vector spaces, modules over principal ideal domains, canonical forms, duality, representation theory, bilinear forms. Prerequisite: A score of 68% or higher in MATH 322. [3-0-0]

MATH 414 (3) MATHEMATICAL DEMONSTRATIONS. Students will prepare material illustrating ideas and applications of mathematics and present it to audiences outside the University. Intended for third or fourth year Mathematics students and Math/Science Education students. Prerequisite: Permission of the department head is required. [2-0-0; 1-0-0]

MATH 415 (3) INTRODUCTION TO MATHEMATICAL LOGIC. Predicate calculus, models, theories. Introduction to recursive functions. The Goedel incompleteness theorem. Prerequisite: 24 credits of MATH courses. [3-0-0]

MATH 416 (3) ORDINARY DIFFERENTIAL EQUATIONS. Existence and uniqueness, first order systems, stability, attractors, oscillation and comparison theorems, Sturm-Liouville theory, solution of partial differential equations by separation of variables. Prerequisite: A score of 68% or higher in all of MATH 215, MATH 321. [3-0-0]

MATH 417 (3) PARTIAL DIFFERENTIAL EQUATIONS. Poisson, heat, and wave equations; uniqueness theorems, maximum principle, Green's function, existence for the Dirichlet problem. Cauchy problem for the heat and wave equations, variational principles and generalized solutions, Fourier/Galerkin approximations, Sobolev spaces, spectral theorem, initial boundary value problems. Prerequisite: Either (a) MATH 416 or (b) a score of 68% or higher in MATH 321 and consent of the instructor. [3-0-0]

MATH 418 (3) PROBABILITY. Probability spaces, random variables, distributions, expectation, conditional probabilities, convergence of random variables, generating and characteristic functions, weak and strong laws of large numbers, central limit theorem. Prerequisite: A score of 68% or higher in MATH 321. [3-0-0]

MATH 419 (3) STOCHASTIC PROCESSES. Random walks, Markov chains, branching processes, Poisson processes, continuous time Markov chains, martingales, Brownian motion. Prerequisite: MATH 418. [3-0-0]

MATH 420 (3) REAL ANALYSIS I. Lebesgue measure; integration and differentiation; L^p spaces. Prerequisite: A score of 68% or higher in MATH 321. [3-0-0]

MATH 421 (3) REAL ANALYSIS II. Metric spaces, topological spaces, Banach spaces. Prerequisite: MATH 420. [3-0-0]

MATH 422 (3) GROUPS AND FIELDS. Isomorphism Theorems, group actions, Sylow groups, solvable groups, field extensions, automorphisms, Galois theory. Prerequisite: A score of 68% or higher in MATH 322. [3-0-0]

MATH 423 (3) TOPICS IN ALGEBRA. Commutative algebra, algebraic geometry, algebraic number theory, Lie theory, homological algebra and category theory, or some other advanced topic in algebra. Prerequisite: A score of 68% or higher in one of MATH 412, MATH 422. [3-0-0]

MATH 424 (3) CLASSICAL DIFFERENTIAL GEOMETRY. The differential geometry of curves and surfaces in three-dimensional Euclidean space. Mean curvature and Gaussian curvature. Geodesics. Gauss's Theorema Egregium. Prerequisite: A score of 68% or higher in MATH 321. [3-0-0]

MATH 425 (3) INTRODUCTION TO MODERN DIFFERENTIAL GEOMETRY. Riemannian manifolds, tensors and differential forms, curvature and geodesics. Prerequisite: MATH 424. [3-0-0]

MATH 426 (3) INTRODUCTION TO TOPOLOGY. General topology, combinatorial topology, fundamental group and covering spaces, topics chosen by the instructor. Prerequisite: A score of 68% or higher in all of MATH 321, MATH 322. [3-0-0]

MATH 427 (3) TOPICS IN TOPOLOGY. Homology theory, homotopy theory, manifolds, and other topics chosen by the instructor. Prerequisite: MATH 426. [3-0-0]

MATH 428 (3) MATHEMATICAL CLASSICAL MECHANICS I. Newton's equation, conservation laws, the Euler-Lagrange equation; Hamilton's principle of least action, Hamilton's equations, Lagrangian mechanics on manifolds. PHYS 306 is recommended as a companion course. Prerequisite: All of PHYS 206, MATH 215. Corequisite: MATH 320. [3-0-0]

MATH 429 (3) MATHEMATICAL CLASSICAL MECHANICS II. Differential forms, symplectic manifolds, canonical transformations, Hamilton-Jacobi equation, integrable systems, Liouville-Arnold theorem, perturbations of integrable systems. Prerequisite: MATH 428. Corequisite: MATH 321. [3-0-0]

MATH 430 (2-6) C SPECIAL TOPICS IN ANALYSIS. The student should consult the Mathematics Department for the particular topics offered in a given year. [3-0-0]

MATH 431 (2-6) C SPECIAL TOPICS IN GEOMETRY. The student should consult the Mathematics Department for the particular topics offered in a given year. [3-0-0]

MATH 432 (2-6) C SPECIAL TOPICS IN ALGEBRA. The student should consult the Mathematics Department for the particular topics offered in a given year. [3-0-0]

MATH 437 (3) NUMBER THEORY. Divisibility, congruences, Diophantine equations, arithmetic functions, quadratic reciprocity, advanced topics. (Consult the Credit Exclusion section in the Faculty of Science section of the Calendar.) Corequisite: One of MATH 320, MATH 322. [3-0-0]

MATH 440 (3) COMPLEX ANALYSIS. The residue theorem, the argument principle, conformal mapping, the maximum modulus principle, harmonic functions, representation of functions by integrals, series, and products. Other topics at the discretion of the instructor. Prerequisite: MATH 300 and a score of 68% or higher in MATH 320. [3-0-0]

MATH 441 (3) MATHEMATICAL MODELING: DISCRETE OPTIMIZATION PROBLEMS. Formulation of real-world optimization problems using techniques such as linear programming, network flows, integer programming, dynamic programming. Solution by appropriate software. Prerequisite: MATH 340. [3-0-0]

MATH 442 (3) OPTIMIZATION IN GRAPHS AND NETWORKS. Basic graph theory, emphasizing trees, tree growing algorithms, and proof techniques. Problems chosen from: shortest paths, maximum flows, minimum cost flows, matchings, graph colouring. Linear programming duality will be an important tool. Prerequisite: MATH 340. [3-0-0]

MATH 443 (3) GRAPH THEORY. Introductory course in mostly non-algorithmic topics including: planarity and Kuratowski's theorem, graph colouring, graph minors, random graphs, cycles in graphs, Ramsey theory, extremal graph theory. Proofs emphasized. Prerequisite: At least 6 credits of Mathematics courses numbered 300 or above. [3-0-0]

MATH 445 (3) MATHEMATICAL MODELING: APPLICATIONS IN THE NATURAL AND SOCIAL SCIENCES. Formulation, analysis, simulation, and interpretation for practical problems. An integration of dynamical, continuous optimization, and probabilistic techniques in modeling. Prerequisite: One of MATH 215, MATH 255, MATH 265 and one of STAT 241, STAT 251 or the corequisite. Corequisite: One of MATH 302, STAT 302. [3-0-0]

MATH 446 (3) TOPICS IN THE HISTORY OF MATHEMATICS I. Historical development of concepts and techniques in areas chosen from Geometry, Number Theory, Algebra, Calculus, Probability, Analysis. The focus is on historically significant writings of important contributors and on famous problems of Mathematics. Prerequisite: 27 credits in Mathematics. [3-0-0]

MATH 447 (3) TOPICS IN THE HISTORY OF MATHEMATICS II. A continuation of MATH 446. Prerequisite: MATH 446. [3-0-0]

MATH 449 (2-6) C HONOURS READING. Independent reading by Honours students in Mathematics under the direction of a faculty member. Written report required.

MATH 450 (3) ASYMPTOTIC AND PERTURBATION METHODS. Asymptotic expansions. Asymptotic evaluation of integrals; WKB methods. Regular and singular expansions. Boundary layer theory; matched asymptotic expansions. Multiple scale techniques. Prerequisite: All of MATH 301, MATH 400. [3-0-0]

MATH 462 (3) PROJECTS IN MATHEMATICAL BIOLOGY. Development and analysis of mathematical models for complex systems in ecology, evolution, cell biology, neurophysiology, and other biological and medical disciplines. Prerequisite: MATH 361. [3-0-0]

MATH 498 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised technical work experience involving mathematics in industry for a minimum of 3 1/2 months. Technical report required. Restricted to students admitted to the Mathematics Co-operative Education Program. Prerequisite: MATH 399.

MATH 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised technical work experience involving mathematics in industry for a minimum of 3 1/2 months. Technical report required. Restricted to

students admitted to the Mathematics Co-operative Education Program. Prerequisite: MATH 498.

MATH 500 (3) MATHEMATICAL LOGIC.

MATH 501 (3) ALGEBRA I.

MATH 502 (3) ALGEBRA II.

MATH 503 (3) ALGEBRAIC STRUCTURES I.

MATH 504 (3) ALGEBRAIC STRUCTURES II.

MATH 507 (3) MEASURE THEORY AND INTEGRATION.

MATH 508 (3) COMPLEX ANALYSIS I.

MATH 509 (3) COMPLEX ANALYSIS II.

MATH 510 (3) FUNCTIONAL ANALYSIS.

MATH 511 (3) OPERATOR THEORY AND APPLICATIONS.

MATH 512 (3) QUANTUM THEORY.

MATH 513 (3) STATISTICAL MECHANICS.

MATH 514 (3) ORDINARY DIFFERENTIAL EQUATIONS I.

MATH 515 (3) ORDINARY DIFFERENTIAL EQUATIONS II.

MATH 516 (3) PARTIAL DIFFERENTIAL EQUATIONS I.

MATH 517 (3) PARTIAL DIFFERENTIAL EQUATIONS II.

MATH 518 (3) NONLINEAR DIFFERENTIAL EQUATIONS.

MATH 519 (3) FLUID MECHANICS I.

MATH 520 (3) FLUID MECHANICS II.

MATH 521 (3) NUMERICAL ANALYSIS OF PARTIAL DIFFERENTIAL EQUATIONS.

MATH 522 (3) NUMERICAL ANALYSIS.

MATH 523 (3) COMBINATORIAL OPTIMIZATION.

MATH 525 (3) DIFFERENTIAL GEOMETRY I.

MATH 526 (3) DIFFERENTIAL GEOMETRY II.

MATH 527 (3) ALGEBRAIC TOPOLOGY I.

MATH 528 (3) ALGEBRAIC TOPOLOGY II.

MATH 529 (3) DIFFERENTIAL TOPOLOGY.

MATH 530 (3) GEOMETRIC TOPOLOGY I.

MATH 531 (3) GEOMETRIC TOPOLOGY II.

MATH 532 (3) ALGEBRAIC GEOMETRY I.

MATH 533 (3) ALGEBRAIC GEOMETRY II.

MATH 534 (3) LIE THEORY I.

MATH 535 (3) LIE THEORY II.

MATH 537 (3) NUMBER THEORY.

MATH 538 (3) ALGEBRAIC NUMBER THEORY.

MATH 539 (3) ANALYTIC NUMBER THEORY.

MATH 540 (3) ANALYTIC NUMBER THEORY II.

MATH 541 (3) HARMONIC ANALYSIS I.

MATH 542 (3) HARMONIC ANALYSIS II.

MATH 544 (3) PROBABILITY I.

MATH 545 (3) PROBABILITY II.

MATH 547 (3) OPTIMAL CONTROL THEORY. Optimal control of systems governed by ordinary differential equations. The control problem will be carefully stated, and existence results and necessary conditions will be established. Hamilton-Jacobi-Bellman theory will be introduced.

MATH 549 (6/12) C THESIS FOR MASTER'S DEGREE.

MATH 550 (3) METHODS OF ASYMPTOTIC ANALYSIS. Prerequisite: Applied complex analysis (MATH 301 or equivalent) and ordinary and partial differential equations (MATH 400 or equivalent).

MATH 551 (3) PERTURBATION METHODS FOR DIFFERENTIAL EQUATIONS. Prerequisite: MATH 550. Ordinary and partial differential equations (MATH 400 or equivalent).

MATH 552 (3) INTRODUCTION TO DYNAMICAL SYSTEMS. Ideas, methods and applications of bifurcation theory and dynamical systems: differential and difference equations, local bifurcations, perturbation methods, chaos. Prerequisite: One of MATH 215, MATH 255, MATH 256 and one of MATH 256, MATH 257, MATH 316.

MATH 553 (3) ADVANCED DYNAMICAL SYSTEMS. Topics from: hyperbolic invariant sets and symbolic dynamics, global bifurcations, local bifurcations for partial differential equations, multiple bifurcations, bifurcations and symmetry, applications. Prerequisite: MATH 552.

MATH 554 (3) SYMMETRIES AND DIFFERENTIAL EQUATIONS. Dimensional analysis, modelling and invariance. Lie groups of transformations, infinitesimal transformations. Applications to ordinary and partial differential equations. No knowledge of group theory will be assumed. Prerequisite: Elementary courses in differential equations and linear algebra.

MATH 557 (3) LINEAR AND NONLINEAR WAVES. Classical and recent results in linear and nonlinear waves. Geometrical acoustics and kinematic waves; large amplitude waves in weakly stratified media; small amplitude waves in strongly stratified media. Dispersive waves; group velocity; applications. Prerequisite: MATH 400 and some knowledge of either fluid mechanics or elasticity.

MATH 560 (3) MATHEMATICAL BIOLOGY I. Mathematical methods in modeling biological processes, at levels from cell biochemistry to community ecology. Prerequisite: Completion of an undergraduate degree in Biological, Physical or Mathematical science, including basic training in mathematics and statistics (e.g., STAT 200).

MATH 561 (3) MATHEMATICAL BIOLOGY II. Advanced techniques and models in mathematical biology, with applications. Prerequisite:

MATH 560 and ordinary and partial differential equations.

MATH 562 (3) INTRODUCTION TO MATHEMATICAL NEUROBIOLOGY. Cable theory. Passive and active membrane properties. Action potentials, Hodgkin-Huxley and FitzHugh-Nagumo models. Bursting phenomena. Nonlinear waves in excitable media. Prerequisite: Some background in ordinary and partial differential equations. No background in neurobiology is required.

MATH 589 (3) M.SC. MAJOR ESSAY.

MATH 590 (2–6) C GRADUATE SEMINAR. Presentation and discussion of recent results in the mathematical literature.

MATH 591 (2) GRADUATE SEMINAR IN APPLIED MATHEMATICS.

MATH 597 (3) CO-OPERATIVE WORK PLACEMENT I. Prerequisite: Registration in Mathematics M.Sc. program, Mathematical Finance Option, and approval of the mathematical finance program director.

MATH 598 (3) CO-OPERATIVE WORK PLACEMENT II. Prerequisite: MATH 597 and approval of the mathematical finance program director.

MATH 599 (1) MATHEMATICS TEACHING TECHNIQUES. [3-0-0]

MATH 600 (2–15) C TOPICS IN ALGEBRA.

MATH 601 (2–15) C TOPICS IN ANALYSIS.

MATH 602 (2–15) C TOPICS IN GEOMETRY.

MATH 603 (2–15) C TOPICS IN TOPOLOGY.

MATH 604 (2–15) C TOPICS IN OPTIMIZATION.

MATH 605 (2–15) C TOPICS IN APPLIED MATHEMATICS.

MATH 606 (2–15) C TOPICS IN DIFFERENTIAL EQUATIONS.

MATH 607 (2–15) C TOPICS IN NUMERICAL ANALYSIS.

MATH 608 (2–15) C TOPICS IN PROBABILITY.

MATH 609 (2–15) C TOPICS IN MATHEMATICAL PHYSICS.

MATH 610 (2–15) C TOPICS IN PURE MATHEMATICS.

MATH 611 (2–15) C TOPICS IN FUNCTIONAL ANALYSIS.

MATH 612 (2–15) C TOPICS IN MATHEMATICAL BIOLOGY.

MATH 613 (3) TOPICS IN NUMBER THEORY.

MATH 620 (2–15) C DIRECTED STUDIES IN MATHEMATICS. Advanced study under the direction of a faculty member may be arranged in special situations.

MATH 649 (0) PH.D. THESIS.

MDVL — MEDIEVAL STUDIES FACULTY OF ARTS

See Medieval Studies under the Faculty of Arts section of the Calendar for other acceptable courses.

MDVL 200 (6) INTRODUCTION TO THE MIDDLE AGES. Selected topics (e.g., Age of Charlemagne, Twelfth-Century Renaissance) studied from an interdisciplinary approach designed to integrate the major areas of history, literature, and art; topics vary from year to year; interested students should consult the Medieval Studies advisor, Department of History.

MDVL 301 (3) EUROPEAN LITERATURE FROM THE 5TH TO THE 14TH CENTURY. Selected works from the 5th to the 14th centuries in their cultural and social contexts.

MDVL 302 (3) EUROPEAN LITERATURE FROM THE 14TH TO THE 16TH CENTURY. Selected works of the Late Middle Ages and Renaissance in their cultural and social contexts.

MDVL 440 (3/6) D MEDIEVAL SEMINAR.

MDVL 449 (6/12) C GRADUATING ESSAY OR SUPERVISED STUDY.

MECH — MECHANICAL ENGINEERING FACULTY OF APPLIED SCIENCE

MECH 220 (4) TECHNICAL SKILLS PRACTICUM. Engineering graphics, spatial visualization, CAD, equation solvers, machine shop practice, electronic circuit construction and troubleshooting, elements of engineering science. Prerequisite: All of MATH 101, MATH 152, PHYS 170, PHYS 153 and one of APSC 150, APSC 151. Corequisite: All of ENGL 112, MECH 221. [1-3-3]

MECH 221 (13) ENGINEERING SCIENCE I. Rigid body kinetics and kinematics, basic electrical circuits, work and power, stress and strain, torsion, bending. This course includes the content of EECE 263. Prerequisite: All of MATH 101, MATH 152, PHYS 170, PHYS 153. Corequisite: All of ENGL 112, MECH 220. [12-2-2]

MECH 222 (7) ENGINEERING SCIENCE II. Fluid properties, equations of state. Pressure, buoyancy, hydrostatic forces, pressure measurement. Conservation of mass, momentum, and energy. Bernoulli's equation. dimensional analysis, modeling. Turbulent flow in pipes; turbomachinery; conduction and convection. Prerequisite: All of MECH 220, MECH 221. Corequisite: MECH 223. [5-2-2]

MECH 223 (7) MECHANICAL DESIGN. Design methodology, synthesis and analysis. Design projects representing both mechanical mechanism design and thermofluid systems. Prerequisite: All of MECH 220, MECH 221. Corequisite: MECH 222. [3-8-0]

MECH 260 (3) INTRODUCTION TO MECHANICS OF MATERIALS. Statically determinate frames and trusses; shear force and bending moment diagrams; theory of beam bending, moment-curvature relation, bending

stress, shear stress; torsion of circular rods; transformation of stress and strain in two dimensions, Mohr's circle. Prerequisite: All of MATH 101, PHYS 170. [3-0-1]

MECH 280 (3) INTRODUCTION TO FLUID MECHANICS. Fluid properties; statics; kinematics, dynamics, energy, and momentum principles for one-dimensional flow; dimensional analysis and similarity; laminar and turbulent flow; pipe flow; principles of turbo-machine flow; forces on bodies in flow. Prerequisite: All of MATH 152, PHYS 170 and one of MATH 217, MATH 253 and either (a) all of PHYS 101, PHYS 102 or (b) PHYS 153. [3-0-1]

MECH 301 (2) MECHANICAL ENGINEERING LABORATORIES III. Typical applications of fundamental principles in mechanics of materials, dynamics, thermodynamics and fluid dynamics. Instrumentation, data acquisition and data manipulation using modern computational tools. Behaviour and applications of common mechanical devices. Prerequisite: All of MECH 201, MECH 202, MECH 260, MECH 280. [0-3-0]

MECH 302 (2) MECHANICAL ENGINEERING LABORATORIES IV. Typical applications of fundamental principles in mechanics of materials, dynamics, thermodynamics and fluid mechanics. Instrumentation, data acquisition and data manipulation using modern computational tools. Behaviour and applications of common mechanical devices. Prerequisite: All of MECH 201, MECH 202, MECH 265, MECH 270. [0-3-0]

MECH 303 (2) MECHATRONICS LABORATORIES. Mechanics of materials and dynamics. Instrumentation, data acquisition and data manipulation using modern computational tools. Common mechanical devices. For students in Mechatronics option only. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. [0-3*-0; 0-3*-0]

MECH 304 (4) MECHANICAL ENGINEERING LABORATORIES. Mechanics of materials, dynamics, heat transfer, and fluid dynamics. Instrumentation, data acquisition and data manipulation using modern computational tools. Common mechanical devices. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. [1-6-0]

MECH 325 (4) MECHANICAL DESIGN I. Introduction to manufacturing operations. Design for manufacturing and assembly. Design and selection of shafts, bearings, springs, seals and packing, and couplings. Fatigue and fracture considerations in design. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. Corequisite: MECH 360. [3-0-3]

MECH 326 (3) MECHANICAL DESIGN II. Design and application of mechanisms, linkages and cams. Design of bolted joints and power screws. Design and selection of gears, gear trains, brakes and clutches. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. Corequisite: MECH 360. [2-0-3]

MECH 327 (3) THERMAL SYSTEM DESIGN. Energy conservation. Microscopic meaning of entropy. Equilibrium. Reacting systems. Process sheets. Fluid flow, heat transfer, and material considerations. Economic and environmental impact of energy use. Application to thermofluid systems such as power plants. Prerequisite: One of MECH 222, PHYS 257, CHBE 241. [3-0-1]

MECH 328 (3) MECHANICAL ENGINEERING DESIGN PROJECT. Design project course linked to MECH 325, MECH 326, or MECH 327. The project provides experience in applying the design process, making educated assumptions and decisions, and working in teams to fabricate and provide a new mechanical design. The course has a weekly lecture discussing product development and various factors affecting the design. Corequisite: MECH 325 and one of MECH 326, MECH 327. [1-4-1]

MECH 340 (3) STATICS OF MARINE VEHICLES. Hydrostatic curves, transverse and longitudinal stability of surface ships and submersibles. Flooding, damaged stability. Launching. Load due to cargo and waves. Prerequisite: Second-year Mechanical Engineering program. [3-0-0]

MECH 341 (3) SHIP RESISTANCE AND PROPULSION. Elementary theory of ocean waves, dimensional analysis, ship resistance and interference. Ship propulsion methods, propeller theory and design. Prerequisite: Second-year Mechanical Engineering program. [3-0-0]

MECH 356 (3) MACHINE COMPONENTS. Machines used for wood products manufacturing, design, maintenance, purchasing. Selection of components including drives, bearings, brakes, clutches, fasteners, springs. Not open to students in the Faculty of Applied Science. Prerequisite: WOOD 376. Corequisite: WOOD 386. [3-2-0]

MECH 360 (3) MECHANICS OF MATERIALS. Beam deflections, column buckling; Castigliano's theorem, statically indeterminate beams, frames and rings; bending of curved beams, bending of beams with asymmetric cross-sections, shear centre; principal stresses and stress invariants in three dimensions; yield and fracture criteria. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. [3-0-1]

MECH 364 (4) MECHANICAL VIBRATIONS. Theory of vibration of mechanical systems. Undamped 1 degree of freedom vibration, forced vibrations and resonance, damping, multiple degree of freedom systems, mode shapes and orthogonality, continuous systems, vibration measuring instruments and frequency spectrum analysis. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. Corequisite: MECH 360. [3-2*-1]

MECH 366 (3) MODELING OF MECHATRONIC SYSTEMS. Modeling of mechanical, electrical, thermal, fluid elements and mixed mechatronic systems. Signal processing, signal conditioning. Sensors, data acquisi-

tion systems, actuators. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. [2-2-0]

MECH 375 (3) HEAT TRANSFER I. Steady and transient conduction. Radiation heat transfer; blackbody laws, optical properties of surfaces, radiative heat exchange. Convective heat and mass transfer in pipes and from external surfaces. Boiling and condensation heat transfer. Design of boilers, condensers and heat exchangers. Prerequisite: Either (a) all of MECH 220, MECH 221, MECH 222, MECH 223 or (b) either (a) CHBE 241 or (b) all of PHYS 257, CIVL 215 or (c) CHBE 251 or (d) all of MECH 280, MATH 255, MATH 257. [3-0-1]

MECH 380 (3) FLUID DYNAMICS. Review of principles, compressible flow, open-channel flow, potential flow, simple laminar viscous flow, boundary layers, flow around bluff bodies. Prerequisite: Either (a) all of MECH 220, MECH 221, MECH 222, MECH 223 or (b) all of CHBE 241, CIVL 215 or (c) all of CHBE 251, MATH 255, MATH 257. [3-0-1]

MECH 386 (3) INDUSTRIAL FLUID MECHANICS. Analysis of piping networks. Review of pumps, turbines and hydraulic motors. Flow measurement devices such as flow meters and transducers for measuring velocity and pressure. Multiphase flows. Introduction to turbulence, mixing and buoyancy driven flows. Prerequisite: MECH 380. [3-1*-0]

MECH 392 (2) MANUFACTURING PROCESSES. Manufacturing characteristics of materials and their control. Metal forming processes, plastic deformations, rolling, forging, drawing, extrusion, sheet metal forming. Machining processes and machine tools, turning, milling, drilling, grinding. Metal fabrication, welding and casting. An introduction to process planning. [2-0-0]

MECH 405 (3) ACOUSTICS AND NOISE CONTROL. Wave properties; the decibel; hearing, deafness, and hearing protectors; noise criteria and regulations; sound measurement; sound-source characterization; real noise sources, sound propagation outdoors, in ducts and pipes and in rooms; sound transmission; silencers; sound absorbers; partitions. [3-1-0]

MECH 410 (2-6) D SPECIAL TOPICS IN MECHANICAL ENGINEERING. Lectures and readings on specialized topics of current interest in Mechanical Engineering.

MECH 420 (3) SENSORS AND ACTUATORS. Measurement of motion, stress, force, torque, temperature, flow and pressure; principles of sensors and signal conditioning methods; selection and sizing of actuators. Prerequisite: All of MECH 360, MECH 364, MECH 366. [2-2-0]

MECH 421 (3) MECHATRONICS SYSTEM INSTRUMENTATION. Architecture of mechatronics devices; integration of mechanical, electronics, sensors, actuators, computer and real time software systems; PLC and PC based systems; discrete and continuous automation system design. Prerequisite: MECH 366. Corequisite: MECH 420. [2-2-0]

MECH 422 (3) INTRODUCTION TO MICROELECTROMECHANICAL SYSTEMS. Fundamentals of MEMS (MicroElectroMechanical Systems). Microfabrication of MEMS with solid-state technology. LIGA and micro injection molding. Physics of MEMS. Operational principles of various MEMS devices. Prerequisite: One of EECE 363, EECE 365 and all of MECH 360, MECH 364. [3-1-0]

MECH 430 (3) ENGINEERING DATA ANALYSIS. The use of probability and statistical methods for engineering applications. [3-0-0]

MECH 431 (3) ENGINEERING ECONOMICS. Discounted cash flows. Sources of funds, cost of capital. Effects of depreciation, taxes, inflation. Evaluation and comparison of economic models for engineering projects. Replacement decisions. Public project analysis. Risk analysis. Project control, inventory analysis, simulation. [3-0-0]

MECH 435 (3) ORTHOPAEDIC BIOMECHANICS. Musculoskeletal anatomy. Muscle and joint loads. Muscle mechanics. Musculoskeletal dynamics. Gait. Tissue mechanics of tendon, ligament, articular cartilage, and bone. Biomaterials. Application examples in orthopaedics including joint replacement and fracture fixation. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. [3-0-1]

MECH 436 (3) FUNDAMENTALS OF INJURY BIOMECHANICS. Introduction to injury biomechanics. Anatomy. Impact experiments. Multi-body dynamic simulation and finite element analysis. Skull, face, brain, spine, eye, pelvis, abdomen, and extremity injury. Anthropomorphic test devices, seat belts, airbags, child restraints, and helmets. Credit cannot be obtained for both MECH436 and MECH536. Prerequisite: All of MECH 360, MECH 364. [3-0-1]

MECH 441 (3) COMPUTER-AIDED SHIP DESIGN. Introduction to computer-aided ship design; numerical procedures applied to form, curve fairing, stability, resistance, propulsion, motion maneuvering and strength. Each student will complete a preliminary design of a conventional ship or, with permission of the instructor, may undertake a preliminary design of a ship intended for special applications. Prerequisite: All of MECH 340, MECH 341. [2-2-0]

MECH 442 (3) SHIP STRUCTURES AND VIBRATION. Structural theory and practice of ship structural design. Longitudinal and transverse strength of hull girder, bending moment, torsion in a seaway, plate theory, development of ship structural design, pressure hull design and ship building materials. Concepts of ship vibrations and their isolation. [3-0-1]

MECH 443 (3) EXPERIMENTAL NAVAL ARCHITECTURE. Planning and execution of experiments related to marine vehicle resistance, propulsion, seakeeping, structural and hydroelastic systems. Vehicle hydrodynamics as well as experimental methods, data

acquisition, processing and interpretation are stressed. Prerequisite: MECH 341. [1-4-0]

MECH 451 (3) MECHATRONICS DESIGN PROJECT 1. The design, analysis, manufacturability, instrumentation and computer control of a selected mechatronic system will be studied. The course is open only to the students registered in the Mechatronics option. Prerequisite: Completion of 3rd year of Mechatronics Option. [1-2-2]

MECH 452 (3) MECHATRONICS DESIGN PROJECT II. The assembly, instrumentation, computer and electronic interfacing, and testing of a mechatronic system. This course is open only to students registered in the Mechatronics option. Prerequisite: MECH 451. [1-2-2]

MECH 455 (3) MECHANICAL ENGINEERING DESIGN PROJECT I. A capstone design project designed to give students experience in the design/development of practical mechanical devices. Projects are provided by local industry and engineering research laboratories. For students in Co-operative Education programs. [1-2-2]

MECH 456 (3) MECHANICAL ENGINEERING DESIGN PROJECT II. A capstone design project designed to give students experience in the design/development of practical mechanical devices. Projects are provided by local industry and engineering research laboratories. For students in Co-operative Education programs. Prerequisite: MECH 455. [1-2-2]

MECH 457 (6) MECHANICAL ENGINEERING DESIGN PROJECT. A capstone design project designed to give students experience in the design/development of practical mechanical devices. Projects are provided by local industry and engineering research laboratories. Prerequisite: Third-year Mechanical Engineering. [1-2-2;1-2-2]

MECH 458 (6) ELECTRO-MECHANICAL DESIGN PROJECT. A capstone design program designed to give students experience in the design/development of practical mechanical and electro-mechanical devices. Projects are provided by local industry and engineering research laboratories. Prerequisite: Third-year standing. [1-2-2;1-2-2]

MECH 460 (3) ADVANCED MECHANICS OF MATERIALS. Axisymmetric membrane stresses in thin shells of revolution, stresses in thick-walled cylinders and rotating disks, beams on elastic foundations, axisymmetric bending of cylindrical shells, axisymmetric bending of circular plates. Prerequisite: MECH 360. [3-0-0]

MECH 462 (3) FINITE ELEMENT ANALYSIS. Theory and element selection. Development of computer programs for simple problems. Utilization of existing computer packages. Application to mechanical engineering problems. Prerequisite: MECH 360. [2-2*-0]

MECH 463 (3) COMPUTER CONTROLLED MACHINES. Introduction to control theory, transfer function representation, steady state performance, and stability issues. A survey of common actuators, transducers and their performance characteristics. Introduction to

practical application of these devices to secondary wood products manufacturing. Not open to students in the Faculty of Applied Science. [3-1-0]

MECH 464 (3) INDUSTRIAL ROBOTICS. Definition and classification of industrial robotic devices. Selection and implementation issues. Workcell environments. Forward and inverse kinematics, dynamics, trajectory planning. Sensing and manipulation tasks. Control architectures. Credit cannot be received for both MECH 464 and MECH 563. Corequisite: One of MECH 466, MECH 467. [3-0-1]

MECH 465 (4) MECHANICAL VIBRATIONS. Response of multi degree of freedom and continuous systems. Approximate numerical methods. Frequency analysis. Measurement of vibration. Prerequisite: MECH 365. [3-3*-0]

MECH 466 (4) AUTOMATIC CONTROL. Process and system characteristics; transient response; the closed loop; block diagrams and transfer functions; control actions; stability; Nyquist diagrams; Bode diagrams; root locus methods; frequency response; system compensation; nonlinear control systems; digital computer control. Laboratory experiments to support the lecture content. Prerequisite: One of EECE 251, EECE 263, PHYS 209. [3-3*-0]

MECH 467 (4) COMPUTER CONTROL OF MECHATRONICS SYSTEMS. Block diagrams and transfer functions, continuous and discrete domain transformations, feedback control system characteristics, control design in both continuous and discrete domain, absolute and relative stability, optimal control, adaptive control, laboratory examples of Mechatronic systems design. Prerequisite: All of MECH 326, MECH 366. [3-3*-0]

MECH 468 (3) MODERN CONTROL ENGINEERING. Introduction to state space control methods for linear systems including modal control, controllability, observability, linear quadratic regulators, optimal control. Prerequisite: One of EECE 360, MECH 466. [3-0-0]

MECH 469 (3) DYNAMIC SYSTEM MODELING. Modeling of mechanical, electrical, fluid, and thermal systems; analytical models; model representations such as linear and bond graphs; response analysis; digital simulation. [3-0-0]

MECH 470 (2) THERMAL POWER GENERATION. Steam power plant cycles, Rankine cycle, reheat and regenerative cycles, component selection. Gas turbine cycles, Brayton cycle, intercooling, reheat and regeneration. Conditions for maximum cycle efficiency. Combined cycles and binary cycles. Nuclear power generation, reactor types and design. Boiler design and selection, boiler codes. Turbomachinery design and selection. Prerequisite: MECH 370. [2-0-1]

MECH 473 (2/3) HEATING, VENTILATING AND AIR CONDITIONING. Principles of air conditioning; psychometrics and refrigeration. Heat transfer through building materials. Estimation of heating and cooling loads

including the use of current software. System design. Ground, air and water source heat pumps. Lab demonstration/analysis of basic psychometric processes. [2-0-1]

MECH 474 (3) MATERIALS FOR CLEAN ENERGY TECHNOLOGIES. Introduction to operation of gas turbines and fuel cells. Diffusion and migration in solids. Fundamental basis of ionic, electronic, and mixed conductivity in fuel cell materials. Thermal barrier coatings for gas turbines. Material constraints in wind turbines. Credit cannot be obtained for both MECH 474 and MECH 574. Prerequisite: Either (a) all of MECH 220, MECH 221, MECH 222, MECH 223 or (b) APSC 278. [3-0-0]

MECH 475 (2) HEAT TRANSFER II. Unsteady heat conduction. Radiative heat exchange between gray surfaces. Gas radiation. Free convection from plates and cylinders. Boiling. Mass transfer. Simultaneous heat and mass transfer. Heat exchanger design. Boilers, condensers, and cooling towers. Building heat transfer. Prerequisite: MECH 375. [2-0-0]

MECH 479 (3) COMPUTATIONAL FLUID DYNAMICS. Techniques for numerical solution of ordinary and partial differential equations, including an introduction to the finite difference, finite volume and finite element approaches. Simulation of laminar and turbulent flows, including common turbulent models. Validation techniques. Prerequisite: All of MECH 375, MECH 380 and one of MECH 327, MECH 370. [3-2-0]

MECH 481 (3) AERODYNAMICS OF AIRCRAFT I. Low speed aerodynamics of airfoils, wings, wind tunnels. Prerequisite: MECH 380. [3-1*-0]

MECH 482 (3) WIND ENGINEERING. The special theoretical and experimental problems and methods of aerodynamics relevant to the nature of winds and their steady and oscillatory effects on structures and people; wind energy utilization. Prerequisite: MECH 380. [3-1*-0]

MECH 483 (3) AERODYNAMICS OF AIRCRAFT II. High speed aerodynamics of airfoils and wings; oblique shock waves; method of characteristics. Prerequisite: MECH 481. [3-1*-0]

MECH 484 (3) AIRCRAFT DESIGN: AERODYNAMICS. Aircraft performance, stability and control, loading and air worthiness. Detailed example. [2-2-0]

MECH 485 (3) AIRCRAFT DESIGN: STRUCTURES. Development of aircraft wing structure, moments of inertia for complex shapes, crippling loads, shear lag. [2-2-0]

MECH 489 (4) EXPERIMENTAL THERMOFLUIDS. Experimental uncertainty. Design of experiments. Test facilities. Temperature and pressure measurement techniques and instrumentation. Velocity and flow rate measurement techniques. Flow visualization. Case studies of industrial and research experimental practice. Prerequisite: All of MECH 375, MECH 380 and one of MECH 327, MECH 370. [3-2-0]

MECH 490 (3) PRODUCTION ENGINEERING.

Analysis and modelling of production processes, equipment and facilities with specific emphasis on machine tool operations, process planning, the economics of automation, and selected aspects of production/operations planning. Prerequisite: MECH 392. [3-0-0]

MECH 491 (3) COMPUTER-AIDED

MANUFACTURING. NC programming and machining with interactive CAD/CAM systems. Curve and surface geometry for tool-path generation. Tool-path generation methodologies. Geometric modeling techniques for simulation and verification of manufacturing processes. Introduction to Computer-Aided Process Planning. Supplementary tutorial laboratory experiments. Prerequisite: MECH 392. [2-2*-0]

MECH 492 (4) CAD/CAM. Introduction to computer assisted design and manufacturing with a focus on the fundamental issues of geometry and machine tools including an understanding of standard computer tools. Applications to secondary wood products manufacturing. Not open to students in the Faculty of Applied Science. Prerequisite: WOOD 290. [3-4-0]

MECH 495 (3) INDUSTRIAL ENGINEERING. Organizational structure. Manufacturing systems and group technology. Classification and coding. Scheduling and sequencing of operations. Forecasting. Quality control for variables and attributes. Plant location. System reliability analysis. Advanced manufacturing automation concepts. [3-0-0]

MECH 496 (3) ENGINEERING

MANAGEMENT. Organization structures. Management styles. Cost systems and control. Financial statements; accounting procedures. Budgets and performance control. Project management. Human resources management. [3-0-0]

MECH 501 (3) THERMODYNAMICS. Thermodynamic principles, Maxwell relations, availability, irreversibility and equilibrium. Introduction to statistical mechanics.

MECH 502 (3) FLUID MECHANICS.

Governing equations; viscous incompressible flow, incompressible potential flow; incompressible boundary layers, stability and turbulence; compressible potential flow.

MECH 505 (3) INDUSTRIAL AND ENVIRONMENTAL ACOUSTICS AND VIBRATION.

Fundamentals of acoustics and vibrations, physiologic effects, measurement, instrumentation, interpretation of data, industrial standards and control. For students in Occupational and Environmental Hygiene; other graduate students may enrol with permission of the instructor. Equivalency: OCCH 515.

MECH 506 (3) LINEAR VIBRATIONS.

Transient and steady state vibration analysis of continuous and discrete mechanical systems. Lagrange's equation and Hamilton's Principle. Measurement of vibration. Machinery health monitoring. Frequency domain analysis. Experimental modal analysis. Vibration of rotating machinery.

MECH 507 (3) ANALYTICAL DYNAMICS.

Newtonian mechanics; generalized co-ordinates and analytical mechanics; Lagrange equations; Hamilton's Principle; rotational motion and rigid body dynamics; Gyroscopic motion; phase space, equilibrium and stability of motion; stability characteristics of autonomous systems; Hamilton-Jacobi method; applications.

MECH 510 (4) COMPUTATIONAL METHODS IN TRANSPORT PHENOMENA I.

Analytical, computational, and experimental methods in fluid mechanics. Overview of CFD program development. Finite volume methods, spacial discretization and spatial accuracy analysis. Boundary conditions. Time advance methods, time accuracy, and stability. Application to model problems and to the incompressible laminar Navier-Stokes equations. Validation techniques for CFD codes. [3-2-0]

MECH 511 (3) COMPUTATIONAL METHODS IN TRANSPORT PHENOMENA II.

Selected advanced topics in CFD, typically chosen from: Finite volume methods on curvilinear meshes and structured mesh generation. Finite volume methods on unstructured meshes. Multigrid methods for elliptic PDE's. Reynolds-averaged form of the Navier-Stokes equations and turbulence modeling. Three-dimensional flows. Compressible flows. Prerequisite: MECH 510.

MECH 515 (3) FINITE ELEMENT ANALYSIS OF NON-LINEAR AND FIELD PROBLEMS.

Review of finite element theory in linear static and dynamic analyses. Material and geometric non-linearity, various formulation and solution methods, convergence. Fracture mechanics problems. Non-linear transient conduction, convection and radiation boundary conditions. Fluid flow problems.

MECH 516 (3) OPTIMAL MECHANICAL DESIGN.

Formulation of optimal design mechanical problems, unconstrained and constrained problems, search and quasi-Newton methods, finite element formulation for optimal design problems, optimal design of mechanical dynamic systems, interactive design optimization, applications.

MECH 520 (3) CONTROL SENSORS AND ACTUATORS.

Review of control, instrumentation and design. Performance specification of control components, component matching, error analysis. Operating principles, analysis, modelling, design considerations of control sensors and actuators such as analog sensors for motion measurement, digital transducers, stepper motors, DC motors, induction motors, synchronous motors, and hydraulic actuators. Control techniques pertaining to actuators. Applications.

MECH 523 (3) INTELLIGENT CONTROL.

Review of traditional control techniques and comparison with intelligent control; methods of representing and processing knowledge; conventional sets and crisp logic; fuzzy logic; fuzzy logic control; hierarchical fuzzy control; control system tuning; industrial applications.

MECH 524 (3) INTELLIGENT ROBOTIC SYSTEMS.

System components and organization. Modelling and advanced control

techniques. Vision, tactile, laser and proximity sensing. Task planning, path planning, planning with uncertainty. Robot learning. Online applications, collision avoidance, object interception, robotic assembly. Students will be required to present a research seminar. Prerequisite: MECH 563 is recommended.

MECH 525 (3) SUPERVISORY CONTROL

SYSTEMS. General structure of supervision; elements of automata theory; communication links; supervised control; distributed systems; hierarchical systems; multi-agent systems; process monitoring and diagnosis; self-tuning control; adaptive control; intelligent supervisory control; man-machine interface; applications of supervisory control.

MECH 526 (3) ADVANCED INDUSTRIAL

SYSTEMS CONTROL. Discrete time models; process control algorithms; control of systems with process delay; minimum variance control; parameter identification; Kalman filtering. Prerequisite: One of MECH 466, EECE 360. [3-0-0]

MECH 535 (3) ORTHOPAEDIC

BIOMECHANICS. Musculoskeletal anatomy. Static and dynamic analysis of the musculoskeletal system. Gait. Musculoskeletal tissue mechanics. Biomaterials. Advanced study of relevant problems in orthopaedics, including joint replacement, fracture fixation, and spinal disorders. Credit given for only one of MECH 435 and MECH 535. [3-0-1]

MECH 536 (3) FUNDAMENTALS OF INJURY BIOMECHANICS.

Introduction to injury biomechanics. Anatomy. Impact experiments. Multi-body dynamic simulation and finite element analysis. Skull, face, brain, eye, pelvis, abdomen, and extremity injury. Anthropomorphic test devices, seat belts, airbags, child restraints, and helmets. Credit cannot be obtained for both MECH436 and MECH536. [3-0-1]

MECH 540 (3) MARINE HYDRODYNAMICS.

Fundamentals of model testing, ship frictional resistance. Laminar boundary layer theory, turbulent flow on a flat plate. Ship wave resistance. Thin ship theory. Direct measurement of wave resistance.

MECH 541 (3) DYNAMICS OF MARINE

VEHICLES. Water waves, motion of a body in an inviscid fluid, concepts of added mass, damping. Uncoupled and coupled motion of platforms, irregular seaway, dynamic effects, motion, stabilization.

MECH 542 (3) ADVANCED MARINE

VEHICLES. Design of advanced marine vehicles such as air cushion vehicles, hydrofoils, autonomous underwater vehicles, interfaced vehicles. Principles of operation, stability, powering, control and maneuvering. Individual or group design exercise.

MECH 543 (3) ACOUSTICS AND NOISE

CONTROL. Wave properties; the decibel; hearing, deafness and hearing protectors; noise criteria and regulations; sound measurement; sound-source characterization; real noise sources; sound propagation outdoors, in ducts

and pipes and in rooms; sound transmission; silencers; sound absorbers; partitions. [3-1-0]

MECH 549 (0) MAJOR ESSAY. For students in the M.Eng. program.

MECH 550 (2-6) D SPECIAL ADVANCED COURSES. Special advanced courses may be arranged for a graduate student upon the approval of the department head. There will not be more than 6 credits in any one such course.

MECH 551 (6) ELECTRO-MECHANICAL SYSTEM DESIGN PROJECT I. The design, analysis, manufacturability, instrumentation and computer control of a selected dynamic machinery assembly will be studied. Prerequisite: Fourth year of Electro-Mechanical Design option. [0-4-2]

MECH 552 (6) ELECTRO-MECHANICAL SYSTEM DESIGN PROJECT II. The full assembly, instrumentation, computer and electronic interfacing, and testing of a dynamic machine. Prerequisite: MECH 551. [0-3-1]

MECH 555 (4) FUNDAMENTALS OF MICROELECTROMECHANICAL SYSTEMS. Micro-fabrication of MEMS: solid-state technology and other micromachining techniques. Engineering principles of various MEMS devices. [3-2-0]

MECH 558 (3) ENGINEERING APPLICATIONS OF STATISTICAL DISTRIBUTIONS THEORY. Classical and contemporary theory of the prominent statistical models employed in the Applied Sciences. The Normal, Gamma, Beta, and Extreme Value classes of distributions. Estimation techniques and applications to engineering problems. Prerequisite: One of MECH 390, STAT 251.

MECH 560 (3) EXPERIMENTAL METHODS IN MECHANICS. Operating principles of transducers for measuring typical quantities; the construction of transducers and factors controlling their measurement accuracy; electronic signal conditioning equipment and computerized data acquisition system.

MECH 561 (3) LINEAR ELASTICITY. Stress and strain in three dimensions, fundamental field equations of linear elasticity; equilibrium, compatibility, Hooke's law; Papkovitch-Neuber solution, plane stress and plane strain; torsion, torsion of thin-walled members with warping restraint; plate theory.

MECH 562 (3) INTRODUCTION TO CONTINUUM MECHANICS. Cartesian tensors, transformation and invariants of stress and strain, equations of motion and equilibrium, boundary conditions, constitutive equations for elastic, viscous and viscoelastic materials, plastic yield conditions and associated flow rules. [3-0-0]

MECH 563 (3) ROBOTICS: KINEMATICS, DYNAMICS AND CONTROL. Definitions and classification Kinematics: homogeneous transformations, manipulator kinematic equations, forward and inverse kinematic solution methods, differential kinematic equations, motion trajectories. Dynamics: Lagrange-Euler formulations, Newton-Euler

formulation. Control: methods of control, robot control hierarchy, control of single joint and multiple link manipulators, advanced control methods.

MECH 568 (3) THEORY OF PLASTICITY. Yield conditions and flow rules; upper and lower bound theorems; elastic-plastic analysis of circular disks, thick-walled cylinders and spheres; torsion; slip-line fields; rigid-plastic analysis of plates and shells. Credit will be given for only one of MECH 568 or CIVL 536.

MECH 569 (2/4) D NON-LINEAR VIBRATION. Phase plane representation, singular points, exact solutions, equivalent linearization, perturbation method, averaging method, variation of parameters, forced vibration, self-excited vibration.

MECH 572 (3) CONVECTION HEAT TRANSFER. Governing equations for laminar and turbulent flow. Forced convection in internal and external flow. Free, and combined free and forced convection. Heat transfer at high velocities, in rarefied gases and in two-phase flow. Mass transfer.

MECH 573 (3) RADIATION HEAT TRANSFER. Monochromatic and goniometric surface properties. Energy exchange of grey, non-grey, diffuse, directional or specular surfaces. Absorption coefficient and radiation intensity in gas radiation. Radiation between a gas and its enclosure. Radiation of luminous flames.

MECH 574 (3) MATERIALS FOR CLEAN ENERGY TECHNOLOGIES. Introduction to operation of gas turbines and fuel cells. Diffusion and migration in solids. Fundamental basis of ionic, electronic, and mixed conductivity in fuel cell materials. Thermal barrier coatings for gas turbines. Material constraints in wind turbines. Credit cannot be obtained for both MECH 474 and MECH 574.

MECH 575 (1-3) C SPECIAL TOPICS IN HEAT AND MASS TRANSFER.

MECH 576 (3) COMBUSTION. Thermodynamics of combustion, stoichiometry, heat of formation and reaction. Equilibrium composition and adiabatic flame temperature. Chemical kinetics of combustion. Flames in premixed gases; laminar and turbulent flame propagation. Diffusion flames, pollutant emissions and combustion in IC engines.

MECH 578 (3) INTERNAL COMBUSTION ENGINES. Analysis of spark and compression ignition engines. Calculation of fuel economy, power and emission. Practical considerations in engine design.

MECH 579 (4) ADVANCED THERMOFLUIDS COMPUTATION WITH EXPERIMENTAL VALIDATION. Students design a thermofluids experiment to solve an industrially relevant problem, predict the outcome by computational fluid dynamics, and present their conclusions. Credit cannot be obtained for both MECH 479 and MECH 579. [3-2-0]

MECH 580 (3) THEORY OF IDEAL FLUIDS. Topics selected from the kinematics and dynamics of inviscid incompressible fluids in steady and non-steady motion; two-

dimensional and axisymmetric potential flows; applications of conformal mapping; free streamline flows; vortex motions.

MECH 581 (3) LOW SPEED AERODYNAMICS. Circulation, vorticity and Kelvin's Theorem. Potential flow theory and the Kutta-Joukowski Law 2D Vortex Panel. Method. Laminar and turbulent boundary layer computations. Lifting line theory. Vortex Lattice Method. High lift devices. Total airplane drag. Credit cannot be obtained for both MECH 581 and MECH 481.

MECH 582 (3) EXPERIMENTAL FLUID MECHANICS. Modelling Test facilities. Wind tunnel force measurement. Theory of conventional and modern manometry. Classical velocimetry. Hotwire anemometry. Theory and application of laser Doppler velocimetry. Particle image velocimetry. Flow visualization techniques.

MECH 583 (3) BOUNDARY ELEMENT THEORY. Introduction to Boundary Element Theory for applications to fluid flows, elasticity and acoustics.

MECH 584 (3) ADVANCED ENGINEERING ACOUSTICS. Sound sources waves and propagation; reflection and transmission at fluid and solid interfaces; sound propagation outdoors, in ducts and pipes, underwater, in rooms; sound-absorbing materials; experimental and numerical methods; acoustical signal processing. Prerequisite: MECH 405.

MECH 586 (4) TURBULENT SHEAR FLOW. The basic equations of fluid motion; introduction to hydro-dynamic stability; Reynolds' equations; energy equations for turbulent motion; intermittency; similarity near a solid boundary and in free turbulence; approximate methods for predicting the growth of turbulent boundary layers and free symmetrical shear flows.

MECH 587 (3) FRACTURE CONTROL FOR DESIGN. Transition temperature, linear-elastic and elastic-plastic theory, experimental testing methods, fracture-resistant design methodology, application to mechanical and structural components.

MECH 588 (3) FATIGUE. Review of smooth-body fatigue: high-cycle; low-cycle; cumulative damage; cycle counting methods; cracked-body fatigue theory; effects of load history and stress ratio; numerical crack-growth prediction models; application to components and structures; crack detection methods.

MECH 590 (3) MANUFACTURING AUTOMATION. Review of mechanics of metal cutting. Machine tool structures, static deformations, forced and self-excited vibrations and chatter. Design principles of CNC machines; state space and transfer function models of feed drivers, dc servo motors and amplifiers. Contouring analysis in multi-axes machining. Unmanned manufacturing topics: Sensors, adaptive control and monitoring in metal-removing processes.

MECH 591 (3) PRODUCTION ENGINEERING. Basic metal removal processes. Introduction to the mechanics of the processes. Economics of

simple processes. Introduction to machine selection, flexibility and automation. Organization of manufacturing, process planning, group technology, facilities layout and production scheduling. Credit cannot be obtained for both MECH 591 and MECH 490.

MECH 592 (3) MACHINE TOOL STRUCTURES AND VIBRATIONS. Review of metal cutting mechanics, milling, static deformations of machine tools. Machine tool vibrations, forced and self excited vibrations in machining, chatter, stability. Sensors for machine tool monitoring and adaptive control. Sensor assisted intelligent machining techniques. Prerequisite: All of MECH 392, MECH 466.

MECH 593 (3) METAL REMOVAL PROCESSES. The basic mechanics of metal removal, experimental evidence and extension of force models to practical processes. Tool wear processes, tool life equations and the optimization of single and multiple pass processes. Introduction to the optimization of process plans.

MECH 594 (3) COMPUTER-INTEGRATED MANUFACTURING. Objectives and elements of Computer-Integrated manufacturing, information control, computer/device networks. Sensor and sensor fusion, layout and material handling issues. Production line design, and design for manufacturing. Flexible automation, virtual manufacturing, rapid prototyping, quality control and reliability issues and Artificial Intelligence applications.

MECH 595 (2) SYSTEMS MODELLING AND SIMULATION. Modelling of discrete and continuous systems on digital computers. Application of discrete simulation languages to the analysis and design of service and manufacturing systems. Statistical concepts in analysis and validation. Application of continuous simulation languages to the analysis and design of dynamic and control systems. Integration methods and algorithms, optimization and iterative problems.

MECH 597 (6) PROJECT FOR M.ENG. STUDIES. Project on assigned topic of specialization. For students registered in the M.Eng. program whose project is supervised by a faculty member in the department of Mechanical Engineering.

MECH 598 (2) RESEARCH SEMINAR. Current topics in mechanical engineering research for M.A.Sc. students.

MECH 599 (6-12) C THESIS. For M.A.Sc.

MECH 698 (3) SEMINAR. Current topics in mechanical engineering for doctoral students.

MECH 699 (0) THESIS. For Ph.D.

MEDG — MEDICAL GENETICS FACULTY OF MEDICINE

MEDG 410 (3) IMMUNOGENETICS.

Molecular basis of lymphocyte development, activation and adhesion; immunogenetics and the major histocompatibility complex. Consult the Credit Exclusion list within the Faculty of Science section of the Calendar. Prerequisite: MICB 302 and one of BIOL 334, BIOL 335. A

standing of “B” or better is recommended. Equivalency: MICB 402. [3-0-1]

MEDG 419 (3) HUMAN CYTOGENETICS. Human chromosome variation as it relates to genetic disease. Cytogenic diagnostic techniques, structural and numerical chromosome anomalies, genomic organization, epigenetics, and mutation. Prerequisite: All of BIOL 334, BIOL 335. A standing of ‘B’ or higher recommended. [3-0; 0-0]

MEDG 420 (3) HUMAN BIOCHEMICAL AND MOLECULAR GENETICS. Analysis of human biology using information from the sequence of the human genome. Normal and pathological human variation. Genetic basis of diversity and individuality, identification of human disease genes, and potential applications of the sequence information. Prerequisite: All of BIOL 335, BIOC 300. A standing of ‘B’ or higher is recommended. [3-0; 0-0]

MEDG 421 (3) GENETICS AND CELL BIOLOGY OF CANCER. Molecular mechanisms of oncogenes and tumor suppressors and the effects of oncogenic mutations on the biology of cancer cells. Prerequisite: BIOL 335 and one of BIOC 300, BIOC 302, BIOC 303, BIOL 350. [0-0; 3-0]

MEDG 448 (3/6) D DIRECTED STUDIES. A supervised individual program of study of a topic to be agreed upon by a member of faculty and the student. Permission of the appropriate supervisor and the department head is required.

MEDG 505 (3) GENOME ANALYSIS. Investigation of genetic information as it is organized within genomes, genetic and physical map construction, sequencing technologies, gene identification, database accessing and integration, functional organization of genomes from contemporary, historic and evolutionary perspectives. Prerequisite: All of BIOL 334, BIOL 300.

MEDG 510 (3) ADVANCED IMMUNOGENETICS. Cell-cell interaction, intracellular control mechanisms, analysis of complex physiological systems using transgenic animals and molecular approaches. Equivalency: MICB 502. [0-0; 3-0]

MEDG 515 (3) MAMMALIAN DEVELOPMENTAL GENETICS. Genetic determination of morphology and differentiation in human and other mammalian embryos. Prerequisite: BIOL 335. [3-0]

MEDG 520 (3) ADVANCED HUMAN MOLECULAR GENETICS. Genetic variation, genome analysis, cloning of genes for diseases and normal functions, mutation detection, animal models of human genetic disease. Prerequisite: BIOL 334. [3-0; 0-0]

MEDG 521 (3) MOLECULAR AND CELL BIOLOGY OF CANCER. Focuses on molecular and cell biology of cancer through a series of lectures, reviews, student presentations and discussion. Prerequisite: BIOL 334 and permission of the instructor. Equivalency: PATH 531. [0-0; 3-0]

MEDG 525 (3) MEDICAL POPULATION GENETICS. Population genetics, genetic epidemiology and methodology in data analysis applicable to the study of human genes, traits or diseases. Prerequisite: BIOL 335. [3-0]

MEDG 530 (3) HUMAN GENETICS. Human Mendelian and non-Mendelian inheritance and clinical applications of genetics. Prerequisite: BIOL 335. [3-0]

MEDG 535 (3) GENETICS AND ETHICS. This course is intended to serve the diverse needs of genetic counseling students, research graduate students in genetics, genetic residents and clinical fellows, other health professional students, and graduate students from other sciences and humanities. [0-0; 3-0]

MEDG 540 (3) SEMINAR. All seminars will be presented by graduate students in the Department of Medical Genetics. Although students will be encouraged to attend these seminars throughout their graduate studies, credit will only be available for one year. Not offered in 2005-2006. [2-0; 2-0]

MEDG 545 (3) CURRENT TOPICS IN MEDICAL GENETICS RESEARCH. Critical discussion of current primary research literature in medical genetics.

MEDG 548 (3-6) C DIRECTED STUDIES. A series of laboratory sessions, directed readings and directed counselling interviews related to selected areas of Medical Genetics. This advanced course may be taken upon approval of the department head.

MEDG 549 (12) M.Sc. THESIS.

MEDG 550 (6) CONCEPTS IN CLINICAL GENETICS FOR GENETIC COUNSELLING. Practical applications, theories and principles of medical genetics as they apply to genetic counselling. Prerequisite: Acceptance into M.Sc. Genetic Counselling program.

MEDG 560 (2) GENETIC COUNSELLING SEMINAR. Medical and genetic interviewing and family history taking; decision making; family dynamics; impact of congenital defects, genetic disease, and chronic disease on individuals and families; support groups and other community resources; computer resources; cross-cultural issues. Prerequisite: Acceptance into M.Sc. Genetic Counselling program.

MEDG 565 (2) ADVANCED GENETIC COUNSELLING SEMINAR. Patient attitudes toward genetic counselling; the grieving process in response to pregnancy loss, death and disability; risk perception, attitudes toward prenatal testing, dealing with results of genetic testing, crisis counselling, giving bad news; ethical dilemmas; legal and professional issues. Prerequisite: MEDG 560. And acceptance into M.Sc. Genetic Counselling program. [0-2; 0-2]

MEDG 570 (3) INTRODUCTORY CLINICAL AND LABORATORY ROTATION. Clinical experience in prenatal procedures and counselling; teratogen counselling. Clinically relevant experience in cytogenetics, molecular, biochemical disease and embryopathology laboratories. Prerequisite: Acceptance into M.Sc. Genetic Counselling program. [0-0; 0-5]

MEDG 575 (10) ADVANCED CLINICAL ROTATION. In-depth clinical experience in general and prenatal genetic counselling. Prerequisite: MEDG 570. And acceptance into M.Sc. Genetic Counselling program. [0-15; 0-15]

MEDG 649 (12) PH.D. THESIS.

MEDG 702 (0) CLINICAL GENETICS CLINIC. A rotation for three months through the Clinical Genetics. Clinic dealing with the techniques of diagnosis and counselling, and of the prenatal diagnoses of genetic disease and genetic counselling relative to congenital malformations and failures of reproduction.

MEDI — MEDICINE FACULTY OF MEDICINE

See also courses listed under: Anatomy, Biochemistry, Family Practice, Health Care and Epidemiology, Health Sciences, History of Medicine, Interdepartmental, Medical Genetics, Medicine, Microbiology, Obstetrics and Gynaecology, Ophthalmology, Orthopaedics, Paediatrics, Pathology, Pharmacology and Therapeutics, Physiology, Psychiatry, Radiology, Surgery

MEDI 430 (8) MEDICINE – CLINICAL CLERKSHIP. Clinical activities including examination, diagnosis, on-going management and discharge planning of patients and participation in academic half-days, consisting of seminars and patient-related discussions.

MEDI 501 (3) MOLECULAR AND CELLULAR BIOLOGY OF EXPERIMENTAL MEDICINE. Cell and molecular function in normal tissues and in specific disease processes, including, genetic, viral, bacterial, immune, and physiological disorders.

MEDI 502 (3) EXPERIMENTAL MEDICINE METHODOLOGY. Laboratory experience with experimental models of human disease; critical reviews of their relevance. Laboratory rotations, oral presentations and written reviews. Registration requires permission of the Department.

MEDI 510 (3) NEPHROLOGY. Mechanisms of regulation of acid-base balance, fluid and electrolyte content, excretion of proteins and organic substances in kidney disease; abnormal renal mechanisms in hypertension.

MEDI 530 (3) GASTROENTEROLOGY. Pathogenesis and abnormal physiology in disease of the intestine and accessory organs; carcinogenesis; regulatory peptides; liver disease; inflammatory bowel disease; oesophageal dysfunction.

MEDI 535 (3) RESEARCH SEMINAR. Reviews of research in selected areas of experimental medicine, including presentation of student's own research results.

MEDI 540 (3) ADVANCES IN NEUROLOGY. Pathogenesis and immunological mechanisms in acute and chronic virus infections of the central nervous system; immunologically induced non-infectious neurological disease.

MEDI 548 (2-6) D DIRECTED STUDIES IN EXPERIMENTAL MEDICINE.

MEDI 549 (12) M.SC. THESIS.

MEDI 560 (3) PULMONARY PATHOPHYSIOLOGY. Same as PATH 518.

MEDI 570 (3) CARDIOLOGY. Pathogenesis, abnormal physiology and therapeutic approaches in heart disease including cardiac arrhythmia, heart failure, myocardial infarction, hypertension, atherosclerosis.

MEDI 580 (3/6) C EXPERIMENTAL MEDICINE: INFECTIOUS DISEASES. Supervised individual program of directed studies in experimental aspects of pathogenesis, diagnosis and treatment of infectious diseases, and mechanisms of host defence against microbial infections.

MEDI 590 (3) MOLECULAR REGULATION OF CELL GROWTH AND DIFFERENTIATION. Cytokines and signal transduction mechanisms in the growth and differentiation of germ line, haemopoietic and other eukaryotic cells; actions of oncogene and tumor-suppressor gene products; molecular concepts derived from experimental model systems; molecular strategies of cytokine therapy. Prerequisite: One of MICB 302, BIOC 402, BIOC 403. Permission of course coordinator is also acceptable.

MEDI 649 (0) PH.D. THESIS.

MICB — MICROBIOLOGY FACULTY OF SCIENCE

BIOL 112 or MICB 201 is a prerequisite for all MICB courses except MICB 153 and MICB 353. Consult the Credit Exclusion List in the Faculty of Science section of the Calendar. Additional fees are charged for some courses.

MICB 153 (3) APPLIED MICROBIOLOGY. Principles in the study of microorganisms and their relation to human health. Epidemiology of disease and the measures to prevent the transmission of pathogenic organisms. Open only to students in the School of Nursing. [3-0-0]

MICB 201 (3) INTRODUCTORY MICROBIOLOGY. Fundamental properties of prokaryotes: structure, metabolic diversity, environmental relationships, growth, genetics and applications. Prerequisite: One of BIOL 120, BIOL 121. [3-0-1]

MICB 202 (3) INTRODUCTORY MEDICAL MICROBIOLOGY AND IMMUNOLOGY. Introduction to cellular and humoral immune responses, the properties of viruses and the principles of bacterial pathogenesis. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: One of BIOL 112, MICB 201, SCIE 001. BIOL 200 is also recommended. [3-0-1]

MICB 203 (1) BASIC MICROBIOLOGICAL TECHNIQUES. Procedures and principles associated with isolation, characterization and handling of microorganisms. Intended for students requiring a basic microbiology laboratory course. Prerequisite: One of MICB 153, BIOL 112, SCIE 001. [0-3-1]

MICB 300 (3) MICROBIAL ECOLOGY. Effects of microbial and metabolic activities in nature. Interactions of microbes with microbes, plants

and animals. Metabolic basis for applied uses of environmental bacteria. Prerequisite: BIOL 201 and one of BIOL 112, MICB 201, SCIE 001. [3-0-1]

MICB 302 (3) IMMUNOLOGY. Tissues, cells and molecules of immune system, innate immunity and complement, adaptive immunity, cellular and humoral immune responses, cytokines, T-cell activation, the major histocompatibility complex, antibody structure and genetics, immune system and cancer, AIDS, autoimmunity, hypersensitivity. Prerequisite: MICB 202 and third-year standing. [3-0-1]

MICB 306 (3) MOLECULAR VIROLOGY. Introduction to virus structure and replication. Detailed examination of selected viruses including polio, HIV and cancer-causing retroviruses. Development of vaccines and antiviral drugs, the use of virus vectors to cure genetic diseases. Prerequisite: MICB 202. [3-0-1]

MICB 318 (3) BIOLOGICAL PROCESS ENGINEERING. Design and modeling of single and multi-species bioreactors, industrial fermentation and product recovery systems. (Consult the Credit Exclusion List within the Faculty of Science section of the Calendar.) Prerequisite: Either (a) SCIE 001 or (b) BIOL 112 and one of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184. Third- or fourth-year standing. [3-0-2]

MICB 322 (3) MICROBIOLOGICAL TECHNIQUES. Aseptic handling and characterization of microbes, growth properties, enzyme assays, protein analysis and plasmid isolation. Restricted to students in Microbiology and Immunology programs. Prerequisite: All of BIOL 200, BIOL 201, MICB 202 and one of BIOL 112, MICB 201, SCIE 001 and two of CHEM 203, CHEM 204, CHEM 233, CHEM 235. [0-4-2]

MICB 323 (3) ADVANCED MICROBIOLOGICAL TECHNIQUES. Genetic manipulations of bacteria, introductory immunological and virological procedures, tissue culture. Restricted to Majors and Honours students in Microbiology. Prerequisite: MICB 322. [0-4-2]

MICB 324 (3) THE MOLECULAR BASIS OF BACTERIAL GROWTH REGULATION. Response of bacterial cell to changing environments. Role of the cell envelope in energetics, transport and peptidoglycan synthesis. Regulation of gene expression. Biochemistry and physiology of bacterial growth. Prerequisite: One of BIOL 112, MICB 201, SCIE 001. Corequisite: One of BIOC 302, BIOC 300, BIOC 303. [3-0-1]

MICB 353 (1) FOOD MICROBIOLOGY. Procedures and principles associated with isolation, enumeration, characterization and handling of microorganisms. Restricted to students registered in the Food Science program. Prerequisite: One of BIOL 112, MICB 201. [0-2-1]

MICB 398 (3) CO-OPERATIVE WORK PLACEMENT I. Work experience in an industrial research setting, taken during the

Winter Session (Term 2) of third year. Restricted to students admitted to the Co-operative Education Program of Biotechnology in Microbiology and Immunology. Prerequisite: MICB 202.

MICB 399 (3) CO-OPERATIVE WORK PLACEMENT II. Work experience in an industrial research setting, taken during Summer Session (Terms 1 and 2) following third year. Restricted to students admitted to the Co-operative Education Program of Biotechnology in Microbiology and Immunology. Prerequisite: MICB 202.

MICB 401 (3) ENVIRONMENTAL MICROBIOLOGY TECHNIQUES. Microbiological analysis using culture, microscopic, gene characterization, chemical and immunological techniques. Prerequisite: All of BIOL 201, MICB 300, MICB 322. [2-4-0]

MICB 402 (3) ADVANCED IMMUNOLOGY. Molecular basis of lymphocyte development, activation and adhesion; immunogenetics and the major histocompatibility complex. Consult the credit exclusion list within the Faculty of Science section of the calendar. Prerequisite: MICB 302 and one of BIOL 334, BIOL 335. Standing of "B" or better is recommended. [3-0-1]

MICB 403 (3) MOLECULAR BACTERIAL PATHOGENESIS. Molecular studies of bacterial pathogens. Topics include bacterial virulence factors, host defences against pathogens and vaccines, and diagnostics and antibiotics as control measures. Prerequisite: MICB 202. [3-0-0]

MICB 404 (3) TOPICS IN MOLECULAR BACTERIAL PATHOGENESIS. A lecture/discussion/library research course. Topics such as antibiotic resistance, pathogen genomics; host-pathogen interactions; evolution of pathogens; host responses to infection, invasive mechanisms, resistance mechanisms. Prerequisite: All of MICB 302, MICB 403. [1-0-4]

MICB 405 (3) BIOINFORMATICS. Computational methods to analyze genome and protein sequences to derive structural and functional information. Related topics in functional genomics. Prerequisite: One of MICB 324, BIOC 300, BIOC 302, BIOC 303, BIOL 335. [3-0-1]

MICB 406 (3) TOPICS IN MOLECULAR VIROLOGY. Presentations, library research, paper reviews, class discussions about current research in virology. Topics such as molecular targets in viral therapy; chronic viral infection; virus-host cell interaction. Prerequisite: All of MICB 202, MICB 306. [1-0-4]

MICB 407 (3) VIRAL INFECTIONS IN HUMANS. Interactions between viruses and humans; pathogenesis; persistence and viral oncogenesis; virological diagnosis and treatment. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: MICB 306. [3-0-0]

MICB 409 (3) MICROBIAL GENETICS. Plasmids, phage and cloning vectors, gene transfer, genetic maps, genetic analysis of

microbial gene expression. Prerequisite: BIOL 335. [3-0-0]

MICB 410 (3) MICROBIAL METABOLISM. Bacterial metabolism of environmental relevance such as anaerobic metabolisms, xenobiotics degradation, co-metabolisms, secondary metabolisms, and transformation of minerals and halo-organics. Applications and theoretical basis of particular capabilities. Prerequisite: BIOL 201 and one of BIOL 112, MICB 201, SCIE 001 and two of CHEM 203, CHEM 204, CHEM 233, CHEM 235. [3-0-0]

MICB 412 (3) TOPICS IN IMMUNOLOGICAL RESEARCH. Presentations, library research, paper reviews and class discussion on selected areas of advanced molecular and cellular immunological research. Prerequisite: MICB 302 and one of MICB 402, MEDG 410. [1-0-4]

MICB 418 (3) INDUSTRIAL MICROBIOLOGY AND BIOTECHNOLOGY. Exploitation of microbial and animal cells for the industrial production of chemicals ranging from alcohol to therapeutic proteins. Genetic manipulation of cellular characteristics, fermentation methods, patenting and governmental approval processes. Corequisite: BIOL 335. [3-0-0]

MICB 419 (3) INDUSTRIAL BIOTECHNOLOGY LABORATORY. Modern bioreactor technology, upstream and downstream processing of biotechnology products. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: MICB 318. [1-4-0]

MICB 421 (3) EXPERIMENTAL MICROBIOLOGY. Research in microbial physiology and molecular genetics. Guided and independent laboratory projects are developed. Prerequisite: MICB 323. [2-4-0]

MICB 430 (3/6) C SEMINAR IN MICROBIOLOGICAL LITERATURE. Student seminars on selected papers from the microbiological literature. Compulsory for Honours students. Major students may enroll with permission of the department head.

MICB 447 (3) EXPERIMENTAL RESEARCH. A laboratory course with a choice of independent, supervised research projects. Students develop protocols to carry out investigation of selected molecular biology problems.

MICB 448 (3/6) C DIRECTED RESEARCH. A library (3 credits) or laboratory (6 credits) project. Requires permission of the Undergraduate Advisor. The results are presented in a written report to be reviewed by oral examination. Prerequisite: MICB 323.

MICB 449 (6) RESEARCH PROBLEM. A laboratory investigation in the final year of the Honours program. The results are presented in a written report, to be reviewed by oral examination. Prerequisite: MICB 323.

MICB 498 (3) CO-OPERATIVE WORK PLACEMENT III. Work experience in an industrial research setting, taken during the Summer Session (Terms 1 and 2) following fourth year. Restricted to students admitted to the Co-operative Education Program of Biotechnology in Microbiology and Immunol-

ogy. Prerequisite: One of MICB 398, MICB 399.

MICB 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Work experience in an industrial research setting, taken during the Winter Session (Term 1) of fifth year. Restricted to students admitted to the Co-operative Education Program of Biotechnology in Microbiology and Immunology. Prerequisite: One of MICB 399, MICB 498.

MICB 502 (3) ADVANCED IMMUNOGENETICS. Consult the Credit Exclusion List in the Faculty of Science section of the Calendar.

MICB 503 (3) BACTERIAL CYTOLOGY AND GENETICS.

MICB 505 (3) MOLECULAR MICROBIOLOGY.

MICB 506 (2-6) D MICROBIOLOGICAL RESEARCH PROCEDURES. Normally taken in conjunction with MICB 530. To be taken only with permission of the department head.

MICB 507 (3) TOPICS IN MOLECULAR PATHOGENESIS AND IMMUNOLOGY.

MICB 508 (3) MOLECULAR GENETICS OF PLANT-MICROBE INTERACTIONS. Consult the Credit Exclusion List in the Faculty of Science section of the Calendar.

MICB 530 (3) SEMINAR IN MICROBIOLOGY.

MICB 548 (6) DIRECTED STUDIES ON AN APPROVED PROBLEM.

MICB 549 (12) MASTER'S THESIS.

MICB 649 (0) PH.D. THESIS.

MIDW — MIDWIFERY FACULTY OF MEDICINE

MIDW 200 (3) BIRTH AND ITS MEANING. Social, cultural, psychological aspects of pregnancy and childbirth.

MIDW 205 (12) MIDWIFERY CARE I. Normal pregnancy, labour, birth and puerperium with an emphasis on prenatal and postnatal midwifery care.

