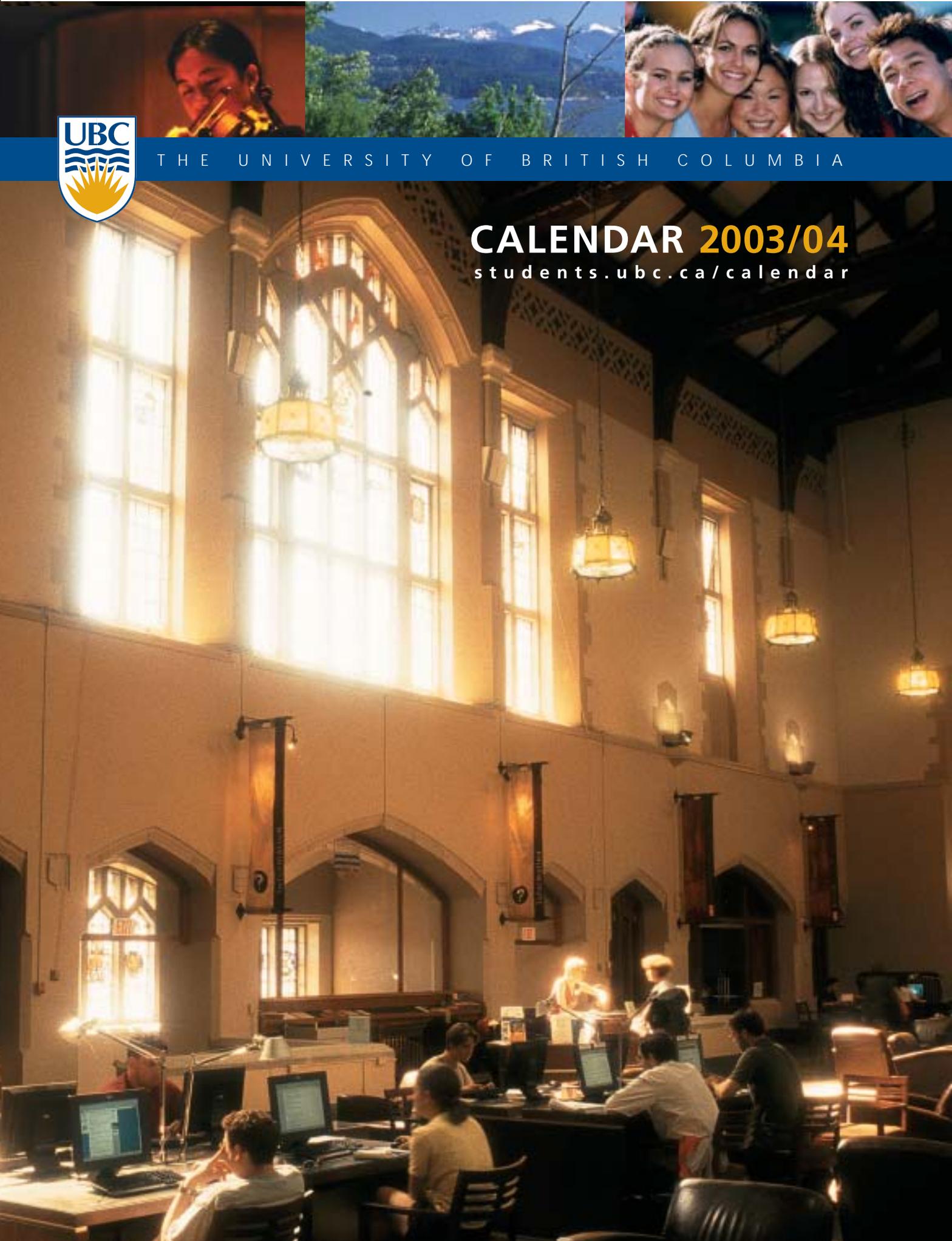




THE UNIVERSITY OF BRITISH COLUMBIA

CALENDAR 2003/04

students.ubc.ca/calendar





PUBLISHING AND EDITORIAL

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I Dates and Deadlines

Application and Document Deadlines 2004/2005

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.