MIDW 210 (3) CRITICAL APPRAISAL FOR MIDWIFERY.

MIDW 215 (1) ETHICS IN HEALTH CARE.

MIDW 300 (15) MIDWIFERY CARE II. Normal pregnancy, labour, birth, and puerperium with an emphasis on the intrapartum period.

MIDW 305 (12) PHYSICIAN/COMMUNITY PLACEMENT.

MIDW 310 (3) PROFESSIONAL ISSUES IN MIDWIFERY. [0-0-3]

MIDW 315 (15) MIDWIFERY CARE III. Pregnancy, birth and puerperium with an emphasis on the recognition and management of variations of normal and findings outside of normal.

MIDW 400 (15) MIDWIFERY CARE IV. Abnormal situations in pregnancy and birth and in newborns.

MIDW 405 (12) CLINICAL CLERKSHIP.

MIDW 410 (3) GRADUATING ESSAY.

**MINE — MINING ENGINEERING
FACULTY OF APPLIED SCIENCE**

MINE 290 (3) INTRODUCTION TO MINING AND MINERAL PROCESSING. The nature and scope of mining and mineral processing. The course will include one afternoon field trip. Equivalency: MMPE 290. [3-0-2]

MINE 293 (1) SEMINAR. Oral presentation of topics by students. Graded on basis of report and presentation. Equivalency: MMPE 293. [0-0-1; 0-0-1]

MINE 295 (3) MINERAL DEPOSIT MODELING. Types of mineral deposits. Exploration and sampling methods. Methods for data analysis and computer modeling of mineral deposits and their use in production planning and design. Prerequisite: CPSC 152. Corequisite: preferred corequisite STAT 251 Equivalency: MMPE 295. [2-1-1]

MINE 302 (3) UNDERGROUND MINING AND DESIGN. Selection, design and development of underground mining methods based upon physical, geological, economical and environmental constraints. Underground materials handling (ore, waste, slurry, water) with equipment selection, production requirements, performance and costs. Prerequisite: One of MMPE 290, MINE 290. Equivalency: MMPE 302. [3-2*-0]

MINE 303 (3) ROCK MECHANICS FUNDAMENTALS. The study of the mechanical and structural properties of rock materials at the laboratory and field level. The relevance of such studies to common mining, geological and civil engineering problems. Credit given for only one of MMPE/MINE 303 or MMPE/MINE 305. Prerequisite: One of CIVL 230, MECH 260. MMPE/MINE 290 is recommended. Equivalency: MMPE 302. [2-2-0]

MINE 304 (3) DRILLING AND BLASTING. Theory and practice of rock fragmentation by drilling and blasting; introduction to explosives and detonators; design of surface and underground blasts for mining and the construction industry. Equivalency: MMPE 304. [3-0-0]

MINE 305 (4) GEOMECHANIC FUNDAMENTALS. The study of the mechanical and structural properties of rock materials at the laboratory and field level. The relevance of such studies to common mining problems, geological and civil engineering problems. Laboratory will include a) rock material testing; b) descriptive structural geology. Credit given for only one of MMPE/MINE 303 or MMPE/MINE 305. Prerequisite: MECH 260. MMPE/MINE 290 is recommended. Equivalency: MMPE 305. [2-4-0]

MINE 331 (3) PHYSICAL MINERAL PROCESSES. Mineral processing unit operations and sampling, crushing, grinding, screening, classification, gravity separation, magnetic separation, electrostatic separation, concentrate dewatering practices. Prerequisite: MINE 290. Equivalency: MMPE 331. [2-3-0]

MINE 333 (3) FLOTATION. Theory and technology of flotation and ancillary processes. Equivalency: MMPE 333. [2-3-0]

MINE 338 (3) PROCESS MINERALOGY. Mineralogy to troubleshoot processing circuits; degree of liberation; coal macerals; selective chemical extraction; heavy liquid separation; instrumental analysis; optical microscopy; mineralogy applied to ore extraction and beneficiation, extractive metallurgy, industrial minerals and advanced materials; environmental mineralogy; tailing characterization. Equivalency: MMPE 338. [2-2-0]

MINE 391 (3) MINING AND THE ENVIRONMENT. Environmental topics of importance to engineers practicing within the mining, metallurgical and related industries including technical practices, regulatory and public issues. [3-0-0]

MINE 393 (1) SEMINAR. Oral presentation of topics by students. Prerequisite: Third-year standing in Mining and Mineral Process Engineering. [0-0-1; 0-0-1]

MINE 396 (3) ENGINEERING ECONOMICS. Accounting principles, time value of money principles, depreciation and taxes, economic analysis of projects, sensitivity and risk analysis, financing and cost of capital; optimization of product processes. Prerequisite: Second-year standing in Engineering. Equivalency: MMPE 396. [3-0-0]

MINE 402 (3) MINE VENTILATION. Design and analysis for ventilation systems for mining. Topics such as ventilation design, ventilation surveys, thermodynamic aspects, psychrometry of air and air conditioning. Prerequisite: One of MMPE 290, MINE 290. Equivalency: MMPE 402. [3-2*-0]

MINE 403 (3) ROCK MECHANICS DESIGN. The design of rock slopes and underground openings with respect to stress, structure and the rock mass. Stabilization and monitoring of rock movement. Prerequisite: One of MINE 303, MINE 305. Equivalency: MMPE 403. [3-0-0]

MINE 404 (3) MINE MANAGEMENT. Human relations in an organization; types of organizations; personnel evaluations and job rating systems; impact of manpower planning on decision-making; union negotiations; public relations; dealing with the media; corporate responsibilities to society and employees. Prerequisite: Fourth-year standing in Mining and Mineral Process Engineering. Equivalency: MMPE 404. [3-0-0]

MINE 410 (3) SURFACE MINING AND DESIGN. Surface mining methods, production planning and scheduling; slope design and drainage; wall control; materials handling and equipment selection; production control and automation, waste disposal and closure. Equivalency: MMPE 410. [3-0-0]

MINE 432 (3) INDUSTRIAL AUTOMATION AND ROBOTICS. Automatic control theory, PID control, Laplace and z-transforms, loop tuning, frequency response, stability analysis, control strategies in flotation, comminution, dewatering, reagent and bin/sump levels,

automated load-haul-dump and drilling equipment, telerobotics in mining operations, instrumentation and soft sensors. Equivalency: MMPE 432. [3-2-0]

MINE 433 (3) SURFACE PROPERTIES. Basic characteristics of interfaces. Electrical effects at solid/liquid interfaces. Surfactants, adsorption and its effect on wettability. Utilization of surface properties in mineral engineering: flotation, selective flocculation and selective coagulation, oil agglomeration. Prerequisite: CHEM 262. Equivalency: MMPE 433. [2-3-0]

MINE 434 (3) PROCESSING PRECIOUS METAL ORES. Process alternatives and mineralogical considerations; physical and chemical recovery technologies; environmental protection; flowsheet studies. Prerequisite: One of MMPE 331, MINE 331. Equivalency: MMPE 434. [2-2-0]

MINE 435 (3) PLANT AND PROCESS DESIGN. Design of unit operations in a mineral processing plant including crushing, grinding, classification, gravity separation, magnetic separation, flotation, thickening and filtration. Equipment selection and sizing, flowsheet design, circuit analysis and processing options. Prerequisite: One of MMPE 331, MINE 331. Equivalency: MMPE 435. [2-3-0]

MINE 462 (3) COAL PREPARATION TECHNOLOGY. Thermal and metallurgical coals: objectives of their cleaning; coal washability and flotability fundamentals; coal preparation unit operations; performance characteristics of coal washing equipment; products dewatering; plant flowsheets. Prerequisite: One of MMPE 290, MINE 290 and one of MMPE 331, MINE 331. Equivalency: MMPE 462. [2-3-0]

MINE 480 (2) MINE WASTE MANAGEMENT. Basic geotechnical, hydrological and water management aspects of mine waste management. Equivalency: MMPE 480. [2-0-0]

MINE 482 (3) MAINTENANCE ENGINEERING. Analytical foundation for maintenance of industrial plant equipment and mobile equipment in various production environments; maintenance planning and management, life cycle analysis, reliability theory, total quality maintenance, condition monitoring. Equivalency: MMPE 482. [3-0-0]

MINE 491 (4) MINE AND PLANT FEASIBILITY STUDY. Design of a mining operation or a mineral processing plant as part of a realistic feasibility study project. Prerequisite: One of MMPE 396, MINE 396. Fourth-year standing in Mining and Mineral Process Engineering is required. Equivalency: MMPE 491. [1-3-3]

MINE 493 (1) SEMINAR. Oral presentation of a technical nature. Use of closed circuit television for personal evaluation. Prerequisite: Fourth-year standing in Mining and Mineral Process Engineering. Equivalency: MMPE 493. [0-0-1; 0-0-1]

MINE 495 (3) SYSTEMS ANALYSIS. Optimization and operations research techniques used in mining and mineral processing including effects of multiple factors in a process. Case

studies are used to demonstrate the techniques. Equivalency: MMPE 495. [3-0-1]

MINE 496 (3) ADVANCED COMPUTER APPLICATION IN THE MINING INDUSTRY. Use of computers to solve complex problems. Topics: artificial intelligence, expert systems, fuzzy logic, neural networks, genetic algorithms, hypertext and intelligent user interfaces. Simulation models in mining and processing. Registrants will build a system using one of the software packages. Equivalency: MMPE 496. [3-0-0]

MINE 497 (1-3) D DIRECTED STUDIES. Requires approval of the department head. Equivalency: MMPE 497.

MINE 550 (2) MINING METHODS. A more advanced study of some aspects of mining methods. Equivalency: MMPE 550.

MINE 551 (3) APPLIED UNDERGROUND ROCK MECHANICS. Study of design methods; underground engineering of openings, pillars and support. Emphasis on design with input being stress, structure and rock mass, employing analytical, empirical and numerical tools. Equivalency: MMPE 551.

MINE 552 (3) MINING GEOSTATISTICS. Basic geostatistical concepts. Applications of geostatistical techniques and stochastic simulation to orebody modelling and grade control. Equivalency: MMPE 552.

MINE 553 (2-4) D MANAGEMENT IN SCIENCE METHODS IN ENGINEERING. Use of mathematical programming, network theory, queuing models and simulation to analyze and improve engineering designs and industrial operations. Model formulation and relevance of the analysis to corporate strategy are emphasized. Equivalency: MMPE 553.

MINE 554 (3) MINE ECONOMICS AND FINANCE. Mine valuation using discounted cash flow analysis and option pricing methods. Sources of mine finance and requirements. Sensitivity and risk assessment. Introduction to metals marketing, hedging and risk management. Equivalency: MMPE 554.

MINE 556 (2) ROCK SLOPE ENGINEERING. Geologic investigations and field and laboratory testing; detailed review of the mechanisms of rock slope instability; the influence of geology, ground water and blasting on rock slope stability; design of stable rock slopes; monitoring of rock slope behaviour; stabilization or rock slope failures. Equivalency: MMPE 556.

MINE 557 (3) INTEGRATED MINING AND PROCESSING SYSTEMS. Methods and systems for integrated mining and processing, conceptual model development, simulation, economic and technical evaluation. Equivalency: MMPE 557.

MINE 560 (2) MINE VENTILATION. Mine air conditioning, ventilation network analysis, radioactivity in mining, case studies in mine ventilation and control of dust, fumes and diesel exhausts. Equivalency: MMPE 560.

MINE 561 (2) MINE SHAFTS AND HOISTING. Shaft layout, guide and bunton selection. Hoist rope properties and characteristics. Drum, reel and friction hoisting. Loading and dump arrangements. Headframe layout. Incline hoisting. Signaling and safety devices. Shaft inspection and maintenance. Sinking hoists and stages. Equivalency: MMPE 561.

MINE 562 (2) EQUIPMENT SELECTION. Methods of selecting equipment for underground and surface mining. Case studies and applications. Equivalency: MMPE 562.

MINE 565 (2) ROCK FRAGMENTATION. Theory and practice of drilling and blasting; explosive types and strengths. Blast pattern design for underground and surface operations. Equivalency: MMPE 565.

MINE 566 (3) ADVANCED COAL PREPARATION. Thermal and metallurgical coals. Desulphurization Theory of coal beneficiation. Dense media separation. Coal surface properties and their effect on fine coal processing by flotation and oil agglomeration; coal/water/slurries. Plant performance testing and instrumentation. Equivalency: MMPE 566.

MINE 572 (2/4) D PROCESSING OF MINERAL FINES. Particulate systems. Role of particle size and interfacial phenomena in properties of disperse systems. Stability of colloids and suspensions DLVO (Dejaguin-Landau-Vervey-Overbeek). Equivalency: MMPE 572.

MINE 573 (2) TREATMENT OF MINERAL INDUSTRY EFFLUENTS. Characteristics of mineral dispersions in gases and in water; dust suppression in mining and in mineral transport facilities; solid-liquid separations; removal of noxious chemicals; waste disposal systems. Prerequisite: Permission of instructor is required. Equivalency: MMPE 573.

MINE 574 (3) MINING ENVIRONMENT CASE STUDIES. Regulatory requirements for mine-mill environmental protection in design, operation and closure. Studies of environmental impact statements and closure plans. Equivalency: MMPE 574.

MINE 575 (3) MATHEMATICAL MODELLING OF MINERAL PROCESSES. Emphasis on crushing, grinding, screening, classification and flotation. Equivalency: MMPE 575.

MINE 576 (3) SIMULATION AND OPTIMIZATION OF MINERAL PROCESSES. Mineral process simulators including off-line optimization strategies; optimal flow sheet design. Prerequisite: One of MMPE 575, MINE 575. Equivalency: MMPE 576.

MINE 577 (3) PROCESSING OF PRECIOUS METAL ORES. Advances in science and technology for recovering gold, silver and platinum group elements Equivalency: MMPE 577.

MINE 578 (3) INDUSTRIAL EXPERT SYSTEMS. The use of artificial intelligence to solve complex problems in industry. Topics include knowledge acquisition, knowledge representation, knowledge accumulation, and conflict resolution. Equivalency: MMPE 578.

MINE 579 (3) RHEOLOGY OF MINERAL SUSPENSIONS. Rheological measurements, flowcurve modelling, micro-rheology, control of rheological properties. Application to mineral processing unit operations. Equivalency: MMPE 579.

MINE 580 (3) ACID ROCK DRAINAGE. Lectures and seminars on topics of importance in acid rock drainage including fundamentals of ARD generation, prediction, prevention, control, treatment and monitoring for waste management and regulatory control in the mining industry. Equivalency: MMPE 580.

MINE 581 (3) ENVIRONMENTAL TECHNOLOGIES AND ISSUES IN MINING. Advanced topics related to mining environment selected in consultation with the instructor. Equivalency: MMPE 581.

MINE 582 (3) MAINTENANCE ENGINEERING. The analytical foundation for maintenance of industrial plant equipment and mobile equipment in various production environments. Reliability theory, sensing technology and theory, Risk Analysis, and operations research applied to maintenance management. Equivalency: MMPE 582.

MINE 583 (3) MINING AND SOCIETY. Discussion of social, political and technical topics concerning mining-related activities. Equivalency: MMPE 583.

MINE 584 (3) ENERGY FROM THE EARTH: RENEWABLE VERSUS CONVENTIONAL. Coal, oil, gas, uranium, hydro, wind, geothermal and geosolar.

MINE 590 (2-6) C SPECIAL ADVANCED TOPICS. A special advanced course may be arranged upon the approval of the department head. Prerequisite: Permission of instructor is required. Equivalency: MMPE 590.

MINE 597 (6) ENGINEERING PROJECT. A project involving laboratory, pilot plant or field work is to be completed in close collaboration with an academic adviser. For M.Eng. students only. Equivalency: MMPE 597.

MINE 598 (2) SEMINAR. Topics in mining, mineral processing and the environment for M.A.Sc. and M.Eng. students. Equivalency: MMPE 598.

MINE 599 (6-12) C M.A.SC. THESIS. Equivalency: MMPE 599.

MINE 698 (2) SEMINAR. Topics in mining and mineral processing for Ph.D. students. Equivalency: MMPE 698.

MINE 699 (0) PH.D. THESIS. Equivalency: MMPE 699.

MRNE — MARINE SCIENCE FACULTY OF SCIENCE

MRNE 400 (3/6) D DIRECTED STUDIES. A research project approved by the supervisor in the field of interest of the student designed to take advantage of the opportunities offered by the Bamfield Marine Sciences Centre. Note: the supervisor may be teaching at the Marine Centre; or a member of faculty of WCUMSS whether at the Marine Centre as a research

investigator or as one of the members of WCUMSS.

MRNE 401 (6) SPECIAL TOPICS IN MARINE BIOLOGY. This course will be offered, as opportunities arise, by distinguished scientists visiting at the Bamfield Marine Sciences Centre. It is expected that the course will generally be of a specialized nature and be at a level appropriate to graduate or senior undergraduate students.

MRNE 402 (3) SPECIAL TOPICS IN MARINE BIOLOGY. This course will be offered, as opportunities arise, by distinguished scientists visiting at the Bamfield Marine Sciences Centre who are prepared to offer a course extending over a 3-week period. This course will be of a specialized nature and at a level appropriate to graduate or senior undergraduate students.

MRNE 410 (6) MARINE INVERTEBRATE ZOOLOGY. A survey of the marine phyla, with emphasis on the benthic fauna in the vicinity of the Marine Station. The course includes lectures, laboratory periods, field collection, identification and observation. Emphasis is placed on the study of living specimens in the laboratory and in the field.

MRNE 411 (6) COMPARATIVE INVERTEBRATE EMBRYOLOGY. A comprehensive study of development of marine invertebrates available at the Bamfield Marine Sciences Centre, including all major phyla and most of the minor phyla. Prerequisite: course in invertebrates or embryology.

MRNE 412 (6) BIOLOGY OF FISHES. Classification, physiology, ecology, behaviour and zoogeography of fishes with particular emphasis on those in the marine environment of the British Columbia coast. Prerequisite: A course in comparative vertebrate anatomy.

MRNE 413 (6) BIOLOGY OF MARINE MOLLUSCS. Advanced course of selected topics emphasizing functional morphology, ecology and evolution. Field trips survey representative molluscs of the Bamfield region. Students are expected to complete an independent field or laboratory study of selected molluscs. Prerequisite: MRNE 410.

MRNE 415 (3) STRUCTURE AND FUNCTION IN MARINE ANIMALS. Principles of classification, evolution, morphology, biomechanics, physiology and biochemistry will be illustrated in representatives from a variety of animal phyla. Prerequisite: Completion of second year in a biology program. [3-3-0]

MRNE 420 (6) MARINE PHYCOLOGY. A survey of the marine algae, with emphasis on the benthic forms in the vicinity of the Marine Centre. The course includes lectures, laboratory periods, field collection, identification and observation. Emphasis is placed on the study of living specimens in the laboratory and in the field.

MRNE 425 (3) ECOLOGICAL ADAPTATIONS OF SEAWEEDS. Morphological, physiological, genetic and reproductive adaptations of seaweeds to their environments. Prerequisite: Completion of second year in a biology program. [3-3-0]

MRNE 430 (6) MARINE ECOLOGY. An analytical approach to biotic associations in the marine environment. Opportunities are provided for study of the intertidal realm in exposed and protected areas, and of beaches and estuaries in the vicinity of the Marine Centre; plankton studies and investigations of the subtidal and benthic environments by diving and dredging are envisaged.

MRNE 435 (6) INTRODUCTION TO BIOLOGICAL OCEANOGRAPHY. An introduction to the biology of oceans, with supporting coverage of relevant physics and chemistry. Emphasis will be placed on plankton biology, community structure and life histories, and influencing environmental factors. Collections will be made from sheltered inlets, through Barkely Sound to offshore waters. The course will involve both field and laboratory. Prerequisite: All of BIOL 320, BIOL 205.

MRNE 437 (3) POPULATION AND COMMUNITY ECOLOGY OF MARINE ORGANISMS. Emphasis on interactions among organisms and between organisms and their physiochemical environment, and on biological diversity. Prerequisite: Completion of second year in a biology program. [3-3-0]

MRNE 440 (6) BIOLOGY OF MARINE BIRDS. Study of interrelationship of birds and the marine environment. Census techniques and observation of birds in the field will be emphasized. Prerequisite: Completion of a course in vertebrate zoology or permission of the instructor.

MRNE 445 (6) BIOLOGY OF MARINE MAMMALS. Survey course covering systematics and distribution of marine mammals, their sensory capabilities and physiology, with special emphasis on the Cetacea. The course will involve an independent field study. Prerequisite: Introductory vertebrate zoology.

MRNE 450 (3) PRINCIPLES OF AQUACULTURE. An interdisciplinary introduction to the principles underlying the commercial cultivation of aquatic plants and animals emphasizing marine systems. The course will include working site visits to a range of commercial farms and research and development facilities.

MRNE 454 (3) SPECIAL TOPICS IN AQUACULTURE. An examination of the culture techniques for selected groups of aquatic plants, animals or micro organisms. Participants will be expected to complete a project which examines some aspect of applied science relevant to commercial culture.

MRNE 460 (3) SPECIAL TOPICS IN AQUACULTURAL APPLIED SCIENCE. An examination of the principles underlying the application of selected areas of scientific information to commercial aquaculture. Participants will be expected to complete a written project.

MRNE 470 (3) DIRECTED RESEARCH IN AQUACULTURE. Design and execution of a research project in the field of aquaculture under the supervision of a scientist working at

the Bamfield Centre. A written report is a requirement.

MRNE 480 (3) SEMINARS AND PAPERS IN MARINE SCIENCE. Instruction in the critical analysis of published research papers and of oral seminars. Prerequisite: Completion of second year in a biology program. [2-2-0]

MRNE 500 (6) DIRECTED STUDIES. Research project approved by the supervisor in the field of interest of the student designed to take maximum advantage of the laboratory and/or field opportunities offered by the Bamfield Marine Sciences Centre.

MRNE 501 (6) SPECIAL TOPICS. 6 weeks. Offered, as opportunities arise, by distinguished scientists who are visiting at the Bamfield Marine Sciences Centre. The course will be of a specialized nature.

MRNE 502 (3) SPECIAL TOPICS. 3 weeks. Offered, as opportunities arise, by distinguished scientists who are visiting at the Bamfield Marine Sciences Centre. The course will be of a specialized nature.

MTRL — MATERIALS ENGINEERING FACULTY OF APPLIED SCIENCE

MTRL 250 (4) METALLURGICAL THERMODYNAMICS I. Thermodynamic and electrochemical principles applied to metallurgical processes; phase rule, heat of reaction, free energy, activity, thermodynamic equilibrium; thermodynamics of aqueous solutions. Equivalency: MMAT 250. [3-0-2]

MTRL 252 (4) PYROMETALLURGY I. Process flow sheets for ferrous and non-ferrous metal extraction; mass and energy conservation; roasting and smelting; refractory properties. Equivalency: MMAT 252. [2-3*-2]

MTRL 263 (4) TRANSPORT PHENOMENA I. Fluid Mechanics; laminar and turbulent flow; boundary layers; flow in conduits and fluidized beds; flow measurements. Heat transfer; conduction through solids. Equivalency: MMAT 263. [3-0-2]

MTRL 280 (3) MATERIALS IN DESIGN. The process of materials selection for different design criteria; the importance of shape and processing variables; the use of computer software in the selection process. Equivalency: MMAT 280. [2-0-3]

MTRL 329 (3) MATERIALS FOR MECHANICAL DESIGN. Selection of material properties and processing techniques for mechanical design. Properties of steel and other alloys. Heat treatment. Ceramics, composites, plastics. Credit only given for one of MTRL 329 or MTRL 380. Prerequisite: All of MECH 220, MECH 221, MECH 222, MECH 223. [3-0-2*]

MTRL 350 (4) METALLURGICAL THERMODYNAMICS II. The application of thermodynamics to metallurgical processes: thermochemistry of gas mixtures, solution thermochemistry, inter-action parameters, chemical potential and free energy diagrams applied to metallurgical processes and thermodynamic modelling. Prerequisite: One of

MMAT 250, MTRL 250. Equivalency: MTRL 350. [3-0-2]

MTRL 358 (3) HYDROMETALLURGY I.

Aqueous extraction of metals from ores and concentrates. Equivalency: MTRL 358. [3-0-0]

MTRL 359 (1) HYDROMETALLURGY I

LABORATORY. Laboratory exercises on aqueous extraction of metals from ores and concentrates. Corequisite: One of MMAT 358, MTRL 358. Equivalency: MMAT 359. [0-3*-0]

MTRL 361 (4) MODELLING OF MATERIALS

PROCESSES. Mathematical and physical modelling of processes employed in the production of materials. The application of models to analyse, design and improve materials production. Equivalency: MMAT 361. [3-0-2]

MTRL 363 (3) TRANSPORT PHENOMENA II.

Diffusion and mass transfer with chemical reaction; gas-liquid, gas-solid and liquid-liquid systems; analysis of mass transfer processes in metallurgical operations; mixing in continuous and batch processes. Prerequisite: One of MMAT 263, MTRL 263. Equivalency: MMAT 363. [2-0-2]

MTRL 365 (3) MECHANICAL BEHAVIOUR OF

MATERIALS. Polycrystalline and single crystal deformation; dislocation theory; strengthening mechanisms; fracture mechanics; fatigue; high temperature deformation mechanisms. Prerequisite: APSC 278. Equivalency: MMAT 365. [3-0-0]

MTRL 378 (3) PHASE TRANSFORMATIONS.

Solidification and solid state transformations; nucleation and growth processes; segregation and structure in castings; phase changes in steel; transformation diagrams; diffusion equations. Equivalency: MMAT 378. [3-0-2*]

MTRL 380 (3) STRUCTURE AND PROPERTIES

OF MATERIALS. Strengthening mechanisms; heat treatment and properties of steel and other alloys; metal failures. Prerequisite: APSC 278. Equivalency: MMAT 380. [3-0-0]

MTRL 381 (1) STRUCTURE AND PROPERTIES

LABORATORY. Structure and properties of ferrous and non-ferrous metals; heat treatment; hardenability; metallography; age hardening. Equivalency: MMAT 381. [0-3*-0]

MTRL 382 (4) CERAMICS I.

Fundamentals of ceramics: raw materials, forming, sintering of ceramics; properties of ceramics; ceramic coating; process control in the manufacturing of ceramics; applications and design with ceramics; ceramic armor, ceramic lamp envelope, ceramic cutting tools. Equivalency: MMAT 382. [3-3*-0]

MTRL 389 (1) SEMINAR I.

Public speaking and presentation of technical papers. Equivalency: MMAT 389. [0-0-1]

MTRL 390 (1) SEMINAR II.

Public speaking and presentation of technical papers. Equivalency: MMAT 390. [0-0-1]

MTRL 394 (4) POLYMER AND POLYMER

MATRIX COMPOSITES. The structure and properties of polymeric materials, reinforced polymers and polymer matrix composites with emphasis on their engineering properties and applications. Equivalency: MMAT 394. [3-0-2]

MTRL 398 (1) ENGINEERING REPORT. All students entering third year Metals and Materials Engineering are required to write two reports, one based on the field trip. Detailed information on the form, content and dates for submission of the preliminary and final copies is available in the office of the department head. Equivalency: MMAT 398.

MTRL 451 (3) MICROSTRUCTURAL

ANALYSIS LABORATORY. Basic principles and techniques of microstructural analysis with particular reference to engineered materials including x-ray, SEM microprobe TEM and high energy electron analysis. Equivalency: MMAT 451. [1-3*-2]

MTRL 455 (3) ECONOMIC ASPECTS OF

MATERIALS ENGINEERING. Time value of money, cash flows, capital and operating cost estimation, financial decision making and relevant case studies. Equivalency: MMAT 455. [2-0-2]

MTRL 456 (3) CORROSION ENGINEERING.

Thermodynamics of corrosion (Pourbaix diagrams); kinetics of corrosion (polarization curves); practical aspects of corrosion. Equivalency: MMAT 456. [2-0-2]

MTRL 458 (3) HYDROMETALLURGY II.

Leaching, purification, precipitation, regeneration; thermodynamics and kinetics of separation steps; electrochemical applications. Prerequisite: One of MMAT 358, MTRL 358. Equivalency: MMAT 458. [3-0-0]

MTRL 460 (3) ELECTRONIC CERAMICS.

Electromagnetic field interaction with electroceramics, mechanisms of conduction and insulation; properties and applications of basic groups of electronic ceramics. Equivalency: MMAT 460. [3-0-0]

MTRL 462 (3) SPECIALTY ALLOYS FOR HIGH

TEMPERATURE APPLICATIONS. Role of material science and engineering in high temperature applications: alloy development, alloy production, component design, component lifetime estimation and component manufacturing. Equivalency: MMAT 462. [3-0-0]

MTRL 464 (3) ENGINEERING DESIGN I.

Case studies illustrating the process of design in materials engineering. Equivalency: MMAT 464. [2-0-2]

MTRL 465 (3) ENGINEERING DESIGN II.

Case studies illustrating the process of design in materials engineering. Equivalency: MMAT 465. [2-0-2]

MTRL 466 (3) ENGINEERING PROJECT I.

Design projects to illustrate the full spectrum of design encountered in Metals and Materials Engineering including the design of components, structures and processes used to manufacture materials. Equivalency: MMAT 466. [1-0-5]

MTRL 467 (3) ENGINEERING PROJECT II.

Design projects to illustrate the full spectrum of design encountered in Metals and Materials Engineering including the design of components, structures and processes used to

manufacture materials. Equivalency: MMAT 467. [1-0-5]

MTRL 469 (3) SOLIDIFICATION. Solidification theory and application to casting processes; heat diffusion in solidification; solute diffusion models; nucleation theory; growth kinetics; eutectic and dendritic growth. Equivalency: MMAT 469. [2-0-2]

MTRL 474 (3) MECHANICAL WORKING.

Effect of temperature, strain rate, state of stress and structure on the deformation behaviour of metals and alloys at large strains. Criteria for workability of metals. Applications to the analysis of such hot and cold working processes as forging, rolling, extrusion, deep drawing, wire and tube drawing, Friction and lubrication in metal working. Equivalency: MMAT 474. [2-0-2]

MTRL 478 (3) ELECTRONIC MATERIALS.

Materials and physics aspects of semiconductor, optical and magnetic devices: energy bandstructure, crystal structure, crystal defects and impurity effects, relationship of material characteristics and physical properties; production of electronic materials and devices: single crystal growth, epitaxy, metallization, ion implantation, lithography and etching; characterization techniques: X-ray diffraction, photoluminescence. Equivalency: MMAT 478. [3-0-0]

MTRL 482 (3) CERAMICS II.

Ceramic coatings, sol-gel and thermal spray coatings, chemical and glass coatings, coating properties and characterization. Equivalency: MMAT 482. [3-0-0]

MTRL 484 (2) REFRACTORY CERAMICS FOR

HIGH TEMPERATURE APPLICATIONS. Refractory applications in metallurgical furnaces; requirements, specifications, causes of failure, common problems and their solutions; new developments in refractory practice. Prerequisite: One of MMAT 382, MTRL 382. Equivalency: MMAT 484. [2-0-0]

MTRL 486 (2) NONDESTRUCTIVE

EVALUATION. Principles of test methods; inspection techniques and equipment; quantitative flaw evaluation; reliability analysis. Equivalency: MMAT 486. [2-0-0]

MTRL 489 (1) SEMINAR III. Training and practice in public speaking and presentation of technical papers. Equivalency: MMAT 489. [0-0-1]

MTRL 494 (3) COMPOSITE MATERIALS.

Understanding the properties and the mechanical behaviour of composite materials with emphasis on analysis, design, and manufacturing. Equivalency: MMAT 494. [2-0-2*]

MTRL 495 (3) BIOMATERIALS.

Engineered materials in medical applications with an emphasis on material properties, functionality, design, and material response in the biological environment. Prerequisite: APSC 278. Equivalency: MMAT 495. [2-0-2]

MTRL 496 (3) BIOMIMETIC MATERIALS

PROCESSING. A comprehensive study of the structure-function relations of biological hard tissues, and their application to the design and

processing of novel materials and devices. Prerequisite: APSC 278. Equivalency: MMAT 496. [2-0-2]

MTRL 497 (1-6) D SPECIAL TOPICS IN MATERIALS ENGINEERING.

MTRL 498 (1) ENGINEERING REPORT. All students in fourth year Metals and Materials Engineering are required to write two reports, one based on the field trip. Detailed information on the form, content and dates for submission of the preliminary and final copies is available in the office of the department head. Equivalency: MMAT 498.

MTRL 550 (2-4) C METALLURGICAL THERMODYNAMICS. Application of advanced thermodynamic principles in metallurgical processes. Prerequisite: One of MMAT 350, MTRL 350. Equivalency: MMAT 550.

MTRL 557 (3) SEPARATION SCIENCE IN AQUEOUS METAL PROCESSING. The theory of solvent extraction and ion exchange, membrane separations, chemical precipitation, electrochemical separations and other techniques for aqueous metal processing, applications from the metal processing literature. Equivalency: MMAT 557.

MTRL 558 (3) CORROSION. Modern theories relating to corrosion and corrosion protection of metals. Thermodynamic and kinetic phenomena, corrosion measurements, inhibition and passivation, design for corrosive environments, stress corrosion cracking theory. Prerequisite: One of MMAT 456, MTRL 456. Equivalency: MMAT 558.

MTRL 562 (3) FINITE ELEMENTS IN HEAT TRANSFER. Application of the finite element method to heat transfer and solidification; steady state and transient heat conduction; latent heat evolution and radiation. Equivalency: MMAT 562.

MTRL 564 (3) HYDROMETALLURGICAL REACTOR DESIGN AND ANALYSIS. Batch leaching kinetics, leaching mechanisms; statistical methods for design of multiparticle continuous leaching reactors; coupled heat and mass balances, mixing phenomena, redox and precipitation reactions, complex mineralogical feeds; heap and dump leaching. Equivalency: MMAT 564.

MTRL 570 (3) DEFORMATION OF CRYSTALLINE MATERIALS. Nature and properties of lattice imperfections; dislocation theory and its use to describe work hardening, creep, structure of grain boundaries and other phenomena. Equivalency: MMAT 570.

MTRL 575 (3) ADVANCED PHASE TRANSFORMATIONS. Thermodynamic and kinetic bases for the theory of phase transformations in the condensed state. Equivalency: MMAT 575.

MTRL 578 (3) MICROSTRUCTURAL EVOLUTION OF DEFORMED MATERIALS. Physical mechanisms of microstructure evolution; structure, energy and mobilities of grain boundaries, grain boundary segregation, precipitation, recovery, recrystallization, grain

growth; microstructure engineering of steels. Equivalency: MMAT 578.

MTRL 579 (3) ADVANCED DEFORMATION PROCESSES. Mechanical and metallurgical behaviour of metals during deformation, design of deformation processes (rolling, extrusion, forging, etc.), development of microstructure and texture during deformation. Equivalency: MMAT 579.

MTRL 582 (3) ADVANCED CERAMICS. Complex silicate structures; ion exchange in silicates; kinetics of solid state reactions; kinetics of high temperature processes. Equivalency: MMAT 582.

MTRL 585 (3) TOPICS IN FRACTURE MECHANICS. The equations and concepts of linear elastic fracture mechanics. Fracture toughness testing, statistical theories of fracture and proof testing, stress corrosion cracking and static fatigue. Acoustic emission and other nondestructive testing methods. Case studies of large scale fractures of pressure vessels and structures. Equivalency: MMAT 585.

MTRL 586 (3) ELECTRON METALLOGRAPHY. The principles of advanced research microscopy utilizing electron beams; transmission and scanning electron microscopy, electron diffraction, X-ray micro-analysis, electron energy analysis. Equivalency: MMAT 586.

MTRL 588 (3) ELECTROCHEMICAL SCIENCE, ENGINEERING AND TECHNOLOGY. Electrochemical interfaces; electrode reactions; thermodynamics; kinetics and transport processes in electrochemical systems; experimental techniques. Electrochemical reactors and processes; modelling, design and economics. Electrochemical technologies; electrosynthesis, batteries and fuel cells. Electrometallurgy; electrowinning and refining of metals, corrosion, leaching and cementation. Equivalency: CHBE 577, MMAT 588.

MTRL 592 (2-6) D ADVANCED TOPICS IN METALS AND MATERIALS ENGINEERING. A special advanced course may be arranged on approval of the department head. Equivalency: MMAT 592.

MTRL 593 (1-6) C DIRECTED STUDIES IN METALS AND MATERIALS ENGINEERING. Equivalency: MMAT 593.

MTRL 595 (3) ADVANCED BIOMATERIALS. Formation and structure-function relations of biological materials, the interaction of tissue-synthetic biomaterials, advanced biomaterials design, biomimetic processing, and current progress in drug delivery systems and biomedical devices. Equivalency: MMAT 595.

MTRL 596 (12) M.SC. THESIS. Equivalency: MMAT 596.

MTRL 597 (6) M.ENG. PROJECT. Equivalency: MMAT 597.

MTRL 598 (0) SEMINAR. Presentation and discussion of current topics in metals and materials research. A required course for graduate students in metals and materials which carries no academic credit. Equivalency: MMAT 598.

MTRL 599 (12) THESIS. For M.A.Sc. Degree. Research studies in chemical metallurgy, physical metallurgy, or ceramics. Equivalency: MMAT 599.

MTRL 699 (0) THESIS. For Ph.D. Equivalency: MMAT 699.

MUED — MUSIC EDUCATION FACULTY OF EDUCATION

MUED 300 (3) TEACHING AND LEARNING MUSIC AND DANCE ACROSS THE CURRICULUM: ELEMENTARY. [3-0-0]

MUED 302 (4/6) C INSTRUMENTAL PEDAGOGY: SECONDARY. [2-0-0; 2-0-0]

MUED 303 (4/6) D CHORAL PEDAGOGY: SECONDARY. [2-0-0; 2-0-0]

MUED 304 (3) INSTRUMENTAL PEDAGOGY: ELEMENTARY. [3-0-0]

MUED 308 (3) ELEMENTARY CHORAL MUSIC. Prerequisite: All of MUED 300, MUED 320 or an introductory course in music education. [0-3-0]

MUED 314 (4/5) D CURRICULUM AND INSTRUCTION IN MUSIC: SECONDARY. Pass/Fail. Prerequisite: A completed concentration in music and permission of the Head.

MUED 320 (2) CURRICULUM AND INSTRUCTION IN MUSIC: ELEMENTARY. Curriculum organization in music; principles and methods of instruction applied to teaching music. Pass/Fail. [1-2-0]

MUED 332 (3) INSTRUMENTAL JAZZ PEDAGOGY. Teaching instrumental jazz in the secondary school. [3-0]

MUED 333 (3) CHORAL JAZZ PEDAGOGY. Teaching choral jazz in the schools. [3-0]

MUED 336 (3) KODALY I. Prerequisite: One of MUED 300, MUED 320. [1-2-0]

MUED 339 (3) THE MUSICAL. Organization and production of school musicals. [3-0]

MUED 340 (3) CANADIAN MUSIC IN THE CLASSROOM. Aspects of Canadian music suitable for elementary and secondary school curricula. The interrelation between music and other subjects. [3-0]

MUED 400 (3) MUSIC CURRICULUM AND INSTRUCTION: ELEMENTARY. Prerequisite: One of MUED 300, MUED 320. [3-0-0]

MUED 402 (3) CONDUCTING AND REHEARSAL TECHNIQUES FOR TEACHERS. Instrumental and choral techniques for teachers with prior experience teaching music.

MUED 405 (3) COMPUTER STUDIES FOR MUSIC EDUCATION. Classroom strategies for scoring and composing music using electronic music sequencing and composition programs. Prerequisite: CUST 321 or equivalent experience. [1-4]

MUED 407 (3) MUSIC CURRICULUM AND INSTRUCTION: ELEMENTARY. Philosophy, objectives, curriculum, methods, and materials for teaching music in elementary schools. Prerequisite: One of MUED 300, MUED 320. [3-0-0]

MUED 408 (3) ELEMENTARY CHORAL MUSIC. Foundations for choral singing; the child voice; methods and materials for elementary singers; choral and conducting techniques. Prerequisite: One of MUED 300, MUED 320, or an introductory course in music education. [0-3-0]

MUED 412 (3) MUSIC EDUCATION FOR CHILDREN WITH EXCEPTIONAL NEEDS. The practice and theory of music as used for the education of children with exceptional needs. Prerequisite: One of EPSE 312, EPSE 317. [3-0]

MUED 434 (3) ORFF BASICS. Introduction to the Orff approach to Music Education. Prerequisite: One of MUED 300, MUED 320. [1-2-0]

MUED 435 (3) ORFF LEVEL I. Prerequisite: One of MUED 304, MUED 434, MUED 407, MUED 408.

MUED 436 (2) KODALY II. Advanced study of Kodaly methods, strategies, and curricula. Prerequisite: MUED 336. [0-2]

MUED 437 (3) ORFF LEVEL II. Prerequisite: MUED 435.

MUED 438 (3) ORFF LEVEL III. Prerequisite: MUED 437.

MUED 508 (3) REVIEW OF RESEARCH IN MUSIC EDUCATION METHODS. Studies of recent research bearing on music education practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

MUED 542 (3/6) D THEORY AND PRINCIPLES OF MUSIC EDUCATION.

MUED 561 (3/12) C LABORATORY PRACTICUM.

MUED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

MUED 580 (3/12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

MUED 590 (3) GRADUATING PAPER. Pass/Fail.

MUED 598 (3/12) C FIELD EXPERIENCES. For those in master's, doctoral and diploma programs.

MUED 599 (6/12) C MASTER'S THESIS.

MUED 601 (3/12) D DOCTORAL SEMINAR.

MUED 699 (0) DOCTORAL THESIS. Pass/Fail.

MUSIC — MUSIC FACULTY OF ARTS

MUSIC 100 (3) PRINCIPLES OF MUSICAL FORM. Fundamental materials and processes of music – rhythmic, melodic, textural and harmonic – and how they create small-scale structures in a variety of styles. Compositional and analytical applications. Training in listening, sight-singing and score-reading skills.

MUSIC 101 (3) DIATONIC HARMONY AND VOICE LEADING. Harmonic and linear functions of diatonic chords; common progressions and sequences; introduction to tonal hierarchy and prolongation; simple modulation. Compositional and analytical exercises.

Training in related listening, sight-singing and score-reading skills. Prerequisite: MUSIC 100.

MUSIC 102 (2) CLASS STRINGS. Group instruction in music performance. Restricted to B.Mus. students.

MUSIC 103 (3) INTRODUCTION TO THE THEORY OF MUSIC. Concepts of rhythm, pitch, timbre, and texture. Notation and aural recognition of rhythmic and pitch patterns. Basic principles of melody and form. This course is not applicable to the B.Mus.

MUSIC 104 (3) INTRODUCTION TO DIATONIC HARMONY. Triads, key and elementary harmony in Western music. Elements of musical form. Aural training and exercises in composition, modeled on historical styles. Not for credit in the B.Mus. Prerequisite: MUSIC 103 or permission of the instructor.

MUSIC 107 (3/6) D COMPOSITION I. An introduction to musical composition.

MUSIC 112 (2) CLASS BRASSES AND PERCUSSION. Group instruction in music performance. Restricted to B.Mus. students.

MUSIC 120 (3) HISTORY OF MUSIC I. An introductory survey of music and musical values in Western and selected non-Western societies through humanistic, cultural, historical, and musical-analytical perspectives.

MUSIC 121 (3) HISTORY OF MUSIC II. The development of Western music from circa 1500 to circa 1750.

MUSIC 122 (2) CLASS WOODWINDS. Group instruction in music performance. Restricted to B.Mus. students.

MUSIC 131 (2) CLASS VOICE. Group instruction in music performance. Required of all first-time secondary voice students. Restricted to B.Mus. students.

MUSIC 135 (2) OPERA REPERTOIRE I. A musico-dramatic study and analysis of representative works in the international operatic theatre from 1600 to the present, through musical, literary and graphic sources. Each sequential year of study, the student is expected to show increased facility in musical and dramatic analysis as well as a greater understanding of the works under examination. Open to students outside the B.Mus. program by permission of the instructor.

MUSIC 136 (2/4) D PIANO REPERTOIRE I. Performance and discussion of the repertoire for string-keyboard instruments essential to the performer and teacher. Special attention to matters of structure, style, and performance practices. Required of piano performance majors and open to piano concentrators, space permitting. First term prerequisite to second term.

MUSIC 141 (2) CLASS PIANO I. Required of all first-time secondary piano students.

MUSIC 149 (2) COLLABORATIVE PIANO I. Skills and performance practice with primary emphasis on voice/piano partnership principles and repertoire. Strong sight-reading skills essential. For Piano majors; open to others by audition.

MUSIC 150 (4) LARGE INSTRUMENTAL ENSEMBLE. Symphony Orchestra or Wind Ensemble. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 151 (2-8) D UNIVERSITY CHAMBER ORCHESTRA. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 153 (4) UNIVERSITY SINGERS. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 154 (3) UNIVERSITY CHORAL UNION. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 155 (4) UNIVERSITY CHAMBER SINGERS. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 156 (2-8) D VOCAL CHAMBER ENSEMBLES. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 157 (2-8) D COLLEGIUM MUSICUM ENSEMBLE. Performance of early Western instrumental and vocal ensemble music. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 159 (2-8) D UNIVERSITY CHAMBER STRINGS. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 160 (2-8) D STRING CHAMBER ENSEMBLES. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 161 (2-6) D PIANO CHAMBER ENSEMBLES. May be repeated for credit in accordance with program requirements for B.Mus.

MUSIC 162 (2-8) D WIND AND PERCUSSION CHAMBER ENSEMBLES. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music. Open to other students by audition, with credit, as stipulated by their faculties.

MUSIC 163 (2-8) D CONTEMPORARY PLAYERS. Performance of contemporary music. An ensemble of variable size, including

both instrumentalists and singers, will be formed to present several concerts of 20th-century music during the academic year. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music.

MUSC 164 (2–8) D JAZZ ENSEMBLE. Performance techniques and repertoire. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music.

MUSC 165 (2–8) D ASIAN MUSIC ENSEMBLE. Training on traditional Asian instruments and their techniques, with emphasis on ensemble performance. Different sections focus on the music of different Asian cultures, e.g., China and Bali. May be repeated for credit in accordance with program requirements for B.Mus. or B.A. in Music.

MUSC 167 (2) INTRODUCTION TO PIANO CHAMBER MUSIC. A survey of repertoire and performance issues.

MUSC 169 (1–4) D INTENSIVE CHAMBER ENSEMBLE. Intensive coaching in chamber ensemble for advanced players. Performance of works prepared is expected. Corequisite: Any small ensemble (MUSC 156–166) and permission of the instructor.

MUSC 170 (2) LYRIC DICTION. A study of the basic phonetics and accepted principles of lyric diction of the four languages most commonly used in concert and operatic repertoire: French, German, Italian, and English.

MUSC 171 (2) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental.

MUSC 172 (4) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental.

MUSC 173 (6) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental.

MUSC 181 (2) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental.

MUSC 182 (4) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental.

MUSC 183 (6) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental.

MUSC 184 (8) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental.

MUSC 191 (2) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 192 (4) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 193 (6) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 194 (8) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 195 (10) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. This course also lists as MUSC 295, 395 and 495.

MUSC 200 (3) CHROMATIC HARMONY AND VOICE LEADING. Harmonic and linear functions of common chromatic chords; mixture; chords and progressions of linear origin; tonal plans. Compositional and analytical exercises. Training in related listening, sight-singing and score-reading skills. Prerequisite: MUSC 101.

MUSC 201 (3) MUSICAL FORMS. Study of various forms in tonal music and the rhythmic, melodic, textural and harmonic processes that create them on small and large scales. Compositional and analytical exercises. Training in related listening, sight-singing and score-reading skills. Prerequisite: MUSC 200.

MUSC 207 (3/6) C COMPOSITION II. Continuation of MUSC 107. Prerequisite: MUSC 107 and permission of Composition Division based on submission of scores.

MUSC 220 (3) HISTORY OF MUSIC III. The development of Western music from circa 1750 to circa 1870.

MUSC 221 (3) HISTORY OF MUSIC IV. The development of Western music from circa 1870; an introduction to jazz and popular music and to music of selected non-Western societies.

MUSC 235 (2) OPERA REPERTOIRE II. See MUSC 135.

MUSC 236 (2/4) D PIANO REPERTOIRE II. Continuation of MUSC 136.

MUSC 241 (2) CLASS PIANO II. Continuation of MUSC 141.

MUSC 249 (2) COLLABORATIVE PIANO II. Further development of skills and performance practice with primary emphasis on voice/piano partnership principles and repertoire. Strong sight-reading skills essential. For Piano majors; open to others by audition. Prerequisite: MUSC 149.

MUSC 271 (2) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195.

MUSC 272 (4) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195.

MUSC 273 (6) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195.

MUSC 281 (2) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195.

MUSC 282 (4) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195.

MUSC 283 (6) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195

MUSC 284 (8) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195

MUSC 291 (2) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195

MUSC 292 (4) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195

MUSC 293 (6) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195

MUSC 294 (8) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195

MUSC 295 (10) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 171–195

MUSC 300 (3) COMPOSITIONAL AND ANALYTICAL APPROACHES TO THE MUSIC OF MODERNISM. Modernist art-music techniques established before 1950 and their later developments, with projects in analysis, compositional exercises, and training in related listening, sight-singing and score-reading skills. Prerequisite: MUSC 201.

MUSC 301 (3) COMPOSITIONAL AND ANALYTICAL APPROACHES TO MUSIC TODAY. Technical and stylistic perspectives on contemporary art music and popular and world music idioms. Exercises in composition and production. Training in related listening, sight-singing and score reading skills. Prerequisite: MUSC 300.

MUSC 305 (2) READINGS IN ORCHESTRAL REPERTOIRE. A laboratory course designed primarily for orchestral wind and percussion performance majors. Emphasis on reading a large cross-section of standard orchestral repertoire with further emphasis given to music currently being programmed by local professional orchestras.

MUSC 307 (3/6) C COMPOSITION III. Continuation of MUSC 207. Prerequisite: MUSC 207 and permission of Composition Division based on submission of scores.

MUSC 309 (2) INSTRUMENTATION. The study of string, woodwind, brass and percussion instruments; orchestral sections and scoring for various small ensembles. Activities include demonstrations of instruments, scoring projects, analysis and listening. For credit towards the B.Mus. and the B.A. in Music; not open to other students. Prerequisite: MUSC 201 and completion of the second-year piano requirement.

MUSC 310 (2) ORCHESTRATION. The study of orchestration through the analysis of orchestral works, listening and scoring projects. Activities also include choral arranging and scoring for stage band and wind ensemble. Prerequisite: MUSC 309.

MUSC 311 (2) FUNDAMENTALS OF CONDUCTING. Basic conducting techniques: patterns, cueing, dynamic shading, and physical presentation. Prerequisite: MUSC 201 and completion of the second-year piano requirement.

MUSC 312 (2) INSTRUMENTAL CONDUCTING. The relation of conducting gestures to instrumental sound; development of practical skills in directing ensembles and reading scores, considering instruments' special characteristics. Prerequisite: MUSC 311.

MUSC 313 (2) CHORAL CONDUCTING. The relation of conducting gestures to choral sound; development of practical skills in directing ensembles and reading scores; attendant issues of vocal technique and pedagogy. Prerequisite: MUSC 311.

MUSC 319 (3/6) D INTRODUCTION TO ELECTROACOUSTIC MUSIC. Study of acoustics, audio technology, and electroacoustic composition. Composition of original works using facilities of the UBC Electroacoustic Music Studio. Prerequisite: MUSC 201. Permission of instructor is also required.

MUSC 320 (3) COMPUTER MUSIC. The study of computer applications to music, focusing on digital synthesis techniques and languages, methods of algorithmic composition, and the design of music editors. Prerequisite: MUSC 319 or permission of instructor.

MUSC 321 (3/6) D MUSIC APPRECIATION, TWENTIETH-CENTURY. Designed for students with little or no musical background. Not for credit toward the B.Mus. or B.A. in Music.

MUSC 322 (3) TOPICS IN WESTERN MUSIC. Study in one major genre of Western music (e.g., "The Symphony", "Women in Opera", "History of the Song Cycle"). No musical knowledge is required. Not for credit toward the B.Mus. or B.A. in Music.

MUSC 324 (3) MUSIC AND CIVILIZATION I. Development of music in relation to the other arts, science, philosophy, literature and history: Ancient Greece, the Middle Ages, and the Renaissance. Not for credit toward the B.Mus. or B.A. in Music.

MUSC 325 (3) MUSIC AND CIVILIZATION II. A continuation of MUSC 324, dealing with Europe after 1600. Not for credit toward the B.Mus. or B.A. in Music.

MUSC 326 (3/6) D MUSIC APPRECIATION. An introductory course for which previous musical background is helpful, but not required. Contents include a discussion of musical concepts, evolution of forms, style, and media and detailed study of selected works from the concert repertoire. Popular forms of music (jazz, folk, rock, etc) not included. Not for credit towards the B.Mus. or B.A. in Music.

MUSC 328 (3/6) D WORLD MUSIC CULTURES. Introduction to the principles of ethnomusicology and an examination of two contrasting musical traditions (e.g., North American Indian and Japanese). For credit toward the B.Mus. and the B.A. in Music, and open to other third-year students with

knowledge of music rudiments. May be repeated once for credit if different traditions are covered.

MUSC 329 (3) LITURGICAL MUSIC FROM THE REFORMATION TO THE PRESENT. Music of the Western liturgies since 1520, including a study of hymnology and contemporary church music issues. Open to Music students and to non-Music students who can read music. Prerequisite: MUSC 221.

MUSC 330 (3) MUSIC IN VANCOUVER'S ETHNIC COMMUNITIES. Examination of music within the ethnic context as found in the urban environment of Vancouver. The musics of several traditions (e.g., Chinese, Jewish, English folk) will be studied together with the social issues surrounding their preservation. For credit toward the B.Mus. and the B.A. in Music, but open to students not majoring in music.

MUSC 331 (2) WORKSHOP IN WORLD RHYTHM. Theory and practice of selected rhythmic systems of world music cultures, focusing on West African drumming, and including other systems such as Indian Tala and Peking opera percussion. Prerequisite: MUSC 201.

MUSC 333 (2) ACCOMPANYING ON THE HARPSICHORD I. Basic techniques and styles of continuo playing. Open to keyboard players with no previous harpsichord experience.

MUSC 336 (4) OPERA THEATRE TECHNIQUES I. Performance techniques associated with the musical theatre of various historical periods. Basic dance. Most operatic excerpts will be in English.

MUSC 339 (3/6) D OPERA WORKSHOP I. Participation in performances by the School. Open also to students outside Music without credit, after audition.

MUSC 340 (3) PIANO PEDAGOGY I: THEORY AND STUDIO MANAGEMENT. Basic principles of teaching piano. Business aspects of establishing and maintaining a music studio. For piano majors.

MUSC 345 (3) AESTHETICS AND PRACTICE OF FILM MUSIC.

MUSC 349 (2) KEYBOARD HARMONY AND TRANSPOSITION. Designed for the keyboard performance major and keyboard concentrator in General Studies.

MUSC 350 (3/6) D EARLY CHRISTIAN AND MEDIEVAL MUSIC. Early notations and musical developments from early Christian times to 1400. Prerequisite: MUSC 120.

MUSC 352 (3) LATE MEDIEVAL AND EARLY RENAISSANCE MUSIC. Sacred and secular music, vocal and instrumental. Prerequisite: All of MUSC 120, MUSC 121.

MUSC 353 (3) RENAISSANCE MUSIC FROM 1500 TO 1620. Sacred and secular music, vocal and instrumental. Prerequisite: MUSC 121.

MUSC 354 (3) BAROQUE MUSIC. Prerequisite: MUSC 121.

MUSC 355 (3) CLASSICAL MUSIC. Prerequisite: MUSC 220.

MUSC 356 (3) ROMANTIC MUSIC. Prerequisite: MUSC 220.

MUSC 357 (3) TWENTIETH-CENTURY MUSIC. Prerequisite: MUSC 221.

MUSC 358 (3) HISTORY OF JAZZ. Jazz styles and their cultural contexts; the relationship of performers and audiences; issues of race and gender; non-Western influences. Prerequisite: MUSC 220.

MUSC 363 (4) HISTORY AND REPERTOIRE OF THE GUITAR AND RELATED INSTRUMENTS. A chronological survey, from the Renaissance to the present day, of music for the guitar and related instruments and of the development of the instruments themselves. Instruments considered include Renaissance and Baroque lutes, the vihuela, and early types of guitar as well as the modern six-string guitar. Musical forms and genres, national schools and the works of principal composers of every period are explored and attention is given to national systems, continuo realization, historical ornamentation and pedagogical systems. Prerequisite: MUSC 221.

MUSC 364 (1/2) D CHAMBER MUSIC REPERTOIRE. Perspectives on the performance of selected chamber music. Specific works vary from year to year. May be repeated for credit.

MUSC 365 (2) SONG REPERTOIRE I. An exploration of the solo art song repertoire from 1600 to the Romantic period. Repertoire essential to the performer and teacher will be studied through live and recorded performance with special attention given to poetic content and musical style. Prerequisite: MUSC 221.

MUSC 371 (2) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271-295.

MUSC 372 (4) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271-295.

MUSC 373 (6) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271-295.

MUSC 381 (2) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271-295.

MUSC 382 (4) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271-295.

MUSC 383 (6) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271-295.

MUSC 384 (8) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271-295.

MUSC 391 (2) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271–295.

MUSC 392 (4) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271–295.

MUSC 393 (6) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271–295.

MUSC 394 (8) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271–295.

MUSC 395 (10) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 271–295.

MUSC 402 (3/6) C SPECIAL PROJECTS. For fourth-year students who receive permission of the Director of the School of Music to do advanced studies in their major field.

MUSC 403 (3/6) D SELECTED TOPICS IN MUSIC. See School of Music schedule for description and prerequisites. Restricted to B. Mus. and B.A. in Music students.

MUSC 406 (2/4) D CONDUCTING II. Advanced choral and orchestral conducting techniques and rehearsal practices. Prerequisite: One of MUSC 311, MUSC 312. Permission of the instructor is required.

MUSC 407 (3/6) C COMPOSITION IV. Continuation of MUSC 307.

MUSC 409 (3/6) D JAZZ THEORY AND ARRANGING. Jazz scales, chord relationships, substitutions, orchestration, listening, and score analysis. Restricted to B.Mus. and B.A. in Music students. Prerequisite: MUSC 201.

MUSC 410 (3) INTRODUCTION TO SCHENKERIAN ANALYSIS. The key concepts of Schenker's theory of tonality. Applications to the analysis of short pieces in various tonal styles, emphasizing clear and correct graphing. Issues of interpretive scope. Prerequisite: MUSC 201.

MUSC 411 (3) ANALYSIS OF TONAL MUSIC. Analytical approaches that complement Schenkerian analysis, including motivic construction, harmonic rhythm and phrase rhythm, chromaticism and enharmonicism, features of musical form, aspects of structure and hierarchy at the small and large scale. Prerequisite: MUSC 201.

MUSC 412 (3) ANALYTICAL STUDIES IN THE DEVELOPMENT OF MUSICAL MODERNISM (1860–1940). Analysis of late- and post-romantic works within a theoretical framework that bridges earlier to later works. Assignments in various formats, emphasizing analysis but possibly including composition. Prerequisite: MUSC 201.

MUSC 413 (3) CONTEMPORARY ART MUSIC: THEORY AND ANALYSIS. A technical approach to the diverse concert-music repertoire since 1950, including orchestral, chamber, solo, and electro-acoustic genres. Applicable theories of pitch and rhythm, with

reference to composers' own writings. Prerequisite: MUSC 301.

MUSC 414 (3) COUNTERPOINT. Analysis and composition of pieces that rely on the control and development of imitative, polyphonic textures. Models to be taken from one or more European historical repertoires. Prerequisite: MUSC 201.

MUSC 415 (3) IMAGINING MUSICAL PERFORMANCES. How performance and analysis engage the musical imagination, as complementary activities; how analytical observations can stimulate performance, and vice versa. Selected topics, with special emphasis on temporal factors. Prerequisite: MUSC 201 or permission of instructor.

MUSC 417 (3/6) D MUSICAL SCORING FOR FILM. Addresses the practical aspects of composing music for film through assignments of written scores. Prerequisite: MUSC 319. Permission of instructor is required.

MUSC 428 (3/6) D AREA STUDIES IN ETHNIC MUSICS. The history, theory, style, organology, and forms of the music of a particular culture in its aesthetic and cultural context. Students should consult the School as to which music culture will be covered in a particular year. May be repeated once for credit if different cultures are covered. Prerequisite: MUSC 328 or instructor's permission.

MUSC 430 (3/6) D MAJOR COMPOSERS. The musical works of no more than two significant composers will be examined. Specific topics will be announced; may be repeated for credit. Prerequisite: All of MUSC 120, MUSC 121, MUSC 220, MUSC 221.

MUSC 433 (2) ACCOMPANYING ON THE HARPSICHORD II. Continuation of MUSC 333 with emphasis on more advanced continuo and obbligato techniques. Prerequisite: MUSC 333.

MUSC 436 (4) OPERA THEATRE TECHNIQUES II. Advanced studies in acting, movement, gesture, dance and stage combat. Emphasis on communication and the art of singing and acting recitative in foreign languages.

MUSC 439 (3/6) D OPERA WORKSHOP II. A continuation of MUSC 339.

MUSC 440 (3) PIANO PEDAGOGY II: APPLICATIONS. Teaching musical concepts and keyboard skills; observation of group and private lessons; supervised practicum. Prerequisite: MUSC 340.

MUSC 441 (2) VOCAL TECHNIQUES. A study of the scientific principles related to vocal performance: acoustical, physiological and psychological. Restricted to B.Mus. students.

MUSC 442 (4/8) D SONG INTERPRETATION. Survey of the literature for voice with keyboard accompaniment, with emphasis on performance problems. Open to piano and voice majors, and to others by permission of instructor. May be repeated once for credit.

MUSC 443 (3/6) D OPERA COACHING. Principles and practice, focusing on current Opera Workshop repertoire. Reproducing

orchestrations on the piano; preparing scores; study of the voice and the rehearsal process; coaching languages; related conducting skills. Prerequisite: MUSC 249.

MUSC 449 (6) GRADUATING ESSAY.

MUSC 450 (3/6) D SELECTED TOPICS IN VOCAL OR INSTRUMENTAL GENRES. Intensive study of one genre of music (e.g., orchestral music 1760-1849; the Lied in Austria and Germany) through analysis and the consideration of cultural milieu and historical development. Specific topics will be announced. May be repeated for credit to a maximum of 6 credits.

MUSC 454 (3) HISTORY OF OPERA I. The development of opera between 1600 and 1800. Prerequisite: All of MUSC 121, MUSC 220.

MUSC 455 (3) HISTORY OF OPERA II. The development of opera between 1800 and the present. Prerequisite: All of MUSC 220, MUSC 221.

MUSC 465 (2) SONG REPERTOIRE II. A sequel to MUSC 365, exploring the solo art song repertoire from the Romantic era to the present. Prerequisite: MUSC 221.

MUSC 468 (2) CHAMBER MUSIC MASTER CLASS. Enrolment by audition only.

MUSC 471 (2) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 472 (4) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 473 (6) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 481 (2) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 482 (4) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 483 (6) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 484 (8) MUSIC PERFORMANCE (CONCENTRATION). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 491 (2) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 492 (4) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

MUSC 493 (6) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.

- MUSC 494 (8) MUSIC PERFORMANCE (MAJOR).** Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.
- MUSC 495 (10) MUSIC PERFORMANCE (MAJOR).** Private instruction, vocal or instrumental. Prerequisite: One of MUSC 371–395.
- MUSC 500 (3/6) D ADVANCED MUSICAL ANALYSIS.** Prerequisite: One of MUSC 410, MUSC 411, MUSC 412, MUSC 413.
- MUSC 501 (3) READINGS IN SCHENKERIAN THEORY.** Prerequisite: MUSC 410.
- MUSC 502 (3) THE STRUCTURE AND FUNCTION OF MUSIC THEORIES.** Prerequisite: One of MUSC 410, MUSC 411, MUSC 412 or permission of the instructor.
- MUSC 503 (3/6) D TOPICS IN THE HISTORY OF MUSIC THEORY.**
- MUSC 504 (3/6) D THEORIES OF NON-TONAL PITCH RELATIONSHIPS.**
- MUSC 506 (2) READINGS IN ORCHESTRAL REPERTOIRE.** Standard repertoire for wind and percussion players. See Divisional Coordinator for placement.
- MUSC 507 (3/6) C COMPOSITION.** The composition of original music for conventional instruments and/or electronic media.
- MUSC 508 (3/6) C COMPOSITION.** A continuation of MUSC 507. Prerequisite: MUSC 507.
- MUSC 509 (3/6) C ADVANCED ORCHESTRATION AND ARRANGING.**
- MUSC 511 (3) TOPICS IN MUSICAL AESTHETICS.**
- MUSC 512 (3/6) C DIRECTED INDIVIDUAL STUDIES.** Approval by the Director, School of Music, is required.
- MUSC 520 (3/6) D MUSIC BIBLIOGRAPHY AND RESEARCH TECHNIQUES.** Introduction to the principal resources of the research library, with particular attention to reference tools and bibliographical repertoires.
- MUSC 521 (3/6) D SEMINAR IN PERFORMANCE PRACTICES.** Studies in the theoretical and practical problems of musical interpretation.
- MUSC 522 (3/6) D SEMINAR IN NOTATION OF POLYPHONIC MUSIC.**
- MUSC 523 (3/6) D SEMINAR IN MEDIEVAL MUSIC.**
- MUSC 524 (3/6) D SEMINAR IN RENAISSANCE MUSIC.**
- MUSC 525 (3/6) D SEMINAR IN BAROQUE MUSIC.**
- MUSC 526 (3/6) D SEMINAR IN CLASSICAL PERIOD MUSIC.**
- MUSC 527 (3/6) D SEMINAR IN NINETEENTH-CENTURY MUSIC.**
- MUSC 528 (3/6) D SEMINAR IN TWENTIETH-CENTURY MUSIC.**
- MUSC 529 (3) INTRODUCTION TO ETHNOMUSICOLOGY.** Preliminary studies in the discipline of ethnomusicology, with an emphasis on history and orientations.
- MUSC 530 (3) TOPICS IN ETHNOMUSICOLOGY.** Topics involving methodology and fieldwork in non-Western traditions. Topics will vary and students should consult the School as to areas of focus in any given term.
- MUSC 531 (3/6) D SEMINAR IN ETHNOMUSICOLOGY.** Research studies in selected areas or regions of world music cultures. Prerequisite: MUSC 529.
- MUSC 532 (3/6) D ADVANCED STUDIES IN MUSIC HISTORY AND MUSICOLOGY.**
- MUSC 537 (3/6) D SEMINAR IN THE LITERATURE OF OPERA.** Special topics related to the bibliography, history, repertoire and pedagogy of operatic music. Prerequisite: All of MUSC 221, MUSC 301, MUSC 454, MUSC 455, MUSC 520. Corequisite: MUSC 520.
- MUSC 538 (3/6) D STAGING AND DIRECTING OPERA.** Prerequisite: Permission of instructor is required.
- MUSC 539 (6–12) D OPERA PRODUCTION.** Stylistic and technical studies and participation in the production of opera performances. May be repeated for credit, in accordance with program requirements. Prerequisite: MUSC 439.
- MUSC 547 (3/6) D SEMINAR IN THE LITERATURE OF SONG.** Special topics related to the bibliography, history, repertoire and pedagogy of song. Prerequisite: All of MUSC 221, MUSC 301, MUSC 365, MUSC 465, MUSC 520. Corequisite: MUSC 520.
- MUSC 549 (6/12) C MASTER'S THESIS.**
- MUSC 550 (4) LARGE INSTRUMENTAL ENSEMBLE.** Symphony Orchestra or Wind Ensemble. Open only to graduate students.
- MUSC 551 (2) UNIVERSITY CHAMBER ORCHESTRA.** Open only to graduate students.
- MUSC 553 (4) UNIVERSITY SINGERS.** Open only to graduate students.
- MUSC 554 (3) UNIVERSITY CHORAL UNION.** Open only to graduate students.
- MUSC 555 (4) UNIVERSITY CHAMBER SINGERS.** Open only to graduate students.
- MUSC 556 (2) INSTRUMENTAL COLLEGIUM MUSICUM ENSEMBLE.** Open only to graduate students.
- MUSC 557 (2) VOCAL COLLEGIUM MUSICUM ENSEMBLE.** Open only to graduate students.
- MUSC 559 (2) UNIVERSITY CHAMBER STRINGS.** Open only to graduate students.
- MUSC 560 (2) STRING CHAMBER ENSEMBLES.** Open only to graduate students.
- MUSC 561 (2) PIANO CHAMBER ENSEMBLES.** Open only to graduate students.
- MUSC 562 (2) WIND AND PERCUSSION CHAMBER ENSEMBLES.** Open only to graduate students.
- MUSC 563 (2) CONTEMPORARY PLAYERS.** Open only to graduate students.
- MUSC 564 (2) JAZZ ENSEMBLE.** Open only to graduate students.
- MUSC 565 (2) ASIAN MUSIC ENSEMBLE.** Study of Asian music, to include practical training in instrumental techniques and ensemble performance. The music of one major Asian civilization, often Chinese, will be emphasized.
- MUSC 566 (1) INTENSIVE CHAMBER ENSEMBLE.** Intensive coaching.
- MUSC 569 (1) INTENSIVE SPECIALIZED CHAMBER ENSEMBLE.** Intensive coaching.
- MUSC 571 (2) MUSIC PERFORMANCE (SECONDARY).** Private instruction, vocal or instrumental.
- MUSC 572 (4) MUSIC PERFORMANCE (SECONDARY).** Private instruction, vocal or instrumental.
- MUSC 573 (6) MUSIC PERFORMANCE (SECONDARY).** Private instruction, vocal or instrumental.
- MUSC 591 (2) MUSIC PERFORMANCE (MAJOR).** Private instruction, vocal or instrumental.
- MUSC 592 (4) MUSIC PERFORMANCE (MAJOR).** Private instruction, vocal or instrumental.
- MUSC 593 (6–12) D MUSIC PERFORMANCE (MAJOR).** Private instruction, vocal or instrumental. May be repeated for credit, in accordance with program requirements.
- MUSC 594 (8) MUSIC PERFORMANCE (MAJOR).** Private instruction, vocal or instrumental.
- MUSC 595 (10) MUSIC PERFORMANCE (MAJOR).** Private instruction, vocal or instrumental.
- MUSC 600 (3) SEMINAR IN ANALYTICAL TECHNIQUES.** Not open to Master's students or to Ph.D. students in Music Theory. Prerequisite: One of MUSC 500, MUSC 410, MUSC 411, MUSC 412, MUSC 413.
- MUSC 606 (2) READINGS IN ORCHESTRAL REPERTOIRE.** Continuation of MUSC 506. See Divisional Coordinator for placement.
- MUSC 607 (3/6) C COMPOSITION.** Further study for doctoral candidates in Composition.
- MUSC 609 (3/6) C ADVANCED ORCHESTRATION AND ARRANGING.** Prerequisite: MUSC 509.
- MUSC 649 (0) PH.D. OR D.M.A. THESIS.**
- MUSC 671 (2) MUSIC PERFORMANCE (SECONDARY).** Private instruction, vocal or instrumental.
- MUSC 672 (4) MUSIC PERFORMANCE (SECONDARY).** Private instruction, vocal or instrumental.

MUSC 673 (6) MUSIC PERFORMANCE (SECONDARY). Private instruction, vocal or instrumental.

MUSC 691 (2) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 692 (4) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 693 (6) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 694 (8) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 695 (10) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

NEST — NEAR EASTERN STUDIES FACULTY OF ARTS

NEST 301 (3) THE ANCIENT NEAR EAST. A history from 3100-333 BC with emphasis on Mesopotamia.

NEST 302 (6) ARCHAEOLOGY OF THE ANCIENT NEAR EAST.

NEST 303 (3) HISTORY OF ANCIENT EGYPT.

NEST 304 (3) ART AND ARCHAEOLOGY OF ANCIENT EGYPT. Equivalency: ARTH 325.

NEST 310 (3) HISTORY OF WOMEN IN EARLY TO LATE MEDIEVAL MUSLIM SOCIETIES. Realities of Muslim Women's lives are reconstructed through a critical examination of a variety of literary and material sources.

NEST 500 (3/6) D STUDIES IN NEAR EASTERN ARCHAEOLOGY IN THE BRONZE AGE.

NEST 501 (3/6) D STUDIES IN NEAR EASTERN ARCHAEOLOGY IN THE IRON AGE.

NEST 502 (3/6) D WARFARE AND DIPLOMACY IN ANCIENT EGYPT.

NEST 503 (3/6) D STUDIES IN THE MATERIAL CULTURE OF ANCIENT EGYPT.

NEUR — NEUROSURGERY FACULTY OF MEDICINE

NEUR 512 (2) ADVANCED NEUROSURGERY I. Selected topics in neurosurgery and the related basic sciences. Given in alternate years.

NEUR 513 (2) ADVANCED NEUROSURGERY II. The second year of the above program. Given in alternate years.

NEUR 730 (0) CORRELATIVE CLINICAL NEUROSURGERY ROUNDS. Residents meet with radiology, neuropathology, and active staff members for discussion of problem cases. One and one-half hours weekly.

NEUR 731 (0) NEUROSURGERY PROFESSORS CONFERENCE. One one-hour session weekly with a member of the active staff, conducted at the bedside or in conference room. Cases reviewed with emphasis on the proper applica-

tion of diagnostic methods and the indications for operative management.

NEUR 732 (0) NEURORADIOLOGY. Sessions conducted by members of the Department of Radiology in which case histories are reviewed and related to radiological investigation and interpretation. One hour weekly.

NEUR 733 (0) ANATOMY AND NEUROPATHOLOGY IN THE BRAIN. Sessions conducted by a neuropathologist, Department of Pathology. Attended weekly by neurosurgical resident staff. Two hours weekly.

NEUR 734 (0) OPERATIVE NEUROSURGERY. Technique of neurosurgical procedures. Anatomy, surgical judgement, pre- and post-operative care. From a general selection of neurosurgical procedures, approximately 950 major neurosurgical procedures per year are carried out under supervision.

NRSC — NEUROSCIENCE FACULTY OF GRADUATE STUDIES

NRSC 500 (6) NEUROSCIENCE I. Comprehensive multidisciplinary course with lectures, seminars, and laboratory demonstrations encompassing molecular, cellular, systemic, and behavioural approaches to the study of nervous systems. Emphasis is on the physiology, pharmacology, and biochemistry of excitable cells and their synaptic interactions. Permission of Neuroscience Chair is required. Normally to be taken in conjunction with NRSC 501.

NRSC 501 (6) NEUROSCIENCE II. Continuation of NRSC 500 with emphasis on the integrative functions of the brain, behaviour, and selected neural disorders. Permission of Neuroscience Chair is required. Normally to be taken in conjunction with NRSC 500.

NRSC 549 (12) MASTER'S THESIS.

NRSC 649 (0) PH.D. THESIS.

NURS — NURSING SCHOOL OF NURSING

In the clinical nursing courses the ratio between class and supervised nursing experience varies but in the overall program it is approximately 1:3; the credit values for these courses are based on both instruction and supervised nursing experience.

NURS 309 (3) CONTEMPORARY NURSING PRACTICE. Exploration of the knowledge, competencies and roles underlying professional nursing practice in the current social, political and health care contexts. For post-RN students only. [3-0-0]

NURS 310 (3) THE CORE OF NURSING PRACTICE. The study of key concepts and frameworks fundamental to the practice of nursing. Not available for RN students. [2-2-0]

NURS 312 (3) SUPPORTIVE ENVIRONMENTS FOR THE HEALTH OF FAMILIES. Fostering the health of families in times of health and illness. [3-0]

NURS 320 (4) NURSING ROLES AND COMPETENCIES I. Introduction to nursing care with emphasis on the promotive and

preventative roles of the nurse. Not available for RN students. [2-0-6]

NURS 321 (2) NURSING ROLES AND COMPETENCIES II. Continued study and clinical practice in nursing, with emphasis on restorative, rehabilitative and supportive roles of the nurse. Not available for RN students. [1-0-3]

NURS 330 (6) NURSING CARE OF INDIVIDUALS WITHIN THE CONTEXT OF COMMUNITY. Clinical nursing practice focused on acutely ill individuals within the larger context of community. Not available for RN students. [2-0-12]

NURS 331 (8) NURSING CARE OF FAMILIES. Clinical nursing practice with families experiencing transitions related to health and illness. Childbearing and childrearing families. [4-0-12]

NURS 350 (3) THE SOCIOCULTURAL CONSTRUCTION OF HEALTH AND ILLNESS. Social and cultural constructs as related to health and illness. Diversity and its relationship to definitions of health and illness. [3-0]

NURS 410 (3/6) D EXPLORING AVENUES OF NURSING PRACTICE. A specific avenue is selected from a number of options in consultation with faculty. For post-RN students only. [2-0-12]

NURS 411 (4) EXPLORING AVENUES OF NURSING PRACTICE. A specific avenue of nursing practice is selected from a number of options, in consultation with faculty. For basic baccalaureate students. [1-0-9]

NURS 413 (6) FOSTERING POPULATION HEALTH PROMOTION. Theory and strategies for working in partnership with populations, health professionals, and community service providers. Students use primary health care principles and population health promotion approaches during community nursing practice. Not available for RN students. [3-0-9]

NURS 414 (3) POPULATION HEALTH PROMOTION. Theory and strategies for working in partnership with populations, health professionals, and community service providers. Students examine primary health care principles and evidence-based population health promotion approaches. For post-RN students only.

NURS 416 (3) HEALTH CARE POLICY AND THE NURSING PROFESSION. Study of professional nursing within the context of Canadian health care policy. [3-0-0]

NURS 421 (2) NURSING ROLES AND COMPETENCIES III. Study and clinical practice within a variety of nursing roles, focusing on complex client problems and nursing interventions. [1-0-3]

NURS 426 (3) NURSING AND THE HEALTH OF COMMUNITIES. Study of epidemiological concepts as they relate to the health of Canadian communities. Application of concepts to the planning of health care programs. Open to other health sciences students with permission of instructor. Prereq-

quisite: Third- or fourth-year standing in Nursing. [3-0-0; 0-0-0]

NURS 430 (8) POPULATION-FOCUSED NURSING PRACTICE I. Clinical nursing practice with selected populations in the community. [4-0-12]

NURS 432 (6) NURSING PRACTICE WITH ACUTE AND CHRONICALLY ILL POPULATIONS. Clinical nursing practice with persons affected by acute and chronic illness [2-0-12]

NURS 450 (3) INTRODUCTION TO RESEARCH UTILIZATION. The process of research and scholarship in nursing; principles and processes in utilizing research. [3-0]

NURS 452 (3) ETHICAL BASIS OF HEALTH CARE. Theories related to the ethical basis of professions. Ethical problems in healthcare and in nursing. Ethical decision-making. [3-0]

NURS 453 (3) LEADERSHIP AND MANAGEMENT IN HEALTH CARE. Structures, contexts and processes basic to management in health care settings. Interdisciplinary approaches to management and leadership. [3-0]

NURS 460 (8) CONSOLIDATION PRACTICE EXPERIENCE. Extended practice in nursing. For Basic students only. [1-0-21]

NURS 501 (3) THEORETICAL AND CRITICAL THINKING IN NURSING. Critical analysis of nursing theory and foundations for reasoning in nursing practice.

NURS 502 (3) NURSING AND THE DELIVERY OF HEALTH CARE. The structures and process of health care delivery, health policy and other factors influencing nursing in the Canadian health care system.

NURS 503 (3) CONCEPTUAL KNOWLEDGE IN CLINICAL NURSING. Analysis of historical and theoretical development of knowledge within a substantive area of nursing practice.

NURS 504 (3) RESEARCH AND EVIDENCE-BASED PRACTICE.

NURS 505 (3) STATISTICAL LITERACY IN NURSING.

NURS 507 (3) PHARMACOLOGY AND THERAPEUTICS IN PRIMARY CARE.

NURS 508 (3) PATHOPHYSIOLOGICAL PROCESSES FOR NURSE PRACTITIONERS.

NURS 510 (6) ADVANCED HEALTH ASSESSMENT ACROSS THE LIFE SPAN.

NURS 520 (3) ADMINISTRATIVE LEADERSHIP IN NURSING. Study of organizational behaviour, management methods and administrative processes in health care.

NURS 530 (3) ADVANCED PRACTICE IN NURSING. Study of advanced practice nursing models, their development and implementation with a changing health care system. Prerequisite: All of NURS 501, NURS 502, NURS 503, NURS 504.

NURS 540 (3) EDUCATIONAL PROCESSES IN NURSING. Study of the historical development, theoretical basis, practical knowledge,

accountability of, and issues regarding curriculum process and teaching in nursing education or practice. Prerequisite: All of NURS 501, NURS 502, NURS 503, NURS 504.

NURS 541 (3) CLINICAL NURSING EDUCATION. Study of the theory and practice of clinical nursing education. Prerequisite: NURS 540.

NURS 550 (3) QUALITATIVE RESEARCH METHODS. Study of the expectations, foundations and methodological applications of established qualitative approaches to research. Prerequisite: NURS 504 or permission of instructor.

NURS 551 (3) QUANTITATIVE RESEARCH METHODS. Study of design, measurement, analysis, and interpretation in the quantitative research tradition. Prerequisite: All of EPSE 592, NURS 504. Permission of instructor is acceptable in lieu of NURS 504.

NURS 553 (3) ADVANCED METHODS IN QUALITATIVE FIELDWORK. Prerequisite: NURS 550.

NURS 554 (3) ADVANCED STUDIES IN QUANTITATIVE DESIGN. Prerequisite: All of NURS 551, EPSE 592 or equivalent. Corequisite: EPSE 596.

NURS 560 (3) THE POLITICS OF HEALTH POLICY. Prerequisite: NURS 502. Or permission of instructor.

NURS 577 (3-6) D GRADUATE PRACTICUM IN NURSING.

NURS 578 (3-9) D FAMILY NURSE PRACTITIONER CONSOLIDATED PRACTICUM.

NURS 580 (3) THE PHILOSOPHY OF EVIDENCE. Students not enrolled in the doctoral program require permission of instructor. Prerequisite: All of NURS 501, NURS 503, NURS 504.

NURS 581 (3) THE GENEALOGY OF NURSING KNOWLEDGE. Prerequisite: NURS 580.

NURS 585 (1-6) D SPECIAL TOPICS IN NURSING.

NURS 590 (3/6) C DIRECTED STUDIES IN NURSING. Prerequisite: All of NURS 501, NURS 502, NURS 503, NURS 504.

NURS 595 (3) M.S.N. MAJOR ESSAY.

NURS 599 (6) MASTER'S THESIS. Prerequisite: All of NURS 501, NURS 502, NURS 503, NURS 504, NURS 550, NURS 551.

NURS 601 (0) DOCTORAL SEMINAR.

NURS 690 (3/6) C DIRECTED STUDIES IN NURSING.

NURS 699 (0) PH.D. THESIS.

OBMS — ORAL BIOLOGICAL MEDICAL SCIENCES FACULTY OF DENTISTRY

OBMS 430 (2) UNDERSTANDING AND EVALUATING DENTAL RESEARCH. [1-0-0; 1-0-0]

OBMS 431 (2) ENDODONTICS. Application of the basic principles of endodontics. [0-1.5-0; 1-1.5-0]

OBMS 434 (4) INTRODUCTION TO ORAL AND MAXILLOFACIAL SURGERY. [3-1.5; 0-1.5]

OBMS 436 (1) ORAL RADIOLOGY. Radiographic techniques and radiological interpretation with emphasis on extraoral techniques. [.5-1.5]

OBMS 437 (2) PAIN AND ANXIETY CONTROL. [1-0-2]

OBMS 439 (3) ORAL MEDICINE AND ORAL DIAGNOSIS. Oral diagnosis, including orofacial pain and temporomandibular disorders. [1-3-0; 1-3-0]

OBMS 440 (1) ADVANCED TOPICS IN ORAL BIOLOGY. [1-0-0]

OBMS 441 (2) ADVANCED ENDODONTICS. [1-3-0; 0-1.5-0]

OBMS 443 (1) ORAL MEDICINE, ORAL DIAGNOSIS AND THERAPEUTICS. Assessment and treatment of advanced periodontal diseases. [1-2-2]

OBMS 444 (2) ADVANCED ORAL AND MAXILLOFACIAL SURGERY. [2-1.5]

OBMS 446 (1) ADVANCED ORAL RADIOLOGY AND ORAL RADIOGRAPHY.

OBMS 448 (2-6) D DIRECTED RESEARCH IN ORAL BIOLOGY. An elective laboratory project taken with the permission of the appropriate supervisor and the department head.

OBMS 449 (4) ADVANCED PERIODONTICS. Assessment and treatment of advanced periodontal diseases. [1-3-0]

OBST — OBSTETRICS AND GYNAECOLOGY FACULTY OF MEDICINE

OBST 430 (6) OBSTETRICS AND GYNAECOLOGY CLINICAL CLERKSHIP. Common problems in ambulatory care and surgical gynaecology. Clinical experience in the delivery of antenatal care including high-risk conditions, as well as intrapartum and postpartum care. Prerequisite: All of Medicine I and Medicine II.

OBST 501 (3) REPRODUCTIVE ENDOCRINOLOGY I. Neuroendocrine regulation of reproduction, regulation of the ovarian and testicular function.

OBST 502 (3) PHYSIOLOGY OF THE MOTHER, FETUS AND NEWBORN. Functional development of the placenta and major organ systems in the fetal and newborn period in man and animals.

OBST 503 (3) PERINATAL PHYSIOLOGY. Prerequisite: Knowledge of fetal growth and development, physiology, pathology of labour.

OBST 504 (3) REPRODUCTIVE ENDOCRINOLOGY II. Lectures and seminars on cellular processes in hormone secretion, steroid biosynthesis, steroid transport and metabolism, mechanism of hormone action, prostaglandins in reproduction.

OBST 505 (6) EXPERIMENTAL TECHNIQUES IN REPRODUCTIVE BIOLOGY. Laboratory course on: cell and organ cultures, radioimmunoassay of steroid and protein hormones and prostaglandins, in vitro fertilization, neuroendocrine techniques, techniques to study fetuses, techniques for metabolic studies in newborn animals.

OBST 506 (3) SEMINARS IN REPRODUCTIVE BIOLOGY.

OBST 549 (12) M.SC. THESIS.

OBST 649 (0) PH.D. THESIS.

OCCH — OCCUPATIONAL AND ENVIRONMENTAL HYGIENE SCHOOL OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE

OCCH 401 (3) INTRODUCTION TO OCCUPATIONAL HYGIENE AND SAFETY. Scientific basis for the recognition, evaluation, and control of chemical, physical, and biological hazards encountered in occupational settings; health and safety standards; exposure measurement methods; and evaluation strategies. Credit will be given for only one of OCCH 401 or OCCH 501. Prerequisite: Third- or fourth-year standing in the Faculty of Applied Science, Faculty of Science or one of the health sciences. Other upper-level students may enrol with the permission of the instructor. [3-0; 0-0]

OCCH 501 (3) PRINCIPLES OF OCCUPATIONAL AND ENVIRONMENTAL HYGIENE. Scientific basis for the recognition, evaluation, and control of chemical, physical, and biological hazards encountered in occupational settings; health and safety standards; exposure measurements methods and evaluation strategies. Equivalency: HCEP 535. [3-0-0; 0-0-0]

OCCH 502 (3) CHEMICAL AND BIOLOGICAL HAZARD MEASUREMENT. Industrial hygiene and environmental exposure monitoring, methods, and instrumentation; theory of atmospheric and biological sampling and analysis. Laboratories demonstrate workplace sampling and analysis techniques. Prerequisite: OCCH 501. [0-0; 2-3]

OCCH 503 (3) CHEMICAL AND BIOLOGICAL HAZARD CONTROL. Design and evaluation of control strategies for occupational and environmental exposure. Engineering control methods; design of industrial ventilation systems; substitution and isolation strategies; administrative control measures; personal protective equipment. Corequisite: OCCH 501. [3-2*]

OCCH 504 (3) ADVANCED OCCUPATIONAL AND ENVIRONMENTAL HYGIENE ISSUES. Sampling strategies for compliance, determinants of exposure and epidemiology; workers' compensation; environmental law; communication, ethics and labour management interaction in the practice of occupational and environmental hygiene. Prerequisite: Completion of first year coursework. [3-0; 0-0]

OCCH 505 (1.5/3) C ERGONOMICS. Human factors in workplace design, anthropometry, work physiology.

OCCH 506 (3) OCCUPATIONAL HYGIENE PRACTICE. Application of occupational hygiene principles to actual worksites; using field investigations and interactive seminars on evaluation strategies, critical appraisal of results, and communication with labour and management. Prerequisite: All of OCCH 502, OCCH 503. [2-3; 0-0]

OCCH 507 (1.5) RESEARCH METHODS IN EXPOSURE ASSESSMENT AND EPIDEMIOLOGY. Assessment of occupational and environmental exposure for research purposes; introduction to epidemiology. Prerequisite: One of OCCH 501, HCEP 535 and introductory statistics.

OCCH 508 (1.5/3) D SAFETY. Safety management; systems analysis; accident investigation; collection of accident data; fault trees; total loss control.

OCCH 510 (3) TOPICS IN ENVIRONMENTAL HEALTH. Role of air, water, food, and solid waste as sources of human health risks; global environmental health issues; sustainability. Equivalency: HCEP 522.

OCCH 511 (1.5) OCCUPATIONAL HEALTH AND ILLNESS PROCESSES. Common occupational diseases; research issues, historical perspectives and measurement issues. [0-0-0; 1.5-0-0]

OCCH 512 (3) QUANTITATIVE METHODS FOR THE ASSESSMENT AND ANALYSIS OF EXPOSURE DATA. Sampling strategies, analysis of exposure data, determinants of exposure. Required course. Prerequisite: Introductory statistics or permission of instructor.

OCCH 530 (1.5-6) D DIRECTED STUDIES.

OCCH 540 (1.5) RESEARCH SEMINAR. [1.5-0; 1.5-0]

OCCH 550 (1.5-6) D SPECIAL TOPICS. Special projects or advanced courses may be arranged for graduate students upon the approval of the program director.

OCCH 595 (0) OCCUPATIONAL AND ENVIRONMENTAL HYGIENE SEMINAR. Current occupational and environmental hygiene related research; issues in hygiene program management. [1-0; 1-0]

OCCH 598 (6) OCCUPATIONAL AND ENVIRONMENTAL HYGIENE PROJECT. Applied occupational or environmental hygiene project on approved topic based on practicum: requires a written and oral report.

OCCH 599 (12) M.SC. THESIS.

OCCH 640 (1.5) DOCTORAL RESEARCH-IN-PROGRESS SEMINAR.

OCCH 699 (0) PH.D. THESIS.

OHS — ORAL HEALTH SCIENCES FACULTY OF DENTISTRY

OHS 430 (4) OPERATIVE DENTISTRY. The art and science of diagnosing and treating single tooth defects. [0-4.5-0; 0-4.5-0]

OHS 431 (3) ORTHODONTICS. Differential diagnosis, treatment planning, biomechanical principles and clinical treatment. [1-2-0; 1-2-0]

OHS 432 (4) PEDIATRIC DENTISTRY. [0-4.5-0; 1-4.5-0]

OHS 434 (2) BEHAVIOURAL SCIENCES IN DENTISTRY. [1-0-0; 1-0-0]

OHS 435 (8) PROSTHODONTICS I. The art and science of restoring and replacing teeth and surrounding tissues. [2-5-0; 1-9-0]

OHS 440 (2) ADVANCED OPERATIVE DENTISTRY. The art and science of diagnosing and treating single tooth defects. Prerequisite: OHS 430. [0-3-0; 0-3-0]

OHS 441 (3) ADVANCED ORTHODONTICS. [1-2-0; 0-3-0]

OHS 442 (1) ADVANCED PEDIATRIC DENTISTRY. [0-3-0]

OHS 444 (4) PRACTICE MANAGEMENT. Ethics, jurisprudence, practice management, intra- and interprofessional relationships. [2-0-0; 2-0-0]

OHS 445 (8) PROSTHODONTICS II. The art and science of restoring and replacing teeth and surrounding tissues. [1-9-0; 0-12-0]

ONCO — ONCOLOGY FACULTY OF MEDICINE

ONCO 501 (3) INTERDISCIPLINARY RESEARCH IN ONCOLOGY.

ONCO 502 (3) CONCEPTS IN ONCOLOGY.

ONCO 510 (3) SEMINARS IN ONCOLOGY.

ONCO 549 (12) MASTER OF SCIENCE THESIS.

ONCO 649 (0) PH.D. THESIS.

OPTH — OPHTHALMOLOGY FACULTY OF MEDICINE

OPTH 450 (1) OPHTHALMOLOGY. Third-year Medicine Students only. An introduction to Clinical Ophthalmology: four morning sessions introducing the third-year Medical Students to basic ophthalmic history, clinical symptoms, signs and patient management.

ORNT — ORIENTATION TO MEDICAL SCHOOL FACULTY OF MEDICINE

ORNT 400 (2) ORIENTATION TO MEDICAL SCHOOL AND PROFESSION. A general introduction to the medical school including beliefs and values embedded within the curriculum. The overall curricular design and expectations regarding evaluation are discussed.

ORPA — ORTHOPAEDICS FACULTY OF MEDICINE

ORPA 430 (2) ORTHOPAEDICS. Musculoskeletal pathology, including baseline levels of knowledge, skill and attitude, plus surgical exposure to orthopaedic injuries and management.

ORPA 508 (2) ADVANCED ORTHOPAEDICS I. Selected topics in orthopaedic surgery and related basic sciences. Given in alternate years.

ORPA 509 (2) ADVANCED ORTHOPAEDICS II. The second year of the above program which will be given in alternate years.

ORPA 715 (0) ORTHOPAEDIC CLINIC. Evaluation of new patients and diagnosis and treatment of appropriate diseases. Basic signs and clinical features are both stressed in the total management of the patient. Two hours per week in the Outpatient Department under supervision of an orthopaedics faculty member.

ORPA 716 (0) ORTHOPAEDIC BEDSIDE CLINIC. Evaluation of orthopaedic diseases and injuries in patients at bedside. A review of clinical features is correlated with relevant physiology and pathology.

ORPA 717 (0) ORTHOPAEDIC GRAND ROUNDS. Formal presentations by the orthopaedic residents, fellows, faculty and guests. Subject matter includes the whole spectrum of orthopaedics.

ORPA 718 (0) RHEUMATOLOGY CONFERENCE. Patients with a variety of rheumatological disorders are presented for discussion and evaluation in this combined conference, which rheumatologists and orthopaedic surgeons who have a special interest in reconstructive surgery attend. During each weekly two hour session, patients with difficult management problems are presented for clinical evaluation and discussion of medical and orthopaedic treatment.

ORPA 719 (0) ORTHOPAEDIC SURGICAL ANATOMY. A course in clinical anatomy as applied to orthopaedics. A regional approach involving surgical dissections in cadavers. Each session lasts two hours. Emphasis is on surgical anatomical approach.

ORPA 720 (0) ORTHOPAEDIC BASIC SCIENCE COURSE. Weekly lectures by orthopaedic faculty and guest faculty from other departments. Lecture topics include applied physiology, anatomy, and pathology as they relate to orthopaedic diseases.

ORPA 721 (0) ORTHOPAEDIC SEMINARS. A series of seminars is given weekly, and during each 2-hour session a topic in clinical orthopaedics is reviewed. The subject matter includes the whole spectrum of orthopaedics. One or more faculty members are in attendance at each seminar.

ORPA 722 (0) PAEDIATRIC ORTHOPAEDICS. Case presentation in paediatric orthopaedics, stressing history, physical findings and total management of the patient, including a review of paediatric fractures with x-rays.

ORPA 723 (0) ORTHOPAEDIC SURGERY. The practical application of orthopaedics in the operating room with discussion of techniques of surgery, anatomy, pathology, pathophysiology and complications of diseases.

ORPA 724 (0) TRAUMA ROUNDS. Orthopaedic traumatology is reviewed, with emphasis being placed on applied basic science, surgical anatomy, diagnosis and definitive management. These sessions are supervised by a faculty member and are held weekly, each session lasting one hour.

ORPA 725 (0) BONE TUMOUR REGISTRY. A review of musculoskeletal oncology and related problems with presentation of clinical and laboratory information, radiographs and pathological materials. One and one-half hours monthly.

ORPA 904 (0) SEMINAR IN ORTHOPAEDICS. A series of 60 seminars in orthopaedics and traumatic surgery given over a two-year period: thirty sessions in each of the two years. One evening per week throughout the Winter Session. For post-graduate students proceeding to Certification and Fellowship of the Royal College of Physicians and Surgeons of Canada.

PAED — PAEDIATRICS FACULTY OF MEDICINE

PAED 430 (8) PAEDIATRICS. Students are assigned to the Department of Paediatrics for eight-weeks. The eight weeks are divided into two blocks, four weeks providing an in-patient experience and four weeks in ambulatory clinics. Specific clinical teaching is taught in small groups and an Academic Half-Day each week supplies a series of lectures and seminars. The emphasis is on the acquisition of clinical skills and a knowledge base of general paediatrics. Clinical duties include patient histories, physical examinations, participation in investigation and management, following patient progress, taking part in daily rounds, and night call. Evaluations include a clinical evaluation, written examinations and a four station objective structured clinical examination.

PATH — PATHOLOGY FACULTY OF MEDICINE

PATH 300 (6) BACKGROUND TO MEDICAL LABORATORY SCIENCE. Introductory lectures and laboratory sessions in clinical chemistry, haematology and blood banking, hospital microbiology, preparation and examination of tissue sections. For Medical Laboratory Science students without previous experience in hospital laboratories. Prerequisite: All of BIOL 112, BIOL 200, BIOL 201, CHEM 123, CHEM 205, CHEM 233, CHEM 235, MICB 202. [3-4; 0-0]

PATH 301 (4) BASIC AND PHYSICAL BIOCHEMISTRY FOR MEDICAL LABORATORY SCIENTISTS. An integrated approach to specific areas of the theoretical and practical aspects of those physical and biological sciences relevant to medical laboratory science. Emphasis will be placed upon the application of basic science to those clinical

disciplines practised by the medical laboratory scientist, e.g., histochemistry, clinical chemistry, microbiology, haematology, etc.

PATH 303 (4) CYTOGENETICS, TISSUE CULTURE & CYTOLOGY. Tissue culture techniques in clinical diagnosis; cytological techniques used in the diagnosis and control of cancer. Sex chromatin determination.

PATH 304 (4) NORMAL HUMAN HISTOLOGY. An advanced lecture and laboratory course in the microscopic structure of the human body necessary for a complete understanding of histochemistry and histopathology.

PATH 305 (4) MODERN MICROSCOPY. A lecture and laboratory course in the theoretical and practical application of modern biological microscopes – compound, dissecting, comparison, dark ground, fluorescent, phase contrast, interference and electron microscopes.

PATH 306 (2) NUCLEAR MEDICINE FOR MEDICAL LABORATORY SCIENTISTS. Introductory Nuclear Medicine with specific reference to the Pathology laboratory.

PATH 327 (6) BACTERIOLOGY, MYCOLOGY, VIROLOGY AND PARASITOLOGY. Descriptions of each group of human microbial pathogens according to biological attributes, clinical features, pathogenesis and pathology, epidemiology, immunological reactions, laboratory diagnosis, principles of antimicrobial therapy, preventative measures. For students in the Faculty of Medicine B.M.L.Sc.

PATH 375 (3) INTRODUCTION TO HUMAN PATHOLOGY. A lecture-demonstration course designed to acquaint students in the allied health professions with a basic understanding of the causes, natural history, and pathophysiology of common disease processes. Prerequisite: 6 credits each first year BIOL and CHEM

PATH 402 (4) MEDICAL LABORATORY SCIENCE: HAEMATOLOGY. A theoretical and practical examination of those modern concepts of haematology which relate to the practice of medical laboratory science.

PATH 404 (6) DIAGNOSTIC HISTOCHEMISTRY. A lecture and laboratory course that encompasses the theory and the practice of currently available histochemical techniques. This course is to supplement the histopathological technique course taken as a requirement for CSLT (RT). Prerequisite: Certification.

PATH 405 (2) SEMINARS IN CURRENT TOPICS. This seminar course is intended to train students in the oral presentation of scientific papers and make them critically aware of the current literature. They will be assigned, on a rotational basis, current issues of journals in the field of laboratory medicine. In consultation with faculty they will select one or more papers for review in a 15–20 minute presentation. The presentation will be followed by a general discussion.

PATH 406 (6) CLINICAL CHEMISTRY. This course will review and discuss the methodology of clinical chemistry in order to put these

analytical methods into the broad perspective of the pathophysiology of human disease and biochemistry.

PATH 407 (4) MEDICAL LABORATORY TOXICOLOGY: ANALYTICAL, CLINIC. A theoretical and practical examination of analytical and pathophysiological aspects of clinical and forensic toxicology. Prerequisite: Prerequisites for students not registered in the B.M.L.Sc. program: BIOC 300, CHEM 311 and PATH 375.

PATH 408 (3) LABORATORY ADMINISTRATION. Personnel management, staff management relationships, stock control, record keeping, etc. Medicolegal aspects of medical laboratory science. Theory and practice of quality control. Use of computers in the medical laboratory.

PATH 415 (2) IMMUNOPATHOLOGY. Immunological events causing tissue injury.

PATH 417 (3) BACTERIAL INFECTION IN HUMANS. Explores the virulence factors of the microorganism and the pathophysiology of the host response. Working in small groups online, students direct their learning using cases presented over the internet. Prerequisite: MICB 202.

PATH 427 (3) BASIC PRINCIPLES OF INFECTION PREVENTION AND CONTROL. This course provides the basic principles to prevent the spread of microorganisms pathogenic to humans. It may be taken towards a Certificate in Infection Control.

PATH 437 (3) VIRAL INFECTIONS IN HUMANS. Interactions between viruses and humans; pathogenesis; prompt virological diagnosis; rationale for antiviral chemotherapy and prophylaxis. Equivalency: MICB 407. [3-0-0]

PATH 438 (2-6) C MEDICAL LABORATORY SCIENCE: DIRECTED STUDIES. Investigation of a specific topic in Medical Laboratory Science. Permission of the department head is required.

PATH 447 (3) DIRECTED STUDIES. An elective in clinical infection control, medical microbiology or molecular biology. Prerequisite: All of PATH 427, PATH 467.

PATH 448 (2) INTRODUCTION TO LABORATORY MEDICINE. An elective course open to first-year medical students who spend at least three consecutive hours each week in one of the affiliated hospitals of the Department of Pathology, Vancouver Hospital, under the joint supervision of a Senior Resident in Pathology and the Professional Staff of the following Divisions: anatomical pathology, clinical biochemistry, haematology, paediatric pathology. Enrolment is limited.

PATH 450 (0) SYSTEMIC PATHOLOGY. A series of Pathology discussions in conjunction with various clinical departments designed to illustrate the role of Pathology in the diagnosis and management of various diseases.

PATH 451 (3) CLERKSHIP IN LABORATORY MEDICINE AND INFECTION PREVENTION AND CONTROL. May involve attendance at an approved institution and/or a project assigned by the instructor(s). Instructor permission required. Enrolment may be limited.

PATH 452 (3) CLERKSHIP IN ANATOMIC PATHOLOGY. An elective course open to third-year medical students, designed to familiarize the student with Anatomic Pathology, including Surgical Pathology, Paediatric Pathology, Autopsy Pathology and Cytology. This elective may involve attendance at one or more affiliated hospitals. Registration requires consent of the Department and enrolment may be limited.

PATH 453 (0) CLINICAL LABORATORY HAEMATOLOGY. Correlative seminars based on haematology case studies relating clinical features to laboratory investigations. Equivalency: MEDI 452.

PATH 457 (3) CLINICAL LABORATORY MICROBIOLOGY. Selected clinical laboratory exercises plus seminars to illustrate the diagnosis and management of patients with microbial infections. Elective course limited to third- and fourth-year medical students. Prerequisite: Departmental approval required.

PATH 467 (3) BASIC MICROBIOLOGY FOR INFECTION CONTROL. The identification, clinical significance, and transmission of pathogenic organisms are presented. This course is available by correspondence or webCT. It may be taken towards fulfillment of the Certificate in Infection Control.

PATH 477 (3) BASIC EPIDEMIOLOGY FOR INFECTION CONTROL. Epidemiology, study, design and analysis, and outbreak investigation as it applies to institutional infection control. Equivalency: HCEP 401.

PATH 500 (2-6) D GENERAL PRINCIPLES OF PATHOLOGY. Experimental pathology (2) and general principles of etiology, pathogenesis, disordered physiology and anatomic pathology of common disease processes.

PATH 518 (2-4) C PULMONARY PATHOPHYSIOLOGY. A review of current topics in pulmonary pathophysiology at an advanced level suitable for graduate students majoring in pathology, medicine, surgery or anaesthesiology. Topics will include lung anatomy, ventilation, blood flow, gas and fluid exchange. Prerequisite: One of PHYL 301, PHYL 303, PHYL 400.

PATH 521 (6) INTRODUCTION TO THE PATHOGENESIS OF HUMAN DISEASE. A lecture/laboratory course reviewing current areas of medical research focusing mainly on cardiovascular and pulmonary disease. Requires instructor permission.

PATH 523 (3) PRINCIPLES OF ANTIMICROBIAL CHEMOTHERAPY. Classification, structure and mode of action of antimicrobial agents. In-depth comparison of factors affecting the activity of antimicrobials in vivo and in vitro. Prerequisite: All of MICB 200, PATH 427.

PATH 527 (2-4) D BACTERIOLOGY, MYCOLOGY, VIROLOGY AND PARASITOLOGY. All groups of microorganisms pathogenic for humans. Clinical features, pathogenesis and pathology, epidemiology, properties of the agents, immunology, laboratory diagnosis, therapy, preventative measures.

PATH 530 (3) NUTRITION AND METABOLIC ASPECTS OF HUMAN DISEASE. Molecular effects of changes in nutrient status and metabolism on health. Prerequisite: Restricted to students registered in the Pathology Graduate Program or instructor approval required.

PATH 531 (3) MOLECULAR AND CELL BIOLOGY OF CANCER. This course focuses on molecular and cell biology of cancer and consists of a series of lectures/reviews combined with discussions and presentations by students on the topics selected by the instructors. Emphasis will be on students' presentations and discussion. Prerequisite: MEDG 421 is recommended. Course coordinator approval is required. Equivalency: MEDG 521. [0-0; 3-0]

PATH 535 (2) SEMINAR. Attendance required of all M.Sc. candidates in the Department.

PATH 547 (3) TECHNIQUES IN MOLECULAR BIOLOGY AND EXPERIMENTAL PATHOLOGY. Nucleic acid purification and characterization; restriction enzyme digests; northern and southern blotting; cloning; DNA sequencing; polymerase chain reaction technology; electron microscopy; fluorescein-activated cell sorting. [0-0; 0-6]

PATH 548 (1-12) C DIRECTED STUDIES.

PATH 549 (18) M.SC. THESIS.

PATH 582 (3) TOXICOLOGY III – ENVIRONMENTAL TOXICOLOGY. Toxicology and risk assessment of air, water and soil pollutants; food additives; animal and plant toxins; pesticides; heavy metals; solvents. Equivalency: PHAR 582. [3-0-0]

PATH 583 (3/4) D TOXICOLOGY IV – MOLECULAR MECHANISMS OF TOXICOLOGY. Activation versus detoxification by cytochromes P-450; the role of the Ah receptor; reactive oxygen species; heavy metals; apoptosis. Equivalency: PHAR 583. [3-0-0]

PATH 635 (2) SEMINAR. Attendance required for all Ph.D. candidates in the department.

PATH 649 (0) PH.D. THESIS.

PATH 720 (0) MICROBIOLOGICAL DIAGNOSIS. Conduct of bacterial, fungal, parasitological, and viral laboratory tests relevant to the microbiological examination of patients. For medical residents.

PATH 721 (0) MICROBIOLOGICAL RESEARCH. Conduct of research on some aspect of clinical or basic microbiology. For medical residents.

PATH 722 (0) MICROBIAL INFECTIONS. Review in depth of syndromes caused by common human pathogenic bacteria, fungi and viruses, including principles of current laboratory diagnostic procedures and the rational use

of antibiotics and prophylactic agents. For medical residents.

PATH 725 (0) HISTOPATHOLOGY OF INFECTIOUS DISEASES. Gross and microscopic changes associated with infections, and the pathophysiology involved in their development. The course includes seminars based on histological specimens. For residents in Medical Microbiology, General and Anatomical Pathology, and Infectious Diseases.

PATH 730 (0) CLINICAL NUCLEAR MEDICINE. See RADI 710.

PATH 731 (0) PROGRESS IN NUCLEAR MEDICINE. See RADI 711.

PATH 732 (0) CLINICAL INVESTIGATION/RESEARCH. See RADI 712.

PATH 733 (0) QUALITY CORRELATION IN NUCLEAR MEDICINE. See RADI 713.

PCTH — PHARMACOLOGY AND THERAPEUTICS FACULTY OF MEDICINE

PCTH 300 (6) INTRODUCTION TO PHARMACOLOGY. The concepts, language and techniques of scientific pharmacology. Intended primarily for Honours and Major students in Pharmacology. Prerequisite: Either (a) all of BIOL 200, BIOL 201, CHEM 233, CHEM 235 or (b) all of BIOL 200, BIOL 201, CHEM 203, CHEM 204; and CHEM 211 and one of CHEM 205, CHEM 201. Permission of the undergraduate adviser is required. [3-3-0; 3-3-0]

PCTH 302 (3) INTRODUCTORY PHARMACOLOGY LABORATORY. A series of experimental demonstrations and individual laboratory experiments illustrating the basic principles of pharmacology. Corequisite: PCTH 300. [1-3*; 1-3*]

PCTH 305 (6) BASIC HUMAN PHARMACOLOGY. Lectures and assigned reading on the effects, mechanisms of action, absorption, distribution, fate and excretion of major classes of therapeutic agents. Indications for the use of particular drugs will be discussed in terms of risk versus benefit for the individual and for society. Corequisite: All of BIOC 302, PHYL 301. [3-0; 3-0]

PCTH 325 (3) RATIONAL BASIS OF DRUG THERAPY. The principles and applications underlying the action and disposition of therapeutic agents (including alternative medicines) in the body. Use of drugs as tools in experimental research. Prerequisite: BIOL 201. [3-0-0]

PCTH 398 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Technical report required. Restricted to students admitted to the Co-operative Education Program in Pharmacology. Prerequisite: PCTH 300.

PCTH 399 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Technical report required. Restricted to

students admitted to the Co-operative Education Program in Pharmacology. Prerequisite: PCTH 398.

PCTH 400 (6) SYSTEMATIC PHARMACOLOGY. Lectures and discussions in scientific pharmacology. All aspects of the study of drugs will be covered, but the course will concentrate on the scientific aspects of the pharmacology of neurohumoral transmission, mathematics of pharmacology, cardiovascular and clinical pharmacology, and to a lesser extent on the pharmacology of various organs and tissues. Prerequisite: PCTH 300. [3-0-1*; 3-0-1*]

PCTH 402 (6) SYSTEMATIC PHARMACOLOGY LABORATORY. A series of demonstrated, group, and individual laboratory experiments designed to illustrate the concepts and hypotheses of pharmacology. The course is restricted to Honours students in Pharmacology, but may be taken by others with permission of the department head. Prerequisite: PCTH 300. [0-9; 0-9]

PCTH 404 (3) DRUG ASSAY AND PHARMACOMETRICS. The techniques, including methods of statistical analysis, used to detect and measure the actions of endogenous or exogenous chemicals, using chemical assays and bioassays as appropriate. Enrolment limited to students in Pharmacology and others with permission of the department head. Prerequisite: All of PCTH 300, BIOL 300. [1-0; 2-0]

PCTH 425 (8) MEDICAL PHARMACOLOGY. A lecture and laboratory course covering the fundamental pharmacological action of drugs. Both terms.

PCTH 448 (2-6) C DIRECTED STUDIES IN PHARMACOLOGY. Advanced investigation of a specific topic in Pharmacology.

PCTH 449 (3/6) D HONOURS THESIS. A research problem directed by a faculty member. Restricted to Honours students.

PCTH 451 (3) REVIEW OF CLINICAL PHARMACOLOGY. This course has been designed as a basic science elective for third-year medical students. Prerequisite: Departmental approval required.

PCTH 453 (2) ADVANCED THERAPEUTICS. A lecture, assigned problems, and discussion course dealing with practical aspects of therapeutics. This course is designed to give fourth-year medical students some practical experience in the science of drug prescribing.

PCTH 498 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Technical report required. Restricted to students admitted to the Co-operative Education Program in Pharmacology. Prerequisite: PCTH 399.

PCTH 499 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Normally taken during the summer after fourth

year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Pharmacology. Prerequisite: PCTH 498.

PCTH 500 (3) MOLECULAR ASPECTS OF DRUG ACTION AT THE MEMBRANE LEVEL. Lectures, discussions and assigned reading on actions of drugs on ion channels, receptors and intracellular processes and the methodologies used including electrophysiology, fluorescence measurements, molecular neurobiology and microdialysis. Given in even-numbered and alternate years.

PCTH 501 (3) STRUCTURE-ACTIVITY RELATIONSHIPS IN PHARMACOLOGY. Lectures, discussions and assigned reading on physicochemical approaches to drug design – the relationship between molecular structure and pharmacological activity in various representative classes of drugs. Given in odd-numbered and alternate years.

PCTH 502 (4) DRUGS AND INTERCELLULAR COMMUNICATION (INCLUDING NEUROPHARMACOLOGY). Lectures, discussions and assigned reading on the actions of drugs on the production, release and cellular effects of hormones and neurotransmitters. Given in odd-numbered and alternate years.

PCTH 512 (3) EXPERIMENTAL DESIGN AND ANALYSIS IN PHARMACOLOGY. A series of lectures, tutorials and exercises designed to improve student skills in the design and statistical analyses of pharmacological experiments.

PCTH 513 (4) PHARMACOLOGY OF ANAESTHESIA. Pharmacology of drugs used in anaesthesia. Conferences, assigned reading and laboratory exercises demonstrating the actions of drugs as currently applied in the practice of anaesthesia. Prerequisite: Permission of the department head is required.

PCTH 514 (1) SEMINAR IN PHARMACOLOGY OR THERAPEUTICS. To give students experience in the presentation of data and to enhance communication skills in the discussion of scientific topics. All students will present at least one seminar during their graduate work and would be expected to attend all seminars.

PCTH 548 (2-6) C DIRECTED STUDIES IN PHARMACOLOGY. In special cases, with the approval of the department head, advanced courses may be arranged.

PCTH 549 (12) M.SC. THESIS.

PCTH 649 (0) PH.D. THESIS.

PETE — PHYSICAL EDUCATION – TEACHER EDUCATION FACULTY OF EDUCATION

PETE 300 (3) TEACHING AND LEARNING PHYSICAL EDUCATION ACROSS THE CURRICULUM: ELEMENTARY. An interdisciplinary approach toward integrating physical education in the school curriculum; principles and methods of instruction for classroom teachers. [3-0-0]

PETE 314 (4/5) D CURRICULUM AND INSTRUCTION IN PHYSICAL EDUCATION: SECONDARY. Pass/Fail. Prerequisite: A completed concentration in physical education or permission of the head.

PETE 320 (2) CURRICULUM AND INSTRUCTION IN PHYSICAL EDUCATION: ELEMENTARY. Curriculum organization in physical education; principles and methods of instruction applied to teaching physical education. Pass/Fail. [1-2-0]

PETE 380 (3) TEACHING ADVENTURE ACTIVITIES IN THE OUTDOORS. An interdisciplinary focus in methodology and program planning. Costs for field trips and an overnight experience are borne by students. [1-2]

PETE 400 (3) ELEMENTARY SCHOOL PHYSICAL EDUCATION: CURRICULUM TOPICS. Prerequisite: One of PETE 300, PETE 320. [3-0-0]

PETE 401 (3) ELEMENTARY SCHOOL PHYSICAL EDUCATION: INSTRUCTION. Prerequisite: One of PETE 300, PETE 320. [3-0-0]

PETE 480 (3) ADVANCED METHODOLOGY IN OUTDOOR ENVIRONMENTAL EDUCATION. Using the outdoor environment as an educational setting for experiential and integrative learning. Costs for field trips and an overnight experience are borne by students. Prerequisite: PETE 380 or permission of the instructor.

PETE 508 (3/6) D REVIEW OF RESEARCH IN KINESTHETIC LEARNING. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

PETE 545 (3) MOVEMENT ACROSS THE CURRICULUM. Developing an integrated approach toward curriculum planning and instruction by utilizing principles of kinesthetic learning and concepts of movement education. Prerequisite: PETE 508.

PETE 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses on various topics designed to bring teachers up to date in recent findings in the field.

PETE 580 (3/12) C PROBLEMS IN EDUCATION.

PETE 585 (3) HEALTH PROMOTION, WELLNESS AND LIFESKILLS IN OUTDOOR SETTINGS.

PETE 590 (3) GRADUATING PAPER.

PETE 598 (3/12) D FIELD EXPERIENCES. For those on Master's, Doctoral and Diploma programs.

PETE 599 (6/12) D MASTER'S THESIS.

PHAR — PHARMACEUTICAL SCIENCES FACULTY OF PHARMACEUTICAL SCIENCES

PHAR 200 (4) PROFESSIONAL PRACTICE II. Professional relationships; interactions with patients and with other health care providers. Patterns of medication use and abuse in society;

the detection and resolution of medication problems. Corequisite: PHAR 311. [2-3*-0]

PHAR 201 (3) PHARMACIST, PATIENT AND SOCIETY. The Canadian health care system, the pharmacist-patient relationship, and contemporary trends and standards in pharmacy practice. [3-0-0]

PHAR 202 (2) PHARMACY SKILLS I. Legal, technical and professional aspects of dispensing prescriptions and providing pharmaceutical care, primarily for community pharmacy practice. Corequisite: PHAR 201. [0-3*-3*]

PHAR 220 (3) PHYSICOCHEMICAL PROPERTIES OF DRUGS. Drug discovery, physicochemical principles, theory of spectroscopy and chromatography, chemical stability. [3-0-0]

PHAR 240 (3) PHARMACOLOGY FOR NURSES. A study of the effects, side effects, mechanism of action and interaction of drugs. Primarily intended for students in second-year nursing. [3-0-0]

PHAR 241 (2) FOUNDATIONS OF PHARMACOLOGY. An introduction to general principles and concepts of drug action in selected systems. [2-0-0]

PHAR 299 (3) CASES IN PHARMACEUTICAL SCIENCES I. Case studies, laboratory exercises, and tutorials intergrading scientific and clinical concepts. [0-0-3; 0-0-3]

PHAR 300 (4) PROFESSIONAL PRACTICE III. Development of pharmaceutical care practice skills; drug problem identification in patients and selected disease states; critical thinking, self-directed learning and problem-solving skills. Preparation for structured practice experiences. Prerequisite: Successful completion of all required courses in the first two years of the pharmacy curriculum. [2-3*-0; 2-3*-0]

PHAR 301 (3) SELF-MEDICATION PRODUCTS. A study of non-prescription medications for the self-medicating patient. The pharmacist's role in recommending safe and effective drug preparations will be emphasized. Prerequisite: Successful completion of all required courses of the first two years of the pharmacy program. [3-0-0]

PHAR 302 (3) PHARMACEUTICAL CARE. Overview of the pharmaceutical care model of practice; introduction to home health care products and drug information techniques. Prerequisite: PHAR 201. Corequisite: PHAR 303. [3-0-0]

PHAR 303 (2) PHARMACY SKILLS II. Legal, technical and professional aspects of dispensing prescriptions and providing pharmaceutical care, primarily for community pharmacy practice. Prerequisite: PHAR 202. Corequisite: PHAR 302. [0-3*-3*]

PHAR 311 (4) DRUG DELIVERY SYSTEMS II. Principles of the design, preparation and evaluation of parenteral, intrapulmonary, dermal, ophthalmic, otic, nasal, rectal and vaginal drug delivery systems. [2-3*-0]

PHAR 315 (4) PHARMACOKINETICS.

Pharmacokinetics and clinical applications of pharmacokinetic principles. Prerequisite: All of PHAR 321, PHAR 341. [4-0-0]

PHAR 321 (3) BIOPHYSICAL PHARMACY I. Applications of the physical chemical properties of drugs to oral drug delivery systems. Prerequisite: PHAR 220. Corequisite: PHAR 322. [3-0-0]

PHAR 322 (1) BIOPHYSICAL PHARMACY LABORATORY I. Analytical techniques for the assay of biological systems, drugs and drug products. Prerequisite: PHAR 220. Corequisite: PHAR 321. [0-3-0]

PHAR 323 (3) BIOPHYSICAL PHARMACY II. Applications of the physical chemical properties of drugs to non-oral drug delivery systems. Prerequisite: All of PHAR 321, PHAR 322. [3-0-0]

PHAR 325 (4) PHARMACEUTICAL ANALYSIS. An introduction to quality control methods used to analyse drugs including: aqueous, non-aqueous, redox, compleximetric and potentiometric, titrimetry, colorimetric, fluorometric, ultra-violet and infrared spectroscopy; paper, column thin-layer, gas-liquid, and high-pressure-liquid chromatography; biochemical tests and the use of radioisotopes in Pharmacy. [4-3-0]

PHAR 330 (2) BIOMOLECULAR PHARMACEUTICAL CHEMISTRY I. Application of genetic information to drug therapy. Prerequisite: PHAR 321. Corequisite: All of BIOC 300, PHAR 315. [2-0-0]

PHAR 341 (3) PHARMACOLOGY I. Pharmacological principles and the pharmacology of selected agents. Prerequisite: All of PHAR 241, PHYL 301, PHYL 302. Corequisite: All of PHAR 351, PHAR 361, PHAR 371. [3-0-0]

PHAR 342 (2) PHARMACOLOGY II. Principles of chemotherapy and drug resistance and the pharmacology of selected drug classes. Prerequisite: PHAR 341. Corequisite: All of PHAR 352, PHAR 362. [2-0-0]

PHAR 351 (2) THERAPEUTICS I. Rational drug therapy, management of patient-specific drug-related problems and therapeutic monitoring of selected disease states. Corequisite: All of PHAR 341, PHAR 361, PHAR 371. [2-0-0]

PHAR 352 (2) THERAPEUTICS II. Rational drug therapy, management of patient-specific drug-related problems and therapeutic monitoring of selected disease states. Prerequisite: PHAR 351. Corequisite: All of PHAR 342, PHAR 356. [2-0-0]

PHAR 360 (3) INTRODUCTION TO PHARMACEUTICAL BIOTECHNOLOGY. An introduction to recombinant DNA technology used in the design and production of agents for the prevention, diagnosis and treatment of disease and a discussion of the ethical, economic and societal issues associated with these agents. [3-0-0]

PHAR 361 (1) NON-PRESCRIPTION DRUGS AND NATURAL HEALTH PRODUCTS I. The use of non-prescription drugs and natural health products for selected conditions. Corequisite: All of PHAR 341, PHAR 351. [1-0-0]

PHAR 362 (1) NON-PRESCRIPTION DRUGS AND NATURAL HEALTH PRODUCTS II. The use of non-prescription drugs and natural health products for selected conditions. Prerequisite: PHAR 361. Corequisite: All of PHAR 342, PHAR 352. [1-0-0]

PHAR 369 (3) STRUCTURED PRACTICAL EXPERIENCE I. Prerequisite: Promotion to third year.

PHAR 370 (4) DRUGS: CHEMISTRY, PHARMACOLOGY AND THERAPEUTICS I. Pharmacological, chemical and physical principles of defined groups of drugs; the relationship of chemical structure to biological activity; the treatment with these drugs of diseases commonly encountered in pharmacy practice. Drug groups will include those affecting the autonomic nervous system, local anaesthetics and selected others. The role of the pharmacist in the resolution of drug-related problems will be stressed. [4-0-0]

PHAR 371 (1) PATHOPHYSIOLOGY I. Pathophysiology of selected disease states. Corequisite: All of PHAR 341, PHAR 351. [1-0-0]

PHAR 380 (6) DRUGS: CHEMISTRY, PHARMACOLOGY AND THERAPEUTICS II. Pharmacological, chemical and physical principles of defined groups of drugs; the relationship of chemical structure to biological activity; the treatment with these drugs of diseases commonly encountered in pharmacy practice. Drug groups will include: renal, cardiac, respiratory, endocrine and selected others. The role of the pharmacist in the resolution of drug-related problems will be stressed. [6-0-2*]

PHAR 385 (6) DRUGS: CHEMISTRY, PHARMACOLOGY AND THERAPEUTICS III. Pharmacological, chemical and physical principles of defined groups of drugs; the relationship of chemical structure to biological activity; the treatment with these drugs of diseases commonly encountered in pharmacy practice. Drug groups will include: gastrointestinal, psychotropic, neurological disorders, analgesics and selected others. The role of the pharmacist in the resolution of drug-related problems will be stressed. [6-0-2*]

PHAR 399 (3) CASES IN PHARMACEUTICAL SCIENCES II. Case studies and other activities integrating scientific and clinical concepts. Prerequisite: PHAR 299. [0-0-3]

PHAR 400 (3) PHARMACY MANAGEMENT. Application of management principles to pharmacy operations. [3-0-0]

PHAR 401 (2) PHARMACY SKILLS III. Legal, technical and professional aspects of dispensing prescriptions and providing pharmaceutical care, primarily for community pharmacy practice. Prerequisite: PHAR 303. [0-3*-3*]

PHAR 402 (6) CLERKSHIP I-COMMUNITY. Structured practice education experience in community pharmacies.

PHAR 403 (3) CLERKSHIP II-INSTITUTIONAL. Structured practice education experience in hospitals and other health care facilities.

PHAR 404 (3) DRUG THERAPY FOR THE PAEDIATRIC PATIENT. Introduction to the paediatric patient. Emphasis is placed on developmental pharmacology, paediatric disease states and their treatment, and drug therapy considerations specific to the paediatric population. Limited enrolment; permission from instructor required. Graduate and undergraduate students from other faculties may be admitted. [3-0-0]

PHAR 405 (2-6) C PROBLEMS IN CLINICAL PHARMACY. Individual assignments involving library and clinical investigation of specific problems relating to drug utilization and information topics.

PHAR 407 (3) DRUG INFORMATION SKILLS. Communication skills, search strategies and drug literature appraisal issues relating to the provision of drug information by the pharmacist to other health professionals and the public. Prerequisite: PHAR 385. [3-0-0]

PHAR 408 (3) CLINICAL PHARMACOKINETICS. Lectures and discussions of topics on the application of pharmacokinetic principles and the use of therapeutic drug level monitoring in clinical pharmacy practice. Prerequisite: Successful completion of all required courses in the first three years of the pharmacy curriculum. Permission of instructor required. [3-0-0]

PHAR 409 (3) DRUG THERAPY FOR THE GERIATRIC PATIENT. A combination of lectures and workshops is used to address topics such as: the social, individual, physiological and pharmacological aspects of aging; major disease states occurring in the elderly and their respective drug and non-drug management; specific communication difficulties encountered with the elderly and methods of minimizing their impact on patient education and compliance. Permission of instructor required. [3-0-0]

PHAR 414 (6) PROBLEMS IN PHARMACEUTICS AND BIOPHARMACEUTICS. Individual assignments involving library and laboratory investigation of problems involved in the development of pharmaceutical dosage forms.

PHAR 415 (4) TOPICS IN PHARMACEUTICS AND BIOPHARMACEUTICS. A study of selected topics in the field of pharmaceutics and biopharmaceutics. Registration restricted. Permission of instructor required. [2-0-0; 2-0-0]

PHAR 425 (6) DRUG TESTING AND ASSAYING. Modern analytical techniques applied to separation and analysis of pharmaceutical preparations and special methods employed in pharmaceutical research. Registration limited. [1-4-0]

PHAR 426 (6) PROBLEMS IN PHARMACEUTICAL CHEMISTRY. Research and library thesis projects related to problems in analytical and synthetic aspects of drugs and natural products, and molecular aspects of drug action. Registration limited.

PHAR 429 (2) BIOCHEMICAL AND CLINICAL ASPECTS OF DRUG METABOLISM. A study of the major enzymes and the reactions involved in the biotransformation of drugs. Factors affecting drug metabolism, enzyme induction and inhibition, as well as pharmacokinetic models and drug interactions will be discussed. Prerequisite: Permission of the instructor is required. [2-0-0]

PHAR 430 (4) BIOMOLECULAR PHARMACEUTICAL CHEMISTRY II. Chemical principles and their application to drugs used to regulate enzyme activity. Prerequisite: PHAR 330. [4-0-0]

PHAR 435 (3) BIOMOLECULAR PHARMACEUTICAL CHEMISTRY III. Chemical principles and their application to drugs used to regulate receptor activity. Prerequisite: PHAR 430. [3-0-0]

PHAR 441 (3) PHARMACOLOGY III. The pharmacology of selected drug classes. Prerequisite: PHAR 342. Corequisite: All of PHAR 451, PHAR 461, PHAR 471. [3-0-0]

PHAR 442 (3) PHARMACOLOGY IV. The pharmacology of selected drug classes. Prerequisite: PHAR 441. Corequisite: All of PHAR 452, PHAR 462, PHAR 472. [3-0-0]

PHAR 444 (6) PROBLEMS IN PHARMACOLOGY. Individual assignments involving library and laboratory investigation of certain aspects of drug action. Enrolment restricted.

PHAR 448 (3) ENVIRONMENTAL AND CELLULAR TOXICOLOGY. Toxicology of heavy metals, pesticides; mutagenic, teratogenic and carcinogenic effects of drugs. Prerequisite: All of BIOC 300, PHYL 301, PHYL 302, PHAR 370, PHAR 380, PHAR 385. [3-0-0]

PHAR 450 (2-6) C SELECTED TOPICS. Thesis or Essay.

PHAR 451 (2) THERAPEUTICS III. Rational drug therapy, management of patient-specific drug-related problems and therapeutic monitoring of selected disease states. Prerequisite: PHAR 352. Corequisite: All of PHAR 441, PHAR 461, PHAR 471. [2-0-0]

PHAR 452 (2) THERAPEUTICS IV. Rational drug therapy, management of patient-specific drug-related problems and therapeutic monitoring of selected disease states. Prerequisite: PHAR 451. Corequisite: All of PHAR 442, PHAR 462, PHAR 472. [2-0-0]

PHAR 453 (2-6) C DIRECTED STUDIES IN PHARMACY PRACTICE. Individual assignments involving library and field work investigations of problems associated with pharmacy practice. Enrolment restricted. Open to upper level students. Prerequisite: Successful completion of the first three years of required courses in the pharmacy curriculum.

PHAR 454 (3) PEDIATRIC AND GERIATRIC DRUG THERAPY. Drug therapy considerations in pediatric and geriatric patients. Prerequisite: PHAR 451. Corequisite: PHAR 452. [3-0-0]

PHAR 455 (3) PHARMACY IN CANADA'S HEALTH CARE SYSTEM. Issues in health care, community health services and pharmacy practice. [3-0-0]

PHAR 461 (1) NON-PRESCRIPTION DRUGS AND NATURAL HEALTH PRODUCTS III. The use of non-prescription drugs and natural health products for selected conditions. Prerequisite: PHAR 362. Corequisite: All of PHAR 441, PHAR 451. [1-0-0]

PHAR 462 (1) NON-PRESCRIPTION DRUGS AND NATURAL HEALTH PRODUCTS IV. The use of non-prescription drugs and natural health products for selected conditions. Prerequisite: PHAR 461. Corequisite: All of PHAR 442, PHAR 452. [1-0-0]

PHAR 469 (3) STRUCTURED PRACTICAL EXPERIENCE II. A 160-hour community or institutional pharmacy clerkship. Prerequisite: PHAR 369 and promotion to fourth year.

PHAR 471 (1) PATHOPHYSIOLOGY II. Pathophysiology of selected disease states. Prerequisite: PHAR 371. Corequisite: All of PHAR 441, PHAR 451. [1-0-0]

PHAR 472 (1) PATHOPHYSIOLOGY III. Pathophysiology of selected disease states. Prerequisite: PHAR 471. Corequisite: All of PHAR 442, PHAR 452. [1-0-0]

PHAR 479 (12) STRUCTURED PRACTICAL EXPERIENCE III. Prerequisite: PHAR 469.

PHAR 480 (6) DRUGS: CHEMISTRY, PHARMACOLOGY AND THERAPEUTICS IV. Pharmacological, chemical and physical principles of defined groups of drugs; the relationship of chemical structure to biological activity; the treatment with these drugs of diseases commonly encountered in pharmacy practice. Drug groups will include: antimicrobials, chemotherapeutic agents and selected others. The role of the pharmacist in the resolution of drug-related problems will be stressed. [6-0-2*]

PHAR 489 (6) STRUCTURED PRACTICAL EXPERIENCE IV. Prerequisite: PHAR 469.

PHAR 490 (3) ALTERNATIVE MEDICINES IN PHARMACY PRACTICE. Critical evaluation of the safety and efficacy of selected herbal medicines and homeopathic remedies; regulatory, ethical, cultural and clinical issues in pharmaceutical care. Prerequisite: PHAR 385. [1-0-2]

PHAR 498 (3) CASES IN PHARMACEUTICAL SCIENCES III. Case studies and other activities integrating scientific and clinical concepts. Prerequisite: PHAR 399. [0-0-3]

PHAR 499 (3) CASES IN PHARMACEUTICAL SCIENCES IV. Case studies and other activities integrating scientific and clinical concepts. Prerequisite: PHAR 498. [1-0-6]

PHAR 501 (12) ADVANCED PHARMACOTHERAPEUTICS. Pharmacotherapeutic intervention in selected acute and chronic diseases and disorders. Emphasis is on recommendations for and monitoring of drug therapy. [3-6; 3-6]

PHAR 502 (4) ADVANCED CONCEPTS IN PHARMACOKINETICS. Models of linear and dose-dependent systems in pharmacokinetics including sustained release, volumes of distribution, drug clearance, metabolite kinetics, multiple dosing and computer modelling. Prerequisite: PHAR 315. [4-0-0]

PHAR 503 (2-12) C GRADUATE CLINICAL CLERKSHIP. This course will consist of clinical rotations of 4–6 weeks' duration (20–40 hours per week, 2 credit/rotation) in selected specialty areas in medicine and clinical pharmacy. Students will be assigned to clinicians in the selected specialty who are members of either the Faculty of Medicine or Pharmaceutical Sciences and who are appointed as clinical instructors for this course. Rotations will take place at the site(s) where the majority of the clinician's practice is conducted.

PHAR 508 (4) ADVANCED APPLICATIONS IN CLINICAL PHARMACOKINETICS. Pharmacokinetic applications in therapeutic drug monitoring and patient care; specific drugs and disease states; effects of age and concomitant drug administration. Prerequisite: PHAR 502. [4-0-0]

PHAR 510 (2-6) D ADVANCED PHARMACEUTICS I. A study of physical and chemical properties of pharmaceutical systems with emphasis on formulation and preparative aspects.

PHAR 511 (2-6) D ADVANCED PHARMACEUTICS II. A study of problems in pharmaceuticals with emphasis on biopharmaceutical aspects.

PHAR 514 (6) ADVANCED DRUG DELIVERY SYSTEMS. Controlled-release and targeted drug delivery systems. Advances in delivery systems for peptide and protein drugs. [3-0-0]

PHAR 525 (4) PHARMACEUTICAL RESEARCH TECHNIQUES I. Spectroscopic, GC, HPLC, LCMS and NMR analytical techniques for drug analysis, pharmacokinetics and metabolism. [2-6-0]

PHAR 526 (4) PHARMACEUTICAL RESEARCH TECHNIQUES II. Immunological assays, capillary and gel electrophoresis, radioisotope techniques, PET, peptide analysis and receptor binding studies. [2-6-0]

PHAR 533 (12-24) D CLINICAL CLERKSHIPS I. Required clinical rotations of four weeks' duration in selected specialty areas in medicine and clinical pharmacy.

PHAR 534 (2-12) D CLINICAL CLERKSHIPS II. Elective clinical rotations of 4 weeks' duration in hospital, office or clinic locations.

PHAR 535 (1/2) D PHARM.D. SEMINAR.

PHAR 540 (2-6) D TOPICS IN PHARMACOLOGY. Lectures and supervised studies in selected areas of pharmacology. Enrolment restricted.

PHAR 541 (3) DRUG METABOLISM AND TOXICOLOGY. The biotransformation of drugs, pesticides, carcinogens and other foreign chemicals in animals and humans. The biochemical mechanisms responsible, particularly the cytochrome P-450 mono-oxygenases, will be emphasized. The formation of toxic reactive metabolites and their effects will be discussed. Enrolment restricted.

PHAR 542 (3) CENTRAL NERVOUS SYSTEM PHARMACOLOGY. A course comprised of lectures, assigned readings and reports on selected topics dealing with drug actions in the central nervous system. Given in alternate years. Permission of instructor required.

PHAR 543 (3) ADVANCED LABORATORY IN PHARMACOLOGY. A laboratory course giving instruction in the methods and techniques used in pharmacological research. Registration limited. [0-6-0]

PHAR 544 (3) PHYSIOLOGY AND PHARMACOLOGY OF THE AUTONOMIC NERVOUS SYSTEM. A lecture and seminar course dealing with adrenergic, cholinergic and peptidergic transmission in the peripheral nervous system. Topics to be discussed will include mechanisms of synthesis, storage and release of neurotransmitters and effects of drugs on these processes. Given in alternate years. Permission of instructor required.

PHAR 545 (3) CARDIOVASCULAR PHARMACOLOGY. A course composed of lectures, assigned readings and conferences dealing with aspects of drug actions and cardiovascular function. Topics include the role of adenylate cyclase in cardiac function, the role of calcium in myocardial contractility and the effect of drugs on myocardial and vascular function. Enrolment restricted. Given in alternate years.

PHAR 548 (2) M.SC. SEMINAR. Attendance at regular seminars throughout the session and presentation of one or more papers on selected topics.

PHAR 549 (6/12) C MASTER'S THESIS.

PHAR 550 (2-6) C DIRECTED STUDIES.

PHAR 551 (6) PHARMACY IN CANADA. Cultural, social, behavioural and organizational foundations and theories of pharmacy in the Canadian health care system. Open only to Pharmacy Practice graduate students. [3-0-0; 3-0-0]

PHAR 552 (6) ISSUES IN PHARMACY PRACTICE RESEARCH. Research methods applied to the study of social and behavioural aspects of health care and pharmacy practice. Open only to pharmacy administration doctoral students who have completed graduate-level courses in statistics and research design. [3-0-0]

PHAR 554 (3) ADVANCED HOSPITAL PHARMACY MANAGEMENT. Institutional, professional and regulatory factors that

influence the planning, implementation and control of pharmacy services in hospitals. Permission of instructor required. [3-0-0]

PHAR 570 (2) PHYSICAL ASSESSMENT.

Principles of and clinical experience in physical assessment of patients for monitoring of drug efficacy and toxicity; interpretation of objective patient data by the clinical pharmacist. [2-0-0]

PHAR 580 (4) TOXICOLOGY I – GENERAL PRINCIPLES OF TOXICOLOGY. Absorption, distribution, metabolism and excretion of toxins. Chemical mutagenesis, carcinogenesis and teratogenesis and radiation toxicology. Various subspecialties introduced include regulatory, forensic, occupational and clinical toxicology. [4-0-0]

PHAR 581 (3) TOXICOLOGY II – TARGET ORGAN TOXICOLOGY. Action of toxins in specific organ systems, the causative agents and their mechanisms of action. The role of the toxicologist in prevention and resolution of various toxin-related problems. [3-0-0]

PHAR 582 (3) TOXICOLOGY III – ENVIRONMENTAL TOXICOLOGY. Toxicology and risk assessment of air, water and soil pollutants; food additives; animal and plant toxins; pesticides; heavy metals; solvents. Equivalency: PATH 582. [3-0-0]

PHAR 583 (3) TOXICOLOGY IV – MOLECULAR MECHANISMS OF TOXICOLOGY. Activation versus detoxification by cytochromes P-450; the role of the Ah receptor; reactive oxygen species; heavy metals; apoptosis. Equivalency: PATH 583. [3-0-0]

PHAR 584 (3) CELL CULTURE: CONCEPTS AND TECHNIQUES. Principles and methods of culturing isolated cells. Morphological and functional examination of normal cells and cells exposed to damaging agents or conditions. [0-6-0]

PHAR 590 (2) RESEARCH IN THE PHARMACEUTICAL SCIENCES: PRINCIPLES AND METHODS.

PHAR 648 (2) SEMINAR FOR PH.D. STUDENTS. Attendance at regular seminars throughout the session and presentation of one or more papers on selected topics.

PHAR 649 (0) DOCTOR OF PHILOSOPHY THESIS.

PHIL — PHILOSOPHY FACULTY OF ARTS

Philosophy is an interdisciplinary subject, and students with training in other subjects may be adequately prepared to take on a course even though they lack the formal prerequisites.

Students are encouraged to consult with the instructor. Variable credit courses: Most 200, 300, and 400 level courses in Philosophy are offered for 3 credits, but may be taken for 4 credits for extra work with the consent of the instructor. Students should consult the instructor if they wish to exercise this option as it may not be available in all sections. For detailed information about courses and topics within courses, see the departmental website (www.philosophy.ubc.ca).

PHIL 100 (6) INTRODUCTION TO PHILOSOPHY. Basic problems and methods of Philosophy. Topics such as the existence of God, the nature and scope of human knowledge, the relationship between mind and body, personal identity, free will, issues and problems in moral philosophy.

PHIL 120 (3) INTRODUCTION TO LOGIC AND CRITICAL THINKING. Tools for dealing with both everyday and more technical arguments and concepts. Analysis and resolution of confusions, ambiguities, and fallacies. This course is restricted to students with fewer than 90 credits.

PHIL 125 (3) INTRODUCTION TO SCIENTIFIC REASONING. Historical and logical analysis of various types of scientific hypotheses and the data that support or undermine them. This course is restricted to students with fewer than 90 credits.

PHIL 211 (3/4) D GREEK PHILOSOPHY I. The Presocratics; Socrates; Sophists. Recommended as preparation for CLST/PHIL 212 and PHIL 310. Equivalency: CLST 211.

PHIL 212 (3/4) D GREEK PHILOSOPHY II. Plato; Aristotle; selections from Hellenistic Philosophy. Recommended as preparation for PHIL 310. Equivalency: CLST 212.

PHIL 220 (3/4) D SYMBOLIC LOGIC I. Sentential and predicate logic. Translation from natural language; truth tables and interpretations; systems of natural deduction up to relational predicate logic with identity; alternative proof methods. Some sections may use computer-based materials and tests.

PHIL 230 (3/4) D INTRODUCTION TO MORAL THEORY. Theories of obligation and value; moral reasoning; normative ethics, descriptive ethics and meta-ethics. Readings in classic and contemporary texts.

PHIL 235 (3/4) D CONTEMPORARY MORAL ISSUES. Philosophical approaches or moral problems.

PHIL 240 (3/4) D KNOWLEDGE AND REALITY I. Topics in metaphysics and epistemology such as truth, knowledge, justification, the nature of physical reality, and personal identity. Readings from classic and contemporary texts.

PHIL 260 (3/4) D SCIENCE AND SOCIETY. An introduction to the historical development, conceptual foundations, and cultural significance of contemporary science. Themes will vary from year to year. Equivalency: HIST 260.

PHIL 310 (3/4) D THE PHILOSOPHY OF PLATO. A study of Plato's dialogues and his influence on subsequent philosophy.

PHIL 311 (3/4) D THE PHILOSOPHY OF ARISTOTLE. A study of Aristotle's writings and his influence on subsequent philosophy. Prerequisite: PHIL 310.

PHIL 313 (3) MEDIEVAL PHILOSOPHY. Survey of Western European thought from Augustine to the 14th century. Possible topics and authors include: Augustine; Abelard; the influence of Islam; the rediscovery of Aristotle;

Aquinas; Scotus; Ockham. Equivalency: RELG 328.

PHIL 314 (3/4) D PHILOSOPHY IN THE 17TH CENTURY. Survey of 17th-century philosophy from Bacon to Leibniz, including the writings of Hobbes, Descartes, and Spinoza. The influence of science and religion on philosophical thought.

PHIL 315 (3/4) D PHILOSOPHY IN THE 18TH CENTURY. Survey of 18th-century philosophy from Locke to Kant, including the writings of Berkeley, Rousseau, and Hume. The influence of science and religion on philosophy. Prerequisite: PHIL 314.

PHIL 316 (3/4) D PHILOSOPHY AFTER 1800. Survey of 19th and 20th century philosophy. May include Hegel, Schopenhauer, Nietzsche, Mill, Meinong, Brentano, the British Idealists, Russell, and Moore. Social and political currents in 19th century philosophical thought.

PHIL 320 (3/4) D SYMBOLIC LOGIC 2. Continuation of PHIL 220. A system of deduction for predicate logic is selected for further study. Completeness of this system and other metatheoretic results are proved. Other topics include computability, recursive function theory, incompleteness and decidability. Prerequisite: PHIL 220.

PHIL 321 (3/4) D INDUCTION AND DECISION. Formal methods relevant to the logic of decision. Decision theory, game theory, axiomatic probability theory and its interpretations, belief dynamics, simulation and modelling. Prerequisite: One of PHIL 125, PHIL 220.

PHIL 322 (3/4) D MODAL LOGIC. Logic of the modal operators "It is necessary that" and "It is possible that." Possible-world semantics and a method of derivation for this logic. Prerequisite: PHIL 220.

PHIL 323 (3/4) D NON-CLASSICAL LOGICS. One or more of conditional logic, deontic logic, epistemic logic, many-valued logic, systems of belief dynamics. Prerequisite: PHIL 220.

PHIL 324 (3/4) D PHILOSOPHY OF LOGIC. Fundamental concepts and methods of logic; the logic method, syntax and semantics; the conditional; entailment; consequence; modal logic; problems concerning extensionality and intentionality. Frege's distinction between sense and reference; Russell's theory of definite descriptions; Tarski's definition of truth. Prerequisite: PHIL 220.

PHIL 330 (3/4) D SOCIAL AND POLITICAL PHILOSOPHY. Theories of political and legal obligation and authority, legal reasoning, society and the state. Readings in classic and contemporary texts.

PHIL 334 (3/4) D SEX, GENDER AND PHILOSOPHY. Relationship between sex, gender, and philosophy. Topics may include ethics, epistemology, science, social relations, law, and personhood.

PHIL 335 (3/4) D POWER AND OPPRESSION. Philosophical approaches to historical problems of inequality and social harm, with readings drawn from historical and contempo-

rary sources. Topics to be studied may include slavery, colonialism, labour, and the position of women in society.

PHIL 338 (3/4) D PHILOSOPHY OF LAW.

Concepts of law, constitution and sovereignty; law and morality; natural law theories and legal positivism; obligation, responsibility, and punishment.

PHIL 339 (3/4) D PHILOSOPHY OF ART.

Topics include art and perception, art and reality, imagination, expression, censorship, and the role of art in human life.

PHIL 340 (3/4) D KNOWLEDGE AND REALITY II.

Topics in metaphysics and epistemology such as induction, the mind/body problem, free will, and action theory. Readings from classic and contemporary texts. Prerequisite: PHIL 240.

PHIL 349 (3/4) D PHILOSOPHY OF RELIGION.

A critical and analytical examination of arguments for and arguments against the existence of God, and other related topics.

PHIL 360 (3/4) D INTRODUCTION TO HISTORY AND PHILOSOPHY OF SCIENCE.

An examination of historical, conceptual and methodological conditions of scientific knowledge through detailed consideration of important episodes in the history of science. Equivalency: HIST 360.

PHIL 362 (3-6) D HISTORY AND PHILOSOPHY OF ECONOMICS FROM ARISTOTLE TO ADAM SMITH.

The development of economic thought from Aristotle to Adam Smith, focusing primarily on the conceptual foundations of economics, particularly the problems of value, distribution, and economic growth. Equivalency: ECON 318.

PHIL 363 (3-6) D HISTORY AND PHILOSOPHY OF ECONOMICS FROM RICARDO TO KEYNES.

The development of economic thought from David Ricardo up to the present, including such figures as Malthus, Mill, Jevons, and Keynes, focusing primarily on the conceptual foundations of economics, particularly the problems of value, distribution and growth. Equivalency: ECON 319.

PHIL 375 (3/4) D PHILOSOPHY AND LITERATURE.

Philosophical issues in works of literature or arising from theories of literary interpretation. Topics include issues relating to relativism, the nature of morality, free will, personal identity, the nature of the emotions.