The following information applies to both domestic and international students. For Non-Degree Studies (Visitor, Unclassified, Auditor, Concurrent, General Cooperative Agreement), the application deadline is June 30; document deadline is July 15.

| Program | Credential | Faculty/School | Application Deadline | Document Deadline |
|---|--------------------------------------|--------------------------------------|----------------------|-------------------|
| Acting ¹ | BFA | Arts | March 31 | June 30 |
| Agroecology | BSc (Agroecology) | Agricultural Sciences | March 31 | June 30 |
| Applied Creative Non-Fiction ¹ | Diploma | Arts | March 31 | March 31 |
| Applied Linguistics | Diploma | Arts | March 31 | June 30 |
| Applied Science (Engineering) | BASC | Applied Science (Engineering) | March 31 | June 30 |
| Art History | Diploma | Arts | July 31 | |
| Arts ² | BA | Arts | March 31 | June 30 |
| Commerce and Economics | BCom | Commerce and Business Administration | March 31 | June 30 |
| Creative Writing ¹ | BFA | Arts | March 31 | March 31 |
| Dental Science in Dental Hygiene ³ | BDSc | Dentistry | March 31 | June 30 |
| Dentistry ⁴ | DMD | Dentistry | November 1 | |
| Education ⁵ | BEd | Education | March 15 | March 15 |
| Environmental Science ¹ | BEd | Agricultural Sciences | March 31 | June 30 |
| Film ^{1,2} | BA | Arts | March 31 | June 30 |
| Film Studies ¹ | Diploma | Arts | March 31 | June 30 |
| Food and Nutritional Sciences | BSc (Food, Nutrition and Health) | Agricultural Sciences | March 31 | June 30 |
| Forest Operations | BSF | Forestry | March 31 | June 30 |
| Forest Resources Management | BSF | Forestry | March 31 | June 30 |
| Forest Science | BSc (Forestry) | Forestry | March 31 | June 30 |
| Global Resource Systems | BSc (Global Resource Systems) | Agricultural Sciences | March 31 | June 30 |
| Human Kinetics | BHK | Human Kinetics | March 31 | June 30 |
| International Dental Degree Completion | DMD | Dentistry | June 7 | |
| Journalism | MJ | Journalism | January 15 | January 15 |
| Law ⁶ | LLB | Law | February 1 | |
| Linguistics ¹ | Diploma | Arts | June 30 | July 15 |
| Medical Laboratory Science | BLSc | Medicine | May 31 | July 15 |
| Medicine | MD | Medicine | October 1 | |
| Meteorology | Diploma | Science | March 31 | June 30 |
| Midwifery ⁷ | BMw | Medicine | March 31 | June 30 |
| Music ¹ | BA, BMus | Music | March 31 | June 30 |
| Natural Resources Conservation | BSc (Natural Resources Conservation) | Forestry | March 31 | June 30 |
| Nursing ⁸ | BSN | Nursing | March 31 | June 30 |
| Pharmacy ⁷ | BSc (Pharm.) | Pharmaceutical Sciences | March 31 | June 15 |
| Science ⁹ | BSc | Science | March 31 | June 30 |
| Social Work | BSW | Social Work and Family Studies | February 28 | February 28 |

| Program | Credential | Faculty/School | Application Deadline | Document Deadline |
|--|--------------------------------|----------------|----------------------|-------------------|
| Theatre Design and Technology ¹ | Certificate | Arts | March 31 | June 30 |
| Visual Art ^{1,10} | BFA | Arts | March 31 | June 30 |
| Wood Products Processing | BSc (Wood Products Processing) | Forestry | March 31 | June 30 |

¹ Contact the department or program directly regarding portfolio, audition or manuscript requirements.

² Supplementary application forms are required for the following programs and are due on the dates indicated: Economics Major (June 15), English Honours (April 30), Interdisciplinary Studies BA (May 15), International Relations Major (May 15), Political Science Major (May 15), Theatre or Film Major (April 1).

³ Application deadline for Dental Science in Dental Hygiene Degree completion is April 15 for admission in September; September 15 for admission the following January.

⁴ Including applications for readmission.

⁵ All documents except transcripts for work in progress are required by March 15. Transcripts showing completion of work in progress are required by June 15. For a Diploma in Education, applications are accepted all year and must be received one month before anticipated registration date.

⁶ The deadline for applying for readmission is May 31.

⁷ A supplemental application form is required and must be submitted by March 31.

⁸ A supplemental application form is required for 3rd year entry. Post RN applicants must apply directly to the School of Nursing.