PHIL 378 (3) PHILOSOPHICAL WISDOM OF EARLY INDIA.

Epistemological and ontological thought from the Vedic Period to the period of the rise of philosophical schools or systems. Philosophy in the Mahabharata, Gita; early Buddhist and Jain views on knowledge and reality; views on language. Equivalency: ASIA 378.

PHIL 385 (3/4) D EXISTENTIALISM. Meaning, identity and alienation as explored in the works for example of Kierkegaard, Dostoyevsky, Tolstoy, Sartre, and Camus.

PHIL 388 (3) BUDDHIST, BRAHMANICAL AND JAIN PHILOSOPHERS IN INTERACTION. Debates on issues of epistemology, language and ontology among the philosophical schools or systems of classical India Nagarjuna, Bhartrhari, Uma-svati, Sankara and others. Equivalency: ASIA 388.

PHIL 390 (6/12) C HONOURS TUTORIAL.

For students in third-year Honours.

PHIL 400 (3/4) D MORALS, POLITICS AND THE INDIVIDUAL.

Introduction to major themes in moral and political philosophy. Primarily for fourth-year and graduate students who have had no previous course in Philosophy.

PHIL 401 (3/4) D KNOWLEDGE, EXPLANATION, AND THE NATURE OF THINGS.

Introduction to major themes in epistemology and metaphysics. Primarily for fourth-year and graduate students who have had no previous course in Philosophy.

PHIL 410 (3/4) D TOPICS IN ANCIENT PHILOSOPHY.

Advanced study of the Presocratics, or of a philosopher such as Plato, or of a school such as the Sceptics or Stoics. Topics vary from year to year. Prerequisite: PHIL 311.

PHIL 412 (3/4) D TOPICS IN MEDIEVAL PHILOSOPHY.

Advanced study of a medieval philosopher such as Aquinas, or school. Prerequisite: PHIL 313.

PHIL 414 (3/6) D TOPICS IN THE HISTORY OF MODERN PHILOSOPHY.

Intensive study of a major philosopher or school such as Descartes, Hume, Empiricism, Rationalism, or the British utilitarians. Prerequisite: One of PHIL 314, PHIL 315, PHIL 316.

PHIL 415 (3/4) D THE PHILOSOPHY OF IMMANUEL KANT.

Study of Kant's critical philosophy. Prerequisite: One of PHIL 314, PHIL 315, PHIL 340.

PHIL 416 (3/6) D TOPICS IN 19TH-CENTURY PHILOSOPHY.

Study of a major 19th-century philosopher such as Hegel, Mill or Nietzsche, or school, such as German Idealism. Prerequisite: One of PHIL 314, PHIL 315, PHIL 316, PHIL 340.

PHIL 418 (3/6) D TOPICS IN TWENTIETH-CENTURY PHILOSOPHY.

Intensive study of a major philosopher such as Wittgenstein, Russell, or Heidegger, or school, such as pragmatism or logical empiricism. Prerequisite: PHIL 340.

PHIL 419 (3/4) D PHILOSOPHY OF HISTORY.

Concepts of history and historical explanation, historical progress, purpose, necessity, law and causation. Hegel, Marx, Vico, Spengler, Pareto, Collingwood, Croce, and Toynbee, as well as contemporary figures. Students will be expected to have an adequate knowledge of ancient or modern history.

PHIL 420 (3/4) D TOPICS IN SYMBOLIC LOGIC.

Formal semantics, proof theory, incompleteness and decidability, axiomatic set theory, independence results. Consult the Department as to which topics are offered in a given year. Prerequisite: PHIL 220.

PHIL 425 (3/4) D PHILOSOPHY OF LANGUAGE I. Philosophical discussion of language, meaning and communication. Prerequisite: Philosophy or Linguistics courses totaling 9 credits at the 200 level or above.

PHIL 426 (3/4) D PHILOSOPHY OF LANGUAGE II. Advanced topics in the philosophy of language. Prerequisite: PHIL 425 and 6 credits of Philosophy or Linguistics courses at the 200 level or above.

PHIL 427 (3/4) D PHILOSOPHY OF MATHEMATICS. Logicism, formalism and constructivism, implications of metatheorems such as those of Gödel and Church, mathematical truth, mathematics and mental construction, mathematics and the physical world. Prerequisite: Philosophy or Mathematics courses totaling 9 credits at the 200 level or above.

PHIL 431 (3/4) D SOCIAL AND POLITICAL PHILOSOPHY. Central concepts and problems in political life and thought including obligation, citizenship, representation, justice; equality; civil rights and liberty; disobedience. Prerequisite: Philosophy or Political Science courses totaling 9 credits at the 200 level or above.

PHIL 432 (3/4) D ETHICAL THEORY. Classic or contemporary works in ethical theory. Prerequisite: 9 credits in Philosophy at the 200 level or above; PHIL 230 is recommended.

PHIL 433 (3/4) D BIO-MEDICAL ETHICS. Moral problems arising in the health sciences, especially in medicine but also in biology, psychology, and social work. Topics include abortion, death and euthanasia, genetic engineering, behaviour modification, compulsory treatment, experimentation with human beings and animals, and the relationship between professionals and their patients, subjects or clients. No philosophical background is required.

PHIL 434 (3/4) D BUSINESS AND PROFESSIONAL ETHICS. Moral problems in contemporary business and professional practice, general moral theory, the law, and policy formation. Corporate social and environmental responsibility, employee rights, preferential hiring and affirmative action programs, conflicts of interest, advertising, "whistle blowing" and self-regulation.

PHIL 435 (3/4) D ENVIRONMENTAL ETHICS. Moral problems arising in the context of human relationships to nature and to non-human living things, considered in terms of both general moral theory and policy formation. Topics include moral standing, animal rights, obligations to future generations, pollution, hazardous materials, the depletion of natural resources and the treatment of non-human living things.

PHIL 440 (3/4) D EPISTEMOLOGY. Analysis of the concept of knowledge; problems of justifying ordinary and basic empirical beliefs. Prerequisite: PHIL 240.

PHIL 441 (3/4) D PHILOSOPHY OF PERCEPTION. The contribution of the senses to knowledge of the external world; the nature

of perception and its contribution to empirical knowledge. Prerequisite: PHIL 240, or COGS 200 if accompanied by 3 credits in PHIL at the 200 level or above.

PHIL 449 (3/4) D CONTINENTAL PHILOSOPHY. A study of European philosophers from amongst Husserl, Heidegger, Habermas, Foucault, Derrida, Lacan, Levinas, and others.

PHIL 450 (3/4) D METAPHYSICS. Topics including ontology, universals and particulars, substance, determinism and indeterminism, identity over time, and theories of truth. Prerequisite: 9 credits in PHIL at the 200 level or above.

PHIL 451 (3/4) D PHILOSOPHY OF MIND. The nature of the mental and physical; the relation between minds and bodies; the character of psychological explanation. Prerequisite: PHIL 240, or COGS 200 if accompanied by 3 credits of PHIL at the 200 level or above.

PHIL 452 (3/4) D PHILOSOPHY OF ACTION. Explanation of human actions; the conditions of responsibility; freedom of the will; the domains of rational and moral appraisal; the category of action and the individuation of actions. Prerequisite: PHIL 340.

PHIL 460 (3-6) D PHILOSOPHY OF SCIENCE. Issues common to all sciences. Philosophical questions including the character of scientific laws, theories and revolutions, the nature of scientific confirmation, causality, explanation and prediction, and the use of logic and probability. Difficulties in the interpretation of atomic physics and questions about relationships between biology and psychology. No philosophical background is assumed.

PHIL 461 (3/4) D PHILOSOPHY OF SOCIAL SCIENCE. Topics in the philosophy of science of special concern to the social and behavioural sciences; hypotheses and explanation; principles, theories, models; the formation of scientific concepts; the function of mathematics in social science. Prerequisite: 9 credits at the 200 level or above from Philosophy, Anthropology, Geography, Economics, History, Political Science, Psychology or Sociology.

PHIL 462 (3-6) D SPACE AND TIME. Such topics as: Are space and time continuous? Is motion always relative to another body? Does time flow? Is time irreversible? Prerequisite: PHIL 340 or 12 credits of Mathematics or Science.

PHIL 464 (3) PHILOSOPHY OF BIOLOGY. Methodological, historical, philosophical and social science questions about biology. Credit will be given for only one of PHIL 464 or BIOL 446. Prerequisite: Fourth-year standing in any degree program or 9 credits of philosophy.

PHIL 469 (3/4) D TOPICS IN PHILOSOPHY OF SCIENCE. Topics such as probability and induction; foundations of measurement; theory construction. Prerequisite: PHIL 460.

PHIL 485 (3/4) D DIRECTED READING. Same as PHIL 486-9.

PHIL 486 (1-4) D DIRECTED READING.

PHIL 487 (3-4) D DIRECTED READING.

PHIL 488 (3-4) D DIRECTED READING.

PHIL 489 (3-4) D DIRECTED READING.

PHIL 490 (6/12) C HONOURS TUTORIAL. For students in fourth-year Honours.

PHIL 499 (3-4) D DIRECTED READING.

PHIL 510 (3-12) D ANCIENT PHILOSOPHY.

PHIL 512 (3-12) D MEDIEVAL PHILOSOPHY.

PHIL 514 (3-12) D EARLY MODERN PHILOSOPHY.

PHIL 516 (3-12) D MODERN PHILOSOPHY.

PHIL 518 (3-12) D TWENTIETH-CENTURY PHILOSOPHY.

PHIL 520 (3-12) D LOGIC.

PHIL 525 (3-12) D PHILOSOPHY OF LANGUAGE.

PHIL 527 (3-12) D PHILOSOPHY OF MATHEMATICS.

PHIL 528 (3-12) D PHILOSOPHICAL ISSUES IN THE FOUNDATIONS OF MATHEMATICS.

PHIL 530 (3-12) D MORAL PHILOSOPHY.

PHIL 531 (3-12) D POLITICAL PHILOSOPHY.

PHIL 532 (3-12) D ETHICAL THEORY AND PRACTICE.

PHIL 533 (3-12) D ISSUES IN BIO-MEDICAL ETHICS.

PHIL 534 (3-12) D ISSUES IN BUSINESS AND PROFESSIONAL ETHICS.

PHIL 535 (3-12) D ISSUES IN ENVIRONMENTAL ETHICS.

PHIL 536 (3-12) D ETHICAL ISSUES IN PUBLIC POLICY.

PHIL 539 (3-12) D AESTHETICS.

PHIL 540 (3-12) D EPISTEMOLOGY.

PHIL 550 (3-12) D METAPHYSICS.

PHIL 551 (3-12) D PHILOSOPHY OF MIND.

PHIL 560 (3-12) D PHILOSOPHY OF SCIENCE.

PHIL 581 (3-12) D PROBLEMS.

PHIL 585 (3-12) D DIRECTED READING.

PHIL 586 (3) PHILOSOPHY OF ACTION.

PHIL 599 (12) MA THESIS.

PHIL 699 (0) PH.D. THESIS.

PHYL — PHYSIOLOGY FACULTY OF MEDICINE

MATH 102 (or MATH 100 or 104 or 120) and MATH 103 (or MATH 101 or 105 or 121) and PHYS 101 and any other Physics course that is for credit in the Faculty of Science are prerequisite to all courses in Physiology. In the Honours program the required second year courses, BIOL 200, 201, CHEM 201 or 205, and CHEM 233, 235, MATH 200 and MICB 202 must normally be completed prior to entry into third year. For admission to PHYL 422, 423,

424 or 426 see Physiology in the Science section. Students wishing to undertake directed studies at the undergraduate or graduate level are required to consult a departmental adviser before registering.

PHYL 301 (6) HUMAN PHYSIOLOGY. A lecture course on body function with particular reference to mammalian and human physiology. Credit will normally be given for only one of the following: PHYL 301 and 303 or BIOL 353,355. Prerequisite: All of BIOL 112, BIOL 121, BIOL 140 and one of CHEM 203, CHEM 233, CHEM 260. [3-0]

PHYL 302 (3) HUMAN PHYSIOLOGY LABORATORY. A laboratory course designed to illustrate physiological principles and to provide training in physiological techniques. Must be taken in conjunction with PHYL 301. Enrolment limited. Available only to students in the Faculty of Pharmaceutical Sciences. [0-3]

PHYL 303 (3) LABORATORY IN HUMAN PHYSIOLOGY (HONOURS). Techniques and principles of human physiology. This course must be taken in conjunction with PHYL 301. Restricted to Physiology and Pharmacology Honours students. [0-3]

PHYL 422 (3) MAMMALIAN CARDIO-VASCULAR AND RESPIRATORY PHYSIOLOGY. The control and integration of cardio-pulmonary function in mammals. Intended for Honours students in Physiology or other life sciences. Prerequisite: PHYL 301. Permission of the department head is also required. [3-0; 0-0]

PHYL 423 (3) MAMMALIAN RENAL AND GASTROINTESTINAL PHYSIOLOGY. Control of mammalian renal and gastrointestinal systems. Role in homeostasis. Intended for Honours students in Physiology or other life sciences. Prerequisite: PHYL 301. Permission of the department head is also required. [3-0]

PHYL 424 (3) MAMMALIAN ENDOCRINOLOGY. Hormonal control of homeostatic, metabolic and reproductive function. Intended for Honours students in Physiology or other life sciences. Prerequisite: PHYL 301. Permission of the department head is also required. [3-0]

PHYL 426 (3) PHYSIOLOGICAL BASIS OF CENTRAL NERVOUS SYSTEM FUNCTIONS. An integrated study of the structural and functional organization of the central nervous system with special emphasis on neurophysiological mechanisms. Prerequisite: PHYL 301. Permission of the department head is also required. [3-0]

PHYL 430 (6) ADVANCED LABORATORY IN PHYSIOLOGY. A laboratory course giving training in the methods, techniques and use of instruments required for physiological investigation. PHYL 303 and the consent of the department are required and enrolment will be limited. [0-6]

PHYL 448 (2-6) C DIRECTED STUDIES IN PHYSIOLOGY.

PHYL 449 (6) GRADUATING ESSAY. Prior to graduation, students in the Honours course will be required to carry out an investigation approved by the department head and to submit a satisfactory graduating essay based on this work.

PHYL 511 (2–6) C SEMINAR IN MAMMALIAN PHYSIOLOGY.

PHYL 521 (3) ADVANCED TOPICS IN RENAL PHYSIOLOGY.

PHYL 522 (3) ADVANCED TOPICS IN CARDIOVASCULAR PHYSIOLOGY.

PHYL 523 (3) ADVANCED TOPICS IN GASTROINTESTINAL PHYSIOLOGY.

PHYL 524 (3) ADVANCED TOPICS IN ENDOCRINOLOGY.

PHYL 526 (3) ADVANCED TOPICS IN NEUROPHYSIOLOGY.

PHYL 527 (3) ADVANCED TOPICS IN RESPIRATORY PHYSIOLOGY.

PHYL 530 (3) MUSCLE BIOPHYSICS. Equivalency: ANAT 527.

PHYL 531 (3) SENSORY PHYSIOLOGY I: HEARING AND VISION. Offered in even numbered years. Equivalency: AUDI 512.

PHYL 532 (3) SENSORY PHYSIOLOGY II; VESTIBULAR SYSTEM, SOMATIC. Offered in odd numbered years.

PHYL 533 (3) PHYSIOLOGY OF THERMOREGULATION. Comprehensive study of thermoregulatory physiology and pathophysiology from molecular to organismal levels in mammal and other vertebrates.

PHYL 548 (2–6) C ADVANCED TOPICS IN HUMAN PHYSIOLOGY.

PHYL 549 (12) M.SC. THESIS.

PHYL 649 (0) PH.D. THESIS.

PHYS — PHYSICS FACULTY OF SCIENCE

Science students with BC Secondary School Physics 11, but not Physics 12, are required to take PHYS 100. Many science programs require PHYS 101 or 107. Students planning to go into Physics or Applied Science (and some other programs) are required to take PHYS 102 (108 & 109) in addition to PHYS 101 (107). PHYS 100 is intended primarily for students who have completed only Physics 11 or its equivalent. Credit will not be given for PHYS 100 to students with credit for Physics 12. PHYS 101 normally requires Physics 12 or PHYS 100. Students with only Physics 11 but with a good mathematics background, after consultation with an adviser, may omit PHYS 100 and enroll in PHYS 101. Credit will be given for only one of PHYS 101, 107 and for only one of PHYS 102, 108. The following courses are for students in the Faculty of Applied Science: PHYS 153, PHYS 170, PHYS 250, PHYS 253, PHYS 257, PHYS 258, PHYS 259, PHYS 270, PHYS 350, PHYS 352, PHYS 354, PHYS 389, PHYS 450, PHYS 454, PHYS

455, PHYS 458, PHYS 473, PHYS 474. Additional fees are charged for some courses.

PHYS 100 (3) INTRODUCTORY PHYSICS. An introduction to fundamental concepts such as force, energy, momentum, and the use of graphs and vectors in physics; geometrical optics; electricity; laboratory exercises to familiarize the student with both the phenomena and the basic laboratory instruments commonly used to measure them. Prerequisite: Not open to students with credit for PHYS 12. Mathematics 12 is required; Physics 11 is required for first-year students, strongly recommended for others. Students with credit for Physics 12 may not obtain credit for this course. [3-3*-1*]

PHYS 101 (3) ENERGY AND WAVES. Conservation laws, rotational motion, simple harmonic motion, sound, fluids, heat, including biological applications. Prerequisite: One of PHYS 12, PHYS 100. Corequisite: One of MATH 100, MATH 102, MATH 104, MATH 120, MATH 180, MATH 184. [3-3*-1*]

PHYS 102 (3) ELECTRICITY, LIGHT AND RADIATION. Introduction to optics, electricity and magnetism, electric circuits, radioactivity, including biological applications. Prerequisite: PHYS 101. Corequisite: One of MATH 101, MATH 103, MATH 105, MATH 121. [3-3*-1*]

PHYS 107 (3) PHYSICS 1. An enriched course dealing with conservation laws, angular momentum of rigid bodies, simple harmonic motion and wave phenomena. Concepts of probability and kinetic theory. Intended for students planning to take higher level courses in physics and astronomy. Prerequisite: Either (a) a score of 85% or higher in PHYS 12 and a score of 85% or higher in MATH 12; or (b) a score of 85% or higher in PHYS 100. Corequisite: One of MATH 100, MATH 102, MATH 104, MATH 120, MATH 180, MATH 184. [3-3*-1*]

PHYS 108 (3) PHYSICS II. Concepts of thermal Physics. Electricity and magnetism up to Maxwell's equations and electromagnetic waves, including interference and diffraction of light. Intended for students planning to take higher-level courses in physics and astronomy. Prerequisite: Either (a) PHYS 107 or (b) a score of 85% or higher in PHYS 101. Corequisite: One of MATH 101, MATH 103, MATH 105, MATH 121. [3-0-1]

PHYS 109 (1) INTRODUCTION TO EXPERIMENTAL PHYSICS. A laboratory course accompanying PHYS 108 with emphasis on data collection and analysis and experimental techniques. Prerequisite: Either (a) PHYS 107 or (b) PHYS 101. [0-3-0]

PHYS 153 (6) ELEMENTS OF PHYSICS. Thermometry, thermal properties of matter, heat, oscillations, waves, sound, wave optics; geometrical optics, elementary electricity and magnetism, simple DC and AC circuits. Credit will be given for only one of PHYS 153 and 101/102 or 107/108/109. Prerequisite: PHYS 12. [3-0-1; 3-3-1]

PHYS 170 (3) MECHANICS I. Statics of particles, equilibrium of rigid bodies, rigid body statics and internal forces; kinematics: rectilinear motion; dynamics: Newton's second law, friction, impulse, momentum, work and energy. Prerequisite: Either (a) PHYS 100 or (b) PHYS 12. [3-0-1]

PHYS 200 (3) RELATIVITY AND QUANTA. Special relativity: Lorentz transformation, dynamics and conservation laws. Quantum physics: the experimental evidence for quantization; a qualitative discussion of the concepts of quantum mechanics and their application to simple systems of atoms and nuclei. Prerequisite: Either (a) one of PHYS 102, PHYS 108, PHYS 153 and one of MATH 101, MATH 103, MATH 105, MATH 121; or (b) SCIE 001. [3-0-1]

PHYS 203 (3) THERMAL PHYSICS I. Laws of thermodynamics. Thermodynamic potentials. Applications to homogeneous and inhomogeneous equilibrium systems with particular reference to electric and magnetic systems. Non-equilibrium systems. Prerequisite: Either (a) a score of 68% or higher in PHYS 102 or (b) a score of 68% or higher in PHYS 108 or (c) a score of 68% or higher in PHYS 153 or (d) a score of 68% or higher in SCIE 001. Corequisite: One of MATH 217, MATH 200. [3-0-0]

PHYS 206 (3) MECHANICS. Newtonian mechanics, non-inertial frames, central potentials, Kepler's laws, variational calculus, Lagrangian dynamics, rigid body motion, Hamiltonian mechanics, Poisson brackets, canonical, Hamilton-Jacobi theory, action angle variables. Prerequisite: One of MATH 200, MATH 217, MATH 226 and either (a) one of PHYS 108, PHYS 153, SCIE 001 or (b) PHYS 102. PHYS 216 if less than 68% in PHYS 102. Corequisite: MATH 215 and one of MATH 221, MATH 223. [3-0-1]

PHYS 209 (3) INTERMEDIATE EXPERIMENTAL PHYSICS. Use of analog electronics and amplifiers, digital electronics and analog-to-digital conversion and the use of computers in data analysis and simulations in thermodynamic, electronic and modern physics experiments. Prerequisite: Either (a) all of PHYS 108, PHYS 109 or (b) one of PHYS 102, PHYS 153 or (c) SCIE 001. Corequisite: MATH 215 and one of MATH 200, MATH 217, MATH 226. [0-3-1*]

PHYS 216 (3) MECHANICS I. Review of kinematics, Newton's laws, angular momentum and fixed axis rotation. Rigid body motion, central forces, non-inertial frames of reference. Prerequisite: One of PHYS 101, PHYS 107, SCIE 001 and all of MATH 200, MATH 221. [3-0-1]

PHYS 250 (3) INTRODUCTION TO MODERN PHYSICS. Wave-particle duality of matter, special relativity, processes in atomic, nuclear and solid state, and introduction to quantum mechanical devices and techniques. Prerequisite: One of PHYS 102, PHYS 108, PHYS 153, SCIE 001. [3-0-1]

PHYS 253 (3) INTRODUCTION TO INSTRUMENT DESIGN. Practical laboratory exposure to instrument bread-boarding including simple mechanical and electrical design, and communications with sensors, actuators. Micro-controller implementation and design. Prerequisite: One of PHYS 259, PHYS 209. [1-6-0]

PHYS 257 (2) HEAT AND THERMODYNAMICS. Thermometry, thermal properties of matter; heat transfer by conduction; convection and radiation; kinetic theory of gases and gas laws; heat engines; refrigeration; change of state; first and second laws of thermodynamics. Prerequisite: Either (a) SCIE 001 or (b) one of MATH 200, MATH 217, MATH 226, MATH 255, MATH 263 and either (a) all of PHYS 108, PHYS 109 or (b) one of PHYS 102, PHYS 153. [1-3-1]

PHYS 258 (2) PRINCIPLES OF PHOTONICS. Practical aspects of classical and quantum treatments of light; generation, transmission and detection. Prerequisite: One of PHYS 102, PHYS 108, PHYS 153, SCIE 001. Corequisite: One of MATH 200, MATH 217, MATH 226, MATH 255, MATH 263. [2-0-1]

PHYS 259 (2) EXPERIMENTAL TECHNIQUES. Basic experimental techniques in acquisition, analysis and presentation of data. Prerequisite: Either (a) all of PHYS 108, PHYS 109 or (b) one of PHYS 102, PHYS 153 or (c) SCIE 001. [1-3-0]

PHYS 270 (2) MECHANICS II. Dynamics: systems of particles, kinematics and kinetics of rigid bodies (plane motion), energy and momentum, rotating coordinates. Prerequisite: PHYS 170. [2-0-1]

PHYS 298 (3) CO-OPERATIVE WORK PLACEMENT I. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Normally taken during the winter term of the second year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Physics. Prerequisite: All of PHYS 200, PHYS 203.

PHYS 299 (3) CO-OPERATIVE WORK PLACEMENT II. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Normally taken during the summer following the second year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Physics. Prerequisite: PHYS 298.

PHYS 301 (3) ELECTRICITY AND MAGNETISM. Electrical fields and potentials of static charge distributions, current, fields of moving charges, magnetic field, electromagnetic induction, Maxwell's equations. Prerequisite: One of PHYS 102, PHYS 108, PHYS 153, SCIE 001 and one of MATH 217, MATH 227, MATH 317. Corequisite: MATH 215. [3-0-1]

PHYS 304 (3) INTRODUCTION TO QUANTUM MECHANICS. The beginnings of quantum mechanics, wave mechanics and the Schrodinger equation, one-dimensional potentials, the postulates of quantum mechan-

ics, applications to three-dimensional systems. Prerequisite: PHYS 200. Corequisite: One of MATH 316, PHYS 312. [3-0-0]

PHYS 305 (3) INTRODUCTION TO BIOPHYSICS. An introduction for physicists (assumed to have no background in biology) to the basics of molecular biology, followed by selected examples where insights from physics and mathematics have helped solve important biological problems. Intended for students with third- or fourth-year standing in physics. Not for credit for Life Science students. Prerequisite: a minimum third year standing in Science. [3-0-0]

PHYS 308 (3) OPTICS. Physical optics: polarization, Fresnel equation coherence, interference, diffraction, lasers, holography, Fourier optics. Prerequisite: One of MATH 200, MATH 217, MATH 226 and one of MATH 221, MATH 223 and MATH 215; and either (a) one of PHYS 102, PHYS 153, SCIE 001 or (b) all of PHYS 108, PHYS 109. [2-3-0]

PHYS 309 (3) ELECTRICAL LABORATORY. Selected experiments in electromagnetism and electronics; computer data acquisition; advanced data analysis and simulation. Prerequisite: PHYS 209. [1-4-0]

PHYS 312 (3) INTRODUCTION TO MATHEMATICAL PHYSICS. The application of ordinary and partial differential equations to physical problems; boundary and initial value problems associated with heat, wave and Laplace equations. Fourier analysis; expansions in Bessel and Legendre functions. Credit will be given for only one of PHYS 312 and MATH 316. Prerequisite: MATH 215. [3-0-0]

PHYS 313 (3) THERMODYNAMICS. The laws of thermodynamics, thermodynamic potentials, phase changes, elementary statistical physics. Prerequisite: One of MATH 200, MATH 217, MATH 226, MATH 255 and one of PHYS 102, PHYS 108, PHYS 153, SCIE 001. [3-0-0]

PHYS 314 (3) FLUIDS. Kinetic theory: Diffusion, viscosity and sound waves. Introduction to hydrodynamics: Laminar flow, capillary and gravity waves, convection and turbulence. Dimensional analysis. Prerequisite: MATH 215. Corequisite: One of PHYS 203, PHYS 313. [3-0-0]

PHYS 315 (3) PHYSICS OF MATERIALS. Crystal structure, elasticity and phonons, elementary electronic transport, defects, alloys, liquid crystals and polymers. Prerequisite: One of PHYS 203, PHYS 313, CHEM 201, CHEM 205. Corequisite: MATH 215. [3-0-0]

PHYS 317 (3) LIGHT. Radiation, photometry, illumination, colour, geometrical optics. Prerequisite: One of MATH 152, MATH 221, MATH 223 and one of PHYS 102, PHYS 122. [3-3*-0]

PHYS 318 (3) ACOUSTICS. Acoustic oscillators (including loudspeakers), acoustic waves, and architectural acoustics. Prerequisite: PHYS 209. [3-3*-0]

PHYS 319 (3) ELECTRONICS LABORATORY. A project-oriented lab introducing the design and construction of microprocessor-controlled devices. Prerequisite: PHYS 209. [1-4-0]

PHYS 330 (3) TWENTIETH-CENTURY PHYSICS. Quantum physics, nuclear energy and particle physics at a level suitable for third- and fourth-year Science students not proceeding to a physics degree. Not for credit towards a B.Sc. in Physics. Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184 and one of PHYS 101, PHYS 107, PHYS 153. [3-0-0]

PHYS 340 (3) FROM ATOMS TO THE UNIVERSE. Ancient Greek ideas of substance and forms and modern concepts of forces and fields. The twentieth-century quantum revolution. The modern universe, from quarks and atoms to the big bang. Quantum paradoxes. Not for credit in the faculties of Science and Applied Science. No mathematics required. [3-0-0]

PHYS 341 (3) PHYSICS OF MUSIC. An introduction to the physical principles important to the production, transmission and perception of musical sounds. The treatment will be non-mathematical; with emphasis on demonstrations. Topics may include the description of sound waves, resonances, scales, physics of hearing, examination of specific musical instruments, etc. Not for credit in the Faculties of Science and Applied Science. [3-0-0]

PHYS 343 (3) PHYSICAL SCIENCE BY INQUIRY. A guided sequence of hands-on science modules intended primarily for prospective elementary schoolteachers, to help them to work constructively in a science teaching role. Not for credit in the Faculties of Science and Applied Science. Prerequisite: Secondary school algebra. [0-6-0]

PHYS 349 (2-6) C DIRECTED STUDIES. With approval of the Head of the Physics Department, studies under the direction of a staff member may be arranged. Intended for Honours and Major physics students.

PHYS 350 (3) APPLICATIONS OF CLASSICAL MECHANICS. Review of principles. Particle mechanics: Euler's equations, tops and gyroscopes, motion of the Earth, Lagrangian and Hamiltonian methods. Variational principles in optics and mechanics, Liouville's theorem and statistical mechanics. The relationship between classical and quantum mechanics. Prerequisite: PHYS 270. [3-0-0]

PHYS 352 (2) LABORATORY TECHNIQUES IN PHYSICS. Some of the experiments will be based on the lecture material for PHYS 354. Other techniques and subjects will also be covered. Corequisite: PHYS 354. [0-3-0]

PHYS 354 (3) ELECTRIC AND MAGNETIC FIELDS. Applications of electricity and magnetism. Maxwell's equations. Prerequisite: One of PHYS 102, PHYS 108, PHYS 153, SCIE 001 and one of MATH 215, MATH 255 and one of MATH 217, MATH 227, MATH 317. [3-0-1]

PHYS 389 (1) TECHNICAL REPORT. A technical report based on summer work or a co-operative education work term to be submitted to the Department, followed by an oral presentation of the work.

PHYS 399 (3) CO-OPERATIVE WORK PLACEMENT III. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Normally taken during the summer following the third year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Physics. Prerequisite: PHYS 299.

PHYS 400 (3) INTRODUCTION TO ELEMENTARY PARTICLES. Standard model, classification of elementary particles and forces of nature, symmetries, conservation laws, quark model, quantum electrodynamics, quantum chromodynamics and the theory of weak interactions. Prerequisite: PHYS 304. (or PHYS 412 prior to 2003) [3-0-0]

PHYS 401 (3) ELECTROMAGNETIC THEORY. The application of Maxwell's theory to the propagation of electromagnetic waves. Prerequisite: PHYS 301. [3-0-0]

PHYS 402 (3) APPLICATIONS OF QUANTUM MECHANICS. Spin and angular momentum addition, perturbation methods, and applications in the fields of Atomic, Molecular, Nuclear, and Solid State Physics. Prerequisite: PHYS 304. [3-0-0]

PHYS 403 (3) STATISTICAL PHYSICS. Kinetic theory of transport. Ensemble theory, application to classical and quantum systems. Interacting systems and phase change. Fluctuations. Intended for Honours students. Prerequisite: One of PHYS 203, PHYS 257, CHEM 201 and one of PHYS 304, PHYS 350, CHEM 312. MATH 318 is recommended [3-0-0]

PHYS 404 (3) INTRODUCTION TO MEDICAL PHYSICS. Radiotherapy, X-ray imaging, nuclear medicine, magnetic resonance imaging and biomedical optics. Prerequisite: Third or fourth year standing in science is required. MATH 200 (or MATH 217 or MATH 226) is recommended. [3-0-0]

PHYS 405 (3) RADIATION BIOPHYSICS. Physical and chemical interactions of ionizing radiations and their biological effects at the cellular, tissue and whole-animal levels. Credit will be given for only one of PHYS 405, 436 and 536. Prerequisite: Third- or fourth-year standing in Science or permission of the department head is required. [3-0-0]

PHYS 407 (3) INTRODUCTION TO GENERAL RELATIVITY. Physical consequences of Einstein's equations, including the principle of equivalence, curved space-time, geodesics, the Schwarzschild solution, deflection of light, black holes and gravitational radiation. Prerequisite: MATH 215 and one of MATH 217, MATH 227, MATH 317. PHYS 206 and PHYS 301 are recommended. [3-0-0]

PHYS 408 (2) FLUID FLOW. Subsonic flow of viscous and non-viscous fluids. Boundary layers. Laminar and turbulent flow. Supersonic flow and shock waves, cavitation and capillarity. Prerequisite: PHYS 206. [3-0-0]

PHYS 409 (3/6) C EXPERIMENTAL PHYSICS. A laboratory course with a wide choice of experiments for fourth year Honours and Major students. Topics include solid state,

nuclear, classical, quantum, electromagnetic and low temperature physics. For 6 credits, two weekly laboratory periods and completion of a project in second term are required. [0-3-0]

PHYS 410 (3) COMPUTATIONAL PHYSICS. Scientific programming applied to problems in physics. Fundamentals of numerical analysis for continuum problems. Solution of linear and non-linear algebraic systems, ordinary differential equations and stochastic problems. Prerequisite: One of PHYS 312, MATH 316 and one of CPSC 111, CPSC 121, CPSC 122, CPSC 126, CPSC 152, CPSC 260, EOSC 211. [3-0-1]

PHYS 412 (3) QUANTUM PHYSICS. Fundamentals of atomic, nuclear, particle, and condensed matter physics. Prerequisite: MATH 215 and one of CHEM 312, PHYS 200. [3-0-0]

PHYS 420 (2-4) C PHYSICS DEMONSTRATIONS. The students will prepare, under the supervision of a faculty member, a demonstration or series of demonstrations intended to illustrate physical principles to diverse audiences. Intended for third- or fourth-year Physics Majors and Math/Science Education students.

PHYS 436 (3) HEALTH PHYSICS MEASUREMENT AND CONTROL. Biological effects of the physical and chemical interactions of gamma-ray, ultraviolet, infrared and microwave radiation. Instrumentation for monitoring of radiation, accident prevention and control strategy. This course includes both lecture and laboratory components. Credit will be given for only one of PHYS 405 and 436. Prerequisite: Third or fourth year standing in Science or permission of the director of the Occupational Hygiene Program. [3-0-0]

PHYS 437 (3) PHYSICS OF BIOCELLULAR STRUCTURE AND MACHINERY. Molecular structure and architecture of biological cells, interactions of molecules in aqueous solution and at interfaces, physical properties of polymers and surfactants, mechanisms of cell membranes and cytoplasmic structures, thermodynamics of molecular machines and mechanical enzymes. Credit can not be given for both PHYS 437 and 537. Prerequisite: One of PHYS 313, PHYS 403, PHYS 455, CHEM 304. [3-0-0]

PHYS 438 (3) ZOOLOGICAL PHYSICS. Animal systems viewed from a physicist's perspective. Topics include sensory systems, energy budgets, locomotion, internal flows, physical advantages of grouping. Prerequisite: One of PHYS 101, PHYS 107. BIOL 325 is recommended. Equivalency: BIOL 438. [3-0-0]

PHYS 445 (1) ANATOMY, PHYSIOLOGY AND STATISTICS FOR MEDICAL PHYSICISTS. Restricted to graduate students to the M.Sc. (Medical Physics) Program.

PHYS 447 (3/6) C ADVANCED TOPICS IN PHYSICS. Directed studies available to students in Honours Physics with approval from the Head of the Department.

PHYS 449 (6) HONOURS THESIS. A research project, undertaken under the direction of a

faculty member culminating in a thesis. [0-6-1*]

PHYS 450 (3) QUANTUM MECHANICS. Postulates of quantum mechanics, expectation values, hermitian operators, commuting observables, applications to one-dimensional systems, harmonic oscillators, angular momentum, applications in three dimensions, hydrogen atom, time dependent perturbations. Prerequisite: PHYS 250. [3-0-0]

PHYS 454 (3) APPLIED ELECTROMAGNETIC THEORY. Wave propagation and related phenomena in dielectrics, conductors and plasmas. Wave guides, radiation, antennae, special relativity. Prerequisite: One of PHYS 301, PHYS 354. [3-0-0]

PHYS 455 (3) STATISTICAL MECHANICS. Introduction to quantum statistical mechanics and its application to systems of varying complexity from the simple ideal gas to the degenerate gas. Quantum fluids, phase transitions and simulation methods will also be introduced. Credit cannot be given for both PHYS 403 and 455. Prerequisite: One of PHYS 257, PHYS 203, PHYS 313 and one of PHYS 304, PHYS 450. [3-0-0]

PHYS 458 (4) APPLIED OPTICS. Basic applications of lasers, geometrical optics, fibre optics, diffraction, and Fourier optics. Prerequisite: All of PHYS 250, PHYS 354. [3-3-0]

PHYS 473 (3) APPLIED NUCLEAR PHYSICS. Radioactive decay and radiations, nuclear properties, interactions of neutrons, physical principles of power reactors, nuclear fusion, radiation monitoring and safety. Prerequisite: One of PHYS 450, PHYS 304. [3-0-1*]

PHYS 474 (3) APPLIED SOLID STATE PHYSICS. Symmetry of crystal structures, reciprocal lattice, band theory, conduction in metals and semiconductors, phonons and superconductivity. Prerequisite: One of PHYS 450, PHYS 304. [3-0-0]

PHYS 498 (3) CO-OPERATIVE WORK PLACEMENT IV. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Normally taken during the fall term of the fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Physics. Prerequisite: PHYS 399.

PHYS 499 (3) CO-OPERATIVE WORK PLACEMENT V. Approved and supervised technical work experience in an industrial research setting for a minimum of 3.5 months. Normally taken during the summer following the fourth year. Technical report required. Restricted to students admitted to the Co-operative Education Program in Physics. Prerequisite: PHYS 498.

PHYS 500 (3) QUANTUM MECHANICS I. Non-relativistic quantum mechanics with applications to atomic, nuclear and particle physics. Perturbation theory, multielectron atoms, molecular structure, WKB, scattering theory. Prerequisite: One of PHYS 450, PHYS 402.

PHYS 501 (3) QUANTUM MECHANICS II.

Time-dependent perturbation theory, density matrix formalism, NMR, emission and absorption of radiation. Elementary field theory techniques for many body systems. Quasiparticles, phonons, magnons, holes. Relativistic Klein-Gordon and Dirac equations.

PHYS 502 (3) CONDENSED MATTER

PHYSICS I. One-electron theory of solids, energy bands, lattice vibration, transport theory.

PHYS 503 (3) CONDENSED MATTER

PHYSICS II. Interacting electrons, electron-phonon interaction, Hubbard model, magnetism, superconductivity, use of Green functions. Prerequisite: PHYS 502. Corequisite: PHYS 500.

PHYS 504 (3) RELATIVITY AND

ELECTROMAGNETISM. A review of special relativity, and a presentation of classical electromagnetism as a relativistic field theory. Radiation from moving charges, classical electron theory, Wheeler Feynman electrodynamics. Prerequisite: PHYS 401.

PHYS 505 (3) NUCLEAR PHYSICS. General properties of the nucleus, two-body problem at low energies, nuclear forces, nuclear models, nuclear reactions, interaction of nuclei with electromagnetic radiation, beta-decay. Properties of elementary particles, classification of interactions, intermediate and high energy reactions.

PHYS 506 (3) ELEMENTARY PARTICLE

PHYSICS.

PHYS 507 (3) PLASMA PHYSICS. Equilibrium theory of ionized gases, kinetic theory, transport coefficients. Motion of individual charges, cyclotron radiation. Waves, Landau damping. Derivation of magnetohydrodynamic equations.

PHYS 508 (3) QUANTUM FIELD THEORY.

Prerequisite: All of PHYS 500, PHYS 526.

PHYS 509 (2-4) D THEORY OF

MEASUREMENTS. Estimation of parameters from experimental measurements; maximum likelihood; least squares; tests of significance (chi square, etc). Noise properties of common devices. Extracting signals from noise; signal averaging; auto and cross-correlation, etc.

PHYS 510 (2-3) D STOCHASTIC PROCESSES
IN PHYSICS. Statistical and thermodynamic fluctuations in electromagnetic, mechanical and thermal systems. Fundamental limits of observation and measurement in classical and quantum systems.

PHYS 511 (2-3) D SPECIAL TOPICS IN

MAGNETISM. Spin Hamiltonian, theory of ferro- and antiferromagnetism, nuclear magnetic resonance, relaxation in spin systems. Prerequisite: PHYS 503.

PHYS 512 (2-3) D VIBRATIONAL

SPECTROSCOPY OF SOLIDS. Symmetry of vibrations of isolated molecules; calculation of normal modes; vibrations of molecular crystals, optical properties of solids.

PHYS 513 (2-4) D TOPICS IN ADVANCED

SPECTROSCOPY.

PHYS 514 (2-4) D CLASSICAL FIELD

THEORY. Classical field theory in flat space-time. Variational principles and conservation laws. Tensor fields and manifolds. The course is a preparation for study of relativistic gravitation and quantum field theory. Prerequisite: PHYS 504.

PHYS 515 (2-4) D NEURAL NETWORKS.

Perceptrons; the XOR problem; hidden units; back propagation; generalized delta rule; content addressable memories (Hopfield model); extended Hopfield model; travelling salesman problem; model based on neurons that exhibit hysteresis.

PHYS 516 (3) STATISTICAL MECHANICS.

Mean field theory, Landau theory of phase transitions, critical phenomena, renormalization theory. Monte Carlo method, linear response theory, fluctuations.

PHYS 517 (2) INTRODUCTION TO LOW

TEMPERATURE PHYSICS. Cryogenic techniques and instrumentation. Some aspects of superconductors and liquid helium.

PHYS 518 (2/3) D SUPERCONDUCTIVITY.

Conventional theories: BCS and Landau-Ginsburg, Josephson effect. New theories of high TC superconductivity.

PHYS 519 (2) SURFACE PHYSICS.

Structure and electronic properties of solid surfaces, optical properties, adsorption phenomena, surface analysis, epitaxy.

PHYS 521 (2-4) C GROUP THEORY METHODS

IN QUANTUM MECHANICS. Selected topics from atomic, molecular, solid state, nuclear and elementary particle physics treated by group theory methods. Prerequisite: PHYS 500.

PHYS 522 (2/3) D TOPICS IN INTERMEDIATE

ENERGY NUCLEAR PHYSICS. Prerequisite: PHYS 505.

PHYS 523 (2-3) D QUANTUM ELECTRONICS

AND NONLINEAR OPTICS. Macroscopic and microscopic treatments of linear and non-linear response to electromagnetic fields.

PHYS 524 (4) NON-EQUILIBRIUM

THERMODYNAMICS. Recent developments in thermodynamics, with special emphasis on the stability of systems far from equilibrium.

PHYS 525 (2-3) D ADVANCED CONDENSED

MATTER PHYSICS. Current issues in condensed matter theory. Prerequisite: All of PHYS 500, PHYS 503.

PHYS 526 (3) QUANTUM

ELECTRODYNAMICS.

PHYS 527 (2/3) D TOPICS IN NUCLEAR

PHYSICS. Selected topics from current nuclear theory. Prerequisite: All of PHYS 501, PHYS 505.

PHYS 528 (2/3) D ELEMENTARY PARTICLE

PHYSICS. Prerequisite: All of PHYS 508, PHYS 505. Corequisite: PHYS 508.

PHYS 529 (2/3) D TOPICS IN QUANTUM

THEORY.

PHYS 530 (2-4) D TOPICS IN GENERAL

RELATIVITY THEORY.

Prerequisite: PHYS 514.

PHYS 531 (3/4) C PARTICLE DETECTION

TECHNIQUES.

PHYS 532 (4) PLASMA DYNAMICS. The magnetohydrodynamic formulation of plasma dynamics including the effects of diffusion, viscosity, thermal conduction and ionization phenomena on plasma motion.

PHYS 533 (2) LASER PHYSICS. Interaction of EM-radiation with matter, Gaussian beams and optical resonators, laser oscillators, specific laser systems, amplification in laser media, the electro-optic effect.

PHYS 534 (3) RADIOTHERAPY PHYSICS I.

Principles of dosimetry of ionizing radiation with emphasis on applications to radiotherapy and radiobiology.

PHYS 535 (3) RADIOTHERAPY PHYSICS II. A continuation of PHYS 534, including an extension of the topics discussed in that course.

PHYS 536 (2) ADVANCED RADIATION

BIOPHYSICS. Interactions of radiation with matter in living cells. Description of events following ionizing irradiation; cell survival as a function of dose; survival models. Students will be expected to present a seminar on a pre-selected topic, and participate in class discussions.

PHYS 537 (3) PHYSICS OF SOFT ORGANIC

INTERFACES. Interactions in liquids, free liquid interfaces, surfactant assemblies, membranes of biological organisms, emphasizing the relation of chemical characteristics to structure and physical properties. Prerequisite: One of PHYS 303, CHEM 304.

PHYS 538 (3) PHYSICAL PROPERTIES OF

SYNTHETIC AND NATURAL MEMBRANE
INTERFACES.

PHYS 539 (3) RADIATION DOSIMETRY.**PHYS 540 (3) RADIOLOGICAL IMAGING.**

PHYS 541 (3) NUCLEAR MEDICINE.
Prerequisite: PHYS 473.

PHYS 542 (3) NUCLEAR MAGNETIC

RESONANCE IMAGING.

PHYS 543 (3) BIOMEDICAL OPTICS.

PHYS 545 (3) ANATOMY, PHYSIOLOGY AND
STATISTICS FOR MEDICAL PHYSICISTS.
Restricted to graduate students in the M.Sc. (Medical Physics) Specialization.

PHYS 549 (12) MASTER'S THESIS.

PHYS 555 (1-6) C DIRECTED STUDIES IN
PHYSICS. With approval of the department head, advanced studies under the direction of a staff member may be arranged in special cases.

PHYS 570 (2-4) C RADIO ASTRONOMY.

Emission, propagation and detection of radio noise from the solar system, galaxy and extragalactic radio sources.

PHYS 571 (3) PHYSICAL COSMOLOGY.

Credit will not be given for both ASTR 403 and PHYS 571. [3-0-0]

PHYS 599 (12/18) C M.A.SC. THESIS.

PHYS 649 (0) PH.D. THESIS.

PLAN — COMMUNITY AND REGIONAL PLANNING SCHOOL OF COMMUNITY AND REGIONAL PLANNING

Not all courses offered each year.

PLAN 425 (3) URBAN PLANNING ISSUES AND CONCEPTS. Evolution, practice and future of urban planning and development, with emphasis on institutional arrangements, housing, transportation, urban design and development control. For third- and fourth-year undergraduate students interested in urban planning. Prerequisite: One of URST 200, COMM 306, GEOG 350 or permission of the instructor. [3-0]

PLAN 500 (3) FUNDAMENTALS OF PLANNING PRACTICE. The design and use of problem-solving procedures. The effective leadership of planning groups, and the development of appropriate community planning processes. Styles of public participation.

PLAN 501 (3) HISTORY OF COMMUNITY AND REGIONAL PLANNING. The origins and evolution of modern urban and regional planning in North America and Europe, emphasizing the changing role of government in the development of Canadian communities during this century.

PLAN 502 (3) PLANNING THEORY. Historical and contemporary concepts of the planning process and its legitimacy. The role of the state, public interest, and the responsibilities of professional planners. Concepts and codes of professional ethics.

PLAN 503 (3) PLANNING FOR COMMUNITY ECONOMIC DEVELOPMENT. Theories of community economic development planning. Concepts of community wealth, income, growth and development. Models of the formal and informal community economy.

PLAN 504 (3) THE ECOLOGICAL CONTEXT OF PLANNING. A planning-oriented approach to ecosystems theory emphasizing the structural and functional properties of the biophysical environment. Definition of the urban-centered region in terms of interregional flows and ecological accounts.

PLAN 505 (3) COMMUNITY DEVELOPMENT PLANNING. Evolution of development theory emphasizing the changing relationships among community, state and individuals. Development paradigms and alternative concepts of community.

PLAN 506 (3) THE LEGAL CONTEXT OF PLANNING. Legal principles affecting the administration of planning programs including the meaning and sources of the law, the separation of the functions of government, the Canadian Constitution and Charter of Rights and Freedoms, the law of Canadian municipal corporations, natural resource law, the nature and control of administrative action, judicial review of discretionary power, and the drafting of legislation.

PLAN 507 (3) REGIONAL DEVELOPMENT PLANNING. Origins, theory, and practice of planning for regions in Canada and abroad. Types of planning regions, institutional forms for regional planning, regional disparities, and approaches to regional analysis. Resource frontiers, urban, amenity, and rural regions provide the policy context.

PLAN 511 (3) QUANTITATIVE REASONING AND STATISTICS FOR PLANNING. Research design and statistics for the analysis of empirical issues in planning and policy studies.

PLAN 513 (3) ECONOMIC IMPACT AND EVALUATION FOR PLANNING. Topics include economic base, income-expenditure, input-output, computer simulation, cost-benefit, goals achievement matrix and the planning balance sheet.

PLAN 514 (3) IMPACT ANALYSIS FOR PLANNING. A planning-oriented approach to environmental impact assessment emphasizing institutional, procedural and methodological issues. The conceptual and systemic relationship among biophysical, social and economic impact assessment and the evolving relationship with community development planning.

PLAN 515 (3) DATA FOR PLANNING PRACTICE. Data collection and analysis in relation to professional practice and the scientific method. Questionnaire surveys and alternatives including secondary analysis, unobtrusive measures and client participation techniques.

PLAN 540 (3-12) D PLANNING PROJECT. Group preparation and presentation of a professional report.

PLAN 545 (3/6) D PLANNING STUDIES ABROAD. An extended site visit outside Canada to understand the cultural context for community and regional planning issues and the local institutional response.

PLAN 547 (3/6) D PROFESSIONAL PROJECT REPORT. Research and preparation of a professional project report on a planning topic in public policy or professional practice.

PLAN 548 (1-12) D CURRENT ISSUES IN PLANNING. Each year the school may offer one or more courses on a topical issue covering recent advances in the field.

PLAN 549 (6-12) C MASTER'S THESIS. Research and preparation of a thesis on a topic in public policy or professional practice.

PLAN 550 (3-12) C DIRECTED STUDIES. In special cases and with the approval of the Director of the school, a student may study an advanced topic under the direction of a faculty member.

PLAN 561 (3) SEMINAR IN REAL PROPERTY DEVELOPMENT AND PLANNING. Topics will vary.

PLAN 565 (1-12) D CURRENT ISSUES IN REAL PROPERTY DEVELOPMENT AND PLANNING. Topics will vary.

PLAN 571 (3) HOUSING POLICY AND PRACTICE IN CITIES OF THE DEVELOPING WORLD. Housing development and government policy in cities of developing countries.

PLAN 572 (3) PROJECT AND PROGRAM DESIGN IN DEVELOPING ASIAN COUNTRIES. Development theories, the role of the state, the importance of political and social contexts, and the influence of foreign planning models.

PLAN 573 (3) SHELTER AND SERVICES IN DEVELOPING COUNTRIES. Human settlements paradigm in international development, especially in relation to urban poverty and enabling strategies.

PLAN 575 (3) INTERNATIONAL DEVELOPMENT PLANNING SEMINAR. Topics will vary.

PLAN 580 (3) URBAN TRANSPORTATION PLANNING. Topics include the relationship between transportation and urban activity systems; analysis of supply and demand; accessibility and environment; institutional arrangements and public finance.

PLAN 581 (3) URBAN INFRASTRUCTURE PLANNING AND DEVELOPMENT. Policy considerations in the provision of infrastructure including the legal framework, institutional arrangements, and public finance. Planning considerations in drainage, waterworks, sewerage and waste management.

PLAN 582 (3/6) D RESIDENTIAL SITE PLANNING STUDIO. Evaluation of neighbourhoods and projects, site analysis, housing types and densities, provision of community facilities and services, and the design of site plans.

PLAN 583 (3) HOUSING AND COMMUNITY PLANNING. The social, economic, political and land use dimensions of Canadian housing in the context of demographic trends, housing demand and affordability. Recent trends in housing policy and the role of the public and private sectors in housing supply.

PLAN 585 (3) HOUSING SEMINAR. Prerequisite: PLAN 583.

PLAN 586 (3) GENDER AND PLANNING. Analysis of women's dual roles as users and creators of built environments and the comparative roles of men and women.

PLAN 587 (3-12) D URBAN DESIGN. A studio/seminar on the history of the physical form of cities and theories of city design. Topics include social impacts, heritage and environmental conservation, urban revitalization, and the legal and administrative instruments for the implementation of city designs.

PLAN 588 (3) SOCIAL ASPECTS OF URBAN FORM. Exploration of how the urban built environment has been shaped by the actors in the development process.

PLAN 589 (3) INFLUENCING THE POLICY PROCESS. The evolution of policies through the legislative, regulatory and bureaucratic processes with an emphasis on the federal and provincial governments.

PLAN 590 (3/6) C PUBLIC POLICY AND URBAN PLANNING. Development of public policy in theory and practice. The impact of federal, provincial and local government policies on urban and regional planning. Exercises in policy making and documentation.

PLAN 592 (3) URBAN RESTRUCTURING. The determinants of urban restructuring, including emerging theoretical perspectives and case studies of Canadian and foreign cities.

PLAN 593 (3) RESOURCE ANALYSIS FOR REGIONAL PLANNING. An ecological approach to land use and resource analysis for regional planning covering inventory, classification, and alternative methods of analysis.

PLAN 595 (3) PLANNING AND NEGOTIATION IN NATURAL RESOURCES MANAGEMENT. Institutional structures for policy development and implementation.

PLAN 596 (3) SEMINAR ON ENVIRONMENTAL-ECONOMIC SYSTEMS. Relationships between economic activity and the biophysical environment. Topics include the assumptions and determinants underlying economic growth, market failure and traditional approaches to public intervention, the implications of alternatives such as the steady-state economy and sustainable development. Prerequisite: PLAN 504.

PLAN 597 (3) PLANNING FOR WATER RESOURCES MANAGEMENT. The relationships among relevant bio-physical, socio-economic and institutional systems as applied to regional planning for watersheds, lakes, estuaries, coastal zones and international river basins. Water supply, waste disposal, fisheries, aquaculture, recreation, hydropower and flood control.

PLAN 599 (3) ENVIRONMENTAL POLICY ANALYSIS. Determination of risks and values in environmental policy decisions.

PLAN 601 (3) RESEARCH METHODS SEMINAR.

PLAN 602 (3) PLANNING THEORY ADVANCED SEMINAR.

PLAN 603 (3) PH.D. COLLOQUIUM.

PLAN 649 (0) PH.D. THESIS.

PLAS — PLASTIC SURGERY FACULTY OF MEDICINE

PLAS 514 (3) ADVANCED PLASTIC SURGERY I. Seminar and tutorial on selected topics of plastic surgery. Given in alternate years.

PLAS 515 (2) ADVANCED PLASTIC SURGERY II. The second year course of the above program. Given in alternate years.

PLAS 750 (0) PLASTIC SURGERY CONFERENCE. Presentation of clinical cases with discussion of the underlying pathophysiology as related to patient management. One hour weekly.

PLAS 751 (0) PLASTIC SURGERY SEMINAR COURSE. A one-hour weekly seminar course spread over two years for discussion of

embryology, anatomy, physiology and pathology relative to the specialty of plastic surgery. These basic science aspects are discussed in relation to patient management.

PLAS 752 (0) OPERATIVE PLASTIC SURGERY. Techniques of surgery and the relative anatomy and pathophysiology are reviewed during the course of operative procedures.

PLNT — PLANT SCIENCE FACULTY OF LAND AND FOOD SYSTEMS

Most of the undergraduate courses have been renamed as Agroecology (AGRO). Please see this section. The Faculty of Land and Food Systems is undergoing major program revisions. All new and continuing students are required to consult the Faculty.

PLNT 508 (3) MOLECULAR GENETICS OF PLANT-MICROBE INTERACTIONS. Molecular genetics of microbial pathogenesis and symbiosis on plants. Analysis of plant-pathogen recognition and host response to interaction with viruses, bacteria and fungi. Offered in alternate years. Equivalency: MICB 508.

PLNT 513 (3/6) C ADVANCES IN PLANT BREEDING. Recent advances in plant breeding methodology. Novel methods of gene transfer and the application of in vitro technology to breeding problems. Offered in alternate years. Prerequisite: All of PLNT 413, BIOL 433.

PLNT 523 (0) GRADUATE RESEARCH SEMINAR.

PLNT 525 (3) ANALYSIS OF PLANT PERFORMANCE. Quantitative analysis of plant growth and yield. Indices of plant performance and relationships among crop density, planting patterns, canopy structure and productivity.

PLNT 530 (2-6) C DIRECTED STUDIES.

PLNT 531 (3) BIOLOGICAL CONTROL. Theory of biological control. Case histories. Concepts of natural insect population regulation. Development of integrated control programs and environmental manipulations. Offered in alternate years.

PLNT 532 (3) ADVANCED INSECT PHYSIOLOGY. Recent advances in selected fields of insect physiology, emphasizing the neural and/or hormonal integration of metabolic activities. Offered in alternate years.

PLNT 535 (3) TOPICS IN PLANT PATHOLOGY. Advances in techniques for pathogen detection, disease assessment and plant disease control. Offered in alternate years.

PLNT 536 (3) PLANT VIROLOGY. Identification, structure, biosynthesis and control of viruses causing plant diseases. Laboratories will emphasize instrumental techniques used in plant virus research. Limited enrolment. Offered in alternate years. [2-3; 0-0]

PLNT 540 (3) PLANT MOLECULAR BIOLOGY LABORATORY. Techniques of purification, cloning, sequencing, restriction-hybridization analysis of plant nucleic acids, in vitro labelling

of plant nucleic acids and proteins, and electrophoresis and immunodetection of plant proteins. Offered by the Biotechnology Teaching Laboratory in cooperation with Plant Science. Admissions to the course is limited and requires recommendation from the Program Coordinator. Prerequisite: BIOL 335 is recommended. Equivalency: BOTA 544, FRST 503.

PLNT 549 (12) MASTER'S THESIS.

PLNT 649 (0) PH.D. THESIS.

POLI — POLITICAL SCIENCE FACULTY OF ARTS

For details of courses consult the Departmental website at www.politics.ubc.ca.

POLI 100 (3) INTRODUCTION TO POLITICS. Political issues and case studies, drawn from Canadian and international contexts, will be used to introduce students to central debates and concepts of politics and political analysis.

POLI 101 (3) THE GOVERNMENT OF CANADA. An examination of the institutions and processes of Canadian government.

POLI 220 (3) INTRODUCTION TO COMPARATIVE POLITICS. A comparative analysis of foreign governments. Specific countries to be covered will vary according to section; consult the brochure issued by the Department.

POLI 240 (3) CURRENTS OF POLITICAL THOUGHT. A critical introduction to some major ideologies and traditions of Western political thought that examines their philosophical origins as well as their implications for political life.

POLI 260 (3) INTRODUCTION TO GLOBAL POLITICS. Applies conceptual tools to topics such as war, conflict management, the global economy, poverty, and civil society. Prerequisite: Recommended for prospective students of POLI 360-373.

POLI 301 (3) CANADIAN POLITICAL PARTIES. The organization and operation of party politics and the systems of party competition in Canada. The focus is on national-level politics. Prerequisite: POLI 101.

POLI 302 (3/6) D PUBLIC ADMINISTRATION. The structure and organization of the administrative branch of government in theory and practice. Administrative powers and policy-making in the modern state. Examples of the administrative processes are drawn from Canada and other countries. Prerequisite: POLI 101.

POLI 303 (3) FEDERALISM IN CANADA. Theory and practice of federalism; cultural duality, social stresses, and problems of flexibility. The constitution and role of the courts. Prerequisite: POLI 101.

POLI 304 (3) BRITISH COLUMBIA GOVERNMENT AND POLITICS. An examination of the party system, and other institutions and processes of the British Columbia political system. Prerequisite: POLI 101.

POLI 305 (3) CANADIAN POLITICAL IDEAS.

Political theories and ideologies in Canada. Prerequisite: POLI 101.

POLI 306 (3) LOCAL GOVERNMENT AND POLITICS IN CANADA. Local and regional political institutions and processes in Canada, with particular attention to those of Vancouver and other British Columbia localities. Prerequisite: POLI 101.

POLI 307 (3) QUEBEC GOVERNMENT AND POLITICS. The nature of politics and the conduct of government in contemporary Quebec. The course is open to students from fields other than political science. Prerequisite: POLI 101.

POLI 308 (3/6) D ISSUES IN CANADIAN POLITICS. An examination of one or more major issues in Canadian politics (e.g., the Charter, electoral reform). Topics will vary from year to year. Prerequisite: POLI 101.

POLI 320 (3/6) D GOVERNMENT AND POLITICS OF THE UNITED STATES OF AMERICA. The institutions, behaviour, and policies of the political system of the US in a comparative context. The constitution and the major institutions of government and public policy.

POLI 321 (3/6) D CHINESE POLITICS AND DEVELOPMENT. The course will explore various aspects of Chinese politics and the dynamics of China's development since 1949. Topics include: the Cultural Revolution, political reform and protest, and economic reform policies and their consequences.

POLI 322 (3) JAPANESE GOVERNMENT AND POLITICS. A general introduction to modern Japanese politics from various theoretical and comparative perspectives.

POLI 323 (3/6) D SOUTH ASIAN GOVERNMENT AND POLITICS. Comparative analysis of politics and government in India, Pakistan, Bangladesh, and Sri Lanka. Imperial legacies and nationalist movements; political institution-building amidst socio-cultural diversity; parties and interest groups; elections and leadership crises; military intervention; ethnic and class conflicts; foreign policy.

POLI 324 (3/6) D SOUTHEAST ASIAN GOVERNMENT AND POLITICS. The political systems of contemporary Southeast Asia.

POLI 325 (3) COMMUNIST AND POST-COMMUNIST POLITICS. An examination of the origins, development, and demise of Communist political systems, as well as the nature of post-Communist politics, with special emphasis on the Soviet Union and its successor states.

POLI 326 (3) EUROPEAN POLITICS: SELECTED CASES. The politics and government of one or more European countries: political development, institutional structure, party politics, and policy-making. The specific country or countries will vary by section.

POLI 327 (3) EUROPEAN INTEGRATION. Post-1945 integration of Europe, comparison of national politics and attitudes to integration,

and the history and institutions of the European Union.

POLI 328 (3/6) D TOPICS IN COMPARATIVE POLITICS. Topics will vary from year to year. Consult the departmental website.

POLI 329 (3) GENDER AND POLITICS. Relations between gender and political processes and institutions, including the impact of globalization and economic development.

POLI 330 (3) JAPANESE POLITICAL ECONOMY. Issues in contemporary Japanese political economy, including industrial policy, the Keiretsu groupings, the main-bank system, trends toward deregulation, and business-labour relations.

POLI 331 (3) KOREAN GOVERNMENT AND POLITICS. An introduction to the politics of Korea. The evolution of Korean politics from authoritarian rule to democratic transition, focusing on present and future political, economic and social issues.

POLI 332 (3/6) D POLITICS AND GOVERNMENT OF LATIN AMERICA. A comparative examination of democracy and authoritarianism in Latin America: populism, corporatism, bureaucratic authoritarianism, transitions from authoritarianism, and contemporary debates on the quality and diversity of democratic institutions.

POLI 333 (3/6) D ISSUES IN COMPARATIVE POLITICS. An examination of a major issue in comparative politics (e.g., the media, gender, nationalism, ethnic conflict). Topics will vary from year to year.

POLI 334 (3) COMPARATIVE DEMOCRATIZATION. Literatures and theories on regime democratization around the world; the roles of political, economic, social, and international factors in encouraging or impeding democratization.

POLI 335 (3/6) D COMPARATIVE FEDERALISM. An empirical and normative analysis of federalism as a way of structuring political life in industrialized democracies, investigating explanations for the design, persistence and operation of federal systems.

POLI 340 (6) HISTORY OF POLITICAL IDEAS. An introduction to the political ideas of leading political philosophers from Ancient Greece to the 19th century.

POLI 342 (3) MODERN POLITICAL THEORY: ANALYSIS OF A SELECTED THEORIST. A detailed examination of an acknowledged masterpiece of modern political theory. The text and attendant literature vary from year to year. Consult the departmental website.

POLI 344 (3/6) D SOCIAL AND POLITICAL THOUGHT. An examination of some of the major concepts in political philosophy such as justice, equality, rights, obligation, liberty in the context of both classical and contemporary political thought.

POLI 345 (3/6) D GENDER AND POLITICS: POLITICAL THOUGHT AND PRACTICE. The role of gender in Western political theory and the implications for the practice of politics.

POLI 346 (3) DEMOCRATIC THEORY. An examination of both classical and contemporary theories of democracy. Representative democratic theory, participatory democratic theory, and their relationship to twentieth century concepts of democracy.

POLI 347 (3/6) D LAW AND POLITICAL THEORY. An examination of law and political theory that considers topics such as sovereignty, constitutionalism, civil disobedience, rights and the political role of judges.

POLI 350 (3/6) D PUBLIC POLICY. An introduction to public policy: rationales for government intervention, the influence of interest groups and political institutions on policy outcomes, and the various stages in the policy process.

POLI 351 (3) ENVIRONMENTAL POLITICS AND POLICY. Domestic and international determinants of environmental policy; alternative approaches to environmental protection. The sustainable development paradigm; public opinion and interest group pressures; risk assessment; mandatory, voluntary and market-based policy instruments.

POLI 352 (3/6) D COMPARATIVE POLITICS OF PUBLIC POLICY. Policy making across industrialized democracies, with a focus on North America and Europe.

POLI 360 (3/6) D SECURITY STUDIES. The contemporary international security context: reorientation of the study of security, patterns of inter- and intrastate conflict and communal violence, dilemmas of international response and conflict management.

POLI 361 (3/6) D INTERNATIONAL VIOLENCE AND ITS CONTROL. A study of the nature of international violence from guerrilla to nuclear war; a survey of theories of the causes of interstate war; recent research findings on the causes of war and conditions for peace; a comparative analysis of strategies for controlling violence through disarmament and the promotion of alternative means of conflict resolution.

POLI 362 (3) THE GREAT POWERS AND INTERNATIONAL POLITICS. An examination of the changing nature of Great Power relations, including procedures and institutions for managing their conflicts, in the pre-Cold War, Cold War, and post-Cold War international systems.

POLI 363 (3/6) D CANADIAN FOREIGN POLICY. An analysis of Canadian foreign policy on important international issues since the 1960s and of the policy-making process. Issues may include defence commitments, economic relations, activities of international organizations, and relations with the US, Europe, USSR, Asia and the Third World.

POLI 364 (3/6) D INTERNATIONAL ORGANIZATIONS. Analysis of the activities and influence of modern international organizations in international security, economic, and social issue areas. The course will focus on organizations associated with the United Nations, but other world and regional bodies will be analysed as well.

POLI 365 (3/6) D ASIAN INTERNATIONAL RELATIONS. Analysis of the foreign policies of one or more of the states of East, Southeast, and South Asia; their relations with other states in the region as well as with major outside powers.

POLI 366 (3) INTERNATIONAL POLITICAL ECONOMY. An analysis of governmental policies and international political bargaining in regard to such issues as international investment, trade, and monetary relations. Prerequisite: ECON 100 or 309 are recommended.

POLI 367 (3/6) D INTERNATIONAL RELATIONS THEORY AND THE INTERNATIONAL SYSTEM. The evolution of the international system and empirical and normative theories of international relations such as realism, liberalism, and Marxism.

POLI 368 (3) JAPAN'S FOREIGN RELATIONS. Japan's security policy, aid policy, relations with the United States and with neighbouring Asian nations, role in the United Nations and other international institutions.

POLI 369 (3/6) D ISSUES IN INTERNATIONAL SECURITY. An examination of issues such as interstate conflicts, terrorism, environmental change, international crime. Topics will vary from year to year.

POLI 370 (3-6) D ISSUES IN INTERNATIONAL CONFLICT MANAGEMENT. Problems of managing conflict in the international system (e.g., intervention, mediation, sanctions). Topics will vary from year to year.

POLI 373 (3) ETHICS IN WORLD POLITICS. When is it right to wage war? Who should pay for global warming? Should the wealthy provide foreign aid—how much? Analysis of traditions of moral thought to reach reasoned judgments about such dilemmas in global politics.

POLI 374 (3/6) D INTERNATIONAL PEACEKEEPING. The development of peacekeeping within and outside the United Nations system and as an instrument of conflict management.

POLI 375 (3/6) D GLOBAL ENVIRONMENTAL POLITICS. Ecological consequences of the global political economy.

POLI 380 (3) QUANTITATIVE METHODS IN POLITICAL SCIENCE. An introduction to quantitative methods as utilized in the study of Political Science. Not available for credit in the Faculty of Commerce and Business Administration.

POLI 381 (3) TOPICS IN QUANTITATIVE ANALYSIS. Application of quantitative techniques to selected topics in Political Science. Topics vary from year to year. Consult the departmental website. Prerequisite: POLI 380.

POLI 385 (3/6) D PUBLIC OPINION AND ELECTIONS. Psychological and social foundations of public opinion; quality of democratic decision-making; how voters make up their minds; impact of electoral systems; social bases of party systems; campaigns and the mass

media. The Canadian experience in comparative context.

POLI 390 (6/12) D HONOURS SEMINAR. An examination of the dimensions of Political Science and the major debates within the discipline.

POLI 401 (3/6) D CANADIAN PROVINCIAL AND REGIONAL POLITICS. Seminar examines political parties, processes, and institutions in the provincial political systems and regional arrangements between provinces. Prerequisite: POLI 101 and one of POLI 301, POLI 302, POLI 303, POLI 304, POLI 305, POLI 306, POLI 307, POLI 308.

POLI 402 (3/6) D LAW AND POLITICS OF THE CANADIAN CONSTITUTION. Seminar on the origins and development of the Canadian Constitution: the political aspects of federalism and the legal consequences of the Charter of Rights. Prerequisite: POLI 101 and one of POLI 301, POLI 302, POLI 303, POLI 304, POLI 305, POLI 306, POLI 307, POLI 308.

POLI 403 (3/6) D THE POLITICAL ECONOMY OF CANADA. A seminar to the analysis of the interplay of economic and social factors in the shaping of Canadian politics: the major issues and strains in the functioning of the Canadian polity. Prerequisite: POLI 101 and one of POLI 301, POLI 302, POLI 303, POLI 304, POLI 305, POLI 306, POLI 307, POLI 308.

POLI 404 (3/6) D PUBLIC POLICY AND ITS ADMINISTRATION. This seminar examines political and administrative aspects of public policy, particularly in Canada. Prerequisite: POLI 101 and one of POLI 301, POLI 302, POLI 303, POLI 304, POLI 305, POLI 306, POLI 307, POLI 308.

POLI 405 (3/6) D TOPICS IN CANADIAN POLITICS. This seminar examines in depth some of the important issues in Canadian politics. Prerequisite: POLI 101 and one of POLI 301, POLI 302, POLI 303, POLI 304, POLI 305, POLI 306, POLI 307, POLI 308.

POLI 406 (3) ABORIGINAL PEOPLES AND CANADIAN POLITICS. Seminar in political structures, activities, and demands of aboriginal peoples; the policies of federal, provincial, and territorial governments; the relations between these governments and aboriginal peoples; the role of the courts and the constitution. Prerequisite: POLI 101 and at least 3 credits from POLI 301–308.

POLI 420 (3/6) D ADVANCED TOPICS IN COMPARATIVE POLITICS. Seminar in comparative analysis of politics in democratic systems. For specific content in a given year, consult the departmental website. Prerequisite: Two of POLI 220, POLI 320, POLI 321, POLI 322, POLI 323, POLI 324, POLI 325, POLI 326, POLI 327, POLI 328, POLI 329, POLI 330, POLI 331, POLI 332, POLI 333, POLI 350, POLI 351.

POLI 421 (3/6) D ADVANCED TOPICS IN COMPARATIVE POLITICS: NON-WESTERN. A seminar devoted to comparative analysis of politics in non-western states. For specific content in a given year, consult the departmental website. Prerequisite: Two of POLI 220,

POLI 320, POLI 321, POLI 322, POLI 323, POLI 324, POLI 325, POLI 326, POLI 327, POLI 328, POLI 329, POLI 330, POLI 331, POLI 332, POLI 333, POLI 350, POLI 351.

POLI 422 (3/6) D SELECTED PROBLEMS IN COMPARATIVE POLITICS. A seminar devoted to intensive analysis of a contemporary political problem from a comparative perspective, e.g., ethnic politics, class politics, the politics of post-industrial society. For specific content in a given year, consult the departmental website. Prerequisite: Two of POLI 220, POLI 320, POLI 321, POLI 322, POLI 323, POLI 324, POLI 325, POLI 326, POLI 327, POLI 328, POLI 329, POLI 330, POLI 331, POLI 332, POLI 333, POLI 350, POLI 351.

POLI 423 (3/6) D ISSUES IN COMPARATIVE POLITICS. Seminar in comparative analysis of constitutionalism, authoritarianism, democracy, etc. For specific content in a given year, consult the departmental website. Prerequisite: Two of POLI 220, POLI 320, POLI 321, POLI 322, POLI 323, POLI 324, POLI 325, POLI 326, POLI 327, POLI 328, POLI 329, POLI 330, POLI 331, POLI 332, POLI 333, POLI 350, POLI 351.

POLI 424 (6) CHINESE POLITICAL THOUGHT AND INSTITUTIONS. Equivalency: ASIA 411.

POLI 425 (6) COMMUNIST MOVEMENTS IN EASTERN EUROPE SINCE 1900. Equivalency: HIST 435.

POLI 426 (3/6) D SEMINAR ON COMPARATIVE PARTIES AND PARTY SYSTEMS. Prerequisite: Two of POLI 220, POLI 320, POLI 321, POLI 322, POLI 323, POLI 324, POLI 325, POLI 326, POLI 327, POLI 328, POLI 329, POLI 330, POLI 331, POLI 332, POLI 333, POLI 350, POLI 351.

POLI 429 (3) SEMINAR IN ISSUES IN GENDER AND POLITICS. Prerequisite: Two of POLI 220, POLI 320, POLI 321, POLI 322, POLI 323, POLI 324, POLI 325, POLI 326, POLI 327, POLI 328, POLI 329, POLI 330, POLI 331, POLI 332, POLI 333, POLI 345, POLI 350, POLI 351.

POLI 440 (3/6) D CONTEMPORARY POLITICAL THEORY. This seminar examines the political ideas of leading political philosophers of the twentieth century. Consult the departmental website. Prerequisite: Any 6 credits from POLI 240, POLI 340–349.

POLI 442 (3) CONTEMPORARY POLITICAL THEORISTS: ANALYSIS OF A SELECTED THEORIST. This seminar examines in detail the political ideas of an important political philosopher of the twentieth century. The theorist studied varies from year to year. Consult the departmental website. Prerequisite: Any 6 credits from POLI 240, 340–349.

POLI 444 (3) SOCIAL SCIENCE AND POLITICAL THEORY. This seminar examines the political and social theories of the founders of modern social science through the relevant writings of such theorists as Tocqueville, Comte, Mill, Marx, Toennies, Weber, and Durkheim. Prerequisite: Any 6 credits from POLI 240, 340–349.

POLI 446 (3/6) D TOPICS IN POLITICAL THOUGHT. A seminar devoted to the intensive study of a concept, theme, or school in the history of political thought or contemporary political philosophy. Topics vary from year to year. Consult the departmental website. Prerequisite: Any 6 credits from POLI 240, 340–349.

POLI 460 (3/6) D FOREIGN POLICY ANALYSIS. A seminar devoted to the analysis of the foreign policies of one or more states, as well as to the study of literature pertaining to foreign policy analysis. For specific content in a given year, consult the departmental website. Prerequisite: Two of POLI 260, POLI 360, POLI 361, POLI 362, POLI 363, POLI 364, POLI 365, POLI 366, POLI 367, POLI 368, POLI 369, POLI 370.

POLI 461 (3) PEACE AND CONFLICT STUDIES. A seminar on a selected topic concerning the causes of war and strategies for the promotion of peace. For specific content in a given year, consult the departmental website. Prerequisite: Two of POLI 260, POLI 360, POLI 361, POLI 362, POLI 363, POLI 364, POLI 365, POLI 366, POLI 367, POLI 368, POLI 369, POLI 370.

POLI 462 (3) INTERNATIONAL RELATIONS THEORY. This seminar examines some of the major theoretical approaches to the study of international relations. For specific content in a given year, consult the departmental website. Prerequisite: Two of POLI 260, POLI 360, POLI 361, POLI 362, POLI 363, POLI 364, POLI 365, POLI 366, POLI 367, POLI 368, POLI 369, POLI 370.

POLI 463 (3) INTERNATIONAL INTERDEPENDENCE. This seminar analyses issues relating to the politics of international economic relations. For specific content in a given year, consult the brochure issued by the Department. Prerequisite: Two of POLI 260, POLI 360, POLI 361, POLI 362, POLI 363, POLI 364, POLI 365, POLI 366, POLI 367, POLI 368, POLI 369, POLI 370. 6 credits of ECON are recommended.

POLI 464 (3/6) D PROBLEMS IN INTERNATIONAL RELATIONS. Content varies from year to year. Consult the departmental website. One section (of 3 credits) is reserved for fourth-year students in the Major program in International Relations.

POLI 465 (3) INTERNATIONAL LAW. The nature, sources, and sanctions of international law; the notion of nationhood with particular reference to the status of the British Dominions; territorial and extra-territorial jurisdiction; diplomatic and sovereign immunities; international delinquency; treaties; settlement of disputes; international organizations. This course may not be taken for credit in both Arts and Law. Equivalency: LAW 316.

POLI 466 (3) THE POLITICS OF INTERNATIONAL LAW. Seminar on the origins and politics of international law, and its impact on international affairs; the laws of war, human rights, environment, law of the sea, and international criminal law.

POLI 490 (6) HONOURS SEMINAR. An advanced seminar dealing with some of the classic themes and emerging frontiers in the discipline.

POLI 491 (6) HONOURS ESSAY.

POLI 501 (3/6) D CANADIAN GOVERNMENT AND POLITICS.

POLI 502 (3/6) D CANADIAN POLITICAL INSTITUTIONS AND PROCESSES.

POLI 503 (3/6) D CANADIAN POLITICAL PARTIES AND PARTICIPATION.

POLI 504 (3/6) D TOPICS IN CANADIAN POLITICS.

POLI 511 (3/6) D COMPARATIVE GOVERNMENT AND POLITICS.

POLI 512 (3/6) D THEORIES IN COMPARATIVE POLITICS: POLITICAL DEVELOPMENT.

POLI 513 (3/6) D THEORIES IN COMPARATIVE POLITICS: CLEAVAGES AND INTEGRATION.

POLI 514 (3/6) D COMPARATIVE WESTERN GOVERNMENTS.

POLI 515 (3/6) D COMPARATIVE NON-WESTERN GOVERNMENTS.

POLI 516 (3/6) D ISSUES IN COMPARATIVE POLITICS.

POLI 521 (3/6) D POLITICAL THEORY.

POLI 522 (3–6) D TOPICS IN POLITICAL THEORY.

POLI 523 (3/6) D POLITICAL THOUGHT.

POLI 531 (3/6) D PUBLIC ADMINISTRATION.

POLI 532 (3/6) D TOPICS IN PUBLIC ADMINISTRATION.

POLI 533 (3/6) D TOPICS IN PUBLIC POLICY.

POLI 549 (6/12) C MASTER'S THESIS.

POLI 551 (3/6) D POLITICAL BEHAVIOUR.

POLI 552 (3/6) D RESEARCH SEMINAR IN POLITICAL BEHAVIOUR.

POLI 553 (3/6) D TOPICS IN EMPIRICAL THEORY.

POLI 561 (3/6) D INTERNATIONAL RELATIONS.

POLI 562 (3/6) D TOPICS IN INTERNATIONAL RELATIONS.

POLI 563 (3/6) D INTERNATIONAL ORGANIZATION.

POLI 564 (3/6) D RESEARCH SEMINAR IN INTERNATIONAL RELATIONS.

POLI 571 (3/6) D METHODS OF POLITICAL ANALYSIS.

POLI 572 (3/6) D QUANTITATIVE TECHNIQUES OF POLITICAL ANALYSIS.

POLI 580 (3/6) C DIRECTED STUDIES.

POLI 649 (0) PH.D. THESIS.

POLS — POLISH FACULTY OF ARTS

POLS 110 (6) BASIC POLISH. Introduction to contemporary Polish. Oral practice, grammar, reading, writing.

POLS 300 (6) INTERMEDIATE POLISH. Intermediate oral practice, grammar, reading, composition. Prerequisite: POLS 200.

POLS 345 (3/6) D INTRODUCTION TO TWENTIETH-CENTURY POLISH LITERATURE. Readings and discussion of selected works of representative writers. Prerequisite: POLS 210.

PORT — PORTUGUESE FACULTY OF ARTS

PORT 101 (3) FIRST-YEAR PORTUGUESE I. Grammar, composition, translation, oral practice.

PORT 102 (3) FIRST-YEAR PORTUGUESE II. Grammar, composition, translation, oral practice. Prerequisite: PORT 101 or equivalent.

PORT 201 (3) SECOND-YEAR PORTUGUESE I. Grammar, composition, translation, oral practice, readings. Prerequisite: PORT 102 or equivalent.

PORT 202 (3) SECOND-YEAR PORTUGUESE II. Grammar, composition, translation, oral practice, readings. Prerequisite: PORT 201.

PORT 392 (3) STUDIES IN PORTUGUESE AND BRAZILIAN LITERATURE.

PRIN — PRINCIPLES OF HUMAN BIOLOGY FACULTY OF MEDICINE

PRIN 401 (12) PRINCIPLES OF HUMAN BIOLOGY. An interdisciplinary approach to the structural design and functioning of the human body, from subcellular organelles to gross anatomic structures. Integrates major concepts from gross anatomy, cell biology, biochemistry, molecular biology, genetics, physiology, immunology, pathology and pharmacology. [7-6-6]

PSYC — PSYCHOLOGY FACULTY OF ARTS

Unless otherwise specified, the prerequisite for 300-level Psychology courses is PSYC 100, or 101 and 102, or 6 credits of 200-level Psychology courses (but not 205 or 263), or permission of the instructor. Students registered in the B.Sc. Psychology program must elect Faculty of Arts courses other than Psychology to satisfy the Faculty of Science requirements of 18 credits of Arts. In addition to Psychology 348 and 448, all Psychology courses numbered 60 or higher in the last two digits have Science credit but they cannot be used to satisfy the science requirements of the Faculty of Arts. Listed below are courses in which there is sufficient overlap that credit may be obtained for only one course in each pair. However, it does not necessarily follow that the paired courses are equivalent: PSYC 304, 360, PSYC 217, 366, PSYC 218, 366. Students with fewer than 36 previous credits may not take 300-level courses. Not every course is offered every year. For

current listings, consult the departmental website at www.psych.ubc.ca.

PSYC 100 (6) INTRODUCTORY PSYCHOLOGY. Introduction to Methods and Statistics, Biopsychology, Learning, Perception, Memory, Cognition, Motivation, Assessment, Developmental, Personality, Clinical, and Social Psychology. Credit will be given for either PSYC 100 or PSYC 101 and 102.

PSYC 101 (3) INTRODUCTION TO BIOLOGICAL AND COGNITIVE PSYCHOLOGY. Introduction to Methods and Statistics, Biopsychology, Learning, Perception, Memory, and Cognition. Credit will not be given for both PSYC 100 and PSYC 101.

PSYC 102 (3) INTRODUCTION TO DEVELOPMENTAL, SOCIAL, PERSONALITY, AND CLINICAL PSYCHOLOGY. Introduction to Methods and Statistics, Motivation, Assessment, Developmental, Personality, Clinical, and Social Psychology. Credit will not be given for both PSYC 100 and PSYC 102.

PSYC 205 (3/6) D CONTEMPORARY ISSUES IN PSYCHOLOGY. Topics include addiction, culture and evolution in social behaviour, personal relationships, pro- and anti-social behaviour, judgment and decision-making, prejudice and discrimination. Consult the Psychology Department for topics offered each term. May be repeated on a different topic once for credit.

PSYC 217 (3) THINKING CLEARLY ABOUT PSYCHOLOGY. Thinking about psychological science, with an emphasis on common errors of judgement. Credit will not be given for both PSYC 217 and 317. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102. Corequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102.

PSYC 218 (3) ANALYSIS OF BEHAVIOURAL DATA. Introduces behavioural data analysis; the use of inferential statistics in psychology and conceptual interpretation of data; experimental design (laboratory, field research methods); presentation of data analyses in reports. Credit will not be given for both PSYC 218 and 318. Prerequisite: PSYC 217. Corequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102.

PSYC 260 (8) EXPERIMENTAL PSYCHOLOGY AND LABORATORY. Detailed introduction to experimental and theoretical aspects of motivation, sensation, perception and learning. Prerequisite: Completion of first-year Science program and permission of the department head is also required. Corequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102.

PSYC 263 (3/6) D CONTEMPORARY ISSUES IN BIOPSYCHOLOGY. Contemporary issues in biopsychology (e.g., neuropsychology, mental illness, brain damage, addiction, hormones and the brain). Consult the Psychology Department for topics offered each term. May be repeated on a different topic once for credit.

PSYC 300 (3/6) D BEHAVIOUR DISORDERS. The definition, history, and scope of deviant behaviour; emphasis on the psychological factors that control its origins, maintenance,

and modification. Prerequisite: Either (a) PSYC 100, or (b) all of PSYC 101, PSYC 102, or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 302 (3) INFANCY. Human cognition, perception, motor, social, emotional needs, brain development and their interactions from birth until the emergence of language. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 303 (3) TESTS AND MEASUREMENTS I. Theory and practice of mental measurement, test reliability and validity, uses, administration, scoring, and interpretation of psychological tests. Prerequisite: One of PSYC 217, PSYC 366. Corequisite: May be taken concurrently with PSYC 366.

PSYC 304 (6) BRAIN AND BEHAVIOUR. The neurobiological bases of behaviour; brain processes involved in perception, motivation, emotion, psychopathology, learning and memory. Open to all Arts and Science majors except those in the B.Sc. Psychology program. Credit will not be given for both PSYC 304 and PSYC 360. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 305 (6) THEORY OF PERSONALITY. Approaches and principal theoretical problems; research theories of personality as represented by psychological systems. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 306 (3/6) D PRINCIPLES OF ANIMAL BEHAVIOUR. Theory of evolution; behavioural genetics; social systems as ecological adaptation; mating and parental strategies; instinct and learning; evolution of human behaviour. Credit will be given for only one of BIOL 310 or PSYC 306. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102. Or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 308 (3/6) D SOCIAL PSYCHOLOGY. Theory and research of individual social behaviour; social motivation; attitudes; group interaction; socialization; prejudice. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 309 (3/6) D COGNITIVE PROCESSES. Contribution of cognitive processes to perception, attention, and memory; cognitive development, language, thinking, and creativity. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102. Or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 312 (3/6) D HISTORY OF PSYCHOLOGY. The principal trends of psychological explanation and events in the history of psychology from the earliest times to the present. Open only to Major or Honours students or by permission of the instructor. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 314 (3) HEALTH PSYCHOLOGY.

Health-related behaviours such as smoking and drug use; effects of stressful events on health; methods for coping with stress; impact of chronic illness on the family; social support systems. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102. Or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 315 (3) CHILDHOOD AND ADOLESCENCE. Human development from the preschool period through adolescence. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 319 (3) APPLIED DEVELOPMENTAL PSYCHOLOGY. Applications of theories and research in developmental psychology to contemporary social issues; topics may include daycare, child abuse, divorce and remarriage, substance abuse, sexuality. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 320 (6) PSYCHOLOGY OF GENDER. Physical, psychological, and cultural influences. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 321 (6) ENVIRONMENTAL PSYCHOLOGY. Psychological theory and research on the interaction between organisms and the physical environment; emphasis on applications to the design and management of constructed and natural environments. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 322 (3) ADULTHOOD AND AGING. Issues, theories, and psychological research regarding adulthood and the aging process. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 323 (3) TESTS AND MEASUREMENTS II. A survey of tests for assessing intelligence, abilities, personality, motivation, and interests. Prerequisite: PSYC 303.

PSYC 325 (3) SOCIALIZATION: MEDIA CONTENT AND EFFECTS. Examines human development in the context of the socializing role of media. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 333 (3) MEMORY: HISTORICAL, CLINICAL AND COGNITIVE PERSPECTIVES. Classical and contemporary metaphors for memory and their impact on theory development. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263). Non-PSYC students may substitute LING 460 or LING 200 and 201 for the above prerequisite.

PSYC 334 (3) MEMORY II. Organic amnesia; remembering childhood events; the self and memory; and the problem of distinguishing genuine from simulated forgetting. Prerequisite: PSYC 333.

PSYC 336 (3) THE PSYCHOLOGY OF LANGUAGE I. Psychological abilities underlying human language; language processing, lexical representation, and principles of online conversation; animal versus human communication. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102. Non-PSYC students may substitute ENGL 329, or LING 420, or LING 200 and 201 for the above prerequisite.

PSYC 337 (3) THE PSYCHOLOGY OF LANGUAGE II. Language and thought; deriving psychological principles from language universals; the psychology of literacy, dyslexia, multilingualism, and natural language processing. Prerequisite: PSYC 336 or permission of the instructor.

PSYC 340 (2-6) C DIRECTED STUDIES IN PSYCHOLOGY. Directed investigation of a problem, requiring a written report of the findings. Prerequisite: At least 72% average in the preceding 30 credits and permission of a faculty member who is prepared to supervise the investigation.

PSYC 348 (2-6) C DIRECTED STUDIES IN BIOPSYCHOLOGY. Directed investigation of an experimental problem requiring a written report of the findings. Prerequisite: At least 72% average in the preceding 30 credits and permission of a faculty member who is prepared to supervise the investigation.

PSYC 349 (6) HONOURS SEMINAR. Orientation to psychological research, with special emphasis on ongoing research within the department; effective presentation of research findings, oral and written; critical evaluation of research. Requires a research project. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102; and all of PSYC 217, 218.

PSYC 350 (3/6) D PSYCHOLOGICAL ASPECTS OF HUMAN SEXUALITY. Human sexuality from a biopsychological, behavioural, and psychosocial perspective. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 359 (3) ADVANCED RESEARCH METHODS IN BEHAVIOURAL SCIENCES. Prepares students for graduate studies or other advanced behavioural research; experimental design and analytic techniques; laboratory with computer applications. Prerequisite: Either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366.

PSYC 360 (6) BIOPSYCHOLOGY. The relationship between the nervous system and behaviour; the physiological basis of perception, motivation, learning, and memory. Prerequisite: PSYC 260.

PSYC 361 (3) MOTIVATION. Experimental analysis of hunger, thirst, exploratory and curiosity behaviour, maternal and reproductive behaviour, fixed action patterns, and complex processes involved in social motivation with

emphasis on the biological basis of motivation. Prerequisite: Either (a) all of PSYC 101, PSYC 102 or (b) one of PSYC 100, PSYC 260, PSYC 304, PSYC 360.

PSYC 363 (3) PRINCIPLES OF ANIMAL LEARNING. Introduction to basic theories of non-associative learning, classical and operant conditioning. Experimental findings from behavioural and biological analyses with animals and humans. Prerequisite: One of PSYC 260, PSYC 263, PSYC 304.

PSYC 364 (3) ANIMAL COGNITION. Investigations of animal cognitive abilities, including spatial learning, timing, counting, concept formation and language use. Experimental findings presented from behavioural and biological approaches with animals and humans. Prerequisite: PSYC 363.

PSYC 365 (3) COGNITIVE NEUROSCIENCE. Brain mechanisms underlying cognitive processes such as perception, attention, consciousness, and memory. Prerequisite: One of PSYC 260, COGS 200.

PSYC 366 (8) METHODS IN RESEARCH. Detailed coverage of basic research methods; the design of experiments and statistical analysis; methods will be applied in laboratory and project work. Prerequisite: PSYC 260 or in Honours program.

PSYC 367 (3) SENSORY SYSTEMS. Anatomy and physiology of the sensory pathways and their relation to perception. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102 or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 368 (3) PERCEPTUAL PROCESSING. Perceptual phenomena and their underlying brain mechanisms. Prerequisite: PSYC 367.

PSYC 401 (3/6) D CLINICAL PSYCHOLOGY. The theoretical and research foundations of the processes of assessment and behaviour modification in clinical psychology. Prerequisite: PSYC 300 or permission of the instructor.

PSYC 403 (6) HUMAN EMOTION. Developmental, cognitive, and social psychological theories and research on human emotion. Prerequisite: One of PSYC 302, PSYC 305, PSYC 308, PSYC 309, PSYC 315.

PSYC 407 (3) CULTURAL PSYCHOLOGY. Cultural influences on human thought; interactions of culture and self, cultural differences in ways of thinking, multicultural experiences, and methodological issues. Prerequisite: PSYC 308.

PSYC 408 (6) SOCIAL PSYCHOLOGICAL RESEARCH. Representative studies on social psychological topics; emphasis on the formulation of significant questions and the design and execution of relevant research. Prerequisite: PSYC 308 and either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366 or permission of the instructor.

PSYC 412 (3) COGNITIVE DEVELOPMENT. The development of fundamental cognitive abilities from infancy through adulthood, including traditional approaches to cognitive development as well as new areas of current

investigation. Prerequisite: One of PSYC 302, PSYC 315, PSYC 319, PSYC 322, PSYC 325.

PSYC 413 (3) SOCIAL AND PERSONALITY DEVELOPMENT. Comprehensive overview of the psychological processes in the social and personality development of infants, children, and adolescents. Prerequisite: One of PSYC 302, PSYC 315, PSYC 319, PSYC 322, PSYC 325.

PSYC 414 (6) RESEARCH METHODS IN DEVELOPMENTAL PSYCHOLOGY. Principal research methods and designs; students undertake supervised research projects. Prerequisite: Either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366; and one of PSYC 302, PSYC 315, PSYC 319, PSYC 322, PSYC 325 or permission of the instructor.

PSYC 415 (6) APPLIED SOCIAL PSYCHOLOGY. The application of social psychological research and theory to the solution of social problems. Prerequisite: PSYC 308 and either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366 or permission of instructor.

PSYC 417 (3/6) D SPECIAL TOPICS IN PSYCHOLOGY. Intensive examination of selected topics and issues in psychology. Prerequisite: Either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366.

PSYC 430 (6) FORENSIC PSYCHOLOGY. The implications of theory and research in psychology for the criminal justice system. Prerequisite: Either (a) PSYC 100 or (b) all of PSYC 101, PSYC 102. Or (c) 6 credits of 200-level Psychology (but not 205 or 263).

PSYC 440 (2-6) C DIRECTED STUDIES IN PSYCHOLOGY. Directed investigation of an experimental problem, requiring a written report of the findings. Prerequisite: At least 72% average in the preceding 30 credits and permission of a faculty member who is prepared to supervise the investigation.

PSYC 448 (2-6) C DIRECTED STUDIES IN BIOPSYCHOLOGY. Directed investigation of an experimental problem requiring a written report of the findings. Prerequisite: At least a 72% average in the preceding 30 credits and permission of a faculty member who is prepared to supervise the investigation.

PSYC 449 (6) HONOURS SEMINAR AND ESSAY. Students carry out a research project and report on its development during seminars. Students also discuss research by Departmental staff, with emphasis on choice of problems, research design and data analysis.

PSYC 460 (3) BEHAVIOURAL NEUROENDOCRINOLOGY. Detailed examination of the interaction between hormones and neural control of reproductive and non-reproductive behaviours; emphasis on gonadal and adrenal hormone effects on learning and memory in the brain. Prerequisite: One of PSYC 304, PSYC 360.

PSYC 461 (3) NEUROPLASTICITY AND BEHAVIOUR. Experimental findings and theory documenting the plasticity of the brain and its relationship to behaviour: emphasis on gene regulation, neurogenesis and cell morphol-

ogy changes in relation to learning and experience. Prerequisite: One of PSYC 304, PSYC 360, PSYC 460.

PSYC 462 (3) DRUGS AND BEHAVIOURAL NEUROSCIENCE. Introduction to neurochemical systems and functional neuroanatomy; animal models of human cognitive processes and mental disorders; neurochemical foundations and treatments for mental disorders. BIOL 205 and/or PCTH 325 recommended. Prerequisite: One of PSYC 304, PSYC 360.

PSYC 463 (3/6) D RESEARCH IN SENSATION AND PERCEPTION. Vision and audition; physical properties and subjective experience of stimuli. Prerequisite: Either (a) all of PSYC 217, PSYC 218 or (b) PSYC 260.

PSYC 465 (3/6) D COMPUTERS IN PSYCHOLOGY. Applications of computers unique to psychology. Microcomputer programming experience desirable but not necessary; students can learn this early in the course. Prerequisite: Either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366.

PSYC 466 (6) RESEARCH METHODS IN ANIMAL LEARNING AND COGNITION. Supervised research project on learning, memory or other cognitive process. Prerequisite: Either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366; and one of PSYC 304, PSYC 306, PSYC 309, PSYC 360, PSYC 363, PSYC 365, BIOL 310.

PSYC 467 (3/6) D PHYSIOLOGICAL PSYCHOLOGY LABORATORY. Laboratory methods for studying the relation between brain and behaviour. Prerequisite: Either (a) all of PSYC 217, PSYC 218 or (b) PSYC 366; and one of PSYC 304, PSYC 360.

PSYC 500 (3/6) D HISTORY OF PSYCHOLOGY.

PSYC 513 (3) SPECIAL TOPICS IN DEVELOPMENTAL PSYCHOLOGY.

PSYC 514 (3) ADVANCED TOPICS IN BIOPSYCHOLOGY. Not offered each year; consult Department of Psychology.

PSYC 515 (3) ANIMAL BEHAVIOUR.

PSYC 516 (3) ANIMAL LEARNING, MEMORY, AND COGNITION. Not offered each year; consult Department of Psychology.

PSYC 517 (3) BIOPSYCHOLOGY OF MOTIVATION. Not offered each year; consult Department of Psychology.

PSYC 520 (3) DEVELOPMENTAL BIOPSYCHOLOGY. Not offered each year; consult Department of Psychology.

PSYC 521 (3/6) D PSYCHOLINGUISTICS.

PSYC 522 (3) DRUGS AND BEHAVIOUR. Not offered each year; consult Department of Psychology.

PSYC 523 (3) EXPERIMENTAL NEUROPSYCHOLOGY AND ANIMAL MODELS. Not offered each year; consult Department of Psychology.

PSYC 524 (3/6) D NEURAL MODELS OF LEARNING AND MEMORY. Not offered each year; consult Department of Psychology.

PSYC 525 (3) ATTITUDES AND SOCIAL COGNITION. To be offered in alternate years only.

PSYC 526 (3) INDIVIDUALS AND GROUPS. To be offered in alternate years only.

PSYC 527 (3) INTERPERSONAL PROCESSES. To be offered in alternate years only.

PSYC 528 (3) ADVANCED METHODS IN SOCIAL PSYCHOLOGY AND PERSONALITY. To be offered in alternate years only.

PSYC 529 (3) SPECIAL TOPICS IN SOCIAL PSYCHOLOGY. Not offered each year; consult Department of Psychology.

PSYC 530 (3) ASSESSMENT: A CRITICAL SURVEY.

PSYC 531 (3) ASSESSMENT: CLINICAL APPLICATIONS.

PSYC 532 (3) CHILD ASSESSMENT.

PSYC 533 (3/6) D CURRENT ISSUES IN CLINICAL PSYCHOLOGY.

PSYC 534 (3–12) C CLINICAL PSYCHOLOGY PRACTICUM.

PSYC 535 (3) PSYCHOPATHOLOGY OF THE ADULT.

PSYC 536 (3) PSYCHOPATHOLOGY OF THE CHILD.

PSYC 537 (3) ETHICAL AND PROFESSIONAL ISSUES IN CLINICAL PSYCHOLOGY.

PSYC 538 (3) CLINICAL NEUROPSYCHOLOGICAL ASSESSMENT.

PSYC 539 (3) HEALTH PSYCHOLOGY.

PSYC 540 (3/6) D STRATEGIES OF PSYCHOLOGICAL INTERVENTION.

PSYC 542 (3) COGNITIVE/BEHAVIOURAL INTERVENTIONS.

PSYC 543 (3/6) D SPECIAL TOPICS IN THEORY.

PSYC 544 (3/6) D PATTERNS OF CHILD-REARING.

PSYC 545 (3/6) D ADVANCED STATISTICS I.

PSYC 546 (3/6) D SEMINAR IN PSYCHOLOGICAL PROBLEMS.

PSYC 547 (2–6) C READING AND CONFERENCE.

PSYC 548 (2) DEPARTMENTAL SEMINAR.

PSYC 549 (6/9) C MASTER'S THESIS.

PSYC 550 (3/6) D OFFENDERS AND THEIR VICTIMS.

PSYC 551 (3/6) D PSYCHOLOGY AND THE CRIMINAL JUSTICE SYSTEM.

PSYC 552 (3) ETHICS AND PROFESSIONAL ISSUES FOR FORENSIC PSYCHOLOGY.

PSYC 553 (3/6) D ADVANCED TOPICS IN FORENSIC PSYCHOLOGY.

PSYC 555 (3) ADVANCED TOPICS IN COGNITIVE/BEHAVIOURAL INTERVENTION.

PSYC 556 (3) PSYCHOLOGICAL TREATMENT OF CHILDHOOD DISORDERS.

PSYC 557 (3) INTERPERSONAL THEORY, RESEARCH AND TREATMENT.

PSYC 559 (6) CLINICAL PSYCHOLOGICAL INTERNSHIP.

PSYC 560 (3) CLINICAL RESEARCH DESIGN.

PSYC 566 (3) THEORIES OF PERSONALITY. To be offered in alternate years only.

PSYC 567 (3) PERSONALITY DIMENSIONS AND STRUCTURE. To be offered in alternate years only.

PSYC 568 (3) PERSONALITY ASSESSMENT. To be offered in alternate years only.

PSYC 569 (3) CONTEMPORARY CONCEPTUAL ISSUES IN PERSONALITY. To be offered in alternate years only.

PSYC 570 (3) COGNITIVE NEUROSCIENCE.

PSYC 571 (3) SPECIAL TOPICS IN COGNITIVE NEUROSCIENCE.

PSYC 573 (3) INDUSTRIAL PSYCHOLOGY.

PSYC 574 (3) BIOPSYCHOLOGY I.

PSYC 575 (3) BIOPSYCHOLOGY II.

PSYC 578 (3/6) D PERCEPTION.

PSYC 579 (3/6) D SPECIAL TOPICS IN PERCEPTION.

PSYC 582 (3/6) D COGNITION.

PSYC 583 (3/6) D SPECIAL TOPICS IN COGNITION.

PSYC 586 (3/6) D DEVELOPMENTAL PSYCHOLOGY I.

PSYC 587 (3/6) D DEVELOPMENTAL PSYCHOLOGY II.

PSYC 590 (3) SURVEY OF SOCIAL PSYCHOLOGY I.

PSYC 591 (3) SURVEY OF SOCIAL PSYCHOLOGY II.

PSYC 592 (3) NEUROETHOLOGY. Not offered each year; consult Department of Psychology.

PSYC 593 (3) NEUROPHYSIOLOGY AND CORTICAL PLASTICITY. Not offered each year; consult Department of Psychology.

PSYC 594 (3)

PSYCHONEUROENDOCRINOLOGY. Not offered each year; consult Department of Psychology.

PSYC 595 (3) PSYCHOPHYSIOLOGY. Not offered each year; consult Department of Psychology.

PSYC 596 (3) STRATEGIES AND TECHNIQUES OF STUDYING BEHAVIOUR. Not offered each year; consult Department of Psychology.

PSYC 649 (0) PH.D. THESIS.

PSYT — PSYCHIATRY FACULTY OF MEDICINE

PSYT 430 (6) PSYCHIATRY CLINICAL CLERKSHIP. Supervised treatment of adult inpatients and outpatients within a multi-disciplinary team. Assessment and treatment of a child and family as well as seminars on selected topics.

PSYT 550 (6) DIRECTED STUDIES. This provides for a program of directed reading and study in such special areas as may be relevant to the student engaged in some particular field of study and research in Psychiatry.

PUNJ — PUNJABI FACULTY OF ARTS

PUNJ 102 (6) INTRODUCTORY PUNJABI. Spoken and written Punjabi.

PUNJ 200 (6) INTERMEDIATE PUNJABI. Study of the grammar and introduction to Punjabi literature. Prerequisite: PUNJ 102.

PUNJ 205 (1) INTRODUCTION TO THE GURMUKHI SCRIPT. The writing system of Punjabi for those with some background in the spoken language. May be taken at the same time as PUNJ 200.

PUNJ 300 (6) ADVANCED PUNJABI. Advanced grammar and conversation. Major genres of Punjabi literature. Prerequisite: PUNJ 200.

RADI — RADIOLOGY FACULTY OF MEDICINE

RADI 700 (0) PHYSICS AND TECHNOLOGY FOR RADIOLOGY. During the first month of residency training, didactic instruction is given at the British Columbia Institute of Technology in the physics of Radiology and the fundamentals of radiographic technology (radiography). During this one-month residency period, the resident is trained in radiographic technology by working as a technologist at one of the affiliated hospitals. Eight hours daily.

RADI 701 (0) CONTINUING INSTRUCTION IN BASIC SCIENCES. During the four years of training in Radiology and/or Nuclear Medicine, scheduled and unscheduled instruction is given in physics (one hour per week). Prerequisite: Pathology correlated with radiology (one hour per week).

RADI 702 (0) CLINICAL INVESTIGATION OR RESEARCH. Each resident is encouraged to complete an investigative project in each of the four years in Radiology, under the supervision of a faculty member, for possible presentation at an annual department meeting. Average 80 hours each year.

RADI 703 (0) CURRENT TOPICS IN RADIOLOGY. Approximately six internationally recognized authorities in Radiology and two or three in Nuclear Medicine are invited to visit this department each year for one to five day periods, during which lectures, consultations and small group seminars are given.

RADI 705 (0) ELECTIVE PERIODS. During the third and fourth years of Radiology for eight hours daily, elective periods of one to twelve months, as acceptable to the resident and the

Program Director, are available for two or more of the radiologic subspecialties including computed tomography, ultrasound, neuroradiology, paediatric radiology, nuclear medicine, angiography, interventional radiology and magnetic resonance imaging.

RADI 710 (0) CLINICAL NUCLEAR MEDICINE. Daily discussions of the clinical applications of Nuclear Medicine. See PATH 730.

RADI 711 (0) PROGRESS IN NUCLEAR MEDICINE. Weekly reviews of current literature topics in Nuclear Medicine. See PATH 731.

RADI 712 (0) CLINICAL INVESTIGATION/RESEARCH. Participation in ongoing research projects within the Division. See PATH 732.

RADI 713 (0) AUDIT IN NUCLEAR MEDICINE. Review of diagnostic Nuclear Medicine procedure Correlation with other diagnostic tests and final patient diagnosis. Also offered as PATH 733.

RELG — RELIGIOUS STUDIES FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnr.ubc.ca.

RELG 100 (6) RELIGIONS OF THE WORLD. An introduction to the major religions of the world (including Judaism, Christianity, Islam, Hinduism, and Buddhism), together with the concepts used in understanding religion.

RELG 202 (6) MYTHS, LEGENDS AND SCRIPTURES OF THE NEAR EAST. An introduction to ancient Near Eastern mythology and to the Scriptures of Judaism, Christianity, and Islam.

RELG 204 (6) INTRODUCTION TO ASIAN RELIGIONS. The religions of India, China, and Japan in their interactions and cultural contexts, including Hinduism, Buddhism, Jainism, Sikhism, Taoism, Confucianism, and Shinto. Equivalency: ASIA 204.

RELG 205 (6) HISTORY OF THE CHRISTIAN CHURCH. A survey of the history of the Christian church from the close of the period of the New Testament to the present day.

RELG 302 (3) DEATH AND AFTERLIFE IN WESTERN RELIGIOUS TRADITION. A survey of traditional attitudes toward death and beliefs regarding human existence after death in Western religions.

RELG 304 (3) CREATION AND COVENANT IN ANCIENT ISRAEL. A detailed literary-historical study of the Torah (Pentateuch) against the background of ancient Near Eastern creation myths.

RELG 305 (3) PROPHECY AND KINGSHIP IN ANCIENT ISRAEL. An examination of Israelite prophecy and prophetic writings in their historical context.

RELG 306 (3) ARCHAEOLOGY AND THE BIBLE. The impact of archaeological research on understanding the history and religion of ancient Israel.

RELG 308 (3/6) D MIDRASH AND THE RABBINIC IMAGINATION.

RELG 309 (3) JEWS AND CHRISTIANS. Aspects of Jewish-Christian relations from the beginnings of Christianity to the present day. Emphasis on the study of Christian and Jewish texts in translation.

RELG 310 (3) JEWISH RESPONSES TO CATASTROPHE. Topics include the destruction of the Second Temple, the Crusades, the expulsions from Spain and Portugal, and the Holocaust. A study of texts in translation.

RELG 311 (3) JEWISH LITERATURE IN TRANSLATION. A survey of Jewish literature in medieval and modern times.

RELG 312 (3) JEWS AND JUDAISM IN CANADA. The history of the Jewish community in Canada, from New France to the present. Emphasis on the relationship between immigration and religious transformation, Jewish-Christian relations, the development of community structures.

RELG 313 (3) MODERN JEWISH ETHICS IN HISTORICAL PERSPECTIVE.

RELG 314 (6) THE ORIGINS OF CHRISTIANITY. The life and teachings of Jesus of Nazareth; the history, literature, and religion of the Christian communities to 150 AD.

RELG 315 (6) HISTORY OF CHRISTIAN THOUGHT. Selected topics with special emphasis on doctrinal change and development, orthodoxy and heresy, tradition and authority, and Church and State in the Patristic, Medieval, Reformation, and Modern periods.

RELG 320 (3/6) D MEDIEVAL LATIN. Introduction to Medieval Latin language and literature. Development of a reading knowledge of Medieval Latin through selections from major authors and genres after 400 AD. Latin Major and Honours students require approval of the departmental adviser. Prerequisite: One of LATN 200, LATN 300. Equivalency: LATN 305.

RELG 321 (3/6) D PROPHETIC FIGURES IN THE CHRISTIAN TRADITION. Examined in their historical context and in terms of their continuing significance. Selection will vary from year to year, but may include Augustine, Thomas Aquinas, Martin Luther, and Teresa of Avila.

RELG 323 (6) CHRISTIANITY IN THE MODERN WORLD. The interaction between Christianity and the major intellectual, social, and cultural developments since 1648 with special attention to the expansion of Christianity and its encounter with urban industrial society.

RELG 328 (3/4) D MEDIEVAL PHILOSOPHY. Survey of Western European thought from Augustine to the fourteenth century. Possible topics and authors include: Augustine; Abelard; the influence of Islam; the rediscovery of Aristotle; Aquinas; Scotus; Ockham. Equivalency: PHIL 312.

RELG 331 (3) MEDIEVAL JEWISH HISTORY.

A survey of the political, social, economic, and cultural history of the Jews from the time of the Christianization of the Roman Empire to the expulsion of professing Jews from Spain and Portugal at the end of the fifteenth century.

RELG 332 (3) MODERN JEWISH HISTORY. A survey of the political, social, economic, and cultural history of the Jews from the beginning of the sixteenth century to the present, with special emphasis on changing attitudes to Jews and Judaism, and social and cultural transformations.

RELG 335 (3) JEWISH LAW: ANCIENT AND LATE ANTIQUE TRADITIONS. History, sources, theoretical issues and current state of research about early Jewish legal traditions, focusing on close readings of classic primary texts.

RELG 336 (3) JEWISH LAW: MEDIEVAL AND EARLY MODERN TRADITIONS. History, sources, theoretical issues and current state of research about later Jewish legal traditions, focusing on close readings of classic primary texts.

RELG 340 (6) HERITAGE OF ISLAM. A detailed study of the history, beliefs, institutions, and literature of Islam. Not given every year.

RELG 341 (3/6) D ISLAMIC ART AND ARCHAEOLOGY. A study of the artifacts of Islam as an expression of Islamic beliefs. Credit will be granted to only one of ARTH 351, FINA 359 or RELG 341. Equivalency: ARTH 351.

RELG 365 (3) DAOIST (TAOIST) RELIGION AND ITS PHILOSOPHICAL BACKGROUND. A study of the Daoist religious traditions from their beginnings in the second century C.E. in cultural, intellectual and social contexts. Equivalency: ASIA 381.

RELG 366 (3) BUDDHISM IN CHINA. History, thought and practices of Chinese Buddhism from its beginnings until the twentieth century. Equivalency: ASIA 366.

RELG 370 (6) CONCEPTS AND METHODS IN THE STUDY OF RELIGION. Required of Major and Honours students in their third year. Open to others by permission of the instructor.

RELG 385 (3) MYSTICAL TRADITIONS: JEWISH AND CHRISTIAN. Methodology, textual study and scholarly analysis of selected texts from these traditions.

RELG 403 (3) JOB AND THE PROBLEM OF SUFFERING. A seminar on the Book of Job and the history of its interpretation.

RELG 407 (3) TOPICS IN EARLY JUDAISM. Judaism and Hellenism, the rise of the synagogue, Jewish sects, the development of Mishnah and Talmud.

RELG 408 (3) TOPICS IN MEDIEVAL JUDAISM. The work of Maimonides and other Jewish philosophers, early developments in Jewish mysticism, the Jews as a minority culture in Islamic and Christian lands.

RELG 409 (3) TOPICS IN MODERN JUDAISM.

The Jews in the ghetto culture, Hasidism, the Emancipation, Reform, Orthodox, and Conservative Movements.

RELG 414 (3) THE GOSPELS AND THE HISTORICAL JESUS.

RELG 415 (3) THE LIFE AND THOUGHT OF PAUL OF TARSUS.

RELG 420 (6) RELIGION IN CANADA. An examination of Canadian religious development with special reference to the separation of church and state, the rise of denominationalism and religious pluralism, secularization and ecumenicity, and the emergence of new religious movements.

RELG 448 (3) SEMINAR IN THE HISTORY OF THE RELIGION OF ISLAM. A topic relevant to the study of Islam as a religion: e.g., the text and doctrines of the Qur'an; the Hadith (or Traditions) of the Prophet; Islamic Law; mysticism in Islam; the Shi'ah and the Isma'ilis. Not offered every year. Consult the departmental brochure for the topic to be offered.

RELG 452 (6) READINGS IN HINDU RELIGIOUS TEXTS. Representative texts, in translation, of the Vedic, Epic, Puranic, Classical, Medieval, and Modern periods. Emphasis in the second term on texts of particular periods, movements, or sects, depending on the students' needs and interests. Those with the necessary preparation may read some texts in the original languages.

RELG 475 (3/6) D TOPICS IN RELIGION. Consult the course registration information each year for offered topics.

RELG 479 (3/6) C DIRECTED STUDIES. Reading and, where appropriate, other research on a topic arising in the discipline, arranged by agreement between the student and the instructor.

RELG 480 (3/6) D WOMEN AND RELIGION. A study of the roles of women in the literature of one or more religious traditions.

RELG 485 (3) IMAGES OF EVE. The story of Adam and Eve, and its influence on the role and image of women in Judaism, Christianity, and Islam.

RELG 499 (6/12) C HONOURS ESSAY.

RELG 500 (3/6) C TOPICS IN BIBLICAL STUDIES. Studies in the history, literature, canon and text, and the religious thought of the Old and New Testaments. This includes the study of the cultural and religious milieu out of which these documents arose. Such studies require a competence in the canonical languages (Biblical Hebrew and/or Koine Greek), usually achieved by not less than two years of study.

RELG 502 (3/6) C TOPICS IN JUDAISM. Studies in the texts (in translation), history, and religious thought of Judaism after the close of the Biblical Period.

RELG 503 (3/6) C TOPICS IN THE POST-BIBLICAL CHRISTIAN TRADITION. Studies in post-Biblical history, documents, and religious ideas of the Christian tradition. Depending on

the area of concentration, language requirements include either Latin or Greek and a reading knowledge of French or German.

RELG 514 (3/6) C TOPICS IN ISLAM. Studies in the literature (in translation), history, and religious thought of Islam in Western Asia and North Africa from its inception to the rise of the Ottoman Empire.

RELG 531 (6) GRADUATE SEMINAR.

RELG 548 (0) MAJOR ESSAY.

RELG 549 (6/12) C MASTER'S THESIS.

RELG 631 (6/12) D BUDDHIST STUDIES.

RELG 649 (0) PH.D. THESIS.

RGLA — RELIGION, LITERATURE AND THE ARTS FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.cnrs.ubc.ca.

RGLA 371 (3) SEMINAR IN RELIGION AND LITERATURE.

RGLA 372 (3/6) D TOPICS IN RELIGION, LITERATURE, AND THE ARTS. The topic is selected and announced annually by the RGLA Committee.

RGLA 471 (3) ADVANCED SEMINAR IN RELIGION AND LITERATURE. Application of critical methods to one or more major authors.

RHSC — REHABILITATION SCIENCES SCHOOL OF REHABILITATION SCIENCES

RHSC 420 (4) ELEMENTS OF NEUROANATOMY AND NEUROPHYSIOLOGY. An introduction to the structure and function of the human nervous system. [2-3-0]

RHSC 500 (3) ADVANCED CONCEPTS FOR REHABILITATION RESEARCH. Issues relevant to clinical investigations in rehabilitation. Emphasis on research design, measurement issues, selection of analytical approaches, and relevant epidemiological concepts. Prerequisite: RHSC 402.

RHSC 501 (3) EVALUATING SOURCES OF EVIDENCE.

RHSC 502 (3) REHABILITATION THEORY. The history, evolution and analysis of conceptual systems underlying practice in occupational therapy and physical therapy.

RHSC 503 (3) REASONING AND DECISION-MAKING.

RHSC 504 (3/6) C DIRECTED STUDIES IN REHABILITATION.

RHSC 505 (3) MEASUREMENT IN PRACTICE.

RHSC 506 (3/6) C CURRENT TOPICS IN REHABILITATION.

RHSC 507 (3) DEVELOPING EFFECTIVE REHABILITATION PROGRAMS.

RHSC 509 (3) FACILITATING LEARNING IN REHABILITATION CONTEXTS.

RHSC 510 (3) DISABILITY: SOCIAL, ECONOMIC AND POLITICAL INFLUENCE. Interrelationships between disability and the social, economic and political environment, with emphasis on factors shaping experiences of health and illness. The social consequences of disability in the context of family, community and workplace.

RHSC 512 (2) DIRECTED STUDIES IN PATHOLOGY IN REHABILITATION.

RHSC 515 (3) EXERCISE PHYSIOLOGY AND METABOLISM IN INJURY AND DISEASE. Physiological factors underlying fatigue and recovery from injury and disease. Energy metabolism, substrate utilization, and the effects of training on skeletal muscle, and on respiratory and cardiovascular systems.

RHSC 520 (3) NEUROREHABILITATION. Therapeutic approaches and strategies in physical and occupational therapy for persons with motor control problems resulting from central nervous system dysfunction.

RHSC 549 (12) THESIS.

RHSC 581 (1.5-3) C WRITING TO ENHANCE PRACTICE.

RHSC 583 (1.5-6) C APPLYING RESEARCH TO PRACTICE. Prerequisite: RHSC 501.

RHSC 587 (3) MAJOR PROJECT, PART I.

RHSC 589 (3) MAJOR PROJECT, PART II. Prerequisite: RHSC 587.

RHSC 699 (0) DOCTORAL THESIS.

RMES — RESOURCE MANAGEMENT AND ENVIRONMENTAL STUDIES FACULTY OF GRADUATE STUDIES

RMES 500 (3-12) D RESOURCE AND ENVIRONMENTAL WORKSHOP. Faculty and students from different disciplines act as an interdisciplinary team studying specific resource problems with ecological, economic, demographic and social dimensions. Techniques and methods are emphasized to show their value in integrating knowledge, defining policy and facilitating communication. Several sections with different emphasis offered each year. Prerequisite: Permission of the instructor is required.

RMES 501 (3) PERSPECTIVES ON RESOURCES AND ENVIRONMENT. Concepts of natural resources and environment; environment and resource management; tools of management; case studies.

RMES 502 (3) SEMINAR ON RESOURCES AND ENVIRONMENT. Environment and resource management goals and issues. Students enrolled in the program will give two presentations. The first will outline specific research interests of the students. The second will provide a synopsis of research at a time when the student is nearing completion of the thesis. Faculty members and other speakers will also be invited to participate and present seminars.

RMES 515 (3) INTEGRATED WATERSHED MANAGEMENT. Methods of watershed evaluation, land-water interactions, key aspects of hydrology, water quality and aquatic biota, land use impacts on water resources, community involvement, and integration of multiple land use activities and their cumulative impacts.

RMES 516 (3) URBAN WATERSHED MANAGEMENT. Urban land use impacts on water resources with a focus on impervious surfaces, storm-water management, non-point sources of pollution, cumulative effects, water quality, rehabilitation of urban streams and application of best management practices. Prior completion of RMES 515 strongly recommended.

RMES 517 (3) AGRICULTURAL WATERSHED MANAGEMENT. Intensive and extensive agriculture with a focus on water needs, water use and impacts on water resources. Non-point sources of pollution, nutrient modeling, soil and land degradation, protection and rehabilitation of watersheds including buffer zones, wetlands, and best management practices.

RMES 518 (3) WATER IN INTERNATIONAL DEVELOPMENT. Key water issues associated with international development: global water demand, scarcity, efficiency of use, water as a commodity, biophysical and policy aspects of water management, water and health, land use impact, water harvesting, improved irrigation, and pollution prevention.

RMES 520 (3) CLIMATE CHANGE IN THE 21ST CENTURY. Historical, methodological, and policy dimensions of climate change in the 21st century. Application of natural and social science literature to climate science, impacts on ecosystems and societies, and response options.

RMES 530 (3) KNOWLEDGE, POLICY AND VALUES IN RISK AND RESOURCE MANAGEMENT. The course focuses on the role of values, science and validity of alternate knowledge systems. Included in the dialogue are the democratization of science, uncertainty, adaptive scientific practices and the values that govern management programs.

RMES 542 (3) INTEGRATED ASSESSMENT. Basic skills for quantitative analysis including probability, validity of quantitative statements and experimental design to test hypothesis validity.

RMES 550 (3) ENVIRONMENTAL POLICY ANALYSIS. Determination of risks and values in environmental policy decisions. Equivalency: PLAN 599.

RMES 586 (3) FISH CONSERVATION AND MANAGEMENT. Offered concurrently with CONS 486. Equivalency: CONS 486.

RMES 599 (12) MASTER'S THESIS.

RMES 699 (0) PH.D. THESIS.

RMST — ROMANCE STUDIES FACULTY OF ARTS

RMST 220 (3-9) D SELECTED TOPICS IN THE LITERATURES AND CULTURES OF THE ROMANCE WORLD.

RMST 420 (3/6) D STUDIES IN ROMANCE LANGUAGES AND LITERATURE.

RMST 468 (6) ROMANCE LINGUISTICS. The Indo-European background; Classical and Vulgar Latin; the origin, development and spread of the Romance languages; their vocabulary, phonology, morphology, syntax; vernacular Latin texts and Romance texts. Prerequisite: Two years study of each of two Romance languages or two years of one Romance language and one year of Latin. Equivalency: FREN 468, SPAN 468.

RMST 520 (3) STUDIES IN ROMANCE LANGUAGES AND CULTURES.

RMST 548 (0) MAJOR ESSAY.

RSOT — OCCUPATIONAL THERAPY SCHOOL OF REHABILITATION SCIENCES

RSOT 511 (3) FUNDAMENTALS OF THEORY AND PRACTICE. [1-2-2]

RSOT 513 (3) HEALTH, ILLNESS & OCCUPATION I. [1.5-0-0; 1.5-0-0]

RSOT 515 (3) PRACTICE SKILLS AND THERAPEUTIC PROCEDURES I. [0-3-3]

RSOT 519 (10) PROFESSIONAL PRACTICE I.

RSOT 521 (3) OCCUPATIONAL ANALYSIS, ACTIVITY AND PARTICIPATION. [1-2-2]

RSOT 525 (3) PRACTICE SKILLS AND THERAPEUTIC PROCEDURES II. [0-3-3]

RSOT 527 (3) EVIDENCE FOR PRACTICE I: RESEARCH PARADIGMS AND METHODS. [2-0-2]

RSOT 537 (2) EVIDENCE AND REASONING IN PRACTICE. [0-0-4]

RSOT 541 (3) THEORY AND PRACTICE: ADVANCED APPLICATIONS. [1-2-2]

RSOT 545 (4) PRACTICE SKILLS AND THERAPEUTIC PROCEDURES III: ADVANCED APPLICATIONS. [0-2-2; 0-2-2]

RSOT 547 (6) EVIDENCE FOR PRACTICE: PROJECT. [2-0-8]

RSOT 549 (18) PROFESSIONAL PRACTICE II.

RSOT 551 (3) SOCIETAL AND ENVIRONMENTAL INFLUENCES. [2-0-2]

RSOT 553 (3) DEVELOPING EFFECTIVE PROGRAMS.

RSPT — PHYSICAL THERAPY SCHOOL OF REHABILITATION SCIENCES

RSPT 514 (3) CLINICAL PRACTICE I.

RSPT 516 (2) CLINICAL DECISION-MAKING I.

RSPT 518 (6) EXERCISE AND MOVEMENT.

RSPT 524 (10) CLINICAL PRACTICE II. Pass/Fail.

RSPT 526 (1) CLINICAL DECISION MAKING II.

RSPT 528 (1) CASE-BASED INTEGRATION.
RSPT 532 (3) REHABILITATION RESEARCH I.
RSPT 538 (1) CASE-BASED INTEGRATION II.
RSPT 544 (18) CLINICAL PRACTICE III.
 Pass/Fail
**RSPT 546 (3) CLINICAL DECISION-
 MAKING III.**
RSPT 548 (1) CASE-BASED INTEGRATION III.
RSPT 558 (2) CASE-BASED INTEGRATION IV.
RSPT 564 (10) CLINICAL PRACTICE IV.
 Pass/Fail.
**RSPT 566 (4) CLINICAL DECISION-
 MAKING IV.**
RSPT 572 (2) REHABILITATION RESEARCH II.
RSPT 578 (1) CASE-BASED INTEGRATION V.

RUSS — RUSSIAN FACULTY OF ARTS

RUSS 100 (6) FIRST-YEAR RUSSIAN.
 Introduction to contemporary Russian Oral practice, grammar, reading, writing.
RUSS 101 (3) BASIC RUSSIAN I. Introduction to contemporary Russian with emphasis on specialized vocabulary for science, commerce, law, etc. Oral practice, grammar, reading and writing. Note: Students who intend to use RUSS 101, 102 and 200 to satisfy the Faculty of Arts language requirement must register for both RUSS 101 and 102 in the same year.
RUSS 102 (3) BASIC RUSSIAN II.
 Continuation of RUSS 101.
RUSS 200 (6) SECOND-YEAR RUSSIAN.
 Intermediate oral practice, grammar, reading, composition. A special section may be provided for Science students. Prerequisite: One of RUSS 100, RUSS 102.
**RUSS 206 (3) NINETEENTH-CENTURY
 RUSSIAN WRITERS IN TRANSLATION.** The writings, lives, and thought of selected authors.
**RUSS 207 (3) TWENTIETH-CENTURY
 RUSSIAN WRITERS IN TRANSLATION.** The writings, lives, and thought of major Russian authors.
RUSS 215 (3) RUSSIAN PRACTICE. Emphasis on oral practice and reading. It is recommended that this course be taken concurrently with RUSS 200. Prerequisite: RUSS 100.
RUSS 300 (6) THIRD-YEAR RUSSIAN.
 Intermediate oral practice, syntax and composition. Prerequisite: RUSS 200.
**RUSS 305 (6) READINGS IN RUSSIAN
 LITERARY TEXTS.** Texts are selected from 19th- and 20th-century sources. Prerequisite: RUSS 200.
**RUSS 306 (6) RUSSIAN LITERATURE IN
 TRANSLATION.** A comprehensive historical and critical presentation with emphasis on the nineteenth and twentieth centuries.
**RUSS 315 (3) ADVANCED RUSSIAN
 PRACTICE.** Continuation of RUSS 215. May be taken concurrently with RUSS 300. Prerequisite: RUSS 215.

RUSS 400 (6) FOURTH-YEAR RUSSIAN.
 Advanced oral practice, reading and composition. Prerequisite: RUSS 300.
**RUSS 401 (6) RUSSIAN FOR READING
 KNOWLEDGE.** Russian for Reading Knowledge This course provides a reading knowledge of Russian, sufficient to enable students to understand scientific and scholarly material. Basic grammar and practice in the translation into English of texts in the natural sciences, social sciences, and humanities. Intended primarily for upper-year and graduate students.
**RUSS 407 (3/6) D STUDIES IN RUSSIAN
 POETRY.** For further details see Department. Prerequisite: RUSS 300.
**RUSS 408 (3/6) D STUDIES IN RUSSIAN
 PROSE BEFORE 1917.** See Department for further details. Prerequisite: RUSS 300.
**RUSS 409 (3/6) D CONTEMPORARY RUSSIAN
 LITERATURE AFTER 1917.** See Department for further details. Prerequisite: RUSS 300.
**RUSS 410 (3/6) D WOMEN IN RUSSIAN
 LITERATURE AND CULTURE.** Analysis of translated texts by and concerning women from folklore to contemporary society.
RUSS 411 (3) TOLSTOY IN TRANSLATION.
**RUSS 412 (3) DOSTOEVSKY IN
 TRANSLATION.**

SANS — SANSKRIT FACULTY OF ARTS

SANS 102 (6) INTRODUCTORY SANSKRIT.
 Basic vocabulary and most important grammatical features of classical Sanskrit. Useful to students of South Asian history, culture, languages, philosophies, and religions, and of linguistics and classics.
SANS 200 (6) INTERMEDIATE SANSKRIT.
 Advanced grammar and selected readings. Prerequisite: SANS 102.
**SANS 300 (6) FURTHER READINGS IN
 SANSKRIT.** Study of selected texts belonging to a particular period (e.g., Vedic) or representing a specific branch of kavya (poetic literature) or sastra (technical-philosophical literature). Prerequisite: SANS 200.

SCAN — SCANDINAVIAN FACULTY OF ARTS

SCAN 300 (3) ELEMENTARY SWEDISH I.
 Introduction to Swedish language, elementary grammar, reading, writing and oral work.
SCAN 310 (3) ELEMENTARY SWEDISH II.
 Continuation of SCAN 300 Prerequisite: SCAN 300.
SCAN 350 (3) ELEMENTARY DANISH I.
 Introduction to Danish language, elementary grammar, reading, writing and oral work. Prerequisite: Placement Interview
SCAN 360 (3) ELEMENTARY DANISH II.
 Prerequisite: SCAN 350.
SCAN 400 (3) INTERMEDIATE SWEDISH I.
 Intermediate grammar, reading practice and oral work. Prerequisite: SCAN 310.

SCAN 402 (3) INTERMEDIATE SWEDISH II.
 Prerequisite: SCAN 400.
**SCAN 411 (3/6) D SCANDINAVIAN DRAMA
 AND FILM IN TRANSLATION.** Traces the explosive development of a provincial theatre into one of the seminal forces of 20th-century drama and film. Emphasis on Ibsen, Strindberg, and Bergman.
**SCAN 412 (3) THE NORTHERN EUROPEAN
 EPIC IN TRANSLATION.** Major prose works of the Scandinavian literatures with emphasis on the stylistic qualities of the Old Icelandic sagas and their transformation in the novels of modern Icelandic, Danish, Swedish, and Norwegian writers. Possible authors: Laxness, Blixen, Hamsun, Lindgren.

**SCAN 413 (3/6) D THE LITERATURES OF THE
 BALTIC IN ENGLISH TRANSLATION.** An examination through literature of the historical, cultural, and ethnic elements that have made the Baltic area the crossroads of northeastern Europe. The emphasis is on literature from the Germanic and Finno-Ugric languages. Authors to be studied include Strindberg, Tikkanen, Transtromer, Kaplinski, Grass, Bobrowski, Lenz.

**SCAN 414 (3) TOPICS IN DANISH AND
 NORTHERN EUROPEAN CULTURAL STUDIES
 (IN ENGLISH).** Selected topics, such as ethnicity, migration, identity, women's issues, Danish and Northern European film.

SCAN 450 (3) INTERMEDIATE DANISH I.
 Intermediate reading, writing and oral work. Prerequisite: SCAN 360.
SCAN 460 (3) INTERMEDIATE DANISH II.
 Prerequisite: SCAN 450.
SCAN 501 (3/6) C OLD ICELANDIC. Though 501 is usually taught as a 6-credit course, students may elect to take the first term only, "Introduction to Old Icelandic," for 3 credits.

SCED — SCIENCE EDUCATION FACULTY OF EDUCATION

SCED 190 (6) GENERAL SCIENCE. The major ideas and techniques in the biological sciences (biology, botany, zoology) and physical sciences (physics, chemistry, astronomy, and geology). While experience is provided in studying science in a systematic way, concepts are interpreted for use in teaching at the elementary school level. [3-2; 3-2]
**SCED 300 (3) TEACHING AND LEARNING
 SCIENCE ACROSS THE CURRICULUM:
 ELEMENTARY.** [3-0-0]
**SCED 312 (2) CURRICULUM AND
 INSTRUCTION IN AGRICULTURAL SCIENCES:
 SECONDARY.** Pass/Fail. Prerequisite: A completed concentration in Agricultural Sciences or permission of the Head. [2-0-0]
**SCED 313 (2) CURRICULUM AND
 INSTRUCTION IN BIOLOGICAL SCIENCES:
 SECONDARY.** Pass/Fail. Prerequisite: A completed concentration in biological sciences or permission of the Head. [2-0-0]

SCED 314 (2/3) D CURRICULUM AND INSTRUCTION IN CHEMISTRY:

SECONDARY. Pass/Fail. Prerequisite: A completed concentration in chemistry or permission of the Head. [2-0-0]

SCED 315 (2) CURRICULUM AND INSTRUCTION IN EARTH AND SPACE SCIENCE: SECONDARY.

Pass/Fail. Prerequisite: A completed concentration in earth and space science or permission of the Head. [2-0-0]

SCED 316 (2/3) D CURRICULUM AND INSTRUCTION IN GENERAL SCIENCE: SECONDARY.

Pass/Fail. Prerequisite: A completed concentration in agricultural sciences, biological sciences, chemistry, earth and space science, or physics, or permission of the Head.

SCED 317 (2) CURRICULUM AND INSTRUCTION IN PHYSICS: SECONDARY.

Curriculum organization in physics; principles and methods of instruction applied to teaching physics. Pass/Fail. Prerequisite: A completed concentration in physics or permission of the Head. [2-0-0]

SCED 320 (2) CURRICULUM AND INSTRUCTION IN SCIENCE: ELEMENTARY.

Curriculum organization in science; principles and methods of instruction applied to teaching science. Pass/Fail. [1-2-0]

SCED 330 (3) TEACHING BIOLOGICAL SCIENCES: ELEMENTARY.

Prerequisite: One of SCED 300, SCED 320. [2-2-0]

SCED 331 (3) TEACHING PHYSICAL SCIENCES: ELEMENTARY.

A course in physical sciences emphasizing applications to elementary school science teaching. Prerequisite: One of SCED 300, SCED 320. [2-2-0]

SCED 380 (3) ENVIRONMENTAL SCIENCE EDUCATION.

Curriculum implications of physical and biological environmental issues. Field experiences are normally part of the course; transportation and living expenses will be borne by the student. [3-2]

SCED 400 (3/6) D SCIENCE EDUCATION: ELEMENTARY.

Prerequisite: One of SCED 300, SCED 320. [2-2-0;2-2-0]

SCED 411 (3) FOREST EDUCATION.

Forest studies in the science curriculum; the forest environment as a teaching resource; selection of teaching sites. Transportation and living costs for required field experiences will be borne by the student. [3-0]

SCED 412 (3) COMPUTER-BASED SCIENCE EDUCATION.

Integration of microcomputers and related technology into secondary science instruction. Applications to experiments, lessons, activities, and demonstrations in biology, chemistry, general science, geoscience, and physics. Previous computer experience is recommended. [3-2-0]

SCED 413 (3) CONCEPTIONS OF THE NATURAL WORLD: IMPLICATIONS FOR SCIENCE EDUCATION.

Conceptual and practical issues associated with diverse human understandings of the natural world and their applications to classroom practice. [3-0]

SCED 420 (3) TEACHING EARTH AND SPACE SCIENCE BEYOND THE TEXTBOOK.

SCED 421 (3) TEACHING LIFE SCIENCE BEYOND THE TEXTBOOK.

SCED 422 (3) TEACHING PHYSICAL SCIENCE BEYOND THE TEXTBOOK.

SCED 430 (3) TEACHING SCIENCE AND TECHNOLOGY THROUGH HISTORICAL EXAMPLES.

[3-0]

SCED 440 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: BIOLOGY. Topics in a subject field relevant to secondary teaching and not covered in previous undergraduate work. Teacher Education Office approval is required. Open only to secondary students admitted with an academic deficiency. Not for credit toward graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

SCED 441 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: CHEMISTRY. Topics in a field relevant to secondary teaching and not covered in previous undergraduate work. Teacher Education Office approval is required. Open only to secondary students admitted with an academic deficiency. Not for credit toward graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

SCED 442 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: EARTH AND SPACE SCIENCE. Topics in a subject field relevant to secondary teaching and not covered in previous undergraduate work. Teacher Education Office approval is required. Open only to secondary students admitted with an academic deficiency. Not for credit toward graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

SCED 443 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: BOTANY. Topics in a subject field relevant to secondary teaching and not covered in previous undergraduate work. Teacher Education Office approval is required. Open only to secondary students admitted with an academic deficiency. Not for credit toward graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

SCED 444 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: ZOOLOGY. Topics in a subject field relevant to secondary teaching and not covered in previous undergraduate work. Teacher Education Office approval is required. Open only to secondary students admitted with an academic deficiency. Not for credit toward graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

SCED 506 (3) RESEARCH IN SCHOOL HEALTH EDUCATION. Research in specific areas of school health education and theories on which health behavior changes are grounded. Prerequisite: EDUC 306.

SCED 507 (3) SEMINAR IN SCHOOL HEALTH EDUCATION. Current trends, problems and issues in school health education and the development of strategies for dealing with health education problems and issues in the schools. Prerequisite: EDUC 306.

SCED 508 (3-6) D REVIEW OF RESEARCH IN SCIENCE EDUCATION. Studies of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

SCED 510 (3/6) D PROBLEMS IN CURRICULUM DEVELOPMENT IN SCIENCE EDUCATION. Problems of practice in the development of science curricula. Special emphasis is given to science curricula in BC.

SCED 517 (3) CRITICAL ANALYSIS OF GOALS IN SCHOOL SCIENCE. A review of selected purposes of school science in light of current ideas about the nature of science and its implications for scientific literacy.

SCED 518 (3) THEORY AND RESEARCH IN THE SOCIAL CONTEXT OF SCHOOL SCIENCE. Historical and current social, political and economic influences on science curriculum and science teaching.

SCED 520 (3) SCIENCE LEARNING IN INFORMAL ENVIRONMENTS. Theoretical perspectives and current research on science learning in contexts other than formal science classes.

SCED 544 (3) ISSUES IN THE TEACHING AND LEARNING OF THE SCHOOL SCIENCES. Conceptual and practical issues associated with contemporary constructivist approaches to educational inquiry in the school sciences.

SCED 545 (3) RESEARCH IN THE TEACHING AND LEARNING OF THE SCHOOL SCIENCES. Current models and methods of inquiry in the school sciences, particularly using constructivist approaches.

SCED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

SCED 580 (3/12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

SCED 581 (3) THEORY AND RESEARCH IN ENVIRONMENTAL EDUCATION. Research literature and theoretical issues in environmental education.

SCED 590 (3) GRADUATING PAPER. Pass/Fail.

SCED 598 (3/12) C FIELD EXPERIENCES. For those on master's, doctoral and diploma programs.

SCED 599 (6/12) C MASTER'S THESIS.

SCED 699 (0) DOCTORAL THESIS. Pass/Fail.

SCIE — SCIENCE ONE FACULTY OF SCIENCE

Science One is an innovative first year undergraduate Science program at UBC in which the traditional disciplines of Biology, Chemistry, Mathematics and Physics are presented in a unified, integrated format. The program emphasizes and cultivates critical, independent thought as the basis of scientific inquiry. Science One has at its core a single, academically rigorous interdisciplinary course

which incorporates lectures, tutorials, laboratories and field trips.

SCIE 1 (25) SCIENCE ONE PROGRAM.

SEAL — SOUTHEAST ASIAN LANGUAGES FACULTY OF ARTS

SEAL 440 (3-18) C SUPERVISED STUDY IN SOUTHEAST ASIAN LANGUAGES.

SLAV — SLAVIC STUDIES FACULTY OF ARTS

SLAV 105 (6) INTRODUCTION TO RUSSIAN AND SLAVIC CULTURE. Cultural developments from the medieval period to the present.

SLAV 307 (3/6) D LITERATURE AND FILM IN EASTERN EUROPE. Films and translated literature by Slavic writers with emphasis on the interaction between politics and literature.

SOAL — SOUTH ASIAN LANGUAGES FACULTY OF ARTS

SOAL 100 (6) KHICHRİ: THE SOUTH ASIAN LANGUAGES OF VANCOUVER. A systematic introduction to the grammars and scripts of Hindi, Urdu, Punjabi and Sanskrit, primarily through the media of Indo-Canadian popular culture (film, radio, bhangra, etc.)

SOAL 440 (3-18) C SUPERVISED STUDY IN SOUTH ASIAN LANGUAGES.

SOCI — SOCIOLOGY FACULTY OF ARTS

SOCI 100 is prerequisite to most third- and fourth-year SOCI courses.

SOCI 100 (6) INTRODUCTION TO SOCIOLOGY. Introduction to problems in the analysis of social structures and processes. Basic sociological concepts will be introduced and their application demonstrated in various areas of sociology. The course includes a survey of research methods, major theoretical trends, and representative works of contributors to sociology.

SOCI 201 (3/6) D ETHNIC RELATIONS. An introduction to the study of the relations between ethnic groups and of the interplay between ethnicity and other social factors. The course examines such concepts as: ethnicity, racism, prejudice, discrimination, assimilation, and multiculturalism. Ordinarily the course deals with ethnic groups in British Columbia, and students are expected to carry out elementary research projects. Equivalency: ANTH 201.

SOCI 210 (3/6) D CANADIAN SOCIAL STRUCTURE. Descriptive and analytic survey of such features as demographic characteristics, class structure, ethnicity, and regional variation in Canadian society as a basis for understanding current social issues.

SOCI 213 (3/6) D WOMEN IN COMPARATIVE PERSPECTIVE. An exploration of topics from Anthropology or Sociology focusing on explanations, in current and historical perspective, for variations in the situation of women. Equivalency: ANTH 213.

SOCI 214 (3/6) D THE FAMILY IN CROSS-CULTURAL PERSPECTIVE. A cross-cultural comparison of family and kinship to provide an understanding of variations in the structure and meaning of marriage relations; forms of domestic organization; and the sexual division of labour, property, and inheritance. Equivalency: ANTH 214.

SOCI 215 (3/6) D INTRODUCTION TO JAPANESE SOCIETY. Survey of contemporary Japanese life, with a focus on social organization and cultural patterns. Topics may include family, kinship, rural and urban conditions, economic organization, class and other inequalities, ethnic relations, and introduction of Western culture and value systems. Equivalency: ANTH 215.

SOCI 240 (3/6) D INTRODUCTION TO SOCIAL INTERACTION. A general introduction to research on social interaction, with an emphasis on group (as opposed to individual) processes and behaviour. Topics include: status, power and prestige, distributive justice, marginality and social control, authority relations, and group structure and membership, all to be studied in the context of a variety of groups (such as families, formal organizations, communities and friendship groups) and cultures.

SOCI 250 (3/6) D CRIME AND SOCIETY. Crime as a social phenomenon, with emphasis on the changing definitions of crime in relation to social and political change in Canadian and other societies. The scope and nature of the crime problem, the growth of criminology as a science and profession, and relationships between components of state criminal justice systems.

SOCI 260 (3/6) D TECHNOLOGY, WORK AND SOCIETY. The social forces responsible for changing patterns of technological innovation and work organization in modern industrial societies. Emphasis on the organization of work and the labour force. Topics may include division of labour, professionalization, labour movements, management techniques and bureaucracy, the social context of research and development initiatives, the effects of new technologies (e.g., automation) on the work place and social aspects of technological development in the Third World.

SOCI 301 (3/6) D SOCIOLOGY OF DEVELOPMENT AND UNDERDEVELOPMENT. Processes of social change in the Third World and other developing countries. Major themes stress the relationship between urbanization and industrialization; modernization and ethnic conflict; imperialism, neo-colonialism, and foreign aid; and intra-national modernization problems such as regional underdevelopment in industrial societies. Prerequisite: SOCI 100.

SOCI 302 (3/6) D ETHNIC AND RACIAL INEQUALITY. A critical examination of classical and contemporary theories and research evidence concerning ethnic and racial inequality at the societal and interpersonal levels. Prerequisite: SOCI 100.

SOCI 310 (6) CANADIAN SOCIETY. Examination of selected features of the social organization of Canadian society which will include, for example, the relationships between industrial organization and other social institutions and processes, such as family structure, welfare systems, crime rates, ethnic relations and industrial and political conflict. Prerequisite: SOCI 100.

SOCI 312 (3/6) D GENDER RELATIONS. The nature of gender relations, their social and cultural expression, and theories of gender inequality drawn from anthropological or sociological research. Prerequisite: SOCI 100. Equivalency: ANTH 312.

SOCI 315 (3/6) D JAPANESE CULTURE AND SOCIETY. An intensive examination of modern industrial Japan, including such topics as: demographic characteristics, class structure and inequality, industrial organization, political structure and conflict, ethnic relations, value systems, urban and rural traditions and cultural background of current events. Major theories of Japanese culture and economic development will be studied. Prerequisite: SOCI 100. Equivalency: ANTH 315.

SOCI 328 (3/6) D SOCIAL STATISTICS I. The testing of sociological theories using quantitative data analysis techniques on numerical data from social surveys, experiments and official statistics. Prerequisite: SOCI 100.

SOCI 350 (3/6) D SOCIOLOGICAL THEORIES: CLASSICAL AND CONTEMPORARY APPROACHES. An examination of selected traditions, conceptual problems, and current topics in the field of sociological theory. Prerequisite: SOCI 100.

SOCI 352 (3/6) D ORGANIZATION OF WORK. The meaning of work and leisure. Properties of work organization: division of labour and specialization; technology and working knowledge; means of coordinating work, such as cooperation, authority, and exchange. Research problems concerning work in households, offices, and industry, division of labour by gender, industrial democracy and the relation of work and social inequality. Prerequisite: SOCI 100.

SOCI 354 (3/6) D COMMUNITY STUDIES. Study of the organization of human communities; a focus upon collective activities including family, work, neighbourhood, and formal and informal networks. Prerequisite: SOCI 100.

SOCI 360 (3/6) D SOCIOLOGY AND NATURAL RESOURCES. Sociological perspectives on property, resource industries (such as agriculture, fishing, forestry and mining), resource development, and resource communities. May also include examination of social aspects of resource development in the Third World. Prerequisite: SOCI 100 or 3 credits of 200-level Sociology.

SOCI 361 (3/6) D SOCIAL INEQUALITY. Tendencies toward equality and inequality; manifestations of inequality (occupation, education, gender, ethnicity, income, power) and their consequences; caste and class features of major stratification systems; theories of

social class; stratification profile of contemporary industrial societies. Prerequisite: SOCI 100.

SOCI 368 (3/6) D DEVIANCE AND SOCIAL CONTROL. An analytic framework for the study of the generation and control of deviant activities, with particular emphasis on societal processes directed to the recognition and organizational treatment of 'deviants' as a phenomenon. The course stresses theoretical issues rather than social problems and their remedy. Prerequisite: SOCI 100.

SOCI 369 (3/6) D SOCIOLOGY OF SEXUALITIES. Historical and social construction of sexual identities, desires, communities, and politics in the twentieth century. Prerequisite: SOCI 100.