⁹ 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 May 15, 2001.

¹⁰ Deadlines also apply for entry into second-year Visual Art courses.

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- Art Therapy
- Clinical Hypnosis
- Classroom Psychology

Attend an info session, 1-2:30 pm, on any one of the following dates:



| | |
|-------------------|-------------------|
| Feb. 08/03 | Feb. 22/03 |
| Mar. 08/03 | Mar. 22/03 |
| Mar. 29/03 | Apr. 12/03 |
| Apr. 26/03 | May 10/03 |
| May 17/03 | June 07/03 |
| June 21/03 | |

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Academic Year 2003/2004

The Academic Year for most Faculties begins on September 2, 2003 and ends on August 31, 2004. The last day of classes for the Winter Session, Term 1, is November 28, 2003. The last day of classes for Term 2 is April 8, 2004.

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.

Distance Education courses are offered in a growing number of disciplines by Distance Education & Technology. Registration for most DE&T courses is at six specified intake periods during the year.

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.

Note: Faculty of Medicine and Faculty of Dentistry, DMD, first and second years. Faculty of Medicine and Faculty of Dentistry DMD undergraduate students will be provided with dates relating to the undergraduate program as soon as all dates are available and confirmed by the respective Faculties.

SEPTEMBER

MONDAY, 1 SEPTEMBER 2003
Labour Day. University closed.

TUESDAY, 2 SEPTEMBER 2003
2003/04 Academic Year begins.

Classes begin for 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 and Technology: course start date for September (Term A).

General Bursary Program applications available from the Office of Student Financial Assistance.

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 p.m. and meet only once per week.

Law, first year: orientation begins.

Law, second and third years: classes begin.

Teacher Education Program, Elementary, Middle Years and Secondary: orientation. Students in Year 2 of 2-Year Elementary: practicum begins (September 2 to November 28 inclusive).

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

WEDNESDAY, 3 SEPTEMBER 2003

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, no subsequent registration activity, no release of grades or graduation diploma will be issued. 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 section—published in Calendar).

Last day for payment of first installment of fees for registration and course changes made before September 1st. Student who have not paid their fees will be placed on financial hold, no subsequent registration activity, no release of grades or graduation diploma will be issued. 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 section—published in Calendar).

FRIDAY, 5 SEPTEMBER 2003

Graduate Studies: last day for submission to most departments of Master's degree theses in final form for November graduation. Deadlines differ for some graduate departments. Students

should check with their respective departments or Faculties.

THURSDAY, 11 SEPTEMBER 2003

Disability Resource Centre: new client orientation.

FRIDAY, 12 SEPTEMBER 2003

Graduate Studies: students wishing to apply for University Graduate Fellowships and external awards administered through the University (NSERC, SSHRC) for 2004/05 should check with their departments for internal student deadlines.

MONDAY, 15 SEPTEMBER 2003

Graduate Studies: last day for departments to allocate 2003/2004 Graduate Entrance Scholarships to graduate students new to the Faculty of Graduate Studies.

TUESDAY, 16 SEPTEMBER 2003

Last day for withdrawal from most Term 1 courses without withdrawal standing of 'W' recorded on a student's academic record. Student Information System remains open for course withdrawals with a 'W' standing.

Distance Education and Technology: Student Service Centre closes for DE & T courses starting in September (Term A). Last day for 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, 17 SEPTEMBER 2003

Meeting of the Senate.

FRIDAY, 19 SEPTEMBER 2003

Last date for change in registration and for withdrawal from most two-term courses without withdrawal standing of 'W' recorded on transcript. Student Information System remains open for course withdrawals with a 'W' standing.

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

B.C. Students: By this date, your application for student loan must have been received and assessed by the Ministry of Advanced Education.

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

Last day for completion of Bachelor's degree program requirements for graduation in November.

Last day to apply for UBC Work Study. Applications must have been received by Student Financial Assistance and Awards in Brock Hall by 4:00 pm.

Out-of-Province Students: By this date, Student Financial Assistance and Awards must have either received your 2003/04 student loan documents or received a copy of an official notification of award from your home province attached with your UBC Work Study application.

THURSDAY, 25 SEPTEMBER 2003

Graduate Studies: last day for major papers for non-thesis Master's degrees to be approved and submitted to departmental or Faculty graduate offices for students wishing to graduate in November. Deadlines differ for some graduate departments. Students should check with their respective departments or Faculties.

FRIDAY, 26 SEPTEMBER 2003

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

SATURDAY, 27 SEPTEMBER 2003

Alumni Day.

TUESDAY, 30 SEPTEMBER 2003

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

OCTOBER

WEDNESDAY, 1 OCTOBER 2003

General University Bursaries: last day for applications to be submitted to the Office of Student Financial Assistance.

FRIDAY, 3 OCTOBER 2003

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

TUESDAY, 7 OCTOBER 2003

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; no subsequent registration activity, no release of grades or graduation diploma will be issued. 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).

FRIDAY, 10 OCTOBER 2003

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

Distance Education and Technology: course information will be sent to students for courses beginning in November (Term B).

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 to be awarded in November.

Graduate Studies: last day for submission to Library of Master's and Doctoral theses for graduation in November.

MONDAY, 13 OCTOBER 2003

Thanksgiving Day. University closed.

WEDNESDAY, 15 OCTOBER 2003

Awards for students with disabilities: last day for applications to be submitted to the Awards and Financial Aid Office.

Meeting of the Senate.

FRIDAY, 17 OCTOBER 2003

Graduate Studies: deadline for departments to submit nominations for University Graduate Fellowships to the Faculty of Graduate Studies on behalf of the students. Students must contact departments for information regarding deadlines for departmental review.

MONDAY, 20 OCTOBER 2003

Teacher Education Program: Secondary practicum begins (October 20 to 31 inclusive)

TUESDAY, 21 OCTOBER 2003

Rehabilitation Sciences, fourth year, RHSC and RSPT examinations (October 21 to 24 inclusive).

FRIDAY, 24 OCTOBER 2003

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

SATURDAY, 25 OCTOBER 2003

Deadline for completion of the Language Proficiency Index (LPI) for all students intending to take a first-year English course in January 2004 (Winter Session, Term 2).

MONDAY, 27 OCTOBER 2003

Rehabilitation Sciences, fourth year: clinical field work begins for Physical Therapy students (October 27 to November 28 inclusive).

FRIDAY, 31 OCTOBER 2003

Graduate Studies: last day for Faculty of Graduate Studies to receive recommendations from departments for North American Students to be admitted for registration in January.

NOVEMBER

MONDAY, 3 NOVEMBER 2003

Distance Education & Technology: course start date for November (Term B).

TUESDAY, 11 NOVEMBER 2003

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

MONDAY, 17 NOVEMBER 2003

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

Disability Resource Centre: recommended date for submission of Exam Accommodation forms for December examinations.

Distance Education and Technology (Term B): Student Service Centre closes for DE & T courses starting in November (Term B). Last day for changes in registration and for withdrawal without a 'W' standing recorded on a student's academic record.

WEDNESDAY, 19 NOVEMBER 2003

Meeting of the Senate.

FRIDAY, 21 NOVEMBER 2003

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

Killam Postdoctoral Fellowships: last day for departments to submit nominations to Faculty of Graduate Studies for 2004 Fellowship competition.

WEDNESDAY, 26 NOVEMBER 2003

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

THURSDAY, 27 NOVEMBER 2003

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

FRIDAY, 28 NOVEMBER 2003

Last day of classes for most Faculties.

Fall Congregation ceremonies, Day 3. The Chan Centre for the Performing Arts.

Law, all years: last day of classes.

DECEMBER

TUESDAY, 2 DECEMBER 2003

December examinations begin for most Faculties, day and evening classes (December 2 to December 16 inclusive). Saturdays are included in the exam schedule.

Law, all years: December examinations begin.

FRIDAY, 5 DECEMBER 2003

Dentistry, D.M.D., third and fourth years: last day of program prior to December break.

SATURDAY, 6 DECEMBER 2003

Dentistry, D.M.D., third and fourth years: study and assessment period begins (December 6 to 12 inclusive).

MONDAY, 8 DECEMBER 2003

Supplemental and deferred examination period (Summer Session).

WEDNESDAY, 10 DECEMBER 2003

Student Exchange Programs: application deadline for Education Abroad Programs (EAP) and Canadian Exchange Programs (CANEX).