SOCI 380 (3) SOCIOLOGICAL METHODS: SURVEY RESEARCH. Questionnaire design, interviewing, sampling, and analysis of survey data. Prerequisite: SOCI 100.

SOCI 381 (3) SOCIOLOGICAL METHODS: EXPERIMENTAL RESEARCH. The nature of experimentation. Various types of experimental design and of laboratory and field techniques. The advantages and limitations of experiments in sociological research. Some ethical questions regarding experimentation. Prerequisite: SOCI 100.

SOCI 382 (3) SOCIOLOGICAL METHODS: QUALITATIVE RESEARCH. Examination of the different traditions of qualitative sociological inquiry and the associated methodological features used to study the interpretive practices and meanings in the everyday lives of individuals. Prerequisite: SOCI 100.

SOCI 383 (3) SOCIOLOGICAL METHODS: HISTORICAL RESEARCH. Methodological problems and research strategies associated with the interpretation of socio-historical data; contributions of classical and contemporary approaches to historical sociology and social history. Prerequisite: SOCI 100.

SOCI 400 (3/6) D THEORETICAL AND METHODOLOGICAL ISSUES. Sociological theories and their relationship to methodological issues in the discipline. Prerequisite: SOCI 100.

SOCI 410 (3/6) D SPECIAL STUDIES IN CANADIAN SOCIETY. Selected areas of study relating to Canadian society such as BC Studies; French Canada's demographic problems; rural communities; social welfare and community programs in Canada. Consult the Department for this year's offerings. Prerequisite: SOCI 100.

SOCI 413 (3/6) D FAMILY AND KINSHIP. A cross-cultural survey of ways of defining family relationships and kinship organizations, including theoretical analysis as well as case studies. Prerequisite: SOCI 100. Equivalency: ANTH 413.

SOCI 414 (3/6) D FEMINIST THEORY. The emergence of feminist theory, its relationship to sociology, and the major theoretical schools of thought. The social basis and development of feminist thought from critiques of scholarship

and research to contemporary debates will be addressed. Prerequisite: SOCI 100.

SOCI 416 (3/6) D THE ETHNOGRAPHY OF JAPAN. Through an analysis of contemporary ethnographic accounts of Japan, this course addresses the interplay of cultural predispositions with modern organizational structure, differences in rural/urban lifestyles, family relationships, gender roles, health, aging and Japan's international role. Prerequisite: One of ANTH 215, SOCI 215, ANTH 315, SOCI 315 and SOCI 100. Permission of the instructor is also acceptable. Equivalency: ANTH 416.

SOCI 418 (3/6) D SOCIAL STATISTICS II. Primary emphasis on applications of statistical techniques to quantitative and qualitative data in both Anthropology and Sociology. Prerequisite: All of SOCI 100, SOCI 328. Equivalency: ANTH 418.

SOCI 420 (3/6) D SOCIOLOGY OF THE ENVIRONMENT. Sociological approaches to the study of environmental conflicts, issues, movements, impact of changing technology, economic development on the environment. Prerequisite: SOCI 100.

SOCI 425 (3/6) D URBAN SOCIOLOGY. Demographic, behavioural, and organizational aspects of urban structures and of urbanization in different societies and periods. Prerequisite: SOCI 100.

SOCI 433 (3/6) D DIRECTED STUDIES. General reading and/or a research undertaking, with the agreement, and under the supervision, of a Department faculty member selected by the student. Prerequisite: SOCI 100.

SOCI 449 (6) HONOURS TUTORIAL. Requires the presentation of at least one research paper. Prerequisite: SOCI 100.

SOCI 460 (3/6) D SOCIOLOGY OF SPECIAL GEOGRAPHICAL AREAS. The description of areas to be covered will be announced each year. Prerequisite: SOCI 100.

SOCI 461 (3/6) D POLITICAL SOCIOLOGY. The social and economic bases of political power. May include studies of the state and interstate relations, ideology and control, alienation and anomie, political movements and social revolutions, political violence and terrorism, and the political economy of world conflict. Prerequisite: SOCI 100.

SOCI 464 (3/6) D SOCIAL MOVEMENTS. A study of the sources, stages, and effects of social movements in developing and modernized societies. Prerequisite: SOCI 100.

SOCI 465 (3/6) D SOCIOLOGY OF THE ARTS. An examination of the arts as social practices from the standpoint of the relationships among artists, critics, patrons, and public; and the social institutions through which these relationships are structured. Prerequisite: SOCI 100.

SOCI 466 (3/6) D SOCIALIZATION AND EDUCATION. Study of induction into social structures and the acquisition of membership in society. Includes the structure and influence of educational and other socializing institutions. Prerequisite: SOCI 100.

SOCI 470 (3/6) D SOCIOLOGY OF CRIME AND JUSTICE. Critical examination of specific forms of crime and delinquency in relation to the criminal justice system including law, enforcement, and corrections. Issues selected for study will be further scrutinized within the cultural framework of ethics, morality, and social justice. Prerequisite: SOCI 100.

SOCI 473 (3/6) D SOCIOLOGY OF MENTAL ILLNESS. A sociological approach to the meaning of mental illness; the organization of psychiatric treatment; problems in the explanation of the distribution of mental illness in a population. Prerequisite: SOCI 100.

SOCI 475 (6) INTERPERSONAL RELATIONS. A self-analytic seminar for the study of group interaction and social conflict processes; interdisciplinary reading materials and assignments complement analysis of ongoing group and individual behaviour. Prerequisite: SOCI 100.

SOCI 484 (3/6) D SOCIOLOGY OF HEALTH AND ILLNESS. Sociological perspectives on health, illness, and health care as represented in classic and contemporary sociological studies of selected topics such as illness experience, social aspects of the practice of health professionals, training of health professionals, and the social organization of health delivery systems. Prerequisite: SOCI 100.

SOCI 495 (3/6) D ADVANCED STUDIES IN SOCIOLOGY. An intensive examination of selected topics in Sociology. Consult the department for this year's offerings. Prerequisite: SOCI 100.

SOCI 500 (3) FOUNDATIONS OF SOCIOLOGICAL THOUGHT. A critical survey of classical sociological thought and the theoretical works which have shaped the discipline of sociology.

SOCI 501 (3) CONTEMPORARY SOCIOLOGICAL THEORY. Theoretical trends, issues, and perspectives in contemporary sociology, including problems of theory formation and the relation of theory and research.

SOCI 502 (3) RESEARCH DESIGN AND TECHNIQUES (QUANTITATIVE). Sociological research design and the analysis and interpretation of data.

SOCI 503 (3) RESEARCH DESIGN AND TECHNIQUES (QUALITATIVE). Sociological research design and the analysis and interpretation of data.

SOCI 504 (3) METHODOLOGY OF SOCIAL INQUIRY. The nature of sociological understanding and explanation, including a critical review of issues in the theory of methods.

SOCI 505 (3/6) C TUTORIAL IN SOCIOLOGICAL THEORY. Prerequisite: One of SOCI 500, SOCI 501.

SOCI 506 (3/6) D TUTORIAL IN RESEARCH METHODS. Prerequisite: Two of SOCI 502, SOCI 503, SOCI 504.

SOCI 507 (3/6) D ADVANCED THEORY SEMINAR. Prerequisite: All of SOCI 500, SOCI 501. Corequisite: SOCI 504.

SOCI 508 (3/6) D ADVANCED METHODS SEMINAR. Prerequisite: All of SOCI 502, SOCI 503.

SOCI 509 (3/6) D SOCIOLOGY OF THE ENVIRONMENT.

SOCI 510 (3/6) D SEMINAR IN POPULATION, COMMUNITY AND DEMOGRAPHY.

SOCI 511 (3) CROSS-NATIONAL COMPARISONS IN THE SOCIAL SCIENCES. The methodological and epistemological underpinnings of cross-national comparative research across the social sciences. Focused on but not limited to Northeast Asia. Equivalency: IAR 511.

SOCI 512 (3/6) D SOCIOLOGY OF GENDER AND FEMINIST ISSUES.

SOCI 515 (3/6) C TUTORIAL IN POPULATION, COMMUNITY AND DEMOGRAPHY. Prerequisite: SOCI 510.

SOCI 520 (3/6) D SEMINAR IN CRIME, LAW AND SOCIAL CONTROL.

SOCI 525 (3/6) C TUTORIAL IN CRIME, LAW AND SOCIAL CONTROL. Prerequisite: SOCI 520.

SOCI 530 (3/6) D SEMINAR IN SOCIAL CHANGE AND DEVELOPMENT.

SOCI 535 (3/6) C TUTORIAL IN SOCIAL CHANGE AND DEVELOPMENT. Prerequisite: SOCI 530.

SOCI 540 (3/6) D SEMINAR IN SOCIAL INEQUALITY.

SOCI 545 (3/6) C TUTORIAL IN SOCIAL INEQUALITY. Prerequisite: SOCI 540.

SOCI 549 (6/12) C MASTER'S THESIS.

SOCI 550 (3/6) D SEMINAR IN SOCIAL INTERACTION.

SOCI 555 (3/6) C TUTORIAL IN SOCIAL INTERACTION. Prerequisite: SOCI 550.

SOCI 560 (3/6) D SEMINAR IN THE SOCIOLOGY OF CULTURE AND KNOWLEDGE.

SOCI 562 (3/6) D SEMINAR IN THE SOCIOLOGY OF MASS MEDIA AND COMMUNICATIONS.

SOCI 565 (3/6) C TUTORIAL IN THE SOCIOLOGY OF CULTURE AND KNOWLEDGE. Prerequisite: SOCI 560.

SOCI 570 (3/6) D SEMINAR IN WORK, INDUSTRY AND TECHNOLOGY.

SOCI 575 (3/6) C TUTORIAL IN WORK, INDUSTRY AND TECHNOLOGY. Prerequisite: SOCI 570.

SOCI 580 (3/6) D SEMINAR IN CANADIAN SOCIETY.

SOCI 584 (3/6) D SEMINAR IN HEALTH, ILLNESS AND SOCIETY.

SOCI 585 (3/6) C TUTORIAL IN CANADIAN SOCIETY. Prerequisite: SOCI 580.

SOCI 590 (3/6) D SEMINAR IN AN ETHNOGRAPHIC AREA.

SOCI 595 (3/6) C TUTORIAL IN AN ETHNOGRAPHIC AREA. Prerequisite: SOCI 590.

SOCI 596 (3/6) D SEMINAR IN POLITICAL SOCIOLOGY AND SOCIAL MOVEMENTS.

SOCI 597 (3/6) C TUTORIAL IN POLITICAL SOCIOLOGY AND SOCIAL MOVEMENTS. Prerequisite: SOCI 596.

SOCI 598 (3/6) C DIRECTED STUDIES.

SOCI 599 (3/6) D SPECIAL TOPICS SEMINAR.

SOCI 649 (0) PH.D. THESIS.

SOIL — SOIL SCIENCE FACULTY OF LAND AND FOOD SYSTEMS

Most of the undergraduate courses have been renamed as Agroecology (AGRO). Please see this section. Admission to undergraduate courses numbered 300 or higher requires previous credit for SOIL 200 or consent of instructor.

SOIL 200 (3) INTRODUCTION TO SOIL SCIENCE. Physical, chemical and biological properties of soils; soil formation, classification, use and conservation. Prerequisite: All of BIOL 12, CHEM 12, PHYS 12 or first-year university level. [3-2]

SOIL 500 (2) GRADUATE SEMINAR.

SOIL 501 (3) ADVANCED SOIL PROCESSES.

SOIL 502 (3) ADVANCED SUSTAINABLE SOIL MANAGEMENT.

SOIL 503 (3) ADVANCED FIELD AND LABORATORY METHODS IN SOIL SCIENCE.

SOIL 512 (3/6) C ADVANCED SOIL BIOLOGY. Current research in root-soil interfaces. Offered in alternate years. Prerequisite: SOIL 321. Permission of the instructor is also acceptable.

SOIL 513 (3/6) C ADVANCED SOIL PHYSICS. Infiltration and evaporation of water, flow and storage of heat and chemicals in soil, and interactions with the atmosphere. Emphasis on mathematical formulation of problems and solutions using analytical and numerical methods. Prerequisite: All of SOIL 313, SOIL 314.

SOIL 514 (3/6) C BIOMETEOROLOGY. Energy and mass exchange in the biosphere with emphasis on the interfaces between the atmosphere and soils, plants and animals. Offered in alternate years.

SOIL 517 (3) LAND AND RESOURCE EVALUATION. Concepts and methods for multi-purpose land evaluations and assessing resource development options; monitoring and modelling environmental systems using GIS techniques. Prerequisite: One of SOIL 417, FRST 422. Permission of the instructor is also acceptable.

SOIL 524 (2) INSTRUMENTATION FOR BIOMETEOROLOGY. The theory, design and evaluation of instrumentation for biometeorological research. Consent of instructor. Prerequisite: Permission of the instructor is required.

SOIL 530 (2-6) C DIRECTED STUDIES.

SOIL 549 (12) MASTER'S THESIS.

SOIL 649 (0) PH.D. THESIS.

SOWK — SOCIAL WORK FACULTY OF ARTS

SOWK 200 (3) INTRODUCTION TO SOCIAL WELFARE. An introduction to the perspectives, concepts and theoretical foundations of social welfare, including an analysis of the institutional structures of social welfare in the modern state.

SOWK 201 (3) INTRODUCTION TO SOCIAL WORK PRACTICE. An introduction to the knowledge, skills and values of social work practice in its many forms, emphasizing different ways of understanding the context of social and personal problems. Prerequisite: SOWK 200.

SOWK 305 (6) SOCIAL WORK PRACTICE I. An examination of the foundation, knowledge and competencies underlying generalist social work practice. Enrolment is limited to students in the B.S.W. program.

SOWK 310 (3) INTERVIEWING SKILLS. Communication theory and interviewing skills and their application to the Social Work interview.

SOWK 315 (6) PRACTICUM I. A supervised practicum in an assigned social service, two days a week throughout the program year. Limited to students in the B.S.W. program. This course will be graded Pass/Fail. Prerequisite: SOWK 310.

SOWK 316 (3) INTEGRATIVE SEMINAR IN SOCIAL WORK THEORY, POLICY AND PRACTICE. Integrates students' learning from field, practice, policy and theory courses for the purposes of professional development.

SOWK 320 (3) INTRODUCTION TO SOCIAL WORK RESEARCH. Introduction to theory and conduct of social research as applied to social welfare and social work practice. The focus is on development of social work research questions and design of studies. Enrolment is limited to students in the B.S.W. program, except by permission of the school.

SOWK 335 (6) SOCIAL ANALYSIS FOR SOCIAL WORK PRACTICE. Theoretical considerations of relevance to social work practice.

SOWK 337 (3) CROSS-CULTURAL SOCIAL WORK. Issues and problems inherent in practising social work in diverse cultural settings.

SOWK 400 (3) CANADIAN SOCIAL POLICY. Analysis of race, gender, class and culture as factors in the distribution and delivery of Canadian social benefits and social services.

SOWK 405 (3) SOCIAL WORK PRACTICE II. This course examines the principles of optimal social work process with individuals, small groups, families and larger collectivities.

SOWK 415 (6) PRACTICUM II. A supervised practicum in an assigned social service, two days a week throughout the program year.

Enrolment is limited to students in the B.S.W. program. This course will be graded Pass/Fail.

SOWK 416 (3) ADVANCED INTEGRATIVE SEMINAR IN SOCIAL WORK THEORY, POLICY AND PRACTICE. Development of professional judgement, evaluation, and self-evaluation in practice.

SOWK 425 (3) FIRST NATIONS SOCIAL ISSUES. Contemporary social issues facing First Nations peoples and communities examined in the context of the history of Euro-Canadian/First Nations relations; the impact of Euro-Canadian institutions upon First Nations peoples; implications for social policy and social work practice.

SOWK 430 (3-6) D SPECIAL STUDIES IN SOCIAL WORK. Lectures, seminars and/or individual tutorials to develop knowledge and skills in relation to a defined theory, policy or practice problem or client population. Enrolment is limited to students in the B.S.W. program, except by permission of the School.

SOWK 440 (3-12) D INTEGRATIVE SEMINARS IN SOCIAL WORK. A series of seminars offered during the final term of studies which address salient issues in social policy and social work practice and draw upon combined knowledge from social work and related disciplines.

SOWK 441 (3) SOCIAL CONTEXT OF CHILD DEVELOPMENT. The ways in which the familial, physical, and social environment effects the life structures, opportunities and outcomes of epigenetic developmental processes. Equivalency: FMST 441.

SOWK 442 (3) POLICY AND PRACTICE IN CHILD WELFARE. Covers the statutory bases and practices associated with the continuum of child welfare services from prevention through permanency planning. Prerequisite: SOWK 441 or another course in child development.

SOWK 501 (3/6) D THEORETICAL FOUNDATIONS OF SOCIAL WORK.

SOWK 502 (3/6) D THEORIES OF CANADIAN AND INTERNATIONAL SOCIAL DEVELOPMENT.

SOWK 503 (3/6) D THEORETICAL FOUNDATIONS OF SOCIAL WORK IN THE HEALTH FIELD.

SOWK 504 (3/6) D FEMINISM AND SOCIAL WORK PRAXIS.

SOWK 526 (3) SOCIAL WORK PRACTICE IN ADDICTIONS.

SOWK 527 (3/6) D FAMILY MEDIATION AND CONFLICT RESOLUTION.

SOWK 528 (3/6) D CROSS-CULTURAL SOCIAL WORK PRACTICE.

SOWK 530 (3/6) D SOCIAL SERVICES MANAGEMENT.

SOWK 541 (3/6) D SOCIAL WORK PRACTICE WITH THE FAMILY.

SOWK 542 (3/6) D SOCIAL WORK PRACTICE WITH INDIVIDUALS AND COUPLES.

SOWK 543 (3/6) D SOCIAL WORK PRACTICE WITH CHILDREN.

SOWK 544 (3/6) D SOCIAL WORK PRACTICE WITH GROUPS.

SOWK 545 (3/6) D SOCIAL WORK PRACTICE IN THE COMMUNITY.

SOWK 546 (3/6) D METHODS FOR POPULAR SECTOR ORGANIZING.

SOWK 547 (3) SOCIAL WORK PRACTICE IN THE FIELD OF AGING.

SOWK 548 (3) GRADUATING ESSAY.

SOWK 549 (6/9) D MASTER'S THESIS.

SOWK 552 (3/6) D CLINICAL RESEARCH AND SOCIAL WORK. Prerequisite: SOWK 320.

SOWK 553 (3/6) D QUANTITATIVE METHODS IN SOCIAL WORK RESEARCH. Prerequisite: SOWK 320.

SOWK 554 (3/6) D QUALITATIVE METHODS IN SOCIAL WORK RESEARCH. Prerequisite: SOWK 320.

SOWK 555 (3/6) D SEMINAR IN METHODOLOGICAL ISSUES IN SOCIAL WELFARE.

SOWK 556 (3/6) D SEMINAR IN SOCIAL WELFARE THEORY.

SOWK 557 (3/6) D SEMINAR IN SOCIAL WORK PRACTICE THEORY.

SOWK 560 (3/6) D DIRECTED FIELD STUDIES IN SOCIAL WORK.

SOWK 570 (3/6) D DIRECTED STUDIES IN SOCIAL WORK.

SOWK 571 (3/6) D INTERNATIONAL SOCIAL DEVELOPMENT.

SOWK 572 (3/6) D SOCIAL POLICY AND PROGRAM PLANNING: FAMILY AND CHILD WELFARE.

SOWK 573 (3/6) D SOCIAL POLICY AND PROGRAM PLANNING IN THE HEALTH FIELD.

SPAN — SPANISH FACULTY OF ARTS

Students offering a prerequisite equivalent from another institution should consult a departmental adviser.

SPAN 101 (3) BEGINNERS' SPANISH I. Grammar, composition, translation, oral practice. Prerequisite: Not open to students with credit for SPAN 11.

SPAN 102 (3) BEGINNERS' SPANISH II. Grammar, composition, translation, oral practice. Not available for credit to students with SPAN 11. Prerequisite: SPAN 101.

SPAN 111 (3) REFRESHER SPANISH I. Grammar course for students with previous exposure to Spanish and students with some first-year knowledge in need of a grammar review. Not open to students with the prerequisite for SPAN 201. Prerequisite: SPAN 102 or permission of the department.

SPAN 112 (3) REFRESHER SPANISH II.

Grammar course for students with previous exposure to Spanish and students with some first-year knowledge in need of a grammar review. Not open to students with the prerequisite for SPAN 202. Completion of SPAN 112 fulfills the Faculty of Arts language requirement. Prerequisite: SPAN 111 or permission of the department.

SPAN 201 (3) INTERMEDIATE SPANISH I.

Grammar, composition, translation, oral practice, readings. Not available for credit to students with SPAN 12. Credit will not be given for both SPAN 111 and 201. Prerequisite: A score of 68% or higher in SPAN 102 or permission of the department.

SPAN 202 (3) INTERMEDIATE SPANISH II.

Grammar, composition, translation, oral practice, readings. Not available for credit to students with Spanish 12. Credit will not be given for both SPAN 112 and 202. Prerequisite: One of SPAN 111 [with 68% or above], SPAN 201 or permission of the department.

SPAN 206 (3) CONVERSATIONAL SPANISH I.

Conversation, translation, and readings. Students with 68% or better in SPAN 102 may take this course concurrently with SPAN 201 or 202. Prerequisite: One of SPAN 12, SPAN 202.

SPAN 207 (3) CONVERSATIONAL SPANISH II.

Conversation, translation, and readings. Students with 68% or better in SPAN 102 may take this course concurrently with SPAN 202. Prerequisite: SPAN 206.

SPAN 220 (3/6) D INTRODUCTION TO METHODS OF LITERARY ANALYSIS. Basic techniques of literary analysis through the study of selected texts from the literatures of Spain and Spanish America. This course is required for the Major or Honours program.

SPAN 301 (3) ADVANCED SPANISH I.

Composition, translation, and oral practice. The course places special emphasis on pronunciation and syntax.

SPAN 302 (3) ADVANCED SPANISH II.

Composition, translation, and oral practice. The course places special emphasis on pronunciation and syntax. Prerequisite: SPAN 301.

SPAN 312 (3) LATIN AMERICAN LITERATURE IN TRANSLATION.

Introduction for the non-specialist to the major contemporary Latin American literary works and their cultural background. Not available for credit toward a Major or Honours program in Spanish.

SPAN 321 (3) INTRODUCTION TO SPANISH CIVILIZATION AND CULTURE. History and culture of Spain. In English

SPAN 322 (3) LATIN-AMERICAN CIVILIZATION AND CULTURE. History and culture of Latin-America. In English

SPAN 357 (3) SURVEY OF PENINSULAR LITERATURE FROM THE ORIGINS TO 1700.

SPAN 358 (3) SURVEY OF PENINSULAR LITERATURE FROM 1700 TO THE PRESENT.

SPAN 364 (3) SURVEY OF SPANISH-AMERICAN LITERATURE TO THE 1820S.

SPAN 365 (3) SURVEY OF SPANISH-AMERICAN LITERATURE SINCE THE 1820S.

SPAN 401 (3) ADVANCED TRANSLATION: SPANISH-ENGLISH. Intensive training in advanced translation from a variety of sources (literary, journalistic, legal and technical), with an introduction to translation theory. Prerequisite: SPAN 302.

SPAN 402 (3) ADVANCED SPANISH III. Advanced studies in Spanish language and style. Prerequisite: SPAN 302.

SPAN 403 (3) HISTORY OF THE SPANISH LANGUAGE. The origins and development of Spanish; study of representative texts.

SPAN 404 (3) TOPICS IN HISPANIC CINEMA.

SPAN 405 (3) TOPICS IN PENINSULAR AND LATIN-AMERICAN CULTURE.

SPAN 406 (3) GENDER REPRESENTATION(S) IN HISPANIC LITERATURE AND CULTURE. Analysis of major works from the seventeenth century to the present.

SPAN 410 (3) MEDIEVAL LITERATURE. Topics in Spanish Literature from its origins to 1500.

SPAN 420 (3) GOLDEN-AGE LITERATURE. Topics in Spanish Literature from 1500 to 1700.

SPAN 430 (3) PENINSULAR LITERATURE OF THE EIGHTEENTH, NINETEENTH AND TWENTIETH CENTURIES. Selected topics.

SPAN 450 (3) SPECIAL TOPICS IN SPANISH LANGUAGE. Introduction to some problems of dialectology and/or other Romance languages spoken in the Hispanic world.

SPAN 468 (6) ROMANCE LINGUISTICS. The Indo-European background, Classical and Vulgar Latin; the origin, development and spread of the Romance languages; their vocabulary, phonology, morphology, syntax; vernacular Latin texts and Romance texts. Prerequisite: Two years study of each of two Romance languages or two years of one Romance language and one year of Latin. Equivalency: FREN 468, RMST 468.

SPAN 470 (3) SELECTED TOPICS IN SPANISH-AMERICAN COLONIAL AND NINETEENTH-CENTURY LITERATURE.

SPAN 490 (3) SELECTED TOPICS IN SPANISH-AMERICAN LITERATURE OF THE TWENTIETH-CENTURY.

SPAN 499 (3) HONOURS ESSAY.

SPAN 500 (0) SEMINAR IN HISPANIC STUDIES.

SPAN 501 (3) THEORETICAL APPROACHES TO LITERATURE.

SPAN 502 (3) STUDIES IN HISPANIC FEMINISMS.

SPAN 504 (3) STUDIES IN HISPANIC CINEMA.

SPAN 505 (3) STUDIES IN PENINSULAR AND LATIN-AMERICAN CULTURE.

SPAN 520 (3) GOLDEN-AGE LITERATURE.

SPAN 527 (3/6) D SELECTED TOPICS IN MEDIEVAL SPANISH LITERATURE. Also lists as SPAN 528.

SPAN 530 (3) PENINSULAR LITERATURE OF THE EIGHTEENTH, NINETEENTH AND TWENTIETH CENTURIES.

SPAN 548 (3) GRADUATING ESSAY.

SPAN 549 (6) MASTER'S THESIS.

SPAN 550 (3) STUDIES IN PENINSULAR AND LATIN-AMERICAN LANGUAGES AND LITERATURES.

SPAN 570 (3) SPANISH-AMERICAN COLONIAL LITERATURE.

SPAN 580 (3) NINETEENTH-CENTURY SPANISH-AMERICAN LITERATURE.

SPAN 590 (3) TWENTIETH-CENTURY SPANISH-AMERICAN LITERATURE.

SPAN 649 (0) PH.D. THESIS.

SSED — SOCIAL STUDIES EDUCATION FACULTY OF EDUCATION

SSED 300 (3) TEACHING AND LEARNING SOCIAL STUDIES ACROSS THE CURRICULUM: ELEMENTARY. [3-0-0]

SSED 314 (4/5) D CURRICULUM AND INSTRUCTION IN SOCIAL STUDIES: SECONDARY. Pass/Fail.

SSED 317 (3) CURRICULUM TOPICS IN SOCIAL STUDIES: SECONDARY. Pass/Fail. [2-0-0]

SSED 320 (2) CURRICULUM AND INSTRUCTION IN SOCIAL STUDIES: ELEMENTARY. Curriculum organization in social studies; principles and methods of instruction applied to teaching social studies. Pass/Fail. [1-2-0]

SSED 324 (3) CURRICULUM AND INSTRUCTION IN CANADIAN STUDIES. Pass/Fail. Prerequisite: One of SSED 300, SSED 312, SSED 314, SSED 320. [2-1-0]

SSED 361 (3) INTRODUCTION TO CURRICULUM AND INSTRUCTION IN LAW-RELATED EDUCATION. The rationales and objectives, teaching and learning activities, and curriculum materials for law-related education in elementary and secondary schools. [3-0]

SSED 400 (3/6) D SOCIAL STUDIES CURRICULUM AND INSTRUCTION: ELEMENTARY. Prerequisite: One of SSED 300, SSED 320. [3-0-0]

SSED 440 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: HISTORY. Topics in a subject field relevant to secondary teaching. Open only to secondary students admitted with an academic deficiency. Not for credit toward graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

SSED 441 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: GEOGRAPHY. Topics in a subject field relevant to secondary teaching. Not for credit toward graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

SSED 469 (3/6) C INTRODUCTION TO CURRENT PRACTICES IN VALUES EDUCATION. Examination of recognized approaches to values education, including strategies, curriculum materials, rationale and theory, and research evidence. Critical examination and practical applications of approaches will be emphasized. [3-0; 3-0]

SSED 508 (3/12) C REVIEW OF RESEARCH IN EDUCATIONAL METHODS. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

SSED 511 (3) PROBLEMS IN HISTORICAL UNDERSTANDING. Recent controversies in North American historical literature and implications for school curriculum in the light of research on teaching and learning history. Issues include gender, ethnicity, environmental history, and the objectivity question.

SSED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

SSED 580 (3/12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

SSED 590 (3) GRADUATING PAPER. Pass/Fail.

SSED 598 (3/12) C FIELD EXPERIENCES. For those on master's, doctoral and diploma programs.

SSED 599 (6/12) C MASTER'S THESIS.

STAT — STATISTICS FACULTY OF SCIENCE

Introductory courses in probability and statistics are offered by many different departments at UBC. For a list of these courses and details concerning restrictions on the number of credits students may obtain for such courses, see "Pairing Lists" and "Probability and Statistics" in the Science section. The following course is for students in the Faculty of Applied Science: STAT 251. Additional fees are charged for some courses.

STAT 200 (3) ELEMENTARY STATISTICS FOR APPLICATIONS. Classical, nonparametric and robust inferences about means, variances, and analysis of variance, using computers. Emphasis on problem formulation, assumptions, and interpretation. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar.) Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 120. [3-1-0]

STAT 203 (3) STATISTICAL METHODS. Organizing, displaying and summarizing data. Inference estimation and testing for elementary probability models. Not for credit towards a B.Sc. (Consult the Credit Exclusion list within the Faculty of Science section in the Calendar.) Prerequisite: MATH 11. [3-1-0]

STAT 241 (3) INTRODUCTORY PROBABILITY AND STATISTICS. Probability models, random variables and vectors, estimation, testing, regression, analysis of variance,

goodness of fit, quality control. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar). Prerequisite: One of MATH 200, MATH 253. [3-1-0]

STAT 251 (3) ELEMENTARY STATISTICS. Probability, discrete and continuous random variables, joint probability distributions, estimation, hypothesis testing, regression, analysis of variance, goodness of fit. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar). Prerequisite: One of MATH 200, MATH 253. [3-1-0]

STAT 300 (3) INTERMEDIATE STATISTICS FOR APPLICATIONS. Multi-factor analysis-of-variance and other experimental designs; multiple linear regression and regression diagnostics; analysis of covariance; categorical data and log-linear models; further topics in model fitting and data analysis, with statistical computing. Intended for students seeking additional exposure to statistical methodology, but not wishing to concentrate in statistical science. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar). Prerequisite: One of STAT 200, BIOL 300. [3-1-0]

STAT 302 (3) INTRODUCTION TO PROBABILITY. Basic notions of probability, random variables, expectation and conditional expectation, limit theorems. (Consult the Credit Exclusion list within the Faculty of Science section of the Calendar). Prerequisite: One of MATH 200, MATH 226. Equivalency: MATH 302. [3-0-0]

STAT 305 (3) INTRODUCTION TO STATISTICAL INFERENCE. Review of probability theory. Sampling distribution theory, large sample theory and methods of estimation and hypothesis testing, including maximum likelihood estimation, likelihood ratio testing and confidence interval construction. Prerequisite: Either (a) one of STAT 200, BIOL 300 and one of MATH 302, STAT 302; or (b) a score of 65% or higher in one of MATH 302, STAT 302. STAT 200 or BIOL 300 is recommended. [3-0-1]

STAT 306 (3) FINDING RELATIONSHIPS IN DATA. Modeling a response (output) variable as a function of several explanatory (input) variables: multiple regression for a continuous response, logistic regression for a binary response, and log-linear models for count data. Finding low-dimensional structure: principal components analysis. Cluster analysis. (Consult the Credit Exclusion List within the Faculty of Science section in the Calendar). Prerequisite: One of MATH 152, MATH 221, MATH 223 and one of STAT 200, STAT 241, STAT 251, BIOL 300. [3-0-1]

STAT 307 (2) STATISTICS LABORATORY I. Implementing theory in applications. Problem based learning. Generation and analysis of case data. Modelling, computation and reporting. Corequisite: STAT 306. [0-4-0]

STAT 308 (1) STATISTICS LABORATORY II. Continuation of STAT 307. [0-2-0]

STAT 335 (3) STATISTICS IN QUALITY ASSURANCE. Philosophy of quality improvement and total quality control. Definitions of quality. Deming's principles, Ishikawa's tools, control charts, acceptance sampling, continuous improvement, quality design. Credit cannot be obtained for both STAT 335 and WOOD 335. Prerequisite: One of STAT 200, STAT 241, STAT 251, BIOL 300. [3-0-1]

STAT 344 (3) SAMPLE SURVEYS. Planning and practice of sample surveys. Random sampling, bias and variance, unequal probability sampling, systematic, multistage and stratified sampling, ratio and regression estimators, post-stratification, establishing a frame, pretesting, pilot studies, nonresponse and additional topics. Prerequisite: Either (a) one of STAT 200, BIOL 300 and one of MATH 302, STAT 302; or (b) STAT 305. [3-0-1]

STAT 398 (3) CO-OPERATIVE WORK PLACEMENT I. Work experience in an industrial research setting. Normally taken during Winter Session of third year. Restricted to students admitted to the Co-operative Education Program in Statistics. Prerequisite: Registration in Statistics Honours or Major Program.

STAT 399 (3) CO-OPERATIVE WORK PLACEMENT II. Work experience in an industrial research setting. Normally taken during Summer Session following third year. Restricted to students admitted to the Co-operative Education Program in Statistics. Prerequisite: STAT 398.

STAT 404 (3) DESIGN AND ANALYSIS OF EXPERIMENTS. Theory and application of analysis of variance for standard experimental designs, including blocked, nested, factorial and split plot designs. Fixed and random effects, multiple comparisons, analysis of covariance. (Consult the Credit Exclusion list within the Faculty of Science section in the Calendar). Prerequisite: STAT 305. Corequisite: STAT 306. [3-0-1]

STAT 406 (3) ALGORITHMS FOR CLASSIFICATION AND PREDICTION. Flexible, data-adaptive methods for modeling large data sets: visualization and summarization of data; handling large data sets; robust regression and smoothing; methods for assessing accuracy of prediction; neural networks; classification and regression trees; nearest-neighbour methods; model averaging. Prerequisite: One of STAT 306, CPSC 340. [3-0-1]

STAT 441 (3) MULTIVARIATE STATISTICAL METHODS. Multivariate analysis of variance and regression. Canonical correlations, principal components, factor analysis, discrimination, classification and cluster analysis. Emphasis on computer implementation and applications to the various sciences. Prerequisite: STAT 306 and one of MATH 223, MATH 307. [3-0-1]

STAT 442 (3) STATISTICAL METHODS FOR CATEGORICAL DATA. Exact and asymptotic methods for 2x2 and rxc contingency tables, logistic regression models for binary response

variables, log-linear models for multiway contingency tables, model selection, special topics. Emphasis will be on computer implementation and applications to the various sciences and interpretation of the various models. Prerequisite: STAT 306. [3-0-1]

STAT 445 (3) INTRODUCTION TO EXPLORATORY DATA ANALYSIS. Methods for exploring and presenting the structure of data: one group of numbers, several groups, bivariate data, time series data and two-way tables. Data displays, outlier identification, transformations, resistant regression, several types of data smoothing, comparisons with standard statistical methods. Prerequisite: STAT 306. [3-0-1]

STAT 447 (2-6) C SPECIAL TOPICS IN STATISTICS. Students should consult the Statistics Department for the particular topics offered in a given year. Prerequisite: STAT 305. Permission of the instructor is required.

STAT 450 (3) CASE STUDIES IN STATISTICS. Readings and projects in areas of current statistical application including environmental science, industrial statistics, official statistics, actuarial statistics, and medical statistics. Prerequisite: STAT 306. [3-0-1]

STAT 460 (3) STATISTICAL INFERENCE I. A detailed theoretical development. Statistical models, exponential families, sufficiency, completeness, and detailed properties of point estimation. Intended for Honours students. Prerequisite: MATH 320. STAT 305 is recommended. [3-0-0]

STAT 461 (3) STATISTICAL INFERENCE II. Detailed development of the theory of testing hypotheses and confidence regions, Bayesian models and inference, elements of decision theory and additional topics. Intended for Honours students. Prerequisite: STAT 460. [3-0-0]

STAT 498 (3) CO-OPERATIVE WORK PLACEMENT III. Work experience in an industrial research setting. Normally taken during Summer Session following fourth year. Restricted to students admitted to the Co-operative Education Program in Statistics.

STAT 499 (0) CO-OPERATIVE WORK PLACEMENT IV. Work experience in an industrial research setting. Normally taken during Term 1 of Winter Session of fifth year. Restricted to students admitted to the Co-operative Education Program in Statistics.

STAT 518 (3) THEORETICAL STATISTICS. The foundations of statistical inference, exponential families. Likelihood, sufficiency and ancillarity. Principles of estimation and asymptotic theory. Special topics. Prerequisite: All of STAT 461, MATH 418 and one of MATH 420, MATH 544.

STAT 520 (1-6) D TOPICS IN BAYESIAN ANALYSIS AND DECISION THEORY.

STAT 521 (1-6) D TOPICS IN MULTIVARIATE ANALYSIS.

STAT 522 (1-6) D TOPICS IN ASYMPTOTIC THEORY AND STATISTICAL INFERENCE.

STAT 526 (1-6) D TOPICS IN SMOOTHING METHODS.

STAT 527 (1-6) D TOPICS IN BIOSTATISTICS.

STAT 530 (1-3) D BAYESIAN INFERENCE AND DECISION. Utility functions and subjective probability distributions, uninformative priors, inference for common models such as the multivariate normal and regression models, hierarchical prior models, intersubjective statistical decision theory. Prerequisite: STAT 461.

STAT 531 (1-3) D RELIABILITY THEORY. Probabilistic aspects of reliability theory. Classes of life distributions based on notions of aging, coherent systems, shock models, notions of dependence, multivariate distributions for dependent components, maintenance and replacement models. Prerequisite: All of MATH 303, MATH 321, STAT 305.

STAT 532 (1-3) D SEQUENTIAL STATISTICAL PROCEDURES. Sequential probability ratio test, fundamental identity, operating characteristics, optimality. Sequential tests for composite hypotheses. Sequential design of experiments, Bayes sequential decision problems, numerical methods. Applications to statistical problems. Prerequisite: All of MATH 419, STAT 461.

STAT 533 (1-3) D SURVIVAL ANALYSIS. Basic concepts, special distributions, censoring. Parametric and nonparametric methods, product-limit estimator, log-rank test, goodness-of-fit. Models for dependence on explanatory variables, residual analysis, time-dependent covariates. Prerequisite: All of STAT 306, STAT 461.

STAT 534 (1-3) D EXPERIMENTAL DESIGN AND QUALITY IMPROVEMENT. Graphical methods including Ishikawa's methods and control charts. Deming and Taguchi philosophy and methods. Acceptance sampling. Robust parameter designs. Fractional factorial designs and orthogonal arrays. Response surface methodology. Special topics. Prerequisite: STAT 404.

STAT 535 (1-3) D STATISTICAL COMPUTING. Numerical methods useful for statistical research, and numerical analysis useful for writing statistical software (e.g., numerical linear algebra, optimization, generation of pseudo-random numbers, statistical graphics). The statistical language and computing environments for data analysis. Special research topics.

STAT 536 (1-3) D STATISTICAL THEORY FOR THE DESIGN AND ANALYSIS OF CLINICAL STUDIES. Theory for statistical problems commonly encountered in medical studies, including clinical trials, studies of agreement and diagnostic accuracy, rate-comparisons, and standardization. Corequisite: STAT 460.

STAT 537 (1-3) D LINEAR MODELS. Inference for normal theory linear models using projections and linear algebra, unifying regression and analysis of variance. Model building and model verification, mixed models and variance components. Special topics. Prerequisite: All of STAT 404, STAT 460.

STAT 538 (1-3) D GENERALIZED LINEAR MODELS. Natural exponential families, moment generating functions, variance functions, dispersion models. The saddlepoint approximation, asymptotic theory, chi-square, F- and T-tests. Analysis of deviance, residual analysis, iterative least squares algorithm. Applications to positive, discrete, mixed, compositional and directional data. Special topics. Prerequisite: All of STAT 306, STAT 461.

STAT 540 (3) STATISTICAL METHODS FOR HIGH DIMENSIONAL BIOLOGY.

STAT 541 (1-3) D APPLIED MULTIVARIATE ANALYSIS. Topics to be developed with motivation provided by examples from various sciences include: multivariate normal distribution, assessing multivariate normality, Hotelling's T^2 , multivariate analysis of variance and covariance, multivariate regression, discrimination and classification, cluster analysis, canonical correlation, principal components and factor analysis. Prerequisite: All of MATH 307, STAT 404.

STAT 542 (1-3) D ANALYSIS OF CATEGORICAL DATA. A systematic treatment of the theory and use of log-linear and linear logistic models for categorical response variables. Poisson, multinomial and product-multinomial sampling models, maximum likelihood estimation, existence of direct estimates, computational algorithms, adjusted residuals, asymptotic inference, approaches to model selection, special topics. Prerequisite: STAT 404.

STAT 543 (1-3) D TIME SERIES ANALYSIS. A systematic treatment of many of the techniques of the analysis of time series data. Topics include time dependence and randomness, trend, seasonality and error, stationarity, finite parameter models, Box-Jenkins techniques, spectral analysis, the Wiener-Kolmogorov approach, multivariate time series, cross-spectral analysis, "final form" -type models and Kalman filtering. Prerequisite: Permission of the instructor is required.

STAT 544 (1-3) D THEORY OF SAMPLING. A comprehensive account of sampling theory for use in sample surveys. Topics include simple random sampling, stratified random sampling, ratio estimates, regression estimates, systematic sampling, cluster sampling, subsampling, double sampling, estimation of sample size, sources of errors in surveys.

STAT 545 (1-3) D DATA ANALYSIS. Topics will include the philosophy of exploratory data analysis, indication and cross validation, displaying and summarizing data, residual plotting, transforming data, assessing uncertainty, the jackknife, multiway analysis, robustness, standardization, regression and curve fitting, the bootstrap and other computer-intensive methods. Prerequisite: STAT 404.

STAT 546 (1-3) D NONPARAMETRIC STATISTICAL METHODS. Linear rank tests for one and two samples, sign test, rank sum test, normal scores test, Savage test. Rank tests for k samples and nonparametric regression.

Permutation tests. Goodness-of-fit tests, Kolmogorov-Smirnov and Cramer-von Mises tests. Power and efficiency of nonparametric methods. Nonparametric estimation. Theory of U-statistics. Prerequisite: STAT 461.

STAT 547 (1-6) D TOPICS IN STATISTICS. Students should consult the Statistics Department for the particular advanced topics offered in a given year.

STAT 548 (1-6) C DIRECTED STUDIES IN STATISTICS. Advanced study under the direction of a faculty member may be arranged in special situations.

STAT 549 (6/12) C THESIS FOR MASTER'S DEGREE.

STAT 550 (3) TECHNIQUES OF STATISTICAL CONSULTING. The basic skills of statistical consulting. Analysis of data sets, modelling, and statistical computing. Special topics such as graphical methods and data reduction techniques. Readings on consulting and applying statistics. Corequisite: STAT 404.

STAT 551 (3) STATISTICAL CONSULTING. Supervised statistical practice directed toward the solution of current problems posed by subject-area researchers. Prerequisite: STAT 550.

STAT 560 (3) STATISTICAL THEORY I. Credit will not be given for both STAT 460 and STAT 560. [3-0-0]

STAT 561 (3) STATISTICAL THEORY II.

STAT 589 (3) M.SC. PROJECT.

STAT 598 (3) CO-OPERATIVE WORK PLACEMENT I. Restricted to students admitted to the Co-operative M.Sc. Education Program in Statistics.

STAT 599 (3) CO-OPERATIVE WORK PLACEMENT II. Restricted to students admitted to the Co-operative M.Sc. Education Program in Statistics. Prerequisite: STAT 598.

STAT 649 (0) PH.D. THESIS.

SURG — SURGERY FACULTY OF MEDICINE

SURG 430 (8) SURGERY. Post-operative care of patients, evaluation of pre-operative patients, mastery of technical skills for common ward procedures, assessing ambulatory patients and assisting in the operating room.

SURG 500 (4) EXPERIMENTAL SURGERY. Lectures and seminars dealing with the selected application of surgical techniques in biological investigation.

SURG 501 (4) SURGICAL METHODOLOGY IN RESEARCH. Seminars with the laboratory preparation of advanced procedures used in modern physiological and surgical research. Courses 502 to 511 consist of a series of two-year courses common to all branches of surgery (core). Prerequisite: Plus lectures structured for selected major disciplines in surgery.

SURG 502 (2) SURGICAL CORE – POS SERIES. The basic principles of surgery common to all branches of surgery.

SURG 504 (4) ADVANCED GENERAL SURGERY I. Fundamental concepts in general surgery. Given in alternate years.

SURG 505 (4) ADVANCED GENERAL SURGERY II. The second year of the above program. Given in alternate years.

SURG 548 (2-4) C SEMINAR IN SURGERY.

SURG 549 (6-18) C M.SC. THESIS.

SWFS — SOCIAL WORK AND FAMILY STUDIES FACULTY OF ARTS

SWFS 601 (3) SOCIAL WORK AND FAMILY STUDIES DOCTORAL SEMINAR. Critical examination of research, teaching, proposal writing and publication.

SWFS 621 (3) SOCIAL THEORY, IDEOLOGY AND ETHICS. Critical analysis of major social theories, differentiating competing approaches to understanding human behaviour; social theory, social ideology, and social ethics.

SWFS 623 (3) ADVANCED DATA ANALYSIS IN SOCIAL WORK AND FAMILY STUDIES.

SWFS 654 (3) ADVANCED QUALITATIVE INQUIRY.

THTR — THEATRE FACULTY OF ARTS

THTR 120 (3) INTRODUCTION TO THEATRE. Theory and practice of the theatrical arts. Attendance at plays is required.

THTR 130 (3) INTRODUCTION TO ACTING. Equivalency: THTR 160.

THTR 150 (3) INTRODUCTION TO TECHNICAL THEATRE. Foundation study of the technical aspects of theatre production.

THTR 205 (3/6) D GRAPHICS FOR THEATRE AND FILM DESIGN.

THTR 230 (3) PERFORMANCE STUDY I. Study of the actor's process. Equivalency: THTR 260.

THTR 245 (3) PLAY-INTERPRETATION AND PRODUCTION-ANALYSIS. Basic methods of interpreting dramatic texts and analyzing plays in performance. The plays presented on the Frederic Wood Stage will be studied in this course.

THTR 254 (3) TECHNICAL THEATRE. The construction and execution of scenery, costumes, properties, lighting, and sound for the stage. Corequisite: THTR 299. Equivalency: THTR 250.

THTR 263 (3) VOICE AND SPEECH. A course in voice production, diction, and oral interpretation, designed to cultivate effective and expressive speech. Prerequisite: THTR 120 or THTR 160 are recommended.

THTR 271 (3) BEGINNING B.F.A. ACTING I. Open only to B.F.A. Acting students. An audition is required. Prerequisite: At least one Theatre course. Corequisite: THTR 273. Equivalency: THTR 271 and THTR 272 are equivalent to THTR 261.

THTR 272 (3) BEGINNING B.F.A. ACTING II. Open only to B.F.A. Acting students. Corequisite: All of THTR 271, THTR 273, THTR 274.

Equivalency: THTR 271 and THTR 272 are equivalent to THTR 261.

THTR 273 (3) BEGINNING VOICE AND MOVEMENT I. Open only to B.F.A. Acting students. An audition is required. Prerequisite: At least one Theatre course. Corequisite: THTR 271. Equivalency: THTR 273 and THTR 274 are equivalent to THTR 262.

THTR 274 (3) D BEGINNING VOICE AND MOVEMENT II. Open only to B.F.A. Acting students. Corequisite: THTR 271, THTR 272, THTR 273. Equivalency: THTR 273 and THTR 274 are equivalent to THTR 262.

THTR 299 (3/6) D PRODUCTION I. Assigned projects in theatre production. Corequisite: One of THTR 205, THTR 254, THTR 261. Equivalency: THTR 251.

THTR 301 (3) STYLES OF DECOR AND DRESS. Artistic, decorative, cultural, and social contexts of selected theatrical genres and periods.

THTR 305 (3) SCENERY DESIGN I. Principles and practice of scenery design for the theatre. Prerequisite: THTR 205.

THTR 306 (3) COSTUME DESIGN I. Principles and practice of costume design for the theatre. Prerequisite: THTR 205. Equivalency: THTR 353.

THTR 307 (3) LIGHTING DESIGN I. The optical, distribution, and control systems used in stage lighting design. Equivalency: THTR 351.

THTR 308 (3) SOUND DESIGN. Audio design and production for theatre and other performance forms.

THTR 317 (3) INTRODUCTION TO DIRECTING. Prerequisite: One of THTR 230, THTR 299. Corequisite: THTR 299. Equivalency: THTR 317 and THTR 417 are equivalent to THTR 400.

THTR 320 (3) HISTORY OF THEATRE I. Core concepts in world theatre history and the development of theatre prior to the nineteenth century.

THTR 323 (3) HISTORY AND THEORY OF DIRECTING. Equivalency: THTR 321.

THTR 325 (3/6) D HISTORY OF CANADIAN THEATRE.

THTR 330 (3) PERFORMANCE STUDY II. Study of performance styles. Prerequisite: THTR 230. Equivalency: THTR 360.

THTR 339 (3) CREATING THEATRE I. Study and practice of processes and forms used to create ensemble performance. Prerequisite: THTR 230. Corequisite: THTR 230. Equivalency: THTR 369.

THTR 340 (3/6) D STUDIES IN NON-WESTERN THEATRE. Open to all students in third year and above.

THTR 350 (3) SCENERY PRODUCTION I. Scenery construction, rigging, and systems.

THTR 352 (3) SCENE PAINTING I. Media, techniques, and textural treatments used in scene painting.

THTR 354 (3) STAGE MANAGEMENT. Principles and procedures of stage management: organizations, systems, and operations.

THTR 356 (3) COSTUME CONSTRUCTION. Advanced assembly and specialized construction methods for producing costume for stage and screen.

THTR 371 (3) INTERMEDIATE B.F.A. ACTING I. Open only to B.F.A. Acting students. Prerequisite: All of THTR 271, THTR 272, THTR 273, THTR 274. Equivalency: THTR 371 and THTR 372 are equivalent to THTR 361.

THTR 372 (3) INTERMEDIATE B.F.A. ACTING II. Open only to B.F.A. Acting students. Corequisite: All of THTR 371, THTR 373, THTR 374.

THTR 373 (3) INTERMEDIATE VOICE, SPEECH, AND MOVEMENT I. Open only to B.F.A. Acting students. Prerequisite: All of THTR 271, THTR 272, THTR 273, THTR 274.

THTR 374 (3) INTERMEDIATE VOICE, SPEECH, AND MOVEMENT II. Open only to B.F.A. Acting students. Corequisite: All of THTR 371, THTR 372, THTR 373.

THTR 391 (3/6) D TUTORIAL IN ACTING. Application of actor training to rehearsal and performance. Open only to B.F.A. Acting students. Prerequisite: All of THTR 271, THTR 272, THTR 273, THTR 274. Equivalency: THTR 370.

THTR 399 (3/6) D PRODUCTION 2. Assigned projects in theatre design and production. Corequisite: One of THTR 305, THTR 306, THTR 307, THTR 308, THTR 350, THTR 352, THTR 354, THTR 356, THTR 370.

THTR 405 (3) SCENERY DESIGN 2. Exploration of complex scenery design and development of design portfolio. Prerequisite: THTR 305.

THTR 406 (3) COSTUME DESIGN 2. Complex problems and selected historical studies in theatrical costume design. Prerequisite: THTR 306. Equivalency: THTR 453.

THTR 407 (3) LIGHTING DESIGN 2. Complex design and advanced technologies in theatre lighting and scenography. Prerequisite: THTR 307. Equivalency: THTR 451.

THTR 408 (3/6) D ADVANCED STUDY IN DESIGN AND SCENOGRAPHY. Topics will vary from year to year. Consent of Department required. Equivalency: THTR 459.

THTR 417 (3) DIRECTING LAB. Prerequisite: THTR 317. Permission of the instructor is required for admission to this course.

THTR 420 (3) HISTORY OF THEATRE II. Key movements in world theatre history from the nineteenth century to the present. Prerequisite: THTR 320. Equivalency: THTR 415.

THTR 421 (3) HISTORY OF THEATRE FROM 1900 TO THE PRESENT. The development of Western Theatre from 1900 to the present

THTR 425 (3/6) D TOPICS IN CANADIAN THEATRE.

THTR 430 (6) THEORY OF DRAMA AND PERFORMANCE. The basic principles of dramaturgy and theory of performance. Historical and contemporary writing on theatrical theory and criticism and their relation to theatrical practice.

THTR 439 (3/6) D CREATING THEATRE. Ensemble creation culminating in the presentation of a theatrical work. Permission of the instructor is required. Equivalency: THTR 490.

THTR 440 (3/6) D TOPICS IN THEATRE. An examination in depth of a selected area of theatre history, theory or practice. Topics will change from year to year. May be repeated for credit when topics differ. Prerequisite: 6 credits of THTR at the 300-level or above. Equivalency: THTR 410.

THTR 443 (3/6) D WOMEN IN THEATRE AND FILM. A course dealing with women's involvement in and contribution to various aspects of Theatre and/or Film Topics will change from year to year. Equivalency: THTR 415.

THTR 445 (3) MAJORS AND HONOURS SEMINAR.

THTR 448 (3/6) C DIRECTED STUDIES IN THEATRE THEORY AND PRACTICE.

THTR 449 (6) SUPERVISED STUDY AND HONOURS ESSAY.

THTR 450 (3) SCENERY PRODUCTION 2. Technical direction; complex techniques and problems in scenery production. Prerequisite: THTR 350.

THTR 452 (3) SCENE PAINTING 2. Study of selected scene painting styles. Prerequisite: THTR 352.

THTR 454 (3) PRODUCTION AND THEATRE MANAGEMENT. Production and theatre management with emphasis on budgeting, publicity, scheduling, press relations, special events, legal issues, season selection, resumes and interpersonal skills. Prerequisite: THTR 354.

THTR 456 (3) COSTUME CONSTRUCTION 2. Pattern development and cutting for costume for stage and screen using flat pattern and draping. Prerequisite: THTR 356.

THTR 471 (3) ADVANCED B.F.A. ACTING I. Open only to B.F.A. (Acting) students. Prerequisite: All of THTR 371, THTR 372, THTR 373, THTR 374, THTR 391.

THTR 472 (3) ADVANCED B.F.A. ACTING II. Open only to B.F.A. Acting students. Corequisite: All of THTR 471, THTR 473, THTR 474.

THTR 473 (3) ADVANCED SPEECH AND MOVEMENT I. Open only to B.F.A. Acting students. Prerequisite: Three of THTR 371, THTR 372, THTR 373, THTR 374, THTR 391.

THTR 474 (3) ADVANCED SPEECH AND MOVEMENT II. Open only to B.F.A. Acting students. Corequisite: THTR 471, THTR 472, THTR 473

THTR 491 (3/6) D TUTORIAL IN ACTING. Application of actor training to rehearsal and performance. Open only to B.F.A. Acting

students. Prerequisite: Three of THTR 371, THTR 372, THTR 373, THTR 374, THTR 391. Equivalency: THTR 470.

THTR 499 (6/9) D PRODUCTION 3. Assigned projects in Theatre or Film design and production. Prerequisite: THTR 399. Corequisite: One of THTR 405, THTR 406, THTR 407, THTR 408, THTR 450, THTR 452, THTR 454, THTR 456, THTR 470.

THTR 500 (3) BIBLIOGRAPHY AND RESEARCH METHODS.

THTR 505 (3) SCENERY DESIGN STUDIO I. Scenery design for theatre and other performance forms.

THTR 506 (3) COSTUME DESIGN STUDIO I. Costume design for theatre and other performance forms.

THTR 507 (3) SCENERY DESIGN STUDIO II. Complex scenery design for opera, dance, theatre, and other performance forms.

THTR 508 (3) COSTUME DESIGN STUDIO II. Complex costume design for opera, dance, theatre, and other performance forms.

THTR 510 (3/6) D SEMINAR IN COMPARATIVE DRAMATIC LITERATURE.

THTR 515 (3/6) D SEMINAR: STUDIES IN THEATRICAL STYLE.

THTR 520 (6) DIRECTION AND PRODUCTION.

THTR 521 (6) STYLES IN DIRECTING. An advanced course in directing; detailed study of the major styles in the history of production. Prerequisite: THTR 520.

THTR 525 (3/6) D SEMINAR: STUDY OF A MAJOR DRAMATIST.

THTR 530 (3/6) D SEMINAR: RELATIONSHIPS BETWEEN THEATRE AND THE OTHER ARTS. Studies in a selected area of theatre in relation to one or more of the other arts.

THTR 547 (3/6) D DIRECTED STUDIES IN THEATRE AND DRAMA AND FILM/ TELEVISION.

THTR 549 (6/12) C MASTER'S THESIS.

THTR 550 (6) STUDIES IN HISTORIC DESIGN. Seminar in theatre scenery, costumes, and architecture of selected historical periods. Pre- or co-requisite: THTR 505 and THTR 506.

THTR 551 (3) LIGHTING DESIGN STUDIO 1. Lighting design for theatre and other performance forms.

THTR 560 (3/6) D STUDIES IN THEATRICAL HISTORY.

THTR 561 (3/6) D STUDIES IN DRAMATIC LITERATURE.

THTR 562 (3/6) D STUDIES IN DRAMATIC THEORY AND CRITICISM.

THTR 649 (0) PH.D. THESIS.

TSED — TECHNOLOGY STUDIES EDUCATION FACULTY OF EDUCATION

TSED 314 (4/5) D CURRICULUM AND INSTRUCTION IN TECHNOLOGY EDUCATION: SECONDARY. Pass/Fail. Prerequisite: A completed major in technology education or permission of the head.

TSED 321 (3) TEACHING AND LEARNING TECHNOLOGY EDUCATION ACROSS THE CURRICULUM: ELEMENTARY AND MIDDLE YEARS. Pass/Fail. [3-0-0]

TSED 414 (3/6) D CURRICULUM DEVELOPMENT IN TECHNOLOGY EDUCATION. Curriculum and course design, with emphasis on current practice. Prerequisite: TSED 314. [3-0]

TSED 465 (3/12) C TECHNICAL PROBLEM. This course gives students the opportunity to conduct directed study in an area within their technical field of specialization. Each directed study will culminate in a written paper. Prerequisite: Completion of a technical specialty or equivalent.

TSED 508 (3-6) D REVIEW OF RESEARCH IN TECHNOLOGY STUDIES EDUCATION. Studies are made of recent research bearing on educational practice. Prerequisite: Appropriate senior undergraduate introductory or methods course.

TSED 561 (3/12) C LABORATORY PRACTICUM.

TSED 565 (3/6) D SPECIAL COURSE IN SUBJECT MATTER FIELD. Courses in various subject matter fields designed to bring teachers up to date in recent findings in each field.

TSED 580 (3/12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

TSED 590 (3) GRADUATING PAPER. Pass/Fail.

TSED 598 (3/12) C FIELD EXPERIENCES. For those on master's, doctoral and diploma programs.

TSED 599 (6/12) C MASTER'S THESIS.

UKRN — UKRAINIAN FACULTY OF ARTS

UKRN 125 (6) BASIC UKRAINIAN.

UKRN 225 (6) ADVANCED UKRAINIAN. Prerequisite: UKRN 125.

UROL — UROLOGICAL SURGERY FACULTY OF MEDICINE

UROL 510 (2) ADVANCED UROLOGY I.

UROL 511 (2) ADVANCED UROLOGY II.

UROL 760 (0) UROLOGY CONFERENCE I.

UROL 761 (0) UROLOGY CONFERENCE II.

UROL 762 (0) UROLOGIC RADIOLOGY.

UROL 764 (0) UROLOGY SEMINARS.

UROL 765 (0) OPERATIVE UROLOGIC SURGERY.

URST — URBAN STUDIES FACULTY OF ARTS

URST 200 (3) CITIES. An interdisciplinary introduction to the city in the context of contemporary globalization. Analysis of urban patterns and processes from the theoretical perspectives of various disciplines and methodologies. Equivalency: GEOG 250.

URST 400 (3) SEMINAR IN URBAN STUDIES. A seminar for senior students who wish to explore some common topics of importance to urban studies from the viewpoints of several disciplines. Prerequisite: Permission of the instructor is required.

VISA — VISUAL ARTS FACULTY OF ARTS

Not every course is given every year. For details of current offerings, consult the departmental website at www.finearts.ubc.ca. Credit will be given to either the current VISA listing or its former VISA/FINA equivalent. As of Winter 2006/07, completion of VISA 110 will be a prerequisite for registration in 200-level VISA courses. In special circumstances VISA 110 may be taken as a corequisite. A Studio Course Fee of \$30.00 will be charged for each 3-credit undergraduate VISA course. Fees will be applied toward classroom supplies, equipment and materials. Fees are payable to the Department.

VISA 110 (3) FOUNDATION COMPUTING FOR THE VISUAL ARTS. This Lecture/Lab course provides foundation level instruction in basic computer skills, image manipulation and digital media. The nature and role of digital media in contemporary culture, with special emphasis on applications in visual art, theatre, film and creative writing, will be examined.

VISA 180 (3) INTRODUCTORY STUDIO ONE. Introductory drawing and related studio practices for those without high school art beyond Grade 10 or no formal training. Offered in both terms. Credit granted for only one of VISA 180 or 182.

VISA 182 (3) STUDIO ONE. Introductory drawing and related media for students who have completed at least Grade 11 art. Credit granted for only one of VISA 180 or 182.

VISA 183 (3) STUDIO TWO. Introductory visual art, emphasizing basic colour, painting and other art media. Prerequisite: Either (a) VISA 180 or (b) VISA 182.

VISA 210 (3) DIGITAL ARTS. Introduction to digital imaging. Includes technical instruction such as Photoshop and emphasizes history and conceptualization of digital technologies and artistic media. Prerequisite: A score of 68% or higher in VISA 110 and a score of 68% or higher in one of VISA 180, VISA 182 and a score of 68% or higher in VISA 183.

VISA 220 (3) DRAWING. Development of skills in drawing including life drawing. Introduction to the development of personal style and concepts. Prerequisite: A score of 68% or higher in VISA 110 and a score of 68% or higher in one of VISA 180, VISA 182 and a score of 68% or higher in VISA 183.

VISA 230 (3) PAINTING. Development of a variety of techniques and approaches to painting. Emphasis on developing a strong paint vocabulary as well as acquiring knowledge of historical and contemporary issues in painting. Prerequisite: A score of 68% or higher in VISA 110 and a score of 68% or higher in one of VISA 180, VISA 182 and a score of 68% or higher in VISA 183.

VISA 240 (3) INTRODUCTION TO PHOTOGRAPHY. Introduction to photography techniques and image-making. Emphasis on camera techniques and film and darkroom production. Prerequisite: VISA 110 and a score of 68% or higher in one of VISA 180, VISA 182 and a score of 68% or higher in VISA 183.

VISA 250 (3) INTRODUCTION TO PRINT MEDIA. Introduction to visual print culture, and contemporary and historical technical print practices in a selection of media that may include traditional and photographic intaglio, relief, and screen printing, and basic digital applications. Prerequisite: A score of 68% or higher in VISA 110 and a score of 68% or higher in one of VISA 180, VISA 182 and a score of 68% or higher in VISA 183.

VISA 260 (3) BASIC SCULPTURE. Contemporary sculpture practice and theory. Various sculpture materials and technologies including machinery use. Prerequisite: A score of 68% or higher in VISA 110 and a score of 68% or higher in one of VISA 180, VISA 182 and a score of 68% or higher in VISA 183.

VISA 270 (3) SPECIAL STUDIES. Introduction to various aspects of contemporary studio practice. Not offered every year. Prerequisite: A score of 68% or higher in VISA 110 and a score of 68% or higher in one of VISA 180, VISA 182 and a score of 68% or higher in VISA 183.

VISA 310 (3) INTERMEDIATE DIGITAL ARTS I. Issues and topics of digital media and visual culture. Includes technical introduction to Internet applications and the creation of Web-based art. Prerequisite: One of VISA 210, VISA 287, FINA 287.

VISA 311 (3) INTERMEDIATE DIGITAL ARTS II. Continuing investigation into issues and topics of digital media. Further use of internet applications and development of Web-based art projects. Prerequisite: One of VISA 210, VISA 287, FINA 287.

VISA 320 (3) INTERMEDIATE DRAWING I. Investigation of drawing as a discipline in the context of contemporary art. Emphasis on expanding definitions of the drawing practice while focusing on technical and conceptual development. Prerequisite: One of VISA 220, VISA 281, FINA 281.

VISA 321 (3) INTERMEDIATE DRAWING II. Investigation of drawing as a discipline in the context of contemporary Art and theory. Emphasis on self directed projects in consultation with the instructor. Prerequisite: One of VISA 220, VISA 281, FINA 281.

VISA 330 (3) INTERMEDIATE PAINTING I. Development of techniques and personal style in relation to ideas. History and contemporary issues in painting will be introduced to assist

students in conceptualizing their painting practice. Prerequisite: One of VISA 230, VISA 282, FINA 282.

VISA 331 (3) INTERMEDIATE PAINTING II. Further investigation of painting in the context of contemporary art. Emphasis on self directed projects in consultation with the instructor. Prerequisite: One of VISA 230, VISA 282, FINA 282.

VISA 340 (3) INTERMEDIATE PHOTOGRAPHY I. An investigation of approaches to photography and its meaning in the context of contemporary art. The term theme will be determined by the instructor. B & W, colour and digital production. Prerequisite: One of VISA 240, VISA 289, VISA 289.

VISA 341 (3) INTERMEDIATE PHOTOGRAPHY II. An investigation of contemporary photography production and approaches to the constructed image. There will be an emphasis on medium and large format camera use and studio lighting techniques. Prerequisite: One of VISA 240, VISA 289, FINA 289.

VISA 350 (3) INTERMEDIATE PRINT MEDIA I. Investigation of intaglio and relief print media (i.e. may include etching, wood and lino cut, and collagraph) within an interdisciplinary format, combining digital print procedures. Discussion of contemporary and historical visual print culture. Prerequisite: Either (a) VISA 250 or (b) one of VISA 290, VISA 283, VISA 284, FINA 290, FINA 283, FINA 284.

VISA 351 (3) INTERMEDIATE PRINT MEDIA II. Investigation of traditional and non-traditional print media (i.e. may include screen printing and/or lithographic techniques combining drawn, photographic, and digital print procedures) within an interdisciplinary format. Discussion of contemporary and historical visual print culture. Prerequisite: Either (a) VISA 250 or (b) one of VISA 283, VISA 284, VISA 290, FINA 283, FINA 284, FINA 290.

VISA 360 (3) INTERMEDIATE SCULPTURE I. Investigation of contemporary practices in sculpture and the use of scale. Emphasis on public sculpture. Prerequisite: One of VISA 260, VISA 285, VISA 286, FINA 285, FINA 286.

VISA 361 (3) INTERMEDIATE SCULPTURE II. Development of personal concerns in three-dimensional work. Emphasis on the integration of diverse materials and techniques. Prerequisite: One of VISA 260, VISA 285, VISA 286, FINA 285, FINA 286.

VISA 370 (3/6) D SPECIAL STUDIES I. Intermediate tutorial. Not offered every year. Prerequisite: 6 credits of 200 level VISA

VISA 371 (3/6) D SPECIAL STUDIES II. Intermediate tutorial. Not offered every year. Prerequisite: 6 credits of 200 level VISA

VISA 380 (3) STUDIO THEORY I. A seminar in problems in contemporary art practice and related theory. Preference given to Visual Arts students.

VISA 381 (3) STUDIO THEORY II. A seminar in problems in contemporary art practice and related theory. Preference given to Visual Art students. Prerequisite: VISA 380.

VISA 410 (3) INTERACTIVE DIGITAL ARTS I. Consideration of critical issues relating to Cyber-culture and interactivity is emphasized. Introduction to technical features of multimedia applications and creation of interactive computer-based art projects. Prerequisite: One of VISA 310, VISA 311, VISA 387, FINA 387.

VISA 411 (3) INTERACTIVE DIGITAL ARTS II. Continuing emphasis on critical issues of Cyber-culture and interactivity. Further development of artistic projects in interactive multimedia. Prerequisite: One of VISA 310, VISA 311, VISA 387, FINA 387.

VISA 430 (3) ADVANCED DRAWING AND PAINTING I. Interdisciplinary studio practice with emphasis on drawing, painting, and related media. Prerequisite: One of VISA 320, VISA 321, VISA 330, VISA 331, VISA 381, VISA 382, FINA 381, FINA 382.

VISA 431 (3) ADVANCED DRAWING AND PAINTING II. Interdisciplinary studio practice with emphasis on drawing, painting, and related media. Prerequisite: One of VISA 320, VISA 321, VISA 330, VISA 331, VISA 381, VISA 382, FINA 381, FINA 382.

VISA 440 (3) ADVANCED PHOTOGRAPHY I. Photography practice in the context of contemporary art. Interdisciplinary connections to other media will be encouraged. Prerequisite: One of VISA 340, VISA 341, VISA 386, FINA 386.

VISA 441 (3) ADVANCED PHOTOGRAPHY II. The production of self-directed projects investigating photography as art. Focus on integrative approaches including conventional, digital and multi-media. Prerequisite: One of VISA 340, VISA 341, VISA 386, FINA 386.

VISA 450 (3) ADVANCED PRINT MEDIA AND SCULPTURE I. Studies in contemporary trends in studio practice and theory. Emphasis on advanced two and three-dimensional work developed out of experimental approaches to sculpture, installation art and print-based media. Prerequisite: One of VISA 350, VISA 351, VISA 360, VISA 361, VISA 383, VISA 384, FINA 383, FINA 384.

VISA 451 (3) ADVANCED PRINT MEDIA AND SCULPTURE II. Further studies in advanced two and three-dimensional work developed out of experimental approaches to sculpture, installation art and print-based media. Prerequisite: One of VISA 350, VISA 351, VISA 360, VISA 361, VISA 383, VISA 384, FINA 383, FINA 384.

VISA 470 (3/6) D ADVANCED SPECIAL STUDIES I. Advanced work in contemporary and historical aspects of studio practice. Not offered every year. Prerequisite: 300-level VISA

VISA 471 (3/6) D ADVANCED SPECIAL STUDIES II. Advanced work in contemporary and historical aspects of studio practice. Not offered every year. Prerequisite: 300-level VISA

VISA 480 (3) ADVANCED SEMINAR I. Readings in art theory and criticism. Prerequisite: All of VISA 380, VISA 381.

VISA 481 (3) ADVANCED SEMINAR II. Readings in art theory and criticism. Prerequisite: VISA 480.

VISA 490 (3) ADVANCED TUTORIAL IN STUDIO I. Advanced work in contemporary and historical aspects of studio practice. Permission of instructor required. Not offered every year.

VISA 491 (3) ADVANCED TUTORIAL IN STUDIO II. Advanced work in contemporary and historical aspects of studio practice. Permission of instructor required.

VISA 580 (0) MAJOR ESSAY. M.F.A. only.

VISA 581 (12) STUDIO V. Special course for students enrolled in the first year of the M.F.A. program.

VISA 582 (12) STUDIO VI. Special course for students enrolled in the second year of the M.F.A. program.

VISA 590 (3-6) C DIRECTED STUDIES IN VISUAL ART. Tutorial work in visual arts and theory arranged by permission with an individual faculty member. Not available to students enrolled in the M.F.A. program in Visual Arts.

VRHC — VOCATIONAL REHABILITATION COUNSELLING FACULTY OF EDUCATION

VRHC 501 (3) ISSUES IN VOCATIONAL REHABILITATION COUNSELLING.

VRHC 502 (3) MEDICAL ASPECTS OF DISABILITY.

VRHC 503 (3) VOCATIONAL IMPLICATIONS OF DISABILITY. Corequisite: VRHC 502.

VRHC 504 (3) JOB DEVELOPMENT AND PLACEMENT.

VRHC 505 (3) REHABILITATION LITERATURE AND APPLICATIONS TO PRACTICE. Prerequisite: EPSE 481.

VRHC 507 (3/6) D PRACTICUM.

VRHC 508 (6) INTERNSHIP.

VRHC 510 (8) VOCATIONAL EVALUATION INTERNSHIP.

VRHC 511 (3) CASE AND DISABILITY MANAGEMENT. Prerequisite: All of VRHC 501, VRHC 502. At least 3 credits of VRHC 502 is required.

VRHC 512 (3) CASE AND DISABILITY MANAGEMENT. Prerequisite: All of VRHC 501, VRHC 502, VRHC 511.

VRHC 590 (0) MAJOR PAPER. Pass/Fail.

VRHC 599 (6-12) D THESIS.

VURS — VISITING UNDERGRADUATE RESEARCH STUDENTS FACULTY OF APPLIED SCIENCE

VURS 499 (0) VISITING UNDERGRADUATE STUDENTS.

WMST — WOMEN'S STUDIES & GENDER RELATIONS FACULTY OF ARTS

For other acceptable courses, see the "Women's Studies" listing under the Faculty of Arts section of the Calendar or visit the program's website at www.ws.arts.ubc.ca.

WMST 100 (6) INTRODUCTION TO WOMEN'S STUDIES. An interdisciplinary exploration of the situation of women in Canadian society, both past and present. Theoretical analyses, research, and literary sources are used to broaden understanding of the determinants of women's experience, with a focus on the Canadian Context.

WMST 201 (4) CONNECTING WITH COMPUTER SCIENCE. Fundamentals of computer science and their connections with the arts, psychology, and biology. Historical, cultural and gender perspectives of important contributions to the field will be discussed. No prior computing background required. Equivalency: CPSC 101.

WMST 205 (3) WOMEN IN CANADA FROM THE 16TH CENTURY TO 1920. The experiences of diverse groups of women from just prior to the establishment of New France to the end of World War One.

WMST 210 (3) WOMEN IN CANADA FROM 1920 TO THE PRESENT. The experiences of diverse groups of women from World War One to the present.

WMST 224 (3/6) D WOMEN IN LITERATURE. Techniques of literary study, with emphasis on the ways in which women are represented in and have contributed to the literary tradition.