MONDAY, 15 DECEMBER 2003

Graduate Studies: last day for supervisors to submit "Appointment of External Examiner for Doctoral Thesis" form to Faculty of Graduate Studies for students expecting to graduate in May. Submissions received after this date may not be processed in time for spring graduation.

TUESDAY, 16 DECEMBER 2003

Last day of December examinations for most Faculties.

WEDNESDAY, 17 DECEMBER 2003

Meeting of the Senate.

THURSDAY, 18 DECEMBER 2003

Law, all years: last day of December examinations.

THURSDAY, 25 DECEMBER 2003

Christmas Day. University closed.

FRIDAY, 26 DECEMBER 2003

Boxing Day. University closed.

MONDAY, 29 DECEMBER 2003

Reduced student services in some departments until January 2, 2004.

WEDNESDAY, 31 DECEMBER 2003

BC Student Assistance Program (BCSAP): last day for applications and appeals for 2003/04 Winter Session (subject to change).

JANUARY**THURSDAY, 1 JANUARY 2004**

New Year's Day. University closed.

FRIDAY, 2 JANUARY 2004

Deadline for application of deferment of tuition fee payment for Winter Session Term 2 for new and returning students not registered in Winter Session Term 1. This applies only to student loan recipients and students who hold major external graduate or undergraduate fellowships.

Dentistry, D.M.D., third and fourth years: classes begin.

MONDAY, 5 JANUARY 2004

Second term begins, Winter Session: all Faculties, day and evening classes.

Distance Education and Technology: course start date for January (Term C).

International Student Services orientation for new international (including US) and exchange students entering Winter Session Term 2.

Law, all years: classes begin.

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

Pharmaceutical Sciences, fourth year: clinical clerkship period begins (January 5 to 30 inclusive).

Pharmaceutical Sciences, fourth year: Pharmacy Elective block begins.

Rehabilitation Sciences, fourth-year Occupational Therapy students: clinical fieldwork begins (January 5 through April 16 inclusive).

Rehabilitation Sciences, third-year Physical Therapy students: clinical fieldwork begins (January 5 through February 6 inclusive).

Rehabilitation Sciences: second- and fourth-year Physical Therapy classes and second- and third-year Occupational Therapy classes begin.

Teacher Education Program, Elementary, Middle Years and Updating Program: practica begin (January 5 to 16 inclusive). Students in year 2 of 2-year Elementary: courses begin.

WEDNESDAY, 7 JANUARY 2004

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; no subsequent registration activity, no release of grades or graduation diploma will be issued. 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 section—published in 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; no subsequent registration activity, no release of grades or graduation diploma will be issued. 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 section—published in Calendar).

THURSDAY, 15 JANUARY 2004

Pharmaceutical Sciences: deadline for application for Pharm.D. program commencing in August 2004.

FRIDAY, 16 JANUARY 2004

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

MONDAY, 19 JANUARY 2004

Last day for withdrawal from most Term 2 courses without withdrawal standing of 'W' recorded on a student's academic record. Student Information System remains open for course withdrawals with 'W' standing.

Distance Education and Technology: Student Service Centre closes for DE & T 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.

WEDNESDAY, 21 JANUARY 2004

Meeting of the Senate.

FEBRUARY**SUNDAY, 1 FEBRUARY 2004**

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

MONDAY, 2 FEBRUARY 2004

Pharmaceutical Sciences, fourth year: clinical clerkship period begins (February 2 to 27 inclusive).

Teacher Education Program: Secondary practicum begins (February 2 to May 7 inclusive).

TUESDAY, 3 FEBRUARY 2004

Pharmaceutical Sciences, fourth year: clinical clerkship begins (February 3–28 inclusive).

THURSDAY, 5 FEBRUARY 2004

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

SATURDAY, 7 FEBRUARY 2004

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; no subsequent registration activity, no release of grades or graduation diploma will be issued. 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 section—published in Calendar).

TUESDAY, 10 FEBRUARY 2004

Distance Education and Technology: course information will be sent to students for courses beginning in March (Term D).

THURSDAY, 12 FEBRUARY 2004

Rehabilitation Sciences, fourth-year Physical Therapy: midterm break begins (February 12 to 13 inclusive).

FRIDAY, 13 FEBRUARY 2004

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

MONDAY, 16 FEBRUARY 2004

Midterm break for most Faculties begins (February 16 to 20 inclusive). Lectures and laboratories cancelled. Library and other facilities open.

Commerce and Business Administration: Master's classes continue (M.B.A. midterm break April 13 to 16 inclusive).

Law: midterm break begins (February 16 to 20 inclusive). Lectures cancelled.

Pharmaceutical Sciences, first, second, and third years: midterm break begins (February 16 to 20 inclusive).

Rehabilitation Sciences, fourth-year Physical Therapy students: examinations begin (February 16 to 20 inclusive).

Rehabilitation Sciences, second- and third-year Occupational Therapy and Physical Therapy students: midterm break begins (February 16 to 20 inclusive).

Teacher Education Elementary 12 month and Middle Years: classes continue.

SATURDAY, 21 FEBRUARY 2004

Deadline for completion of the Language Proficiency Index (LPI) test by all students

intending to take a first-year English course in Summer Session 2004 (Terms 1 and 2).

MONDAY, 23 FEBRUARY 2004

Rehabilitation Sciences, fourth year Occupational Therapy students: midterm break begins (February 23 to 27 inclusive).

Rehabilitation Sciences, fourth year Physical Therapy students: clinical fieldwork begins (February 23 to May 7 inclusive).

WEDNESDAY, 25 FEBRUARY 2004

Meeting of the Senate.

SATURDAY, 28 FEBRUARY 2004

UBC Entrance Scholarship deadline.

MARCH

MONDAY, 1 MARCH 2004

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.

Distance Education and Technology: course start date for March (Term D).

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

Pharmaceutical Sciences, fourth year: clinical clerkship period begins (March 1–26 inclusive).

FRIDAY, 12 MARCH 2004

Dentistry, D.M.D., third and fourth years: last day of program prior to mid-term break.

MONDAY, 15 MARCH 2004

Distance Education and Technology (Term D): Student Service Centre closes for DE & T courses starting in March. Last day for changes in registration and for withdrawal without a 'W' standing on a student's academic record.

Summer Session: Student Service Centre available for registration for all courses (subject to change). Most courses run: Term 1 (evening courses) May 10 to July 31 inclusive; Term 2 (daytime courses) July 12 to August 21 inclusive.

Dentistry, D.M.D., third and fourth years: mid-term break (March 15 to 19 inclusive).

THURSDAY, 18 MARCH 2004

Graduate Studies: last day for major papers for non-thesis Master's degrees to be approved and submitted to departmental or Faculty graduate offices for Spring graduation. Deadlines differ for some graduate departments. Students should check with their respective department or Faculty.

Graduate Studies: last day for submission to most departments of Master's degree theses in final form for Spring graduation. Deadlines differ for some graduate departments. Students should check with their respective department or Faculty.

Last day for submission of graduating essays and theses, most Bachelor's degree programs.

Teacher Education Program, Elementary 12-month and Middle Years: final examinations begin (March 18 to 19 inclusive).

MONDAY, 22 MARCH 2004

Dentistry, D.M.D., fourth year: study and assessment period begins (March 22 to 26 inclusive).

Disability Resource Centre: recommended date for submission of Exam Accommodation forms for April examinations.

Teacher Education Elementary 12 month and Middle Years: practica begin (March 22 to June 18 inclusive).

WEDNESDAY, 24 MARCH 2004

Meeting of the Senate.

MONDAY, 29 MARCH 2004

Pharmaceutical Sciences, fourth year: clinical clerkship period begins (March 29 to April 23 inclusive).

Rehabilitation Sciences, fourth-year Physical Therapy: study break begins (March 29 to April 2 inclusive).

WEDNESDAY, 31 MARCH 2004

Application deadline for Summer Session and Winter Session Term 1 and Term 2 courses.

Summer Session: last day for Teaching and Research Assistants to apply for payroll deduction of Summer Session Tuition fees. Students who do not submit their applications by the deadline will be required to pay the first installment of fees by May 12 to avoid financial hold procedure (see Fees section—published in Calendar).

APRIL

THURSDAY, 1 APRIL 2004

Crane Resource Centre: recommended date for submission of materials for alternate format production for Summer Session for courses starting May 10.

Faculty Association General Faculty Meeting, 1:00 p.m.

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

FRIDAY, 2 APRIL 2004

Law, all years: last day of classes.

TUESDAY, 6 APRIL 2004

Law: Examinations begin.

THURSDAY, 8 APRIL 2004

Last day of classes for most Faculties.

Distance Education and Technology: course information will be sent to students for courses beginning in May (Term A).

FRIDAY, 9 APRIL 2004

Good Friday. University closed.

MONDAY, 12 APRIL 2004

Commerce and Business Administration, M.B.A.: midterm break begins (April 12 to 16 inclusive).

TUESDAY, 13 APRIL 2004

April examinations begin (day and evening classes) for most Faculties (April 13 to 27 inclusive). Saturdays are included in the examination schedule.

Easter Monday. University closed.

THURSDAY, 15 APRIL 2004

Deadline for application of deferment of tuition fee payment for Summer Session Term 1.

Deadline for receipt of nominations for entrance scholarships for students enrolling at UBC from Grade 12.

SUNDAY, 18 APRIL 2004

Forestry, third year: FRST 452 field work begins at the University Research Forest, Maple Ridge, BC (April 18 to May 1 inclusive).

MONDAY, 19 APRIL 2004

Rehabilitation Sciences, fourth-year Occupational Therapy: final course (RSOT 434) begins.

Rehabilitation Sciences, third-year Occupational Therapy: clinical fieldwork begins (April 19 to July 9 inclusive).

WEDNESDAY, 21 APRIL 2004

Meeting of the Senate.

FRIDAY, 23 APRIL 2004

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 to Library of all Master's and Doctoral theses for Spring graduation.

Pharmaceutical Sciences, fourth year: last day of clinical clerkships.

TUESDAY, 27 APRIL 2004

2003/04 Winter Session ends.

Last day of April examinations for most Faculties.

Law, all years: last day of examinations.

FRIDAY, 30 APRIL 2004

Geography, third year: GEOG 309 field school begins.

Rehabilitation Sciences, fourth-year Occupational Therapy: last day of classes.

MAY

SATURDAY, 1 MAY 2004

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 installment of fees by May 12 to avoid financial hold procedure (see Fees section—published in Calendar).

SUNDAY, 2 MAY 2004

Earth and Ocean Sciences, second year students: Geology Field School begins (EOSC 223) (May 2 to May 15 inclusive).

Earth and Ocean Sciences, third year students: Geology field school begins (EOSC 328) (May 2 to May 15 inclusive).

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

MONDAY, 3 MAY 2004

Civil Engineering Surveying field school (CIVL 235) begins (May 3 to 15 inclusive).

Rehabilitation Sciences, second- and third-year Physical Therapy: students begin placement (May 3 to August 13 inclusive).

Rehabilitation Sciences, second-year Occupational Therapy: students begin placement (May 3 to June 18 inclusive).

FRIDAY, 7 MAY 2004

General and Entrance Scholarships: last day for applications to be submitted to the Awards Office by students entering UBC from other post-secondary institutions, or returning to UBC after a year or more of absence.

MONDAY, 10 MAY 2004

Summer Session, Term 1: first day of classes for terms running from May 10 to June 19, and May 10 to July 31.

Affiliation Scholarships: last day for applications to be submitted to the Awards Office.

Distance Education and Technology: course start date for May (Term A).

WEDNESDAY, 12 MAY 2004

Graduate Studies: last day for payment of May installment of tuition fees. Students who have not paid their fees will be placed on financial hold; no subsequent registration activity, no release of grades or graduation diploma will be issued. 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 section—published in Calendar).

Summer Session, Term 1: tuition fees due.

FRIDAY, 14 MAY 2004

Last day for withdrawal from most three-credit courses starting May 10 without withdrawal standing of 'W' recorded on a student's academic record. Student Information System 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 16.

Dentistry, D.M.D., fourth year: last day of program.

Distance Education and Technology: Student Service Centre closes for DE & T courses starting in May (Term A). Last day for changes in registration and for withdrawal without a 'W' standing recorded on a student's academic record.

SATURDAY, 15 MAY 2004

Science One Program: application deadline.

TUESDAY, 18 MAY 2004

Teacher Education Secondary: most classes begin for Term 1 Summer Session (May 18 to June 25 inclusive).

WEDNESDAY, 19 MAY 2004

Meeting of the Senate.

FRIDAY, 21 MAY 2004

Last day for withdrawal from most six-credit courses starting May 10 without withdrawal standing of 'W' recorded on a student's academic record. Student Information System remains open for course withdrawals with 'W' standing.