WMST 230 (3) WOMEN AND REPRESENTATION IN MODERN ASIA. Women's self-representation and the social constructions of "womanhood" or "femininity" in modern Asian literature, art, film, popular culture and the media. Three distinct Asian cultures will be addressed.

WMST 235 (3) WOMEN AND SOCIAL STRUCTURES IN MODERN ASIA. Women's roles in politics, economics, family structure, the military, and other institutions as these were involved in efforts toward modernization in Asian countries.

WMST 300 (3) INTRODUCTION TO GENDER RELATIONS. An interdisciplinary exploration of gender, sexual identity, and gender relations, emphasizing historical and cross-cultural aspects and the social construction of masculinity and femininity.

WMST 301 (3) THE ROLES OF ABORIGINAL WOMEN IN CANADA. Historical, current and future roles of Aboriginal women, with a focus on British Columbia.

WMST 302 (3) WOMEN, WORK AND EDUCATION. The intersections of gender, education and work using sociological and economic frameworks. Prerequisite: WMST 100 or upper-level standing.

WMST 303 (3) WOMEN, LAW AND SOCIAL CHANGE. A survey of feminist legal thought and recent developments in feminism and law,

with a focus on Canada. Prerequisite: WMST 100 or upper-level standing.

WMST 320 (3) FEMINIST PEDAGOGIES IN THE CLASSROOM AND COMMUNITY.

Feminist pedagogies and feminist debates about pedagogy in formal, nonformal and informal educational settings.

WMST 325 (3) FEMINIST QUALITATIVE METHODS FOR RESEARCH. Data collection techniques, the politics of interpretation, and the formulation of a research proposal using a feminist, anti-racist framework. Formerly part of WMST 322. Prerequisite: WMST 100.

WMST 326 (3) THE POLITICS OF GENDER, FAMILIES AND NATION-BUILDING. Investigation of historical and contemporary scholarship on the diversity of families, focusing on differences of gender, sexuality, race/ethnicity and social class within and across national borders. Formerly part of WMST 322.

WMST 326 (3) THE POLITICS OF GENDER, FAMILIES, AND NATION-BUILDING. Investigation of historical and contemporary scholarship on the diversity of families, focusing on differences of gender, sexuality, race/ethnicity and social class within and across national borders. Formerly part of WMST 322. Prerequisite: WMST 100.

WMST 327 (3) FEMINIST THEORIES OF REPRESENTATION AND DIFFERENCE. Feminist scholarship emphasizing languages and processes of representation and the construction of difference in cultural discourses and institutions. Formerly part of WMST 324. Prerequisite: WMST 100.

WMST 328 (3) THEORIES OF SUBJECTIVITY. How feminist scholarship has shaped and reinterpreted accounts of the subject, drawing on such traditions as structuralism, poststructuralism, psychoanalysis, postcolonialism, postmodernism, and Queer Theory. Formerly part of WMST 324. Prerequisite: WMST 100.

WMST 401 (3) BODY, GENDER AND SOCIETY. An interdisciplinary examination of the body, exploring how social relations and space are implicated in the constitution and experience of gendered bodies and identities, with an emphasis on feminist analyses of body-societal relations. Prerequisite: WMST 100 or upper-level standing.

WMST 403 (3) GENDER, GLOBALIZATION, AND INTERNATIONAL POLITICS. Critical examination of the gender dimension of globalization and the theories, discourse and practices in international politics using gender analysis. Prerequisite: WMST 100 or upper-level standing.

WMST 405 (3) GENDER ISSUES IN COMMUNITY AND INTERNATIONAL ORGANIZING. Critical examination and practical applications of concepts, theories, methods and strategies of gender-aware organizing at the community and international levels.

WMST 410 (3) WOMEN'S HEALTH ISSUES. Explore a variety of women's health issues using selected theoretical frameworks. Prereq-

uisite: WMST 100 or permission of the instructor. Equivalency: NURS 409A.

WMST 411 (3) AFRICAN/BLACK WOMEN IN THE AMERICAS. An interdisciplinary survey of African/Black women in the Americas from the beginning of the slave trade to the present. Prerequisite: WMST 100 or upper-level standing.

WMST 422 (3) ADVANCED RESEARCH SEMINAR IN WOMEN'S STUDIES. Critical theories, methodologies, ethics and practices appropriate for advanced feminist research. Prerequisite: WMST 100 and two of WMST 325, WMST 326, WMST 327, WMST 328.

WMST 425 (3/12) C SPECIAL TOPICS IN WOMEN'S STUDIES. Examination in depth of selected topics in Women's Studies. Consult the Women's Studies Office for course offerings. May be repeated for credit. Prerequisite: WMST 100. Permission of the instructor is also acceptable.

WMST 440 (3) GENDER, EDUCATION AND POPULAR CULTURE. Feminist debates in education concerning how young and adult women are culturally constructed and, in turn, how they construct themselves both in and outside school.

WMST 450 (3/6) C DIRECTED STUDIES. General reading and/or a research undertaking, with the agreement, and under supervision of, a faculty member selected by the student and approved by the Chair of Women's Studies. A written paper or equivalent will be required. Open to Women's Studies majors or minors.

WMST 480 (3/6) D WOMEN AS AGENTS OF CHANGE: A PRACTICUM IN WOMEN'S STUDIES. Connects feminist theory and feminist practice through placement in a community organization. Open to WMST Majors or Minors. This course is graded Pass/Fail. Prerequisite: Two of WMST 325, WMST 326, WMST 327, WMST 328. Consult the department.

WMST 500 (3) INTERDISCIPLINARY RESEARCH IN WOMEN'S STUDIES.

WMST 501 (3) ISSUES IN FEMINIST RESEARCH METHODOLOGY.

WMST 502 (3) ISSUES IN FEMINIST THEORY.

WMST 503 (1-3) D SPECIAL TOPICS IN WOMEN'S STUDIES.

WMST 504 (3-6) C PRACTICUM OR INTERNSHIP.

WMST 505 (1-6) C DIRECTED READING IN ADVANCED WOMEN'S STUDIES.

WMST 510 (3) EXTENDED ESSAY.

WMST 520 (6-9) C M.A. THESIS.

WMST 606 (0) PH.D. THESIS.

WOOD — WOOD PRODUCTS PROCESSING FACULTY OF FORESTRY

WOOD 120 (3) INTRODUCTION TO WOOD PRODUCTS AND FOREST MANAGEMENT.

Introduction to forestry, wood products industry, processes, products, markets and forest policy issues affecting the wood industry. Not available for credit to students in the B.S.F. degree. [2-3]

WOOD 242 (3) INTRODUCTION TO BUSINESS STATISTICS AND QUALITY CONTROL. A practical introduction to the use of statistics and quality control to solve problems in the wood products industry. Students will exercise skills using problem cases taken from industrial applications. Corequisite: One of MATH 100, MATH 102, MATH 111. [3-2-0]

WOOD 243 (3) INTRODUCTION TO MANUFACTURING BUSINESS ECONOMICS. Introduction to the relationship of a manufacturing enterprise and the business environment from an economic perspective. [3-0]

WOOD 244 (3) QUANTITATIVE METHODS IN THE WOOD INDUSTRY. Solving practical problems in the wood industry using computer-based mathematical tools including spreadsheets, visual basic programming and relational database systems. Prerequisite: One of MATH 101, MATH 103, MATH 121. [2-3-0]

WOOD 271 (4) WOOD PRODUCTS CHEMISTRY I. Chemistry relating to wood and wood products: chemistry of lignin, cellulose, hemicelluloses, extractives, and biological degradation of lignocellulosics; wood pressure impregnation procedures. Prerequisite: WOOD 280 and one of CHEM 113, CHEM 123. [3-3-0]

WOOD 273 (3) WOOD ADHESIVES AND COATINGS. Introduction to structure and properties of polymers and wood finishes; chemistry of adhesives and preservatives. Corequisite: WOOD 271. [2-3-0]

WOOD 280 (3) WOOD ANATOMY AND IDENTIFICATION. Introduction to tree growth; macroscopic and microscopic anatomy and identification of softwoods and hardwoods; descriptions of cell wall ultra-structure, wood variability and wood quality. [3-2-0]

WOOD 282 (3) WOOD PHYSICS AND DRYING. Wood-moisture relationships, transport phenomena, acoustical and electrical properties of wood; wood drying methods. Prerequisite: WOOD 280. [3-2-0]

WOOD 288 (2) FORESTRY: PRACTICES RELATED TO PRODUCT QUALITY AND MANUFACTURE. Stand, silviculture and harvesting activities that influence the resource entering the wood manufacturing sector. Not open for credit to students in the BSF program. [2-1-0]

WOOD 290 (3) WOOD PRODUCTS MANUFACTURING. Basic wood manufacturing including primary and secondary manufacturing. Focus on producing and joining lumber,

edging, drilling, veneers and CNC equipment. Prerequisite: WOOD 120. [2-3-0]

WOOD 300 (3) CO-OPERATIVE WORK PLACEMENT I. Supervised work experience in approved organizations for a minimum of 13 weeks. Restricted to students in the Co-operative Education Program in Wood Products Processing.

WOOD 305 (3) WOOD MACHINING SKILLS. Safe working procedures for wood processing machinery, explanation of various manufacturing equipment, product documentation, product development and manufacturing processes. Prerequisite: WOOD 290.

WOOD 310 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in approved organization for 16 weeks. Restricted to students in the Co-operative Education Program in Wood Products Processing and can only be taken with the permission of the Co-op Coordinator. Prerequisite: One 300-level WOOD cooperative work placement course.

WOOD 311 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in approved organizations for 16 weeks. Restricted to students in the Co-operative Education Program in Wood Products Processing.

WOOD 312 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in approved organizations for 16 weeks. Restricted to students in the Co-operative Education Program in Wood Products Processing. Prerequisite: All of WOOD 310, WOOD 311.

WOOD 330 (4) INDUSTRIAL ENGINEERING. Use of industrial engineering concepts and methods to analyze and improve organizations, including operations strategy and competitiveness, process planning, facilities layout, human resource issues, work measurement, inventory management, linear programming, sensitivity analysis, transportation problems, and capacity planning. Prerequisite: All of ECON 101, FRST 231. [3-3]

WOOD 335 (3) QUALITY IMPROVEMENT. Modern techniques for improving quality in the workplace with particular emphasis on the forest products industry. Topics include quality control management, control charting, continuous improvement and analysis of variance techniques. Prerequisite: FRST 231. [3-3-0]

WOOD 341 (3) PROBLEM SOLVING. Practical computer and problem solving skills; problem cases taken from industrial applications. Prerequisite: WOOD 244. [2-4-0]

WOOD 353 (2) MILL SITE VISITS. One week of on-site study of forest products manufacturing plants immediately following Spring examinations of second or third year. Representative sawmills, plywood mills, remanufacturing plants, particleboard manufacturers, pulp mills, laminated timber plants and wood preservation facilities in the Interior are studied. Fees will be assessed to meet expenses.

WOOD 376 (3) MECHANICS OF WOOD PRODUCTS. Introduction to the strength of materials with emphasis on the elastic properties and ultimate strength of wood and wood products. Prerequisite: One of PHYS 101, PHYS 170 and one of MATH 101, MATH 103, MATH 121. [3-2-0]

WOOD 386 (3) APPLIED MECHANICS OF MATERIALS. Beam analysis, shaft analysis, columns, stress/strain transformations, thin-walled pressure vessels, material strength failure, criteria, fatigue, design and sizing, ISO standards. Prerequisite: WOOD 376. [2-2-0]

WOOD 400 (3) CO-OPERATIVE WORK PLACEMENT. Supervised work experience in approved organizations for 16 weeks. Restricted to students in the Co-operative Education Program in Wood Products Processing and can only be taken by permission of the Co-op Coordinator. Prerequisite: Either (a) all of WOOD 300, WOOD 310 or (b) WOOD 311 or (c) WOOD 312.

WOOD 411 (3) COOP WORK PLACEMENT. Supervised work experience in approved organizations for 16 weeks. Restricted to students in the Co-operative Education Program in Wood Products Processing. Prerequisite: Two of WOOD 300, WOOD 310, WOOD 311, WOOD 312.

WOOD 412 (3) COOP WORK PLACEMENT. Supervised work experience in approved organizations for 16 weeks. Restricted to students in the Co-operative Education Program in Wood Products Processing. Prerequisite: WOOD 300 and two of WOOD 310, WOOD 311, WOOD 312.

WOOD 430 (3) PLANT LAYOUT AND DESIGN. Techniques for developing a plan, setting goals, and evaluating the impact of changes in the design, layout and operation of the factory with an emphasis on computer simulation. Prerequisite: All of WOOD 290, WOOD 330, WOOD 485.

WOOD 440 (3) JOB COSTING AND ENGINEERING ECONOMICS. Use of engineering economics to evaluate investment proposals of an engineering nature, including decision making processes, cost concepts, time value of money, cash flow analysis, comparison methods, depreciation, replacement analysis, taxes, inflation and sensitivity analysis. Prerequisite: WOOD 330. [3-1]

WOOD 448 (3) SUMMER WORK REPORT. Technical report on relevant wood industry experience. Faculty advice during the summer and preparation of the report required for style and content.

WOOD 449 (1-6) C DIRECTED STUDIES IN WOOD PRODUCTS PROCESSING. In special cases and with the approval of the instructor concerned, a student may carry on directed studies of specific problems in wood products processing.

WOOD 461 (3) GLOBALIZATION AND THE MARKETING OF WOOD PRODUCTS. Examination of globalization and the impact of changing regions of demand and supply on the

marketing of wood products. Prerequisite: Third-year standing. [3-1-0]

WOOD 462 (3) INTERNATIONAL MARKETING OF WOOD PRODUCTS. The theory and practice of international marketing of primary and secondary solid wood products. Corequisite: WOOD 461. [3-0]

WOOD 463 (3) CUSTOMER RESEARCH METHODS. Qualitative and quantitative customer research methods in the forest products industry. Prerequisite: All of WOOD 242, FRST 231 or an equivalent course in introductory probability and statistics. [3-0]

WOOD 464 (3) WOOD FINISHING. Introduction to polymeric coatings and finishes used in the wood products industry. Examines surface preparation, application equipment and properties of various coatings. Prerequisite: WOOD 290. [2-3-0]

WOOD 465 (3) WOOD INDUSTRY BUSINESS MANAGEMENT. Business management concepts common in the forest products industry including marketing, customer research, product development and design. [3-0-2]

WOOD 467 (3) PRODUCT DEVELOPMENT AND DESIGN IN THE WOOD INDUSTRY. The principles and practice of new product design and development in the wood industry, from the conceptual stage to commercialization. [3-0-0]

WOOD 473 (4) WOOD CHEMISTRY AND CHEMICAL UTILIZATION. Wood chemical composition; cellulose, hemicelluloses, lignins and extractive structures, reactions and responses in wood, pulp, and derivatives processing; wood as energy source. Prerequisite: One of CHEM 253, CHEM 230. [3-4]

WOOD 474 (2) WOOD PROPERTIES AND PRODUCTS MANUFACTURING. Wood moisture, density and strength properties; manufacturing processes for major forest products. [2-0-0]

WOOD 475 (3) WOOD PROPERTIES, IDENTIFICATION AND USES. Elementary chemical, physical and mechanical properties of wood and their variations in relation to structure; identification by hand lens features; manufacture of lumber, pulp and composite wood products. Not available for credit to Wood Science and Industry students. Prerequisite: FRST 111. [3-2]

WOOD 476 (3) TIMBER STRUCTURES DESIGN. Design of engineered structural elements for light frame systems using limit states design principles with emphasis on load duration, stress grades, sawn and glued laminated members, deflection, elastic instability, combined loads, timber joints and fasteners. Credit will not be given for both WOOD 476 or CIVL 439. Prerequisite: One of WOOD 376, CIVL 230. Equivalency: CIVL 439. [2-2]

WOOD 477 (3) WOOD BUILDING DESIGN. Case studies of wood buildings with emphasis on conceptual design aspects. [2-0-2]

WOOD 478 (3) BUILDING SCIENCE. Building enclosure design considering heat and moisture

transmission, air flow and ventilation, condensation, acoustics; roofing systems; diagnostic evaluations; fire protection. Equivalency: CIVL 478. [3-0-0]

WOOD 484 (3) SAWMILLING SYSTEMS.

Principles for the design and operation of sawmills from the log sorting yard to the green lumber stage. Emphasis on designing and coordinating sawmill machine centers in the context of marketing requirements and raw material availability. Introduction to sawing optimization systems and process control. Prerequisite: FRST 332. [2-3]

WOOD 485 (3) FURNITURE

CONSTRUCTION. The theory and practice of modern construction techniques used in the manufacture of furniture and cabinets. Prerequisite: All of WOOD 290, WOOD 386. [3-1-0]

WOOD 487 (4) GLUED WOOD PRODUCTS.

Physical, chemical and mechanical variables involved in cold, hot and non-conventional adhesive bonding of wood; preparation and characteristics of adhesives; plywood, composite wood panels, hardboard, medium density fibreboard and laminated wood manufacturing processes; important physical and chemical properties of products; methods of prefinishing. [3-3-0]

WOOD 490 (3) ADVANCED WOOD

PRODUCTS MANUFACTURING. Advanced wood manufacturing techniques for producing furniture and cabinets including the design, production and use of jigs and fixtures for automated processing. Prerequisite: WOOD 290. Corequisite: WOOD 485. [3-3]

WOOD 491 (3) ENVIRONMENTAL FACILITIES

DESIGN. Introduction to pneumatic and hydraulic power, design and selection of waste recycling systems, boilers, energy generation and environmental legislation. Prerequisite: All of WOOD 430, WOOD 464. [3-2]

WOOD 492 (3) MODELING FOR DECISION

SUPPORT. Applications of mathematical modeling, optimization, and simulation in forest planning and manufacturing; formulating models and interpreting results for decision support. Prerequisite: One of FRST 232, WOOD 341. [3-3]

WOOD 493 (3) PROJECT IN PROGRAM

MAJOR. A report (approved by a faculty supervisor and the Program Director) based on either a technical description of a study, an extension of the senior co-op report, a detailed literature review, a research-based project, or a guided independent study developed by the student. Prerequisite: Fourth-year standing

WOOD 494 (3) PRINCIPLES OF WOOD

CUTTING AND TOOLING. Wood cutting fundamentals, chip formation, cutting conditions, cutting edge maintenance, sawing, planing and molding, veneer cutting, chipping, turning. Prerequisite: MECH 356. [2-3-0]

WRIT — UNIVERSITY WRITING CENTRE COURSES WRIT 98 (0) PREPARATION FOR UNIVERSITY WRITING AND THE LPI.

WRIT 99 (0) ADVANCED COMPOSITION.

ZOOL — ZOOLOGY FACULTY OF SCIENCE

All undergraduate courses in Zoology are listed under Biology.

ZOOL 500 (3/6) C DIRECTED STUDIES IN ZOOLOGY.

ZOOL 502 (6) ECOLOGY SEMINAR.

ZOOL 503 (6) COMPARATIVE ANIMAL PHYSIOLOGY SEMINAR.

ZOOL 504 (3) ETHOLOGY SEMINAR.

ZOOL 505 (6) CELL BIOLOGY SEMINAR.

ZOOL 519 (6) TOPICS IN PARASITOLOGY.

ZOOL 521 (6) FISHERIES BIOLOGY AND MANAGEMENT.

ZOOL 522 (4) LIMNOLOGY SEMINAR.

Offered in alternate years. Prerequisite: ZOOL 502.

ZOOL 524 (3) TOPICS IN CONSERVATION GENETICS. Equivalency: CONS 501.

ZOOL 525 (3) SYSTEMATICS AND EVOLUTION SEMINAR.

ZOOL 527 (6) THEORETICAL POPULATION DYNAMICS. Corequisite: ZOOL 502.

ZOOL 533 (3) ADVANCED TOPICS IN WILDLIFE ECOLOGY.

ZOOL 549 (6-18) C M.SC. THESIS.

ZOOL 553 (6) WORKSHOP IN COMPARATIVE AND ENVIRONMENTAL PHYSIOLOGY.

ZOOL 554 (3) TOPICS IN COMPARATIVE AND ENVIRONMENTAL PHYSIOLOGY.

ZOOL 562 (3) PROJECTS IN MATHEMATICAL BIOLOGY. Development and analysis of mathematical models for complex systems in ecology, evolution, cell biology, neurophysiology, and other biological and medical disciplines. Prerequisite: MATH 361.

ZOOL 649 (0) PH.D. THESIS.

2006-07

Appendix I: Enrolment Statistics 2005/06

The following figures reflect enrolment as of November 1, 2005 including Distance Education and Technology students.

FACULTY OF LAND AND FOOD SYSTEMS

	M	F	Total
Environmental Design			
Second Year	7	8	15
Third Year	5	11	16
Fourth Year	8	9	17
Away on Exchange (EAP)	0	0	0
Total	20	28	48
Home Economics			
Second Year	0	0	0
Third Year	0	1	1
Fourth Year	0	0	0
Total	0	1	1
Agroecology			
First Year	31	39	70
Second Year	27	44	71
Third Year	12	12	24
Fourth Year	4	17	21
Away on Exchange (EAP)	0	1	1
Total	74	113	187
Food, Nutrition and Health			
First Year	48	162	210
Second Year	47	200	247
Third Year	21	138	159
Fourth Year	16	114	130
Away on Exchange (EAP)	0	0	0
Total	132	614	746
Global Resource Systems			
Second Year	6	41	47
Third Year	1	23	24
Fourth Year	7	27	34
Away on Exchange (EAP)	0	1	1
Total	14	92	106
Diploma in Management of Aquaculture Systems			
Total	1	0	1
Total in Faculty	241	848	1,089

FACULTY OF APPLIED SCIENCE

	M	F	Total
First Year	548	120	668
Second Year	632	145	777
Third Year	800	206	1,006
Fourth Year	615	129	744
Fifth Year	56	7	63
Away on Exchange (EAP)	4	0	4
Total	2,655	607	3,262
M.Eng.	79	25	104
M.Eng./B.A.Sc.	10	0	10
Total	89	25	114
School of Nursing			
First Year	5	25	30
Second Year	2	19	21
Third Year	30	292	322
Fourth Year	14	160	174
Away on Exchange (EAP)	0	0	0
Total	51	496	547
Total in Faculty	2,795	1,128	3,923
FACULTY OF ARTS			
	M	F	Total
Arts			
First Year	947	1,562	2,509
Second Year	863	1,402	2,265
Third Year	993	1,903	2,896
Fourth Year	980	1,840	2,820
Away on Exchange (EAP)	38	128	166
Total	3,821	6,835	10,656
Fine Arts			
Second Year	10	13	23
Third Year	29	55	84
Fourth Year	21	47	68
Away on Exchange (EAP)	0	0	0
Total	60	115	175
School of Music			
First Year	17	30	47
Second Year	13	36	49
Third Year	35	43	78
Fourth Year	31	52	83
Away on Exchange (EAP)	0	0	0
Total	96	161	257
School of Social Work and Family Studies			
First Year	11	31	42
Total	11	31	42

(Continued)

	M	F	Total
Diploma Programs			
Applied Creative Non-fiction	1	3	4
Applied Linguistics	0	0	0
Art History	5	20	25
Collaborative Piano Studies	0	1	1
Film Studies	0	2	0
Linguistics	1	2	3
Music Performance Studies	3	2	5
Voice	0	1	1
Certificate of Advanced Study	0	1	1
Certificate in Theatre (Advanced Tech.)	1	0	1
Total	11	32	41
Total in Faculty	3,999	7,174	11,171

FACULTY OF COMMERCE AND BUSINESS ADMINISTRATION

	M	F	Total
First Year	151	185	336
Second Year	214	286	500
Third Year	315	338	653
Fourth Year	342	348	690
Away on Exchange (EAP)	8	15	23
Away on Commerce Exchange	0	0	0
Total	1,030	1,172	2,202
I.M.B.A.	31	19	50
M.B.A.	238	114	352
M.M.	14	5	19
Total	283	138	421
Diploma Programs			
Accounting	209	189	398
Urban Land Economics	695	410	1,105
Post Graduate Certificate in Real Property Valuation	75	31	106
Total	979	630	1,609
Total in Faculty	2,292	1,940	4,232

FACULTY OF DENTISTRY

	M	F	Total
Dentistry			
First Year	20	20	40
Second Year	16	24	40
Third Year	24	25	49
Fourth Year	21	29	50
Total	81	98	179
Dental Science			
First Year	6	9	15
Second Year	0	0	0
Third Year	0	9	9
Fourth Year	3	44	47
Total	9	62	71
Dental Residents	8	6	14
Total	8	6	14
<i>Total in Faculty</i>	98	166	264

FACULTY OF EDUCATION

	M	F	Total
Elementary			
First Year	82	393	475
Second Year	15	127	142
Third Year	1	6	7
Fourth Year	17	64	75
Fifth Year	7	65	72
Total	122	655	771
Middle			
First Year	6	19	25
Total	6	19	25
Secondary			
First Year	172	205	377
Second Year	2	0	2
Total	174	205	379
Diploma in Education	58	407	465
Certificate in Tech-Based Distr. Learning	6	5	11
Certificate in Tech-Based Learning for Schools	3	1	4
Total	67	413	480
School of Human Kinetics			
First Year	61	87	148
Second Year	63	81	144
Third Year	108	141	249
Fourth Year	150	192	342
Away on Exchange (EAP)	1	2	3
Total	383	503	886
<i>Total in Faculty</i>	752	1,795	2,541

FACULTY OF FORESTRY

	M	F	Total
Science (Forestry) and Science in Forestry			
First Year	58	57	85
Second Year	26	12	38
Third Year	13	11	24
Fourth Year	28	14	42
Away on Exchange (EAP)	0	0	0
Total	125	94	189
Natural Resources Conservation			
First Year	29	44	73
Second Year	8	17	25
Third Year	10	17	27
Fourth Year	13	20	33
Away on Exchange (EAP)	1	0	1
Total	61	98	159
Wood Products Processing			
First Year	34	2	36
Second Year	12	2	14
Third Year	17	6	23
Fourth Year	28	4	32
Total	91	14	105
<i>Total in Faculty</i>	277	206	453
FACULTY OF GRADUATE STUDIES			
	M	F	Total
Ph.D.			
Agricultural Science	17	35	52
Applied Science	373	97	470
Arts	249	313	562
Combined Ph.D./M.D.	7	8	15
Commerce and Business Administration	53	20	73
Dentistry	7	10	17
Education	89	240	329
Forestry	72	43	115
Graduate Studies	116	159	275
Law	22	11	33
Medicine	153	154	307
Pharmaceutical Sciences	21	5	26
Science	404	201	605
Away on Exchange (EAP)	0	0	0
Total	1,583	1,296	2,879
Ed.D.	18	22	40
D.M.A.	27	19	46
M.A.			
Arts	176	280	456
Community and Regional Planning	37	45	82
Education	61	244	305
Graduate Studies	29	30	59
Total	303	599	902
M.Sc.			
Agricultural Science	27	69	96
Applied Science	0	2	2

(Continued)

	M	F	Total
Arts	10	8	18
Commerce and Business Administration	18	15	33
Community and Regional Planning	9	14	23
Dentistry	3	11	14
Education	12	18	30
Forestry	50	47	97
Graduate Studies	59	69	128
Medicine	101	192	293
Pharmaceutical Sciences	7	3	10
Science	301	194	495
Total	597	642	1,239
LL.M.	19	21	40
M.A.P.P.S.	4	18	22
M.A.P.P.S./LL.B.	1	6	7
M.A.Sc.	330	104	434
M.A.S.A.	7	11	18
M.A.S.L.A.	3	3	6
M.A.S.	8	22	30
M.A.S./M.L.I.S.	10	18	28
M.Arch.	89	57	146
M.B.A./LL.B.	1	0	1
M.B.A./M.A.	0	0	0
M.Ed.	153	461	614
M.E.T.	78	72	150
M.F.	0	0	0
M.F.A.	39	73	112
M.H.A.	23	38	61
M.H.K.	8	4	12
M.H.Sc.	18	19	37
M.J.	20	33	53
M.Jur.	0	0	0
M.L.A.	25	41	66
M.L.I.S.	30	113	143
M.Mus.	31	33	64
M.O.T.	9	68	77
M.P.T.	19	61	80
M.Sc./Dip. Periodontics	3	4	7
M.S.N.	17	238	255
M.S.S.	28	5	33
M.S.W.	11	90	101
Pharm.D.	5	10	15
Total	989	1,623	2,612
<i>Total in Faculty</i>	3,472	4,160	7,632

FACULTY OF LAW

	M	F	Total
First Year	95	104	199
Second Year	115	105	220
Third Year	86	110	196
Away on Exchange (EAP)	1	0	1
Total	297	319	616
<i>Total in Faculty</i>	297	319	616

FACULTY OF MEDICINE

	M	F	Total
Doctor of Medicine			
First Year	95	127	222
Second Year	85	113	198
Third Year	64	66	130
Fourth Year	55	65	120
Total	299	371	670
Medical Residents	359	341	700
Post Degree Trainee	0	0	0
Total	359	341	700
Medical Laboratory Science			
Third Year	13	9	22
Fourth Year	4	6	10
Total	17	15	32
Midwifery			
First Year	0	11	11
Second Year	0	9	9
Third Year	0	10	10
Fourth Year	0	11	11
Total	0	41	41
<i>Total in Faculty</i>	675	768	1,443

FACULTY OF PHARMACEUTICAL SCIENCES

	M	F	Total
First Year	68	93	161
Second Year	53	90	143
Third Year	48	83	131
Fourth Year	49	88	137
Total	218	354	572
Pharmacy Residents	4	15	19
Total	4	15	19
<i>Total in Faculty</i>	222	369	591

FACULTY OF SCIENCE

	M	F	Total
Coordinated Science Option (CSO)	0	2	2
Science One (All years)	78	85	163
First Year	617	705	1,322
Second Year	746	815	1,561
Third Year	828	944	1,772
Fourth Year	985	1,031	2,016
Away on Exchange (EAP)	6	9	15
Total	3,260	3,591	6,851
Computer Science			
Second Year	3	1	4
Third Year	18	16	34
Fourth Year	10	6	16
Total	31	23	54
Diploma Programs			
Computer Science	1	2	3
Meteorology	1	0	1
Total	2	2	4
<i>Total in Faculty</i>	3,293	3,616	6,909

OTHER

	M	F	Total
Concurrent Studies	5	3	8
Access Studies	149	244	393
Exchange Programs			
EAP/SEP (Student Exchange Program)	278	388	666
Total in Exchange	432	635	1,067
DRES (Fifth Year)	8	7	15
MRES (Fifth Year)	547	474	1,021
PDEG	0	0	0
PRES	7	16	23
Qualifying Year	3	3	6
TBDL	1	3	4
TBLS	2	1	3
Transition School	17	14	31
Unclassified	455	901	1,356
Visiting	255	332	587
Total	1,295	1,751	3,046
<i>Total in Other</i>	1,732	2,389	4,121
Total Winter Session	20,145	24,878	44,985
Summer Session 2005	10,436	13,362	23,798
<i>Grand Total 2005/06</i>	30,581	38,240	68,783

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Appendix II: Degrees and Diplomas Conferred 2005

Degrees Conferred	Spring	Fall	Total
Ph.D.	172	136	308
D.M.A.	2	1	3
Ed.D.	5	3	8
Pharm.D.	8	0	8
M.A.S.L.A.	1	0	1
M.A.S.A.	5	0	5
M.A.Sc.	75	66	141
M.A.	102	156	258
M.A.A.P.	10	7	17
M.A.(Plan)	21	10	31
M.Arch.	33	6	39
M.A.S.	14	2	16
M.A.S.L.I.S.	2	2	4
I.M.B.A.	20	0	20
M.B.A.	109	0	109
M.Ed.	110	117	227
M.Eng.	40	16	56
M.E.T.	15	20	35
M.F.A.	9	17	26
M.F.	1	0	1
M.H.A.	2	14	16
M.H.K.	1	1	2
M.H.Sc.	5	10	15
M.J.	16	1	17
M.Jur.	1	0	1
M.L.A.	11	7	18
LL.M.	6	12	18
M.L.I.S.	46	21	67
M.M.	18	0	18
M.Mus.	12	3	15
M.Sc.	155	162	317
M.Sc.(Bus. Admin.)	6	8	14
M.Sc.(Plan)	3	3	6
M.Sc./DPDT	3	2	5
M.S.N.	27	1	28
M.S.W.	19	2	21
M.S.S.	19	2	21
B.A.Sc.	426	31	457
B.A.Sc./M.Eng.	7	0	7
B.A.	1,620	344	1,964
B.Com.	445	51	496
B.C.S.	4	4	8
D.M.D.	48	1	49
B.D.Sc.	4	0	4
B.Ed.(Elementary)	140	291	431
B.Ed.(Middle Years)	2	36	38
B.Ed.(Secondary)	3	342	345
B.En.d.	15	1	16
B.F.A.	53	7	60
B.H.E.	6	0	6

Degrees Conferred (Continued)	Spring	Fall	Total
B.H.K.	157	36	193
LL.B.	185	29	214
LL.B/M.B.A.	2	0	2
M.D.	130	0	130
M.D./Ph.D.	1	0	1
B.M.L.Sc.	12	1	13
B.Mus.	43	6	49
B.S.F.	25	6	31
B.S.N.	105	73	178
B.Sc.	1,088	138	1,226
B.Sc.(Agr.)	2	0	2
B.Sc.(Agroecology)	19	0	19
B.Sc.(Food, Nutrition & Health)	62	6	68
B.Sc.(Global Resources)	19	2	21
B.Sc.(Natural Resource Conservation)	13	2	15
B.Sc.(O.T.)	32	2	34
B.Sc.(Pharm.)	143	2	145
B.Sc.(P.T.)	33	1	34
B.Sc.(Wood Products)	10	1	11
B.S.W.	37	7	44
TOTAL	5,995	2,228	8,223

Diplomas Conferred	Spring	Fall	Total
Accounting	65	109	174
Art History	1	2	3
Computer Science	0	1	1
Education	54	51	105
Linguistics	2	0	2
Music Performance Studies	1	0	1
Piano Studies	1	0	1
Urban Land Economics	35	18	53
TOTAL	159	181	340

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Appendix III: Emeritus Staff

Chancellors Emeriti

R. Lee, Chancellor Emeritus (1996)
L. R. Peterson, Chancellor Emeritus (1993)
W. L. Sauder, Chancellor Emeritus (2002)
W. R. Wyman, Chancellor Emeritus (1987)

President Emeritus

D. W. Strangway, President Emeritus (1999)

Vice-Presidents Emeriti

D. R. Birch, Vice-President Emeritus, Academic and Provost (1999)
B. C. McBride, Vice-President Emeritus, Academic and Provost (2005)
M. Shaw, Vice-President Emeritus, Academic and Provost (1989)
K. D. Srivastava, Professor Emeritus of Electrical Engineering and Vice President Emeritus of Student Services (1997)

Deans Emeriti

F. S. Abbott, Dean Emeritus of Pharmaceutical Sciences (2002); J. H. Andrews, Dean Emeritus of Education (1988); G. S. Beagrie, Dean Emeritus of Dentistry (1989); P. T. Burns, Dean Emeritus of Law (2004); I. McT. Cowan, Dean Emeritus of Graduate Studies (1975); C. V. Finnegan, Dean Emeritus of Science (1988); J. A. Gardner, Dean Emeritus of Forestry (1985); M. Hollenberg, Dean Emeritus of Medicine (1999); R. Kennedy, Dean Emeritus of Forestry (1992); W. D. Kitts, Dean Emeritus of Agricultural Sciences (1984); P. A. Lusztig, Dean Emeritus of Commerce and Business Administration (1995); M. P. Marchak, Dean Emerita of Arts (2001); J. H. McNeill, Dean Emeritus of Pharmaceutical Sciences (2004); J. F. Richards, Dean Emeritus of Agricultural Sciences (2001); B. E. Riedel, Dean Emeritus of Pharmaceutical Sciences (1985); M. Shaw, Dean Emeritus of Agricultural Sciences (1989); N. Sheehan, Dean Emeritus of Education (2000); P. Suedfeld, Dean Emeritus of Graduate Studies and Professor Emeritus of Psychology (2000); W. A. Webber, Dean Emeritus of Medicine (1999); L. M. Wedepohl, Dean Emeritus of Applied Science (1997); R. M. Will, Dean Emeritus of Arts (1996)

Director Emeritus

D. S. Mosedale, Director Emeritus of Continuing Education (1999)

Program Directors Emeriti

A. Bates, Program Director Emeritus (2004); S. Kort, Program Director Emeritus (1990); J. Kulich, Program Director Emeritus of Continuing Education (1991); G. Ledingham, Program Director Emerita of Continuing Studies (1999); A. L. MacDonell, Program Director Emeritus (1990); M. MacFarlane, Program Director Emerita (1990); M. Powell, Program Director Emerita of Continuing Studies (1995); B. G. Riddell, Program Director Emerita of Faculty Development and Instructional Services (1999); H. Rosenthal, Program Director Emeritus (1990); R. Sigal, Program Director Emerita of Continuing Education (2001); P. Thom, Program Director Emerita (1990); W. Uegama, Associate Vice President Emeritus of Continuing Studies (2003); K. C. Woodsworth, Program Director Emeritus (1990)

Librarians Emeriti

F. Bailey, Librarian Emerita (1987); N. Baldwin, Assistant University Librarian Emerita (2001); M. Banham, Administrative Librarian Emerita (1990); I. S. Bhugra, General Librarian Emeritus (1997); L. Brongers, Administrative Librarian Emerita (1996); R. J. Brongers, Librarian Emeritus (1990); H. Burndorfer, Administrative Librarian Emeritus (1996); R. Butterfield, Librarian Emerita (1987); L. J. Carrier, Librarian Emerita (1988); E. J. Caskey, Administrative Librarian Emerita (2001); E. L. Daniells, University Archivist Emerita (1988); J. E. De Bruijn, Assistant University Librarian Emeritus (1999); D. J. Dennis, Administrative Librarian Emeritus (1997); G. Dobbin, General Librarian Emerita (1990); S. C. Dodson, Administrative Librarian Emerita (1998); F. Doidge, General Librarian Emerita (2000); P. J. Dunn, General Librarian Emeritus of Humanities and Social Science (2004); M. Dutton, Librarian Emerita (1985); M. J. Dwyer, Librarian Emerita (1985); S. Dykstra, General Librarian Emerita (2000); T. Erickson, General Librarian Emeritus (1992); C. F. Forbes, General Librarian Emeritus (1991); J. Forbes, General Librarian Emerita (1999); N. Forbes, General Librarian Emerita (1997); G. C. Freeman, Administrative Librarian Emeritus (1997); J. D. Friesen, Administrative Librarian Emerita (2000); M. Fukuyama, Librarian Emerita (1985); T. Gonnami, General Librarian Emeritus (2002); J. C. Gray, Librarian Emeritus (1978); M. E. Guarnaschelli, General Librarian Emerita; R. M. Hamilton, Assistant Librarian Emeritus (1977); M. Hartman, Librarian Emeritus (1999); H. R. Hurt, Administrative Librarian Emeritus (1997); A. Jeffreys, Assistant University Librarian Emeritus (1994); L. Joe, Administrative Librarian Emerita (1999); J. Jones, General Librarian Emeritus (2003); L. Karpinski, General Librarian Emeritus (1996); R. G. Kaye, Librarian Emeritus (1989); M. H. Keate, Assistant University Librarian Emerita (2002); N. Kent, General Librarian Emerita (1996); I. G. M. Laponce, General Librarian Emerita (2003); A. R. Leith, Librarian Emerita (1988); O. Litwinow, General Librarian Emeritus (2000); P. Lysyk, General Librarian Emerita (1998); A. H. S. Ma, General Librarian Emeritus (1999); M. W. Macaree, Librarian Emerita (1985); R. W. MacDonald, Assistant University Librarian Emeritus (1992); S. Mathew, Librarian Emerita (1998); H. Mayoh, General Librarian Emerita (1994); P. K. McBride, General Librarian Emerita (2003); D. McInnes, University Librarian Emeritus (1991); J. D. McIntosh, General Librarian Emeritus (2001); E. Misewich, Librarian Emerita (1988); E. Neufeld, General Librarian Emeritus (1991); T.-K. Ng, Librarian Emerita (1987); N. E. Omelusik, Admin. Librarian III Emeritus (2005); M. Pahr, Librarian Emerita (1987); W. E. Parker, General Librarian Emeritus (2000); R. Patrick, University Librarian Emerita (2000); M. Price, Admin Librarian III Emerita (2002); H. M. Redding, General Librarian Emerita (2003); A. E. Rowley, General Librarian Emerita (1999); B. Scott, Administrative Librarian I Emerita (2003); J. Sharpe, General Librarian Emeritus (1994); D. Shields, Librarian Emerita (1985); T. J. Shorthouse, Administrative Librarian Emeritus (1998); R. V. Simmer, General Librarian Emeritus (2004); A. H. Soroka, General Librarian Emeritus (2000); P. Thiele, Admin. Librarian I Emeritus (2001); S. Y. Tse, General

Librarian Emeritus (1999); R. A. Turner, Admin. Librarian III Emerita (2001); S. Venkataraman, General Librarian Emeritus (1996); W. J. Watson, Assistant University Librarian Emeritus (1991); F. J. Whitney, General Librarian Emerita (2002); E. Wollaston, Administrative Librarian Emerita (1999); F. M. Woodward, General Librarian Emerita (2004); A. Yandle, Administrative Librarian Emerita (1992)

Professors Emeriti

R. T. Abboud, Professor Emeritus of Medicine (2001); N. Abu-Zahra, Assistant Professor Emerita of Anthropology and Sociology (2002); M. E. Ace, Associate Professor Emeritus of Commerce and Business Administration (2000); S. Acorn, Professor Emerita of Nursing (2004); L. Adamovich, Professor Emeritus of Forestry (1984); R. Adams, Clinical Assistant Professor Emeritus of Anaesthesia (2004); R. A. Adams, Professor Emeritus of Mathematics (2000); M. J. Adler, Associate Professor Emeritus of Mathematics (2005); B. Ahlborn, Professor Emeritus of Physics (1999); E. J. Akesson, Assistant Professor Emerita of Anatomy (1997); D. J. Albert, Professor Emeritus of Psychology (1998); T. H. Alden, Professor Emeritus of Metals and Materials Engineering (1999); S. A. Alderson, Professor Emerita of Theatre, Film, and Creative Writing (2005); B. M. Alfred, Associate Professor Emeritus of Anthropology and Sociology (1998); J. A. B. Allan, Professor Emeritus of Counseling Psychology (1997); B. Allardye, Associate Professor Emeritus of Surgery (2002); K. Alldritt, Professor Emeritus of English (2000); E. A. Allen, Clinical Professor Emeritus of Medicine (1998); D. E. Allison, Associate Professor Emeritus of Educational Psychology and Special Education (1998); K. Amacher, Associate Professor Emerita of Social Work (1994); M. M. Ames, Professor Emeritus of Anthropology and Sociology (1998); C. J. Anastasiou, Professor Emeritus of Mathematics and Science Education (1994); C. P. Anderson, Associate Professor Emeritus of Religious Studies (1995); C. T. Anderson, Associate Professor Emeritus of Mathematics (1987); D. L. Anderson, Professor Emeritus of Civil Engineering (1999); F. H. Anderson, Associate Professor Emeritus of Gastroenterology (2003); G. H. Anderson, Clinical Professor Emeritus of Pathology and Laboratory Medicine (1997); J. D. Anderson, Associate Professor Emeritus of Civil Engineering (1988); J. D. Anderson, Professor Emeritus of Medical Microbiology (1995); J. M. A. Anderson, Professor Emerita of Nursing (2005); R. Anderson, Associate Professor Emeritus of Mathematics (1999); T. W. Anderson, Professor Emeritus of Health Care and Epidemiology (1992); C. I. Andreen, Assistant Professor Emerita of Curriculum Studies (1999); R. Andrew, Clinical Professor Emeritus of Family Practice (2006); G. J. Ankenman, Clinical Professor Emeritus of Surgery (1993); A. M. Anthony, Senior Instructor Emerita of Curriculum Studies (2003); A. Anzarut, Clinical Professor Emeritus of Medicine (2000); D. A. Applegarth, Professor Emeritus of Pediatrics (2002); M. E. Arcus, Professor Emerita of Social Work and Family Studies (1999); N. Armstrong, Associate Professor Emerita of Education (1984); K. Asante, Clinical Assistant Professor Emeritus of Pediatrics (2000); L. F. Ashley, Associate Professor Emeritus of Education (1982); P. G. Ashmore, Clinical Professor Emeritus of Surgery (1994); N. M. Ashworth, Professor Emerita of

Language Education (1988); C. Astell, Professor Emerita of Biochemistry and Molecular Biology (2001); K. G. Atkinson, Clinical Professor Emeritus of Surgery (1995); J. Atrens, Professor Emeritus of Law (1996); F. Aubke, Professor Emeritus of Chemistry (1997); N. Auersperg, Professor Emerita of Anatomy (1994); E. G. Auld, Professor Emeritus of Physics & Astronomy (2001); J. R. Auman, Professor Emeritus of Physics and Astronomy (1998); A. P. Autor, Professor Emerita of Pathology (2000); I. Avakumovic, Professor Emeritus of History (1992); J. Axelson, Professor Emeritus of Pharmaceutical Sciences (2002); D. A. Axen, Professor Emeritus of Physics & Astronomy (2004); B. Z. Aylward, Clinical Assistant Professor Emeritus of Family Practice (1997); G. A. Badger, Clinical Associate Professor of Surgery (1987); D. A. Bain, Associate Professor Emeritus of Educational Psychology and Special Education (1990); P. A. H. Baird, Professor Emerita of Medical Genetics (2002); R. Baird, Clinical Professor Emeritus of Surgery (2000); J. M. Bak, Professor Emeritus of History (1992); V. A. Baldwin, Professor Emerita of Pathology (2000); D. A. Balzarini, Professor Emeritus of Physics & Astronomy (2003); R. J. Bandoni, Professor Emeritus of Botany (1989); D. Bankson, Professor Emeritus of Creative Writing (1985); J. Barman, Professor Emerita of Educational Studies (2004); R. Barman, Professor Emeritus of History (2002); J. Barnard, Professor Emeritus of Physics (1994); W. Barnes, Associate Professor Emeritus of Earth & Ocean Sciences (1999); J. D. Barrett, Professor Emeritus of Wood Science (2005); R. Barrie, Professor Emeritus of Physics (1993); N. Basco, Professor Emeritus of Chemistry (1991); V. Basco, Clinical Professor Emerita of Surgery (1991); F. Bass, Clinical Associate Professor Emeritus of Health Care and Epidemiology (2000); D. V. Bates, Professor Emeritus of Medicine (1987); T. Bates, Associate Professor Emeritus of Mathematics and Science Education (1985); M. S. Batts, Professor Emeritus of Germanic Studies (1991); D. Baudouin, Professor Emeritus of French (1991); R. Baudouin, Associate Professor Emerita of French (1994); R. M. Beames, Professor Emeritus of Animal Science (1997); B. L. Beattie, Professor Emerita of Geriatric Medicine (2005); I. Beattie, Associate Professor Emeritus of Mathematics and Science Education (1993); R. C. Beaumont, Assistant Professor Emeritus of Germanic Studies (1996); M. P. Beddoes, Professor Emeritus of Electrical Engineering (1989); D. Beder, Associate Professor Emeritus of Physics and Astronomy (1999); A. Beedle, Professor Emeritus of Commerce and Business Administration (1983); C. T. Beer, Professor Emeritus of Biochemistry (1981); I. S. Begg, Associate Professor Emeritus of Ophthalmology (1999); J.F. Belanger, Associate Professor Emeritus of Language and Literacy Education (2005); L. P. Belluce, Associate Professor Emeritus of Mathematics (1988); G. D. Bellward, Professor Emerita of Pharmaceutical Sciences (2004); C. S. Belshaw, Professor Emeritus of Anthropology and Sociology (1987); A. P. Benguerel, Professor Emeritus of Audiology and Speech Sciences (1997); K. Benson, Clinical Associate Professor Emeritus of Health Care and Epidemiology (1988); T. R. Bentley, Professor Emeritus of Language Education (1996); B. Bergersen, Professor Emeritus of Physics & Astronomy (2004); F. G. Berry, Senior Instructor Emeritus of Electrical Engineering (1993); K. Berry, Clinical Professor Emeritus of Pathology and Laboratory Medicine (1999); F. E. Bertram, Associate Professor Emeritus of Language Education (1985); D. Bethune-Johnson, Assistant Professor Emerita of Social and Educational Studies (1984); R. W. Bevis, Professor Emeritus of English (1997); L. M. Bewley, Professor Emerita of Library, Archival and Information Studies (1992); T. Bezcredi, Clinical Professor Emeritus of Psychiatry (1997); E. A. Bird, Associate Professor Emeritus of French (1981); A. G. Birkett, Professor Emerita of Education (1974); T. Bisalputra,

Professor Emeritus of Botany (1989); W. Black, Clinical Professor Emeritus of Pathology and Laboratory Science (2005); W. W. Black, Professor Emeritus of Law (2005); C. Blackorby, Professor Emeritus of Economics (2002); R. E. Blaine, Associate Professor Emeritus of Commerce and Business Administration (1997); R. Blair, Professor Emeritus of Animal Science (1998); D. E. Blake, Professor Emeritus of Political Science (2004); S. Blank, Professor Emeritus of Educational Psychology and Special Education (1993); B. Blasberg, Associate Professor Emeritus of Oral Biological & Medical Sciences (2001); M. H. Blom, Associate Professor Emerita of English (1999); M. Bloom, Professor Emeritus of Physics (1994); A. Boggie, Associate Professor Emeritus of Family Practice (1988); A. Bogoch, Clinical Professor Emeritus of Medicine (1995); B. Bohm, Professor Emeritus of Botany (1999); E. V. Bohn, Professor Emeritus of Electrical Engineering (1989); E. A. Bongie, Associate Professor Emerita of Classics (1992); L. L. Bongie, Professor Emeritus of French (1992); J. Boone, Clinical Professor Emeritus of Medicine (2000); M. Bose, Assistant Professor Emerita of Asian Research (2003); C. B. Bourne, Professor Emeritus of Law (1986); C. P. Bouygues, Professor Emeritus of French (1994); F. Bowlers, Associate Professor Emeritus of English (1989); J. Boyd, Assistant Professor Emeritus of Economics (2002); M. Boyd, Professor Emerita of Oral Health Sciences (2001); D. A. Boyes, Clinical Professor Emeritus of Obstetrics and Gynaecology (1990); W. J. Bracher, Assistant Professor Emerita of Family and Nutritional Sciences (1985); P. Bradley, Professor Emeritus of Economics, (1996); P. Bragg, Professor Emeritus of Medicine (1997); A. Branda, Senior Instructor Emerita of Human Kinetics (1996); R. M. R. Branion, Professor Emeritus of Chemical and Bio-Resource Engineering (1999); P. Bratty, Clinical Professor Emeritus of Medicine (1997); C. Brauner, Professor Emeritus of Social and Educational Studies (1993); C. O. Brawner, Professor Emeritus of Mining and Mineral Process Engineering (1995); K. T. Brearley, Associate Professor Emerita of French (1980); A. V. Bree, Professor Emeritus of Chemistry (1997); P. I. Brennan, Senior Instructor Emerita of English (1988); L. Brenzinger, Senior Instructor Emerita of Linguistics (1995); V. C. Brink, Professor Emeritus of Plant Science (1978); C. Brion, Professor Emeritus of Chemistry (2002); E. Broom, Professor Emeritus of Physical Education and Recreation (1993); S. G. Brough, Associate Professor Emeritus of Mathematics and Science Education (1992); D. Brown, Assistant Professor Emeritus of Music (1990); D. G. Brown, Professor Emeritus of Philosophy (1989); G. R. Brown, Associate Professor Emeritus of Civil Engineering (1996); J. C. Brown, Professor Emeritus of Physiology (1997); L. Brown, Professor Emeritus of Metals and Materials Engineering (1992); M. Brown, Assistant Professor Emerita of Language Education (1985); T. H. Brown, Associate Professor Emeritus of Pharmaceutical Sciences (1987); S. L. Brumelle, Professor Emeritus of Commerce and Business Administration (2000); W.A. Bruneau, Associate Professor Emeritus of Educational Studies (2003); F. E. Bryans, Professor Emeritus of Obstetrics and Gynaecology (1989); C. Bryner, Professor Emeritus of Slavonic Studies (1973); W. Buchan, Assistant Professor Emeritus of Family Practice (1993); S. Buckley, Clinical Associate Professor Emerita of Pediatrics (2000); A. T. Bui, Professor Emeritus of Mathematics (2002); P. S. Bullen, Professor Emeritus of Mathematics (1993); M. H. Bullock, Professor Emeritus of Creative Writing (1983); D. J. C. Bures, Professor Emeritus of Mathematics (1997); R. W. Burling, Professor Emeritus of Oceanography (1986); P. C. Burns, Associate Professor Emeritus of Classical, Near Eastern and Religious Studies (2005); L. H. Burr, Clinical Associate Professor Emeritus of Surgery (2004); K. O. Burridge, Professor Emeritus of Anthro-

pology and Sociology (1988); A. F. Burton, Associate Professor Emeritus of Biochemistry (1991); J. D. Burton, Clinical Associate Professor Emeritus of Pathology (1991); K. V. Bury, Professor Emeritus of Mechanical Engineering (2000); P. Bustamante, Clinical Assistant Professor Emerita of Rehabilitation Sciences (2006); A. S. Busza, Associate Professor Emeritus of English (2004); A. M. Butler, Assistant Professor Emerita of Nursing (1988); S. J. Butler, Assistant Professor Emeritus of Language Education (1995); D. S. Butt, Associate Professor Emerita of Psychology (2003); R. G. Butters, Assistant Professor Emeritus of Metals and Materials Engineering (1991); P. M. Byre, Professor Emeritus of Civil Engineering (2001); W. K. Caird, Associate Professor Emeritus of Psychiatry (1992); A. R. Cairns, Associate Professor Emeritus of Medicine (1994); H. A. Cairns, Professor Emeritus of Political Science (1995); J. H. Calam, Professor Emeritus of Social and Educational Studies (1985); S. M. Calisal, Professor Emeritus of Mechanical Engineering (2005); U. Callegarini, Clinical Associate Professor Emeritus of Pediatrics (1992); D. B. Calne, Professor Emeritus of Medicine (2001); S. E. Calvert, Professor Emeritus of Earth and Ocean Sciences (2000); K. Cambon, Clinical Professor Emeritus of Surgery (1988); E. C. Cameron, Associate Professor Emeritus of Nephrology (2004); R. G. Campanella, Professor Emeritus of Civil Engineering (1997); D. J. Campbell, Professor Emeritus of Pathology (1990); J. D. Campbell, Professor Emerita of Psychology (2003); J. J. Campbell, Professor Emeritus of Microbiology (1983); P. Candido, Professor Emeritus of Biochemistry & Molecular Biology (2003); T. H. Carefoot, Associate Professor Emeritus of Zoology (2004); R. W. Carlisle, Associate Professor Emeritus of Curriculum Studies (1997); J. F. Carolan, Professor Emeritus of Physics and Astronomy (2005); D. Carr, Clinical Associate Professor Emeritus of Medicine (2004); F. A. Carre, Associate Professor Emeritus of Human Kinetics (2004); J.B. Carrell, Professor Emeritus of Mathematics (2005); B. Carter, Assistant Professor Emerita of Social Work (1998); J. E. J. Carter, Professor Emeritus of Pediatrics (2003); W. F. Caselton, Associate Professor Emeritus of Civil Engineering (1996); J. Caswell, Professor Emeritus of Fine Arts (2002); J. H. Catterson, Professor Emerita of Language Education (1989); A. H. Cayford, Associate Professor Emeritus of Mathematics (1995); R. V. Chacon, Professor Emeritus of Mathematics (1994); A. C. Chaklader, Professor Emeritus of Metals and Materials Engineering (1993); E. V. Chamberlain, Associate Professor Emerita of Family and Nutritional Sciences; H. B. Chamberlain, Assistant Professor Emeritus of Political Science (2001); A. D. Chambers, Associate professor Emeritus of Forest Resources Management (1997); P. Champion, Clinical Professor Emeritus of Medicine (2006); M. J. Chandler, Professor Emeritus of Psychology (2004); B. Chang, Associate Professor Emeritus of Mathematics (1996); D. J. Chang, Clinical Associate Professor Emeritus of Anaesthesiology (1991); F. C. Chang, Professor Emeritus of Asian Studies (1973); Y. Chang, Professor Emeritus of Anthropology & Sociology (2003); C. Y. Chao, Professor Emerita of Asian Studies (1990); J. D. Chapman, Professor Emeritus of Geography (1989); R. L. Chase, Professor Emeritus of Earth and Ocean Sciences (1999); W. H. Chase, Professor Emeritus of Pathology (1992); H. Chaun, Clinical Professor Emeritus of Medicine (2002); E. Chave, Assistant Professor Emerita of Social Work (1974); H. T. Chen, Senior Instructor Emeritus of Asian Studies (1992); A. N. Cherkezoff, Clinical Professor Emeritus of Family Practice (1997); S. Cherry, Professor Emeritus of Civil Engineering (1993); R. D. Chester, Associate Professor Emeritus of Language Education (1997); H. Chew, Clinical Professor Emeritus of Ophthalmology (2003); M. Chiarenza, Professor Emerita of French, Hispanic and Italian Studies (2000); D. H. Chitty, Professor Emeritus of Zoology (1978); D. P.

Chong, Professor Emeritus of Chemistry (2001); **C. P. Christensen**, Professor Emerita of Social Work and Family Studies (2004); **R. Christensen**, Clinical Professor Emeritus of Surgery (1998); **M. H. Chung**, Clinical Professor Emerita of Obstetrics and Gynaecology (1990); **W. B. Chung**, Professor Emeritus of Surgery (1989); **S. G. Ciccone**, Professor Emerita of Hispanic and Italian Studies (1996); **C. W. Clark**, Professor Emeritus of Mathematics (1994); **R. M. Clark**, Professor Emeritus of Economics (1985); **B. R. Clarke**, Professor Emeritus of Educational Psychology and Special Education (1987); **R. Clarke**, Associate Professor Emeritus of Architecture (1990); **J. Claxton**, Associate Professor Emeritus of Commerce & Business Administration (2002); **I. G. M. Cleator**, Professor Emeritus of Surgery (2004); **D. B. Clement**, Professor Emeritus of Family Practice (1999); **L. R. Cochran**, Professor Emeritus of Educational and Counselling Psychology and Special Education (2000); **W. H. Cockroft**, Clinical Associate Professor Emeritus of Medical Microbiology and Pathology (1976); **W. Cohn**, Professor Emeritus of Anthropology and Sociology (1986); **T. A. Conine**, Professor Emerita of Rehabilitation Sciences (1995); **J. L. Conry**, Assistant Professor Emerita of Educational & Counselling Psychology & Special Education (2001); **J. S. Conway**, Professor Emeritus of History (1995); **T. S. Cook**, Assistant Professor Emerita of Educational Studies; **J. Coombs**, Professor Emeritus of Educational Studies (2000); **J. A. R. Coope**, Professor Emeritus of Chemistry (1996); **M. G. R. Coope**, Associate Professor Emerita of Hispanic and Italian Studies (1996); **R. J. Copeman**, Professor Emeritus of Agroecology (2003); **R. Copley**, Senior Instructor Emeritus of Geography (1996); **R. Corteen**, Associate Professor Emeritus of Psychology (1997); **T. L. Coulthard**, Professor Emeritus of Agricultural Engineering and Mechanics (1975); **A. D. Courtemanche**, Clinical Professor Emeritus of Surgery (1995); **J. E. Coury**, Associate Professor Emeritus of Mathematics (2001); **K. D. Coutts**, Associate Professor Emeritus of Human Kinetics (1999); **S. C. Coval**, Professor Emeritus of Philosophy (1993); **R. J. Cowan**, Clinical Professor Emeritus of Surgery (1986); **M. K. Craddock**, Professor Emeritus of Physics & Astronomy (2001); **J. Cragg**, Professor Emeritus of Economics (2002); **O. Cragg**, Associate Professor Emerita of French, Hispanic and Italian Studies (1999); **K. D. Craig**, Professor Emeritus of Psychology (2002); **C. F. Cramer**, Associate Professor Emeritus of Physiology (1987); **A. O. Crichton**, Professor Emerita of Health Care and Epidemiology (1985); **D. Crockett**, Associate Professor Emeritus of Psychiatry (1997); **S. A. Crooks**, Senior Instructor Emerita of Library, Archival & Information Studies (2001); **J. J. L. Crosby**, Clinical Associate Professor Emeritus of Anaesthesia (2003); **L. G. Crouch**, Professor Emeritus of Mineral Engineering (1978); **M. Crowhurst**, Professor Emerita of Language Education (1999); **J. Cruikshank**, Professor Emerita of Anthropology & Sociology; **M. Csapo**, Professor Emerita of Educational Psychology and Special Education (1994); **W. R. Cullen**, Professor Emeritus of Chemistry (1998); **I. G. Cumming**, Professor Emeritus of Electrical and Computer Engineering (2005); **C. K. Curtis**, Associate Professor Emeritus of Social and Educational Studies (1994); **F. L. Curzon**, Professor Emeritus of Physics and Astronomy (1997); **B. Czaykowski**, Professor Emeritus of History (1997); **C. Daem**, Senior Instructor Emerita of Family and Nutritional Sciences (1997); **J. Dahlie**, Professor Emeritus of Social and Educational Studies (1985); **F. W. Dalby**, Professor Emeritus of Physics (1993); **L. B. Daniels**, Professor Emeritus of Educational Studies (1995); **W. R. Danner**, Professor Emeritus of Geological Sciences (1989); **A. G. F. Davidson**, Professor Emeritus of Pediatrics (2002); **J. E. Davies**, Professor Emeritus of Microbiology (1997); **L. E. Davies**, Clinical Instructor Emerita of Anaesthesia (1988); **M. S. Davies**, Professor Emeritus of Electrical and Computer Engineering (2004); **S. J. Davies**, Assistant Professor Emerita of Visual and Performing Arts in Education (1995); **H. C. Davis**, Professor Emeritus of Community and Regional Planning (1998); **I. Davis**, Associate Professor Emeritus of Commerce and Business Administration (1983); **R. M. Davis**, Senior Instructor Emeritus of Commerce and Business Administration (1999); **A. Dawes**, Professor Emeritus of Music (2005); **K. G. Dawson**, Professor Emeritus of Medicine (1996); **J. De Bruyn**, Associate Professor Emeritus of English (1983); **L. De Sobrino**, Professor Emeritus of Physics (1995); **J. De Vries**, Associate Professor Emeritus of Soil Science (1992); **J. R. Deakins**, Assistant Professor Emeritus of Social Work (1991); **I. Dehnel**, Senior Instructor Emerita of English (1991); **R. E. Delavault**, Associate Professor Emeritus of Geological Sciences (1973); **K. G. Denike**, Assistant Professor Emeritus of Geography (2004); **P. Dennis**, Professor Emeritus of Biochemistry and Molecular Biology (2004); **J. D. Dennison**, Professor Emeritus of Administrative, Adult and Higher Education (1994); **D. Der**, Assistant Professor Emeritus of Counselling Psychology (1997); **D. deSa**, Professor Emeritus of Pathology (2004); **I. D. Desai**, Professor Emeritus of Family and Nutritional Sciences (1997); **M. Devenyi**, Lecturer Emerita of Chemistry (1997); **M. E. Dewis**, Assistant Professor Emerita of Nursing (1995); **A. S. Dexter**, Professor Emeritus of Commerce and Business Administration (2001); **J. Diamond**, Professor Emeritus of Pharmaceutical Sciences (1999); **J. Dick**, Clinical Associate Professor Emeritus of Medicine (1987); **B. Dill**, Senior Instructor Emerita of Microbiology & Immunology (2003); **F. J. Dill**, Associate Professor Emeritus of Medical Genetics (2004); **N. J. Divinsky**, Professor Emeritus of Mathematics (1991); **G. T. Dixon**, Associate Professor Emeritus of Curriculum Studies (2004); **W. Doll**, Clinical Associate Professor Emeritus of Anaesthesia (1993); **D. H. Dolphin**, Professor Emeritus of Chemistry (2005); **H. W. Dommel**, Professor Emeritus of Electrical Engineering (1999); **D. J. Donaldson**, Professor Emeritus of Economics (1998); **R. W. Donaldson**, Professor Emeritus of Electrical & Computing Engineering (2004); **K. R. Donnelly**, Associate Professor Emeritus of Anatomy (1994); **P. J. Dooling**, Associate Professor Emeritus of Forest Resources Management (1995); **D. S. Dorcas**, Associate Professor Emerita of Psychology (2003); **P. M. Douglas**, Professor Emeritus of Music (1992); **P. Dow**, Professor Emeritus of Oral Medical and Surgical Sciences (1988); **G. E. Dower**, Associate Professor Emeritus of Pharmacology and Therapeutics (1989); **P. J. Doyle**, Professor Emeritus of Surgery (1992); **V. R. Doyle**, Professor Emeritus of Social and Educational Studies (1993); **S. Drance**, Professor Emeritus of Ophthalmology (1990); **M. S. Duke**, Professor Emeritus of Asian Studies (2005); **J. P. Duncan**, Professor Emeritus of Mechanical Engineering (1985); **H. G. Dunn**, Professor Emeritus of Pediatrics (1982); **W. L. Dunn**, Professor Emeritus of Pathology (1987); **F. Durity**, Professor Emeritus of Surgery (2002); **G. H. Durrant**, Professor Emeritus of English (1981); **K. A. Dusing**, Assistant Professor Emerita of Classical, Near Eastern and Religious Studies (1997); **G. G. Dutton**, Professor Emeritus of Chemistry (1988); **J. Dybikowski**, Professor Emeritus of Philosophy (2003); **G. W. Eaton**, Professor Emeritus of Plant Science (1995); **H. G. Edinger**, Associate Professor of Classical, Near Eastern & Religious Studies (2001); **S. B. Effer**, Professor Emeritus of Obstetrics and Gynaecology (1995); **D. J. Egleston**, Senior Instructor Emeritus of Law (2003); **A. A. Eisen**, Professor Emeritus of Medicine (2001); **A. J. Elder**, Associate Professor Emerita of History (1992); **H. Elfert**, Associate Professor Emerita of Nursing (1990); **D. J. Elkins**, Professor Emeritus of Political Science (2001); **P. J. Ellickson**, Senior Instructor Emeritus of Zoology (1994); **G. R. Elliott**, Professor Emeritus of Health Care and Epidemiology (1978); **R. M. Ellis**, Professor Emeritus of Earth & Ocean Sciences (2001); **R. A. English**, Clinical Associate Professor Emeritus of Pathology (1994); **N. Epstein**, Professor Emeritus of Chemical Engineering (1989); **K. L. Erdman**, Professor Emeritus of Physics (1991); **J. Erickson**, Assistant Professor Emerita of Nursing (2002); **D. L. Evans**, Associate Professor Emeritus of English (1999); **E. Evans**, Professor Emeritus of Pathology (2005); **J. A. S. Evans**, Professor Emeritus of Classical, Near Eastern and Religious Studies (1996); **J. Fankhauser**, Professor Emeritus of Music (2000); **A. L. Farley**, Professor Emeritus of Geography (1986); **J. B. Farmer**, Professor Emeritus of Chemistry (1994); **V. Fearing**, Clinical Professor Emerita of Rehabilitation Sciences (2006); **G. Feaver**, Professor Emeritus of Political Science (2002); **G. A. Feltham**, Professor Emeritus of Commerce & Business Administration (2004); **J. Ferguson**, Assistant Professor Emerita of Education (1977); **T. Fernando**, Associate Professor Emeritus of Anthropology & Sociology (2003); **J. Ferris**, Professor Emeritus of Pathology and Laboratory Medicine (2000); **H. C. Fibiger**, Professor Emeritus of Psychiatry (1998); **E. G. Fiedler**, Assistant Professor Emeritus of Educational Psychology and Special Education (1988); **D. B. Fields**, Professor Emeritus of Commerce and Business Administration (1984); **S. Fine**, Professor Emeritus of Psychiatry (2002); **D. G. Finlay**, Professor Emeritus of Social Work (1991); **W. D. L. Finn**, Professor Emeritus of Civil Engineering (1999); **C. V. Finnegan**, Professor Emeritus of Zoology (1988); **R. C. Fitzsimmons**, Associate Professor Emeritus of Animal Science (1992); **D. G. Fleming**, Professor Emeritus of Chemistry (2004); **W. K. Fletcher**, Professor Emeritus of Earth & Ocean Sciences (2003); **R. M. Flores**, Professor Emeritus of French, Italian and Hispanic Studies (2002); **Z. Folejewski**, Professor Emeritus of Slavonic Studies (1976); **J. Foort**, Senior Instructor Emeritus of Orthopaedics (1987); **J. D. Forbes**, Professor Emeritus of Commerce and Business Administration (1997); **D. K. Ford**, Professor Emeritus of Medicine (1989); **D. M. Ford**, Instructor Emerita of Rehabilitation Sciences (2002); **R. Foreman**, Associate Professor Emeritus of Botany (1998); **J. Forrester**, Clinical Associate Professor Emeritus of Health Care & Epidemiology (2001); **M. Forster**, Assistant Professor Emerita of Mathematics and Science Education (1987); **A. D. Forward**, Associate Professor Emeritus of Surgery (1997); **M. Foschi**, Professor Emerita of Anthropology and Sociology (2002); **R. Foschi**, Professor Emeritus of Civil Engineering (2002); **J. W. Foster**, Professor Emeritus of English (2002); **M. I. Foster**, Professor Emeritus of Visual and Performing Arts in Education (1989); **I. K. Fox**, Professor Emeritus of Community and Regional Planning (1982); **H. Franklyn**, Assistant Professor Emerita of French (1994); **R. T. Franson**, Associate Professor Emeritus of Law (1995); **G. Fraser**, Clinical Professor Emeritus of Surgery (1997); **D. S. Freeman**, Professor Emeritus of Social Work (2002); **R. D. Freeman**, Professor Emeritus of Psychiatry (1999); **A. Frei**, Professor Emeritus of Mathematics (1996); **C. L. Friedman**, Associate Professor Emerita of Anatomy (1986); **S. M. Friedman**, Professor Emeritus of Anatomy (1985); **J. D. Friesen**, Professor Emeritus of Counselling Psychology (1997); **C. T. Friz**, Professor Emeritus of Anatomy (1993); **D. W. Froese**, Clinical Associate Professor Emeritus of Family Practice (1995); **V. Froese**, Professor Emeritus of Language Education (1999); **D. C. Frost**, Professor Emeritus of Chemistry (1989); **A. M. Furness**, Associate Professor Emerita of Social Work (1988); **M. Furstenwald**, Associate Professor Emerita of Germanic Studies (1985); **M. H. Futrell**, Professor Emeritus of Slavonic Studies (1990); **J. A. Gaitanakis**, Assistant Professor Emeritus of Architecture (1995); **F. D. Garrett**, Professor Emeritus of Anatomy (1977); **I. S. Gartshore**, Professor Emeritus of Mechanical Engineering (2000); **C. L. Gass**, Professor Emeritus of

Zoology (2004); **A. Gerein**, Clinical Professor Emeritus of Surgery (1994); **M. C. L. Gerry**, Professor Emeritus of Chemistry (2004); **G. Gibson**, Associate Professor Emeritus of Oral Biological & Medical Sciences (2000); **W. C. Gibson**, Professor Emeritus of History of Medicine and Science (1978); **W. H. Gilbert**, Associate Professor Emeritus of Fine Arts (1986); **S. Gillam**, Professor Emerita of Pathology (2000); **D. C. Gillespie**, Associate Professor Emeritus of Mathematics and Science Education (1992); **P. C. Gilmore**, Professor Emeritus of Computer Science (1990); **C. Giovannella**, Senior Instructor Emeritus of Earth and Ocean Sciences (1999); **A. D. M. Glass**, Professor Emeritus of Botany (2003); **F. P. Glick**, Associate Professor Emeritus of Health Care and Epidemiology (1992); **C. I. Godwin**, Professor Emeritus of Earth and Ocean Sciences (1997); **G. Goertzen**, Clinical Associate Professor Emeritus of Family Practice (1993); **M. Goetz-Stankiewicz**, Professor Emerita of Germanic Studies (1992); **A. V. Gold**, Professor Emeritus of Physics (1999); **M. K. Goldberg**, Professor Emeritus of English (1991); **T. Goldberg**, Professor Emeritus of Visual and Performing Arts (1987); **J. Goldie**, Clinical Professor Emeritus of Medicine (1999); **D. L. Golding**, Associate Professor Emeritus of Forest Resources Management (1996); **R. Goldman**, Assistant Professor Emeritus of Asian Studies (1997); **F. Goldsack**, Lecturer Emerita of Teacher Education (1997); **V. Gomel**, Professor Emeritus of Obstetrics and Gynaecology (2000); **A. M. Gomes**, Senior Instructor Emerita of Hispanic and Italian Studies (1997); **A. M. Goodeve**, Assistant Professor Emeritus of Pharmaceutical Sciences (1986); **G. B. Goodman**, Clinical Professor Emeritus of Surgery (1991); **B. Gordon**, Assistant Professor Emerita of Human Kinetics (2002); **G. Gorelik**, Associate Professor Emeritus of Commerce and Business Administration (1991); **W. Goresky**, Clinical Professor Emeritus of Psychiatry (1994); **J. M. Gormick**, Assistant Professor Emerita of Nursing (1997); **F. A. Gornall**, Associate Professor Emeritus of Mathematics and Science Education (1983); **E. B. Gose**, Professor Emeritus of English (1991); **C. C. Gourlay**, Professor Emeritus of Commerce and Business Administration (1982); **R. H. Gourlay**, Clinical Professor Emeritus of Surgery (1987); **J. I. Gow**, Assistant Professor Emerita of History (1989); **D. C. Graham**, Assistant Professor Emeritus of Medicine (1980); **K. Graham**, Professor Emeritus of Forestry (1977); **E. E. Granirer**, Professor Emeritus of Mathematics (1997); **P. Grantham**, Professor Emeritus of Family Practice (1997); **G. R. Gray**, Associate Professor Emeritus of Pathology (1997); **J. U. Gray**, Professor Emeritus of Visual and Performing Arts in Education (1992); **P. Gray**, Lecturer Emerita of Education (1989); **R. F. Gray**, Professor Emeritus of Mathematics and Science Education (1985); **B. R. Green**, Professor Emerita of Botany (2003); **D. D. Greenwood**, Professor Emeritus of Audiology and Speech Sciences (1996); **F. M. Greenwood**, Associate Professor Emeritus of History (1988); **H. J. Greenwood**, Professor Emeritus of Geological Sciences (1990); **P. Greenwood**, Professor Emerita of Mathematics (2000); **P. Gregory**, Professor Emeritus of Physics & Astronomy (2002); **B. L. Grenberg**, Associate Professor Emeritus of English (1993); **A. J. Griffiths**, Professor Emeritus of Botany (2005); **G. M. Griffiths**, Professor Emeritus of Physics (1989); **E. V. Grill**, Associate Professor Emeritus of Oceanography (1988); **F. J. Grover**, Professor Emeritus of French (1985); **A. Gruft**, Associate Professor Emeritus of Architecture (1999); **M. Grymaloski**, Clinical Professor Emerita of Radiology (1999); **D. T. Guest**, Associate Professor Emeritus of Social Work (1989); **A. M. Gunn**, Professor Emeritus of Social and Educational Studies (1985); **H. P. Gush**, Professor Emeritus of Physics (1996); **R. A. Hagler**, Professor Emeritus of Library, Archival, and Information Studies; **P. Hahn**, Professor Emeritus of Obstetrics and