MONDAY, 24 MAY 2004

Victoria Day. University closed.

WEDNESDAY, 26 MAY 2004

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

Baccalaureate Concert: The Chan Centre for the Performing Arts.

THURSDAY, 27 MAY 2004

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

FRIDAY, 28 MAY 2004

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

Graduate Studies: last day for supervisors to submit Appointment of External Examiner for Doctoral Thesis form to the Faculty of Graduate Studies for students planning to graduate in November. Submissions received after this date may not be processed in time for November graduation.

Last date for withdrawal from most three-credit courses starting May 10 with withdrawal standing of 'W' recorded on a student's academic record.

Disability Resource Centre: recommended date for submission of Exam Accommodation forms for Summer Session, Term 1, for courses ending June 18.

MONDAY, 31 MAY 2004

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

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

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

JUNE

TUESDAY, 1 JUNE 2004

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

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

WEDNESDAY, 2 JUNE 2004

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

Crane Resource Centre: recommended date for submission of materials for alternate format production for Summer Session, Term 2, for courses starting July 12.

FRIDAY, 4 JUNE 2004

Dentistry, D.M.D., third year: last day of program.

SATURDAY, 5 JUNE 2004

Dentistry, D.M.D., third year: study and assessment period begins (June 5 to 11 inclusive).

TUESDAY, 8 JUNE 2004

Summer Session, Terms 1 and 2: last day for BC Student Assistance Program applications for 2004 (subject to change).

THURSDAY, 10 JUNE 2004

Deadline for submission to the Office of Student Financial Assistance of entrance scholarship applications from students applying from other post-secondary institutions.

Distance Education and Technology: course information will be sent to students for courses beginning in July (Term B).

FRIDAY, 11 JUNE 2004

Last day for submission of applications for supplemental and deferred examinations from previous Winter Session.

FRIDAY, 18 JUNE 2004

Last date for withdrawal from most six-credit courses starting May 10 with withdrawal standing of 'W' recorded on a student's academic record.

Summer Session, Term 1, some courses end. Examinations are held either this evening or on the following Saturday.

MONDAY, 21 JUNE 2004

Summer Session, Term 1: first day of classes for courses running June 21 to July 31.

Deadline for application for deferment of tuition fee payment for Summer Session, Term 2. This applies only to student loan recipients and students who hold major external graduate or undergraduate fellowships.

WEDNESDAY, 23 JUNE 2004

Application deadline for supplemental and deferred examinations from 2002/03 Winter Session.

FRIDAY, 25 JUNE 2004

Summer Session, Term 1: Last day for withdrawal from most three-credit courses starting June 21 without withdrawal standing of 'W' recorded on a student's academic record. Student Information System remains open for course withdrawals with 'W' standing.

MONDAY, 28 JUNE 2004

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

WEDNESDAY, 30 JUNE 2004

Graduate Studies: last day for Faculty of Graduate Studies to receive files from departments on North American students to be admitted for registration in September.

Affiliation Bursaries: last day for applications to be submitted to the Student Financial Assistance Office.

JULY**THURSDAY, 1 JULY 2004**

Canada Day. University closed.

FRIDAY, 2 JULY 2004

Law: supplemental and deferred examinations begin (July 2 to July 11 inclusive).

MONDAY, 5 JULY 2004

Teacher Education Program: Elementary 12-month, Middle Years, Secondary: classes begin for Summer Session, Term 2 (Full Term: July 5 to August 13, Term A: July 5 to 23 and Term B: July 26 to August 13).

FRIDAY, 9 JULY 2004

Summer Session, Term 1: Last date for withdrawal from most three-credit courses starting June 21 with withdrawal standing of 'W' recorded on a student's academic record.

Disability Resource Centre: recommended date for submission of Exam Accommodation forms for Summer Session, Term 1, for courses ending July 31.

MONDAY, 12 JULY 2004

Summer Session, Term 2: some courses begin (July 12 to August 21 inclusive).

Distance Education and Technology: course start date for July (Term B).

WEDNESDAY, 14 JULY 2004

Summer Session, Term 2: Last day for withdrawal from most three-credit courses starting July 12 without withdrawal standing of 'W' recorded on a student's academic record. Student Information System remains open for course withdrawals with 'W' standing.

Summer Session, Term 2: tuition due date.

Distance Education and Technology: Student