Gynaecology (1989); **G. Hainsworth**, Associate Professor Emeritus of Economics (1999); **D. Haley**, Professor Emeritus of Forest Resources Management (2004); **A. E. Hall**, Associate Professor Emeritus of Mining & Mineral Process Engineering (2001); **J. G. Hall**, Professor Emerita of Pediatrics (2004); **K. J. F. Hall**, Professor Emeritus of Institute of Resources, Environment and Sustainability (2005); **N. A. Hall**, Professor Emeritus of Commerce and Business Administration (1996); **R. J. Hall**, Professor Emeritus of Theatre, Film & Creative Writing (1997); **S. W. Hamilton**, Professor Emeritus of Commerce and Business Administration (2004); **A. G. Hannam**, Professor Emeritus of Oral Health Sciences (2004); **D. H. Harder**, Clinical Professor Emeritus of Orthopaedics (1999); **P. E. Harding**, Professor Emeritus of Classical, Near Eastern and Religious Studies (2004); **M. E. Hardman**, Senior Instructor Emerita of English (1992); **D. F. Hardwick**, Professor Emeritus of Pathology/Pediatrics (1999); **W. N. Hardy**, Professor Emeritus of Physics and Astronomy (2005); **R. D. Hare**, Professor Emeritus of Psychology (1997); **R. Harlow**, Professor Emeritus of Creative Writing (1989); **T. R. Harmon**, Clinical Associate Professor Emeritus of Pathology (1979); **P. Harnetty**, Professor Emeritus of Asian Studies (1992); **R. C. Harris**, Professor Emeritus of Geography (2001); **B. Harrison**, Professor Emeritus of History (1974); **L. G. Harrison**, Professor Emeritus of Chemistry (1994); **T. J. Harrop**, Professor Emeritus of Clinical Dental Sciences (1989); **S. Hashimoto**, Clinical Professor Emeritus of Medicine (2006); **R. B. Hatch**, Associate Professor Emeritus of English (2004); **E. G. Hauptmann**, Professor Emeritus of Mechanical Engineering (1995); **J. Havens**, Clinical Associate Professor Emeritus of Family Practice (2006); **E. B. Hawbolt**, Professor Emeritus of Metals and Materials Engineering (1998); **H. B. Hawthorn**, Professor Emeritus of Anthropology and Sociology (1976); **L. D. Hayward**, Professor Emeritus of Chemistry (1984); **S. Healy**, Associate Professor Emeritus of Visual and Performing Arts (1985); **T. Heaven**, Professor Emeritus of Commerce and Business Administration (1997); **B. Heldt**, Professor Emerita of Russian (1996); **J. F. Helliwell**, Professor Emeritus of Economics (2002); **H. Hennings**, Associate Professor Emeritus of Cardiology (2004); **F. G. Herring**, Professor Emeritus of Chemistry (2004); **R. J. W. Hewat**, Associate Professor Emerita of Nursing (2004); **J. G. Heywood**, Professor Emeritus of Mathematics (2005); **M. A. Hickling**, Professor Emeritus of Law (1999); **H. C. Hightower**, Professor Emeritus of Community and Regional Planning (1996); **H. Hildebrand**, Clinical Professor Emeritus of Surgery (1995); **A. Hill**, Professor Emeritus of Paediatrics (2005); **L. E. Hill**, Professor Emeritus of History (1996); **M. A. Hill**, Associate Professor Emerita of Social Work (1986); **P. G. Hill**, Professor Emeritus of Mechanical Engineering (1997); **R. H. Hill**, Professor Emeritus of Pediatrics (1992); **R. J. Hills**, Professor Emeritus of Administrative, Adult and Higher Education (1994); **R. Hindmarch**, Professor Emeritus of Human Kinetics (1995); **J. Hingston**, Clinical Professor Emeritus of Pediatrics (1986); **S. Hirshen**, Professor Emeritus of Architecture (2000); **J. N. Hlynka**, Professor Emeritus of Pharmaceutical Sciences (1991); **F. C. W. Ho**, Clinical Professor Emeritus of Family Practice (1997); **S. Ho**, Professor Emeritus of Economics (2001); **W. S. Hoar**, Professor Emeritus of Zoology (1979); **K. F. Hoehsman**, Professor Emeritus of Mathematics (1995); **J. Hogarth**, Professor Emeritus of Law (2000); **J. Hogg**, Professor Emeritus of Pathology (2000); **R. G. C. Holdaway**, Assistant Professor Emeritus of French, Hispanic and Italian Studies (2000); **F. B. Holl**, Professor Emeritus of Agricultural Sciences (2000); **W. L. Holland**, Professor Emeritus of Asian Studies (1973); **D. G. Holm**, Professor Emeritus of Zoology (2000); **K. J. Holsti**, Professor Emeritus of Political Science (2000); **P. Hoogewerf**, Clinical Assistant Professor Emeritus of

Family Practice (1994); **R. Hopkins**, Assistant Professor Emeritus of Library, Archival and Information Studies (2005); **V. G. Hopwood**, Associate Professor Emeritus of English (1984); **A. Hori**, Clinical Professor Emeritus of Family Practice (1997); **B. E. J. Housego**, Associate Professor Emerita of Educational and Counselling Psychology and Special Education (2000); **I. Housego**, Professor Emeritus of Administrative, Adult and Higher Education (1994); **R. Howard**, Associate Professor Emeritus of Physics and Astronomy (1998); **J. F. Howes**, Professor Emeritus of Asian Studies (1989); **J. B. Hudson**, Professor Emeritus of Pathology (2004); **A. M. Hughes**, Assistant Professor Emerita of Nursing (2000); **G. C. Hughes**, Professor Emeritus of Botany (1998); **J. Hugill**, Clinical Professor Emeritus of Anaesthesia (2000); **J. F. Hulcoop**, Professor Emeritus of English (1993); **E. J. Hundert**, Professor Emeritus of History (2000); **S. G. Hutton**, Professor Emeritus of Mechanical Engineering (2002); **J. Huzel**, Assistant Professor Emeritus of History (2003); **E. J. Hyde**, Assistant Professor Emeritus of Preventive and Community Dentistry (1985); **K. Hyde**, Associate Professor Emerita of Nursing (1988); **D. Ingram**, Professor Emeritus of Linguistics (1999); **M. Iqbal**, Professor Emeritus of Mechanical Engineering (1996); **M. R. Ito**, Professor Emeritus of Electrical & Computing Engineering (2003); **H. Jackson**, Associate Professor Emeritus of Philosophy (1994); **M. Jackson**, Assistant Professor Emerita of Zoology (1990); **S. M. Jackson**, Clinical Professor Emeritus of Surgery (2000); **H. E. Jacobson**, Associate Professor Emerita of Anthropology and Sociology (1992); **L. G. Jahnke**, Professor Emeritus of Law (1987); **B. R. James**, Professor Emeritus of Chemistry (2001); **D. G. James**, Professor Emeritus of Chemistry (1990); **I. Jeffrey**, Clinical Associate Professor Emerita of Audiology and Speech Sciences (2004); **W. G. Jilek**, Clinical Professor Emeritus of Psychiatry (1996); **L. Jilek-Aall**, Clinical Professor Emerita of Psychiatry (1997); **A. M. Johnson**, Clinical Professor Emeritus of Medicine (1982); **G. J. Johnson**, Assistant Professor Emeritus of Psychology (1997); **R. C. Johnson**, Assistant Professor Emeritus of English (1993); **R. R. Johnson**, Professor Emeritus of Physics & Astronomy (2004); **F. R. Johnstone**, Professor Emeritus of Surgery (1984); **G. Jones**, Professor Emeritus of Physics and Astronomy (1997); **L. D. Jones**, Professor Emeritus of Commerce and Business Administration (1996); **R. M. Jordan**, Professor Emeritus of English (1989); **E. V. Jull**, Professor Emeritus of Electrical Engineering (1999); **F. A. Kaempffer**, Professor Emeritus of Physics (1986); **D. Kalousek**, Professor Emerita of Pathology (2002); **S. Karim**, Professor Emeritus of Pharmacology and Therapeutics (2000); **H. Kasinsky**, Associate Professor Emeritus of Zoology (2003); **H. E. Kassis**, Professor Emeritus of Classical, Near Eastern and Religious Studies (1997); **D. Kavanagh-Gray**, Clinical Professor Emerita of Medicine (1998); **J. K. Kealy**, Assistant Professor Emeritus of English (2004); **R. Keeler**, Professor Emeritus of Physiology (1992); **J. W. Kehoe**, Professor Emeritus of Curriculum Studies (1998); **R. F. Kelly**, Associate Professor Emeritus of Commerce and Business Administration (1997); **G. T. Kelsey**, Professor Emeritus of Educational Studies (1998); **J. G. Kelso**, Senior Instructor Emeritus of Human Kinetics (1998); **D. C. Kendall**, Professor Emeritus of Educational Psychology and Special Education (1988); **G. Kennedy**, Associate Professor Emeritus of Global Resource Systems (2003); **J. E. M. Kew**, Associate Professor Emeritus of Anthropology and Sociology (1997); **S. L. Khanna**, Assistant Professor Emeritus of Clinical Dental Sciences (1989); **M. M. Kharadly**, Professor Emeritus of Electrical Engineering (1992); **P. J. Kiernan**, Associate Professor Emeritus of Mathematics (2001); **D. G. Kilburn**, Professor Emeritus of Microbiology (2000); **S. U. Kim**, Professor Emeritus of Medicine (2001); **M. H. Kirkley**, Assistant Professor Emerita of English (2000); **V. J.**

Kirkness, Associate Professor Emerita of Administrative, Adult and Higher Education (1993); D. Klang, Associate Professor Emeritus of History (1993); M.C. Klein, Professor Emeritus of Family Practice Medicine and Pediatrics (2003); M. Kliman, Clinical Associate Professor Emeritus of Surgery (1990); K. Klinka, Professor Emeritus of Forest Sciences (2002); H. Klonoff, Professor Emeritus of Psychiatry (1990); W. J. Knickerbocker, Clinical Associate Professor Emeritus of Radiology (1999); F. Knobloch, Professor Emeritus of Psychiatry (1982); J. Knobloch, Clinical Associate Professor Emerita of Psychiatry (1991); G. Knox, Professor Emeritus of Fine Arts (1987); H. C. Knutson, Professor Emeritus of French (1988); K. I. Kobbervig, Professor Emeritus of Hispanic and Italian Studies (1993); B. Koehler, Clinical Professor Emeritus of Medicine (2006); Y. Koga, Senior Instructor Emeritus of Chemistry (2001); N. Korchinsky, Assistant Professor Emeritus of Human Kinetics (2005); G. W. Korn, Clinical Professor Emeritus of Obstetrics and Gynaecology (1990); A. Kozak, Professor Emeritus of Forest Resources Management (2001); A. D. Kraus, Professor Emeritus of Commerce and Business Administration (2004); C. J. Krebs, Professor Emeritus of Zoology (2001); R. Krell, Professor Emeritus of Psychiatry (1996); C. R. Krishnamurti, Professor Emeritus of Animal Science (1991); H. Krivel, Clinical Professor Emeritus of Pediatrics (1986); R. V. Kubicek, Professor Emeritus of History (2000); R. E. Kucera, Associate Professor Emeritus of Geological Sciences (1987); J. P. Kutney, Professor Emeritus of Chemistry (1997); E. R. Labrie, Professor Emeritus of English (2001); H. Laimon, Clinical Associate Professor Emeritus of Surgery (1991); R. Lakowski, Professor Emeritus of Psychology (1992); K. Y. Lam, Professor Emeritus of Mathematics (2004); N. Lamb, Senior Instructor Emerita of Audiology & Speech Sciences (2001); F. C. Langdon, Professor Emeritus of Political Science (1984); J. A. Laponce, Professor Emeritus of Political Science (1991); A. Laquin, Professor Emeritus of Community and Regional Planning (2000); J. S. Laskowski, Professor Emeritus of Mining & Mineral Process Engineering (2001); C. Laszlo, Professor Emeritus of Electrical Engineering (1998); C.C. Lau, Clinical Assistant Professor Emeritus of Family Practice (2006); T. M. Lau, Clinical Professor Emeritus of Anaesthesia (2002); D. P. Lavender, Professor Emeritus of Forest Science (1992); L. M. Lavkulich, Professor Emeritus of Agricultural Sciences and Graduate Studies (2004); C. S. Lear, Professor Emeritus of Clinical Dental Sciences (1990); P. H. LeBlond, Professor Emeritus of Earth and Ocean Sciences (1997); J. R. Ledson, Professor Emeritus of Physiology (1997); R. J. Leduc, Associate Professor Emeritus of Mathematics and Science Education (1987); M. Lee, Professor Emeritus of Family and Nutritional Sciences (1991); S. S. Lee, Professor Emeritus of Educational Psychology and Special Education (1998); P. O. Lehmann, Clinical Instructor Emeritus of Surgery (1978); J. Leichter, Professor Emeritus of Family and Nutritional Sciences (1997); J. Leja, Professor Emeritus of Mining and Mineral Process Engineering (1983); B. C. Lentle, Professor Emeritus of Radiology (2000); L. Leonard, Associate Professor Emerita of Nursing (2003); P. Leslie, Professor Emeritus of Educational & Counselling Psychology & Special Education (2003); J. Levy, Professor Emerita of Microbiology (1999); A. G. Lewis, Professor Emeritus of Earth Ocean Sciences and Zoology (1999); R. C. Lewis, Associate Professor Emeritus of Mathematics and Science Education (1986); J. Lielmezs, Professor Emeritus of Chemical Engineering (1991); L. Lighthall, Associate Professor Emerita of Library, Archival & Information Studies (2001); N. R. Liley, Professor Emeritus of Zoology (2001); T. Y. Lin, Professor Emeritus of Psychiatry (1986); W.-C. Lin, Professor Emeritus of Chemistry (1980); D. A. Lindquist, Senior Instructor Emeritus of

Physics (1988); C. C. Lindsey, Professor Emeritus of Zoology (1988); F. Lioy, Professor Emeritus of Physiology (1993); D. Lirenman, Professor Emeritus of Pediatrics (2002); H. Litherland, Clinical Professor Emeritus of Surgery (1992); H. V. Livermore, Professor Emeritus of Hispanic and Italian Studies (1981); A. F. Livesey, Senior Instructor Emerita of English (1981); W.J. Livesley, Professor Emeritus of Psychiatry (2005); D. Livingstone, Assistant Professor Emerita of Visual and Performing Arts in Education (1988); J. A. Loban, Professor Emeritus of Music (1992); R. R. Loffmark, Professor Emeritus of Commerce and Business Administration (1985); D. Logan, Professor Emerita of Journalism (2004); W. J. P. Logan, Associate Professor Emeritus of Curriculum Studies (1996); L. E. Lowe, Professor Emeritus of Soil Science (1994); D. Ludwig, Professor Emeritus of Mathematics/Zoology (1994); E. Luft, Professor Emeritus of Mathematics (1999); A. Lukasevich, Assistant Professor Emerita of Language Education (1997); J. Lund, Professor Emeritus of Metals and Materials Engineering (1993); K. H. Lynn, Senior Instructor Emerita of Asian Studies (2004); D. M. Lyster, Professor Emeritus of Pharmaceutical Sciences (2001); L. Lythgoe, Lecturer Emeritus of Language Education (1997); K. R. MacCrimmon, Professor Emeritus of Commerce and Business Administration (2002); M. MacCrimmon, Professor Emeritus of Law (2002); A. N. Macdonald, Associate Professor Emeritus of History (1990); J. A. Macdonald, Professor Emeritus of Visual and Performing Arts in Education (1985); J. L. MacDonald, Professor Emeritus of Mathematics (2004); W. Macdonald, Associate Professor Emeritus of Medicine (1996); D. J. MacDougall, Professor Emeritus of Law (1999); J. K. MacFarlane, Professor Emeritus of Surgery (2004); R. N. MacGregor, Professor Emeritus of Curriculum Studies (1997); J. M. MacIntyre, Professor Emeritus of Law (1999); A. R. Mackay, Associate Professor Emeritus of French (1992); J. R. Mackay, Professor Emeritus of Geography (1981); V. A. Mackay, Associate Professor Emerita of Education (1979); C. Mackenzie, Clinical Assistant Professor Emeritus of Family Practice (1991); C. J. Mackenzie, Professor Emeritus of Health Care and Epidemiology (1986); H. M. Mackenzie, Associate Professor Emerita of Education (1973); R. Maclean, Clinical Professor Emeritus of Pediatrics (1994); S. Maddin, Clinical Professor Emeritus of Medicine (1987); B. Madsen, Professor Emeritus of Civil Engineering (1992); G. Manning, Clinical Associate Professor Emeritus of Anesthesia (2004); D. Manson, Clinical Professor Emeritus of Surgery (2002); M. A. Manzalaoui, Professor Emeritus of English (1989); J. C. Mao, Professor Emeritus of Commerce and Business Administration (1988); B. E. March, Professor Emerita of Animal Science (1986); A. Marcus, Associate Professor Emeritus of Psychiatry (1992); E. L. Margetts, Professor Emeritus of Psychiatry (1985); S. E. Marks, Associate Professor Emeritus of Counselling Psychology (1993); A. J. Marriage, Associate Professor Emeritus of Sociology (1990); A. W. Marshall, Professor Emeritus of Statistics (1987); P. W. Martin, Professor Emeritus of Physics (1998); D. Matheson, Associate Professor Emeritus of Pediatrics (2000); R. G. Matson, Professor Emeritus of Anthropology and Sociology; E. J. Matte, Associate Professor Emeritus of French (1993); R. V. Mattessich, Professor Emeritus of Commerce and Business Administration (1988); P. W. Matthews, Associate Professor Emeritus of Physics and Astronomy (2000); W. L. Maurice, Associate Professor Emeritus of Psychiatry (2004); G. A. Maxwell, Associate Professor Emeritus of Mathematics (2001); J. R. Maze, Professor Emeritus of Botany (1997); D. W. McAdam, Senior Instructor Emeritus of Mechanical Engineering (2005); A. J. McClean, Professor Emeritus of Law (2001); P. R. McClelland, Assistant Professor Emeritus of Social Work (1995); R. McConnell, Professor Emerita of Education (1981); W.H. McCutcheon, Professor

Emeritus of Physics and Astronomy (2005); C. E. McDonnell, Clinical Professor Emeritus of Medicine (1990); T. B. McDonough, Assistant Professor Emerita of Education (1981); T. G. McGee, Professor Emeritus of Asian Research (2001); E. McGeer, Professor Emerita of Psychiatry (1989); P. L. McGeer, Professor Emeritus of Psychiatry (1992); R. W. McGraw, Professor Emeritus of Orthopaedics (2000); D. E. McGreer, Professor Emeritus of Chemistry (1993); B. L. McGregor, Assistant Professor Emerita of Rehabilitation Medicine (1986); J. McIver, Clinical Professor Emeritus of Anatomy (1994); T. D. McKie, Professor Emeritus of Educational Psychology and Special Education (1988); D. M. McLean, Professor Emeritus of Pathology (1991); P.D. McLean, Professor Emeritus of Psychiatry (2005); A. McLeod, Senior Instructor Emeritus of Curriculum Studies (1997); W. McLeod, Clinical Professor Emeritus of Medicine (2002); G. H. McMorland, Clinical Professor Emeritus of Anaesthesiology (1991); F. E. McNair, Clinical Assistant Professor Emeritus of Psychiatry (1984); J. A. McNeely, Associate Professor Emeritus of Germanic Studies (1987); R. McNeill, Clinical Professor Emeritus of Surgery (1997); C. McNiven, Associate Professor Emerita of Social Work (1989); J. D. McPhail, Professor Emeritus of Zoology (1999); D. McPhillips, Associate Professor Emeritus of Commerce & Business Administration (2002); K. C. McTaggart, Professor Emeritus of Geological Sciences (1985); J. D. McWhannel, Assistant Professor Emeritus of Education (1981); G. McWhirter, Professor Emeritus of Theatre, Film and Creative Writing (2004); T. R. Meadowcroft, Professor Emeritus of Metals & Materials Engineering (2001); D. F. Measday, Professor Emeritus of Physics and Astronomy (2002); M. Meissner, Professor Emeritus of Sociology (1993); Z. A. Melzak, Professor Emeritus of Mathematics (1995); T. K. Menon, Professor Emeritus of Geophysics and Astronomy (1993); A. J. Merer, Professor Emeritus of Chemistry (2002); P. Merivale, Professor Emerita of English (1999); R. F. Merriam, Assistant Professor Emeritus of Mathematics and Science Education (1987); J. Meyer, Professor Emeritus of Physics & Astronomy (2003); P. J. Middleton, Professor Emeritus of Pathology (1997); J. E. Miles, Professor Emeritus of Psychiatry (1992); C. W. Miller, Associate Professor Emeritus of English (1980); H. S. Miller, Clinical Professor Emeritus of Orthopaedics (1991); L. L. Miller, Associate Professor Emeritus of Germanic Studies (1992); M. Miller, Clinical Assistant Professor Emerita of Anaesthesia (1993); S. Miller, Clinical Professor Emeritus of Anatomy (1982); R. S. Milne, Professor Emeritus of Political Science (1984); J. H. Milsum, Professor Emeritus of Health Care and Epidemiology (1991); S. Mindess, Professor Emeritus of Civil Engineering (2005); A. Mitchell, Professor Emeritus of Metals & Materials Engineering (2001); A. G. Mitchell, Professor Emeritus of Pharmaceutical Sciences (1994); C. L. Mitchell, Professor Emeritus of Commerce and Business Administration (1986); H. Mitchell, Professor Emeritus of History (1989); J. R. Mitchell, Associate Professor of Physical Education and Recreation (1987); K.A.R. Mitchell, Professor Emeritus of Chemistry (2004); V. F. Mitchell, Professor Emeritus of Commerce and Business Administration (1988); R. Miura, Professor Emeritus of Mathematics (2001); H. F. Mizgala, Professor Emeritus of Medicine (1997); R. Modrow, Associate Professor Emeritus of Health Care & Epidemiology (2003); J. Mogan, Assistant Professor Emerita of Nursing (1990); B.A. Mohan, Professor of Language and Literacy Education; J. G. Moir, Assistant Professor Emeritus of Pharmaceutical Sciences (1988); T. Money, Professor Emeritus of Chemistry (1997); P. Montgomery, Associate Professor Emerita of Educational Psychology and Special Education (1987); P. R. Moody, Assistant Professor Emeritus of Physical Education (1989); Y. S. Moon, Professor Emeritus of Obstetrics & Gynaecology (2003); A. M. Moore, Professor Emeritus of

Economics (1984); **L. F. Moore**, Associate Professor Emeritus of Commerce and Business Administration (1996); **P. Moore**, Clinical Associate Professor Emeritus of Pediatrics (1990); **A. J. More**, Associate Professor Emeritus of Educational and Counselling Psychology and Special Education (2000); **M. M. Morehart**, Associate Professor Emerita of Fine Arts (1989); **W. R. Morford**, Professor Emeritus of Human Kinetics (1995); **J. Morison**, Assistant Professor Emeritus of Family Practice (1988); **J. E. W. Mornin**, Professor Emeritus of Germanic Studies (2001); **R. B. Morris**, Professor Emeritus of Music (1986); **B. Morrison**, Professor Emerita of Health Care and Epidemiology (1999); **B. M. Morrison**, Professor Emeritus of Asian Studies (1991); **E. Morrison**, Professor Emeritus of English (1970); **F. A. Morrison**, Professor Emeritus of Pharmaceutical Sciences (1983); **R. T. Morrison**, Associate Professor Emeritus of Radiology (1997); **K. S. Morton**, Professor Emeritus of Orthopaedics (1990); **M. Morton**, Senior Instructor Emeritus of English (1987); **B. N. Moysls**, Professor Emeritus of Mathematics (1984); **A. Mular**, Professor Emeritus of Mining and Mineral Process Engineering (1996); **M. Mullinger**, Associate Professor Emerita of Pediatrics (1987); **P. M. Mullins**, Associate Professor Emeritus of Physical Education and Recreation (1986); **W. J. Mullins**, Associate Professor Emeritus of Philosophy (1986); **D. D. Munro**, Professor Emeritus of Forest Resources Management (1995); **G. R. Munro**, Professor Emeritus of Economics (1999); **E. K. Murakami**, Clinical Associate Professor Emeritus of Family Practice (1997); **M. Muratorio-Posse**, Associate Professor Emerita of Anthropology and Sociology (2000); **R. Muratorio-Posse**, Senior Instructor Emeritus of Anthropology and Sociology (1989); **D. C. Murdoch**, Professor Emeritus of Mathematics (1977); **A. B. Murray**, Professor Emeritus of Pediatrics (1992); **D. Murray**, Professor Emeritus of Medicine (2000); **J. S. Murray**, Associate Professor Emeritus of Visual and Performing Arts (1987); **P. A. Murtha**, Professor Emeritus of Forest Resources Management (2003); **K. Nagatani**, Professor Emeritus of Economics (1997); **S. Nakai**, Professor Emeritus of Food Science (1992); **S. D. Nalevykin**, Assistant Professor Emerita of Education (1987); **F. P. D. Navin**, Professor Emeritus of Civil Engineering (2003); **J. Nearing**, Clinical Assistant Professor Emeritus of Health Care and Epidemiology (2004); **P. A. Neher**, Professor Emeritus of Economics (1997); **W. E. Neill**, Professor Emeritus of Fisheries (2003); **B. Nelems**, Professor Emeritus of Surgery (2004); **P. M. Nerland**, Clinical Associate Professor Emeritus of Health Care and Epidemiology (1987); **G. R. Neufeld**, Associate Professor Emeritus of Educational Psychology and Special Education (1997); **M. B. Nevison**, Professor Emerita of Education (1982); **W. H. New**, University Killam Professor Emeritus of English (2002), Professor Emeritus of English (2003); **P. Newbery**, Clinical Professor Emeritus of Family Practice (2006); **F. S. Newby**, Assistant Professor Emeritus of English (1979); **D. E. Newman**, Professor Emeritus of Radiology (1997); **J. Newman**, Associate Professor Emeritus of Theatre, Film and Creative Writing (2000); **J. S. Newton**, Associate Professor Emeritus of Theatre, Film and Creative Writing (2004); **H. Nichol**, Associate Professor Emeritus of Psychiatry (1990); **D. J. Niederauer**, Professor Emeritus of French (1987); **H. Niskala**, Associate Professor Emerita of Nursing (1995); **J. E. Nixon**, Clinical Associate Professor Emeritus of Anaesthesia (1988); **H. C. Nordan**, Associate Professor Emeritus of Zoology (1988); **M. Norman**, Professor Emerita of Pathology (1997); **J. M. Norris**, Professor Emeritus of History of Medicine (1991); **M. North**, Senior Instructor Emerita of Geography (2000); **R. N. North**, Associate Professor Emeritus of Geography (2001); **T. G. Northcote**, Professor Emeritus of Forest Sciences and Zoology (1992); **S. M. Oberg**, Professor Emeritus of Commerce and Business Administration (1988); **H. P. Oberlander**, Professor Emeritus of

Community and Regional Planning (1988); **G. O'Connor**, Clinical Associate Professor Emeritus of Anaesthesia (2006); **J. R. O'Connor**, Senior Instructor Emeritus of Anthropology and Sociology (1995); **A. L. Oglvie**, Professor Emeritus of Oral Medicine (1986); **E. A. Ogryzlo**, Professor Emeritus of Chemistry (1999); **A. H. Ohanianian**, Senior Instructor Emeritus of Slavonic Studies (1988); **W. K. Oldham**, Professor Emeritus of Civil Engineering (1995); **O. A. Oldridge**, Professor Emeritus of Educational Psychology and Special Education (1989); **P. G. Olley**, Assistant Professor Emeritus of Mathematics and Science Education (1990); **C. W. Oloman**, Professor Emeritus of Chemical and Biological Engineering (2004); **B. Olson**, Clinical Assistant Professor Emerita of Anaesthesia (2004); **M. D. Olson**, Professor Emeritus of Civil Engineering (1995); **J. Orr**, Associate Professor Emeritus of Pharmaceutical Sciences (1999); **D. L. Overmeyer**, Professor Emeritus of Asian Studies (2000); **B. D. Owen**, Professor Emeritus of Animal Science (1991); **I. Ozier**, Professor Emeritus of Physics & Astronomy (2004); **A. Pacheco**, Professor Emeritus of Hispanic and Italian Studies (1997); **N. L. Paddock**, Professor Emeritus of Chemistry (1983); **H. Pafitt**, Clinical Professor Emeritus of Psychiatry (2000); **S. S. Page**, Professor Emeritus of Mathematics (1999); **B. F. Paige**, Clinical Professor Emeritus of Medicine (1987); **J. Panter**, Assistant Professor Emeritus of French (1994); **D. Parker**, Associate Professor Emerita of Nursing (2000); **C. Parkin**, Senior Instructor Emerita of English (1999); **R. Parkinson**, Clinical Associate Professor Emeritus of Psychiatry (1988); **T. R. Parsons**, Professor Emeritus of Oceanography and Zoology (1993); **L. Paszner**, Professor Emeritus of Wood Science (1999); **B. Pate**, Professor Emeritus of Medicine (1993); **K. M. Patel**, Senior Instructor Emeritus of Botany (1997); **T. E. Patton**, Professor Emeritus of Philosophy (1997); **J. L. Pavelich**, Senior Instructor Emerita of English (1987); **R. H. Pearce**, Professor Emeritus of Pathology (1989); **P. H. Pearce**, Professor Emeritus of Forest Resources Management (1997); **R. J. Pearson**, Professor Emeritus of Anthropology and Sociology (2000); **J. E. Peck**, Professor Emeritus of Computer Science (1984); **R. Pederson**, Professor Emeritus of Physiology (2003); **V. S. Pendakur**, Professor Emeritus of Community and Regional Planning (1997); **P. S. Penfold**, Professor Emerita of Psychiatry (2001); **G. Pennington**, Associate Professor Emeritus of Human Kinetics (1995); **C. D. Pennock**, Associate Professor Emeritus of Language Education (1987); **D. Peretz**, Clinical Professor Emeritus of Medicine (1997); **S. A. Perkins**, Professor Emeritus of Education (1986); **A. M. Perks**, Professor Emeritus of Zoology (1997); **Z. Perler**, Clinical Professor Emeritus of Surgery (2000); **E. Peters**, Professor Emeritus of Metals and Materials Engineering (1991); **K. Petersen**, Professor Emeritus of Central, Eastern and Northern European Studies (2002); **R. Peterson**, Associate Professor Emeritus of Animal Science (1998); **R. E. Petty**, Professor Emeritus of Rheumatology/Medicine (2005); **J. E. Phillips**, Professor Emeritus of Zoology (1999); **R. J. Phillips**, Senior Instructor Emeritus of Physical Education and Recreation (1980); **W. Phipps**, Clinical Assistant Professor Emeritus of Family Practice (2006); **G. L. Pickard**, Professor Emeritus of Oceanography and Physics (1979); **F. Pieronek**, Associate Professor Emerita of Language Education (1996); **E. Piers**, Professor Emeritus of Chemistry (2004); **A. E. Piloto**, Associate Professor Emeritus of English (1984); **H.-K. Piltz**, Professor Emeritus of Music (1989); **R. Pincock**, Professor Emeritus of Chemistry (1999); **D. Pincus**, Associate Professor Emerita of Fine Arts (1995); **K. L. Pinder**, Professor Emeritus of Chemical Engineering (1994); **A. C. Pinkerton**, Clinical Associate Professor Emeritus of Medicine (1991); **P. Pinkus**, Professor Emeritus of English (1984); **G. E. Pirie**, Associate Professor Emeritus of Pediatrics (1993); **A. B. Piternick**, Professor Emerita of Library, Archival and

Information Studies (1992); **M. Pitt**, Associate Professor Emeritus of Agroecology (2002); **I. H. Plenderleith**, Clinical Professor Emeritus of Medicine (1996); **A. Podlecki**, Professor Emeritus of Classical, Near Eastern and Religious Studies (1998); **G. W. Poling**, Professor Emeritus of Mining and Mineral Process Engineering (1997); **R. Pollay**, Professor Emeritus of Commerce and Business Administration (2001); **R. W. Pollay**, Professor Emeritus of Commerce & Business Administration (2001); **J. B. Pomfret**, Associate Professor Emeritus of Physical Education and Recreation (1988); **M. Pomfret**, Assistant Professor Emerita of Physical Education and Recreation (1987); **G. S. Pond**, Professor Emeritus of Oceanography (1996); **N. Poppe**, Associate Professor Emeritus of Slavonic Studies (1992); **G. B. Porter**, Professor Emeritus of Chemistry (1991); **R. Potashin**, Assistant Professor Emerita of Psychology (1987); **R. Poutt**, Assistant Professor Emeritus of Educational Psychology and Special Education (1989); **G. Povey**, Clinical Professor Emeritus of Health Care and Epidemiology (1997); **G. E. Powell**, Professor Emeritus of English (1997); **J. V. Powell**, Associate Professor Emeritus of Anthropology and Sociology (1999); **W. D. Powrie**, Professor Emeritus of Food Science (1992); **M. E. Prang**, Professor Emerita of History (1986); **I. C. Pratt**, Associate Professor Emeritus of Theatre, Film and Creative Writing (2004); **C. Price**, Professor Emeritus of Oral Biological & Medical Sciences (2001); **J. Price**, Professor Emeritus of Medicine (1992); **M. A. Primeau**, Associate Professor Emerita of French (1979); **E. Proctor**, Clinical Associate Professor Emerita of Pathology and Laboratory Medicine (1999); **E. Puiil**, Professor Emerita of Pharmacology Therapeutics (2004); **E. G. Pulleyblank**, Professor Emeritus of Asian Studies (1988); **L. Pulos**, Clinical Assistant Professor Emeritus of Psychiatry (1998); **H. M. Purkis**, Associate Professor Emerita of French (1984); **P. A. Quartermain**, Professor Emeritus of English (1999); **D. M. J. Quastel**, Professor Emeritus of Pharmacology & Therapeutics (2001); **L. N. Quastel**, Assistant Professor Emerita of Rehabilitation Medicine (1990); **T. Querec**, Clinical Associate Professor Emeritus of Anaesthesia (2004); **M. C. Quick**, Professor Emeritus of Civil Engineering (1998); **S. J. Rachman**, Professor Emeritus of Psychology (1999); **A. Rae**, Clinical Professor Emeritus of Medicine (1996); **M. D. Rainey**, Assistant Professor Emeritus of Language Education (1989); **H. K. Ralston**, Assistant Professor Emeritus of History (1987); **M. V. Ralston**, Associate Professor Emerita of Language Education (1989); **R. L. Ramsay**, Associate Professor Emeritus of Physical Education and Recreation (1989); **H. Ramsey**, Professor Emeritus of Mechanical Engineering (1996); **E. N. Rand**, Senior Instructor Emeritus of Philosophy (1993); **D. J. Randall**, Professor Emeritus of Zoology (2004); **R. E. Rangno**, Associate Professor Emeritus of General Medicine (2004); **D. P. Rapanos**, Assistant Professor Emeritus of Architecture (1997); **P. Rastall**, Professor Emeritus of Physics and Astronomy (1997); **R. S. Ratner**, Professor Emeritus of Anthropology & Sociology (2003); **H. Ratzlaff**, Assistant Professor Emeritus of Educational Psychology and Special Education (1994); **P. M. Rebbeck**, Clinical Associate Professor Emerita of Surgery (1994); **I. Rebrin**, Senior Instructor Emerita of Slavonic Studies (1992); **F. L. Reed**, Professor Emeritus of Forest Resources Management (1993); **M. Regester**, Senior Instructor Emerita of Nursing (1997); **C. Reid**, Professor Emeritus of Chemistry (1984); **I. Reid**, Assistant Professor Emerita of Slavonic Studies (1991); **R. S. Reid**, Associate Professor Emeritus of Law (2003); **G. Reith**, Assistant Professor Emeritus of Psychiatry (1996); **M. Reitzik**, Associate Professor Emeritus of Oral, Medical and Surgical Sciences (1990); **A. J. Renney**, Professor Emeritus of Plant Science (1979); **C. S. Rennie**, Clinical Associate Professor Emeritus of Medicine (1982); **R. A. Restrepo**, Professor Emeritus of Mathematics

(1996); **G. D. Reubart**, Professor Emeritus of Music (1986); **V. Revutsky**, Associate Professor Emeritus of Slavonic Studies (1976); **A. J. Reynertson**, Professor Emerita of Theatre (1988); **J. F. Richards**, Professor Emeritus of Biochemistry (1992); **J. S. F. Richards**, Associate Professor Emeritus of Ophthalmology (1999); **J. F. Richards**, Professor Emeritus of Food Science (2001); **A. S. Richardson**, Professor Emeritus of Clinical Dental Science (1994); **J. I. Richardson**, Assistant Professor Emeritus of Religious Studies (1982); **W. A. Richter**, Professor Emeritus of Clinical Dental Sciences (1989); **W. R. Ridington**, Professor Emeritus of Anthropology (1995); **J. M. Rigg**, Clinical Professor Emeritus of Pediatrics (1995); **N. Risebrough**, Associate Professor Emeritus of Metals and Materials Engineering (1999); **D. Rix**, Clinical Assistant Professor Emeritus of Pathology and Laboratory Medicine (1999); **D. L. Rizer**, Associate Professor Emerita of Education (1975); **D. J. Robataille**, Professor Emeritus of Curriculum Studies (2001); **F. Roberts**, Clinical Professor Emeritus of Pathology and Laboratory Medicine (2000); **R. E. Robins**, Clinical Professor Emeritus of Surgery (1991); **C. E. Robinson**, Clinical Professor Emeritus of Medicine (1983); **C. L. Robinson**, Clinical Professor Emeritus of Surgery (1986); **G. C. Robinson**, Professor Emeritus of Pediatrics (1987); **H. S. Robinson**, Clinical Professor Emeritus of Medicine (1984); **J. L. Robinson**, Professor Emeritus of Geography (1984); **R. E. Robinson**, Associate Professor Emeritus of Philosophy (1993); **R. A. Robson**, Professor Emeritus of Anthropology and Sociology (1986); **R. H. Rodgers**, Professor Emeritus of Family and Nutritional Sciences (1991); **L. Rodman**, Assistant Professor Emerita of English (2002); **R. Rogers**, Professor Emeritus of Music (1998); **R. H. Rogers**, Clinical Associate Professor Emeritus of Family Practice (1994); **S. M. Rogow**, Professor Emerita of Educational Psychology and Special Education (1995); **M. W. Rose**, Assistant Professor Emeritus of Visual and Performing Arts in Education (1984); **L. Rosen**, Professor Emeritus of Mathematics (2003); **R. S. Rosenberg**, Professor Emeritus of Computer Science (2004); **G. Rosenbluth**, Professor Emeritus of Economics (1986); **H. J. Rosengarten**, Professor Emeritus of English (2005); **A. Rosenthal**, Professor Emeritus of Chemistry (1979); **I. S. Ross**, Professor Emeritus of English (1993); **J. E. Ross**, Clinical Associate Professor Emeritus of Obstetrics and Gynaecology (1982); **J. V. Ross**, Professor Emeritus of Geological Sciences (1993); **P. L. E. Ross**, Clinical Associate Professor Emerita of Anaesthesia (2000); **S. Rothstein**, Professor Emeritus of Library, Archival and Information Studies (1986); **G. E. Rouse**, Professor Emeritus of Botany (1994); **L. A. Rousseau**, Associate Professor Emeritus of Mathematics and Science Education (1987); **V. C. Runeckles**, Professor Emeritus of Plant Science (1996); **K. M. Ruppenthal**, Professor Emeritus of Commerce and Business Administration (1983); **J. Russell**, Professor Emeritus of Classical, Near Eastern and Religious Studies (1999); **R. D. Russell**, Professor Emeritus of Geophysics and Astronomy (1991); **S. O. D. Russell**, Professor Emeritus of Civil Engineering (1997); **B. Saint-Jacques**, Professor Emeritus of Linguistics (1990); **M. Salcudean**, Professor Emerita of Mechanical Engineering (1999); **J. Sams**, Professor Emeritus of Chemistry (1998); **D. E. Sanders**, Professor Emeritus of Law (2003); **H. D. Sanders**, Associate Professor Emeritus of Pharmacology and Therapeutics (1991); **G. Sandy**, Professor Emeritus of Classical, Near Eastern and Religious Studies (2002); **T. Sandy**, Clinical Professor Emeritus of Surgery (1994); **A. R. Sawyer**, Professor Emeritus of Fine Arts (1984); **J. Sawyer**, Associate Professor Emeritus of Music (2002); **R. F. Scagel**, Professor Emeritus of Botany (1986); **J. R. Scheffer**, Professor Emeritus of Chemistry (2004); **J. R. Schell**, Associate Professor Emeritus of Music (1999); **N. Schmidt**, Clinical Professor Emeritus of Surgery (2002); **R. Schofer**, Clinical Associate Professor Emeritus of Anaesthesia (19970); **W. B. Schofield**, Professor Emeritus of Botany (1993); **G. F. Schrack**, Professor Emeritus of Electrical Engineering (1996); **B. Schrodt**, Associate Professor Emerita of Human Kinetics (1994); **H. Schuetze**, Professor Emeritus of Educational Studies (2004); **D. M. Schultz**, Senior Instructor Emerita of Co-operative Education; **M. H. Schultz**, Clinical Instructor Emeritus of Anaesthesia (1988); **M. Schulzer**, Professor Emeritus of Medicine (2001); **R. W. Schutz**, Professor Emeritus of Human Kinetics (2000); **B. Schwab**, Professor Emeritus of Commerce & Business Administration (2001); **D. W. F. Schwarz**, Professor Emeritus of Surgery (2004); **D. R. Schweitzer**, Associate Professor Emeritus of Anthropology and Sociology (2001); **C. F. Schwerdtfeger**, Professor Emeritus of Physics and Astronomy (1997); **A. D. Scott**, Professor Emeritus of Economics (1989); **G. G. E. Scudder**, Professor Emeritus of Zoology (1999); **W. R. Seal**, Associate Professor Emeritus of Education (1979); **R. Seamon**, Associate Professor Emeritus of English (2002); **R. Seebaran**, Assistant Professor Emeritus of Social Work & Family Studies (2001); **M. Y. Seelig**, Professor Emeritus of Community and Regional Planning (1999); **G. R. Selman**, Associate Professor Emeritus of Administrative, Adult and Higher Education (1992); **R. Sexsmith**, Professor Emeritus of Civil Engineering (2003); **M. Shaw**, Clinical Professor Emeritus of Medicine (2000); **M. Shaw**, University Professor Emeritus (1989); **R. A. Shearer**, Professor Emeritus of Economics (1997); **J. M. Sherrill**, Professor Emeritus of Curriculum Studies (1999); **S. S. Shim**, Professor Emeritus of Orthopaedics (1995); **B. Shizgal**, Professor Emeritus of Chemistry (2003); **H. Shore**, Associate Professor Emerita of Nursing (1990); **R. Shulman**, Associate Professor Emeritus of Psychiatry (1988); **D. M. Shultz**, Senior Instructor Emerita of Applied Science (2005); **C. Siegel**, Associate Professor Emeritus of Theatre, Film & Creative Writing (2001); **A. H. Siemens**, Professor Emeritus of Geography, (1997); **R. I. Sikora**, Professor Emeritus of Philosophy (1993); **F. Siller**, Associate Professor Emeritus of Commerce & Business Administration (2002); **H. Silver**, Clinical Professor Emeritus of Medicine (1997); **M. Silverman**, Professor Emeritus of Anthropology and Sociology (2000); **R. Silverman**, Professor Emeritus of Music (2003); **P. A. Simmons**, Professor Emeritus of Library, Archival and Information Studies (1998); **R. Simpson**, Clinical Associate Professor Emeritus of Anaesthesiology (1987); **E. Sinanan**, Clinical Assistant Professor Emeritus of Surgery (1995); **A. J. Sinclair**, Professor Emeritus of Earth and Ocean Sciences (1999); **G. D. Sinclair**, Associate Professor Emeritus of Human Kinetics (1997); **J. G. Sinclair**, Professor Emeritus of Pharmaceutical Sciences (2001); **N. R. Sinclair**, Associate Professor Emerita of Education (1981); **A. A. Sinel**, Professor Emeritus of History (2001); **M. Sion**, Professor Emeritus of Mathematics (1989); **J. P. Skala**, Professor Emeritus of Pediatrics (1997); **K. Slade**, Associate Professor Emeritus of Language Education (1999); **M. Slade**, Professor Emerita of Economics (2003); **J. Sladen**, Clinical Professor Emeritus of Surgery (2000); **R. Slakov**, Clinical Associate Professor Emeritus of Psychiatry (2004); **H. O. Slaymaker**, Professor Emeritus of Geography (2004); **G. Slobin**, Senior Instructor Emeritus of Pharmaceutical Sciences (1994); **C. E. Slonecker**, Professor Emeritus of Anatomy (2004); **B. Slutsky**, Associate Professor Emeritus of Law (2003); **G. Smedley**, Professor Emeritus of Fine Arts (1992); **F. Smith**, Senior Instructor Emeritus of Athletics and Sports Services (1997); **G. A. Smith**, Professor Emeritus of Education (1983); **J. C. Smith**, Professor Emeritus of Law (1995); **J. E. Smith**, Associate Professor Emeritus of Mathematics (1971); **J. M. Smith**, Senior Instructor Emeritus of Mathematics and Science Education (1987); **C. Snelling**, Clinical Professor Emeritus of Surgery (2004); **R. F. Snider**, Professor Emeritus of Chemistry (1997); **G. Snyder**, Assistant Professor Emerita of Language Education (1993); **M. Soga**, Professor Emeritus of Asian Studies (1992); **J. J. Solecki**, Associate Professor Emeritus of Slavonic Studies (1984); **A. C. Soudack**, Professor Emeritus of Electrical Engineering (1999); **D. E. Soule**, Professor Emeritus of Theatre (1984); **H. M. Southard**, Assistant Professor Emerita of Rehabilitation Medicine (1983); **R. Spencer**, Associate Professor Emeritus of Civil Engineering; Registrar Emeritus (2005); **R. W. Spitzer**, Clinical Professor Emeritus of Pathology (1986); **R. B. Splane**, Professor Emeritus of Social Work (1982); **J. D. Spouge**, Professor Emeritus of Oral Medicine (1985); **F. B. St. Clair**, Assistant Professor Emeritus of French (1996); **C. Staab**, Associate Professor Emerita of Language Education (1996); **J. K. Stager**, Professor Emeritus of Geography (1993); **W. T. Stanbury**, Professor Emeritus of Commerce and Business Administration (2000); **G. Stanick**, Professor Emeritus of Music (1999); **W. J. Stankiewicz**, Professor Emeritus of Political Science (1987); **S. Stanton**, Associate Professor Emerita of Nursing (1990); **P. G. Stanwood**, Professor Emeritus of English (1988); **A. Stark**, Clinical Associate Professor Emerita of Health Care & Epidemiology (2001); **R. C. Steele**, Associate Professor Emeritus of Visual and Performing Arts in Education (1990); **G. Oddo-de Stefanis**, Associate Professor Emerita of Hispanic and Italian Studies (1990); **J. R. Stein**, Professor Emerita of Botany (1987); **M. W. Steinberg**, Professor Emeritus of English (1983); **G. H. Stephenson**, Clinical Associate Professor Emeritus of Psychiatry (1982); **S. W. Stevenson**, Associate Professor Emeritus of English (1999); **I. F. Stewart**, Clinical Professor Emeritus of Surgery (1995); **J. F. Stewart**, Professor Emeritus of English (2000); **R. Stewart**, Professor Emeritus of Chemistry (1989); **H. F. Stich**, Professor Emeritus of Zoology (1991); **C. W. Stocker**, Associate Professor Emeritus of History (1999); **F. E. Stockholder**, Assistant Professor Emeritus of English (1996); **K. Stoddart**, Associate Professor Emeritus of Anthropology & Sociology (2003); **G. E. Stolar**, Professor Emerita of Social Work (1999); **S. N. Stordy**, Clinical Professor Emeritus of Medicine (1996); **A. Storr**, Professor Emeritus of Chemistry (2004); **K. G. Strassmann**, Associate Professor Emeritus of Theatre (1991); **B. Stuart-Stubbs**, Professor Emeritus of Library, Archival and Information Studies (1992); **G. T. Stubbs**, Associate Professor Emeritus of Education (1981); **L. D. Sullivan**, Professor Emeritus of Surgery (2001); **E. G. Summers**, Professor Emeritus of Educational Psychology and Special Education (1992); **S.-C. Sung**, Professor Emeritus of Psychiatry (1990); **J. N. Sutherland**, Professor Emeritus of Educational Studies (1996); **M. C. Sutter**, Professor Emeritus of Pharmacology and Therapeutics (1998); **R. Sutton**, Professor Emeritus of Medicine (2002); **W. K. Sutton**, Assistant Professor Emerita of Language Education (1997); **D. Suzuki**, Professor Emeritus of Sustainable Development Research (2001); **A. E. Swanson**, Associate Professor Emeritus of Oral Medical and Surgical Sciences (1992); **D. Swanson**, Lecturer Emerita of Teacher Education (1998); **V. P. Sweeney**, Professor Emeritus of Medicine (1995); **D. Syklocha**, Assistant Professor Emerita of Microbiology (1991); **P. J. Sykes**, Assistant Professor Emeritus of Physics (1984); **B. Sylvester**, Associate Professor Emeritus of English (1991); **G. Szasz**, Professor Emeritus of Psychiatry (1995); **I. Szasz**, Clinical Associate Professor of Radiology (1998); **W. F. Szetela**, Associate Professor Emeritus of Mathematics and Science Education (1991); **M. Tadych**, Assistant Professor Emerita of Social Work (1986); **M. Tait**, Associate Professor Emeritus of Animal Science (1998); **K.-I. Takashima**, Professor Emeritus of Asian Studies (2004); **D. E. Talney**, Associate Professor Emeritus of Music (1994); **F. J. R. Taylor**, Professor Emeritus of Earth and Ocean Sciences and Botany (2004); **I. E. P. Taylor**, Professor Emeritus of Agroecology and Botany (2004); **P. Taylor**, Assistant Professor Emeritus of English (1999); **P. Taylor**, Professor

Emeritus of Obstetrics & Gynaecology (2001); **S.I. Taylor**, Senior Instructor Emeritus of Architecture (2005); **J. M. Teasdale**, Associate Professor Emerita of Pediatrics (1990); **R.C. Tees**, Professor Emeritus of Psychology (2005); **E. Teghtsoonian**, Professor Emeritus of Metals and Materials Engineering (1988); **G. M. Tener**, Professor Emeritus of Biochemistry (1993); **L. Tenn**, Senior Instructor Emerita of Nursing (2001); **P. R. Tennant**, Professor Emeritus of Political Science (2004); **J. V. Thirgood**, Professor Emeritus of Forest Resources Management (1989); **H. L. Thomas**, Senior Instructor Emerita of English (1993); **J. P. Thomas**, Clinical Professor Emeritus of Pathology and Medicine (1987); **G. Thompson**, Professor Emeritus of Surgery (1992); **M. Thompson**, Assistant Professor Emerita of Education (1973); **M. Thompson**, Professor Emeritus of Commerce & Business Administration (2002); **R. Thompson**, Assistant Professor Emerita of Nursing (2001); **R. C. Thompson**, Professor Emeritus of Chemistry (2002); **J. E. Thornton**, Associate Professor Emeritus of Administrative, Adult and Higher Education (1993); **S. C. Thorson**, Associate Professor Emeritus of Medicine (1990); **A. Thrasher**, Associate Professor of Music (2005); **H. A. Thurston**, Associate Professor Emeritus of Mathematics (1987); **F. A. Tickner**, Professor Emeritus of Music (1996); **C. A. Tiers**, Professor Emeritus of Architecture (1990); **A. D. Tilley**, Associate Professor Emerita of Human Kinetics (1994); **B. Tischer**, Clinical Professor Emeritus of Pediatrics (1989); **E. C. Todd**, Professor Emeritus of Law (1993); **M. E. Todd**, Professor Emerita of Anatomy (2002); **M. Tolmie**, Associate Professor Emeritus of History (1990); **R. J. Tolsma**, Assistant Professor Emeritus of Counselling Psychology (1995); **J. W. Tomlinson**, Associate Professor Emeritus of Commerce and Business Administration (1994); **M. G. Tomsich**, Associate Professor Emerita of Hispanic and Italian Studies (1996); **R. S. Tonkin**, Professor Emeritus of Pediatrics (1997); **G. Tougas**, Professor Emeritus of French (1984); **A. Toupin**, Clinical Associate Professor Emerita of Health Care & Epidemiology (2001); **P. M. Townsley**, Professor Emeritus of Food Science (1991); **L.D. Travis**, Assistant Professor Emeritus of Educational and Consulting Psychology and Special Education (2005); **D. Tromans**, Professor Emeritus of Metals & Material Engineering (2003); **J. Trotter**, Professor Emeritus of Chemistry (1999); **G. C. Trowsdale**, Professor Emeritus of Visual and Performing Arts in Education (1988); **I. Tsang**, Clinical Professor Emeritus of Medicine (2004); **I. Turnbull**, Associate Professor Emeritus of Surgery (1999); **K. W. Turnbull**, Clinical Professor Emeritus of Anaesthesia (2004); **C. J. Turner**, Professor Emeritus of Germanic Studies (2000); **R. Turner**, Professor Emeritus of Anthropology and Sociology (1994); **B. G. Turrell**, Professor Emeritus of Physics & Astronomy (2003); **G. F. O. Tyers**, Professor Emeritus of Surgery (2000); **R. Uhler**, Professor Emeritus of Economics (2000); **T. J. Ulrych**, Professor Emeritus of Earth and Ocean Sciences (2000); **A. Urrello**, Professor Emeritus of French, Italian and Hispanic Studies (2004); **D. H. Uyeno**, Associate Professor Emeritus of Health Care and Epidemiology (2001); **Y. Vaid**, Professor Emeritus of Civil Engineering (2002); **M. Vallance**, Clinical Professor Emeritus of Psychiatry (2000); **F. Valle**, Assistant Professor Emeritus of Psychology (2006); **C. Van Breemen**, Professor Emeritus of Pharmacology & Therapeutics (2001); **J. Vanderstoep**, Associate Professor Emeritus of Food Science (2002); **J. Varah**, Professor Emeritus of Computer Science (2002); **H. Vaughan**, Professor Emeritus of Mechanical Engineering (2000); **P. S. G. Verriour**, Associate Professor Emeritus of Language Education (2003); **J. Vielkind**, Professor Emeritus of Pathology (2004); **D. J. Vince**, Professor Emeritus of Pediatrics (1993); **E. Vizsolyi**, Senior Instructor Emerita of Zoology (1997); **E. W. Vogt**, Professor Emeritus of Physics (1995); **R. Vrba**, Associate Professor Emeritus of Pharmacology and Therapeutics (1990); **J. A. Wada**, Professor Emeritus of Psychiatry (1991); **P. M. Wadsworth**, Clinical Professor Emeritus of Health Care and Epidemiology (1997); **T. J. Wales**, Professor Emeritus of Economics (2000); **D. C. Walker**, Professor Emeritus of Chemistry (1999); **D. E. Walker**, Senior Instructor Emerita of Fine Arts (1986); **G. A. H. Walker**, Professor Emeritus of Physics and Astronomy (1997); **M. J. A. Walker**, Professor Emeritus of Pharmacology Therapeutics (2005); **R. B. Walkey**, Associate Professor Emeritus of Architecture (2004); **R. A. Wall**, Associate Professor Emeritus of Pharmacology and Therapeutics (1995); **J. H. Wallin**, Professor Emeritus of Administrative, Adult and Higher Education (1990); **G. Walsh**, Associate Professor Emeritus of Education (1979); **J. B. Walsh**, Professor Emeritus of Mathematics (2004); **G. A. Walter**, Associate Professor Emeritus of Commerce & Business Administration (2001); **L. L. Walters**, Associate Professor Emeritus of Educational Psychology and Special Education (1989); **M. Walters**, Clinical Professor Emeritus of Medicine (1987); **E. M. Warbinek**, Assistant Professor Emerita of Nursing (1994); **J. B. Warren**, Associate Professor Emeritus of Commerce (1987); **R. A. J. Warren**, Professor Emeritus of Microbiology (1998); **T. Watanabe**, Professor Emeritus of Geophysics and Astronomy (1993); **W. G. Waters**, Professor Emeritus of Commerce and Business Administration (2000); **A. P. Watkinson**, Professor Emeritus of Chemical and Biological Engineering (2004); **N. Watt**, Associate Professor Emeritus of Physical Education (1992); **D. J. Watterson**, Clinical Professor Emeritus of Psychiatry (1982); **N. Waxler-Morrison**, Associate Professor Emerita of Social Work (1992); **J. M. Weakland**, Associate Professor Emerita of Visual and Performing Arts (1987); **G. Wedeking**, Assistant Professor Emeritus of Philosophy (2003); **S. A. Weese**, Assistant Professor Emeritus of Theatre (1989); **G. F. Weetman**, Professor Emeritus of Forest Sciences (1998); **C. F. Wehrhahn**, Associate Professor Emeritus of Zoology (1992); **W. G. Wellington**, Professor Emeritus of Plant Science (1986); **T. I. Westermark**, Associate Professor Emeritus of Language Education (1988); **G. Westgate**, Clinical Associate Professor Emeritus of Surgery (1992); **M. Westrom**, Assistant Professor Emeritus of Curriculum Studies (2003); **R. Westwick**, Professor Emeritus of Mathematics (1998); **B. L. White**, Professor Emeritus of Physics (1996); **K. J. White**, Professor Emeritus of Economics (2003); **R. B. White**, Assistant Professor Emeritus of Educational Psychology and Special Education (1987); **R. L. White**, Professor Emerita of French (1989); **L. M. Whitehead**, Associate Professor Emeritus of English (1988); **F. H. Whitman**, Associate Professor Emeritus of English (1994); **D. N. E. Whittaker**, Associate Professor Emeritus of Educational Psychology and Special Education (1997); **E. W. Whittaker**, Professor Emerita of Anthropology and Sociology (1997); **J. V. Whittaker**, Professor Emeritus of Mathematics (1996); **S. A. Whittaker-Bleuler**, Assistant Professor Emerita of Human Kinetics (2000); **E. Wickberg**, Professor Emeritus of History (1992); **J. S. Wiggins**, Professor Emeritus of Psychology (1996); **R. D. Wild**, Assistant Professor Emeritus of Curriculum Studies (2000); **G. Wilkins**, Clinical Professor Emeritus of Medicine (2005); **D.L. Williams**, Professor Emeritus of Physics & Astronomy (2002); **J. M. Williams**, Assistant Professor Emerita of Fine Arts (1999); **M. D. Willman**, Professor Emerita of Nursing (1994); **D.C. Wilson**, Associate Professor Emeritus of Curriculum Studies (2004); **E. N. Wilson**, Associate Professor Emeritus of Music (2002); **J. D. Wilson**, Professor Emeritus of Educational Studies (1999); **J. W. Wilson**, Professor Emeritus of Harvesting and Wood Science (1990); **E. R. Winkler**, Professor Emeritus of Philosophy (1999); **J. H. Winter**, Professor Emeritus of History (1991); **J.L. Wisenthal**, Professor Emeritus of English (2005); **C. C. Wisnicki**, Assistant Professor Emerita of Architecture (1984); **R. Wong**, Professor Emeritus of Psychology (1997); **S. Wong**, Associate Professor Emerita of Curriculum Studies (1997); **J. R. Wood**, Associate Professor Emeritus of Political Science (2005); **S. Wood**, Professor Emeritus of Medical Genetics (2000); **W. F. Wood**, Assistant Professor Emeritus of Commerce and Business Administration (1990); **W. S. Wood**, Professor Emeritus of Pathology (1992); **W. W. Wood**, Associate Professor Emeritus of Architecture (1996); **J. Woodrow**, Professor Emerita of Curriculum Studies (1998); **A. Woodside**, Professor Emeritus of History (2003); **L. I. Woolf**, Professor Emeritus of Psychiatry (1984); **J.G. Worrall**, Associate Professor Emeritus of Forest Sciences (2003); **I. Wright**, Professor Emeritus of Curriculum Studies (2002); **J. Wright**, Professor Emeritus of Theatre, Film and Creative Writing (2002); **M. Wong**, Assistant Professor Emeritus of Electrical Engineering (1995); **M. A. Wyness**, Associate Professor Emerita of Nursing (2002); **D. J. Yeo**, Professor Emeritus of Clinical Dental Sciences (1987); **W. Yeomans**, Assistant Professor Emeritus of English (1990); **M. M. Yeung**, Professor Emerita of Respiratory Medicine (2004); **N. J. Yorkston**, Professor Emeritus of Psychiatry (1991); **G. G. Young**, Associate Professor Emeritus of Forest Resource Management (1996); **L. Young**, Professor Emeritus of Electrical Engineering (1991); **M. N. Young**, Assistant Professor Emeritus of Theatre (1992); **R. Young**, Associate Professor Emeritus of Fine Arts (1998); **Y.-N. Yu**, Professor Emeritus of Electrical Engineering (1975); **N. C. Zacharias**, Senior Instructor Emeritus of Pharmaceutical Sciences (1980); **M. W. Zacher**, Professor Emeritus of Political Science (2003); **J. W. Zahradnik**, Professor Emeritus of Bio-Resource Engineering (1991); **J. V. Zidek**, Professor Emeritus of Statistics (2004); **W. Ziemia**, Professor Emeritus of Commerce and Business Administration (2004); **J. Zilber**, Professor Emeritus of Creative Writing (1989)

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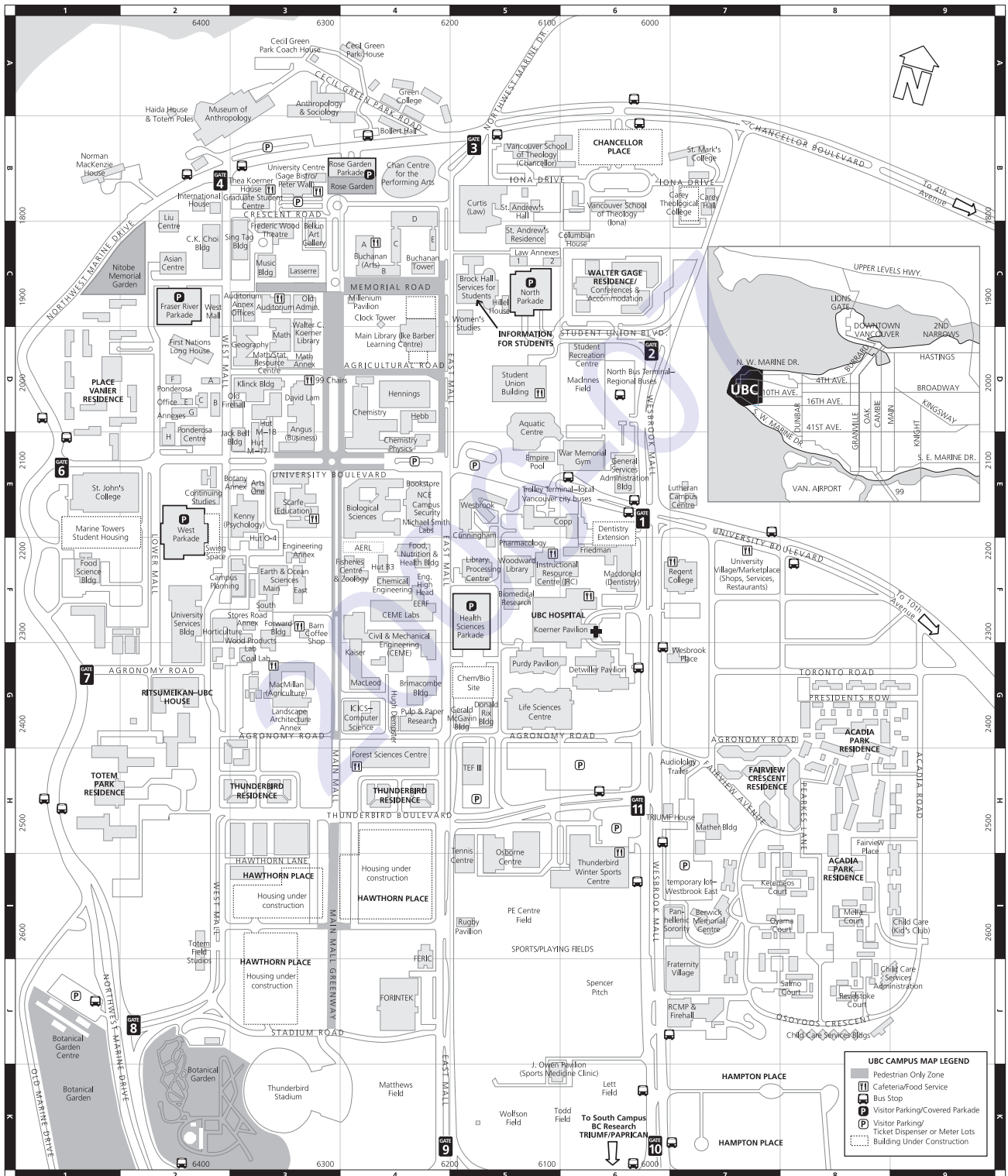
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UBC Vancouver Campus Map



MAP DIRECTORY

Acadia Park Residence	G-1,8	Education (Scarfe)	E3	Main Library (Ike Barber Learning Centre)	C,D4	Technology Enterprise Facility (TEF) III	H5
Agricultural Road	D,3-4	Electrical Engineering (MacLeod)	G4	Main Mall	B-J,3	Thea Koerner House	B3
Agronomy Road	G,1-8	English Language Institute-Continuing Studies	E2	Marine Drive Towers	E1	Thunderbird Boulevard	H,2-6
Alumni Association-Cecil Green Park House	A4	Empire Pool	E5	Mathematics		Thunderbird Residence	H3,4
Anatomy (Friedman)	F6	EOS (Earth & Ocean Sciences)	F3	Math/Stat Resource Centre	D3	Thunderbird Stadium	K3
Angus (Business)	D,E3	Faculty of Graduate Studies-Graduate Student Centre	B3	Mather Building (Audiology & Speech Sciences, Dept. of Family Practice and Dept. of Health and Epidemiology)	H7	Thunderbird Winter Sports Centre	I6
Anthropology and Sociology	A3	Fairview Crescent Residence	H7	Matthews Field	K4	Todd Field	K6
Aquatic Centre	D,E5	Fairview Place	H8	Math Annex	D3	Totem Field Studios	I,J2
Arts (Buchanan)	C4	Food, Nutrition & Health Bldg	F4	Mechanical Engineering (CEME)	F,G4	Totem Park Residence	H1
Arts One	E3	Family Practice (Mather)	H7	Medical Block A (Copp)	E5	TRIUMF Visitor's Residence	H,6-7
Asian Centre	C2	FERIC	I,J4	Medical Block B (Friedman)	F6	University Boulevard	E-G,1-9
Astronomical Observatory (EOS East)	F3	First Nations Longhouse	D2	Medical Block C (Pharmacology)	F5	University Centre	B3
Audiology & Speech Science (Mather)	H7	Fisheries Centre & Zoology	F4	Melfa Court	I8	University Services Building	F,G2
Audiology & Speech Science (Classroom Trailer)	H7	Food Science Bldg	F1	Memorial Road	C,3-4	University Village /Marketplace	F7
Auditorium	C3	Forest Sciences Centre (Forestry)	H4	Michael Smith Laboratories	E4	Vancouver School of Theology (Chancellor)	B5
Auditorium Annex Offices	C3	FORINTEK	J4	Museum of Anthropology	A2,3	Vancouver School of Theology (Iona)	B6
Barn Coffee Shop	F3	Forward Bldg (Metallurgy)	F3	Music	C3	Walter C. Koerner Library	C,D3
Belkin Art Gallery	C3	Fraser River Parkade	C2	NCE	E4	War Memorial Gym (Human Kinetics)	E6
Berwick Memorial Centre	I7	Fraternity Village	J7	Nitobe Gardens	C1,2	Wesbrook Bldg (Life Sciences)	E5
Biochemistry (Copp)	E5	Frederic Wood Theatre	C3	Norman MacKenzie House	B1	Wesbrook Mall	D-K,6
Biological Sciences	E4	Friedman (Anatomy)	F6	North Parkade	C5	Wesbrook Place	G7
Biomedical Research	F5	Gage Residence/Conferences & Accommodation	C6	Northwest Marine Drive	B,2-5 & C-K,1	West Mall	B-J,2
BirdCoop (Student Recreation Centre)	D6	General Services Administration (Payroll, Purchasing, Parking, Human Resources)	E6	Nursing (Koerner Pavilion)	F5,6	West Mall Annex	C,D2
Bollert Hall	B4	Geography	D3	Old Administration Building	C3	West Parkade	E,F2
Bookstore	E4	Geophysics & Astronomy/Observatory (EOS East)	F3	Old Firehall	D3	Wolfson Field	K5
Botanical Garden	K1,2	Gerald McGavin Building	G5	Osborne Centre	H,I5	Women's Studies	C5
Botanical Garden Centre	J1	Graduate Student Centre	B3	Oyama Court	I7	Woodward Library	F5
Botany Annex	E3	Green College	A4	Parking	E6		
Brimacombe Building	G4	Haida House & Totem Poles	A2	Peter Wall Institute for Advanced Studies (University Centre)	B3		
Brock Hall (Admissions, Awards and Financial Aid, Career Services, Counselling, Disability Resources Centre, Housing, Registrar's Office, Student Recruitment)	C5	Hampton Place	K7,8	Pharmaceutical Sciences (Cunningham)	E,F5		
Buchanan (Arts)	C4	Health & Epidemiology (Mather)	H7	Pharmacology	F5		
Buchanan Towers	C4	Health Sciences Parkade	F5	Physics (Hennings)	D4		
Business (Angus)	D,E3	Hebb (Physics)	D4	Physiology (Copp)	E5		
Bus Terminals	E6,D6	Hennings (Physics)	D4	Place Vanier Residence	D1		
C.K. Choi Building (Institute of Asian Research)	C2	Hillel House	C5	Ponderosa Centre	D,E2		
Campus and Community Planning	F3	Horticulture	F2,3	Ponderosa Office Annexes	D2		
Campus Security	E4	Human Kinetics (War Memorial Gym)	E6	Psychology (Kenny)	E3		
Carey Hall	B7	ICICS (Computer Science)	G4	Pulp & Paper Research	G4		
Cecil Green Park House	A4	Ike Barber Learning Centre (Main Library)	C,D4	Purdy Pavilion	G5		
Cecil Green Park Road	A-B,3-4	Institute of Asian Research (C.K. Choi Building)	C2	RCMP & Firehall	J7		
Chan Centre for the Performing Arts	B4	Instructional Resource Centre (IRC)	F5,6	Regent College	F7		
Chancellor Boulevard	A-B,5-9	International House	B2	Rehabilitation Sciences (Acute Care Hospital)	F5,6		
Chemical Engineering	F4	J. Owen Pavilion (Sports Medicine Centre)	J5,6	Revelstoke Court	J8		
Chemistry	D4	Jack Bell Building (Social Work)	D,E3	Ritsumeikan-UBC House	G2		
Chemistry/Physics	E4	Kenny (Psychology)	E3	Rose Garden/Rose Garden Parkade	B3,4		
Child Care Programs	J8	Keremeos Court	I7	Rugby Pavilion	I5		
Child Care Services Administration	J8,9	Koerner Pavilion (Acute Care Unit (Academic Programs: Nursing/Rehab Sciences)	F5,6	Sage Bistro (University Centre)	B3		
Civil & Mechanical Engineering Building (CEME)	F,G4	Land and Food Systems (MacMillan)	G3	Salmo Court	J8		
CEME Labs	F4	Lassere (Architecture, Planning Fine Arts)	C3	Sauder School of Business (Commerce)	D,E3		
Clock Tower	C,D4	Law Annexes	C5	Scarfe (Education)	E3		
Coal Lab	G3	Leonard S.Klinck Building	D3	Science One (Leonard S.Klinck Building)	D3		
Columbian House	C6	Lett Field	K6	Sing Tao (School of Journalism)	C3		
Copp (Biochemistry/Physiology)	E5	Library Processing Centre	F5	Social Work (Jack Bell)	D,E3		
Crescent Road	B3	Life Sciences Centre	G,5-6	Spencer Pitch	J6		
Cunningham (Pharmacy)	E,F5	Liu Centre	B,C2	Sports Medicine Clinic (J.Owen Pavilion)	J5,6		
Curtis (Law)	B,C5	Lower Mall	C-G,2	St. Andrew's Hall	B5		
David Lam Management Research Centre	D3	Lutheran Campus Centre	E7	St. Andrew's Residence	C5		
Dentistry (Macdonald)	F6	Macdonald (Dentistry)	F6	St. John's College	E1,2		
Detwiller Pavilion	G6	MacInnes Field	D6	St. Mark's College	B7		
Distance Education & Technology-University Service Building	F,G2	MacLeod (Electrical Engineering)	G4	Stadium Road	J,3-4		
Donald Rix Building	G5	MacMillan (Land and Food Systems)	G3	Student Health Service	F5,6		
Earth & Ocean Sciences (EOS)	F3			Student Recreation Centre	D6		
East Mall	B-K,4-5			Student Union Boulevard	D,5-6		
				Student Union Building (SUB)	D5		
				Swing Space	E,F2		
				Tennis Centre	H,I5		

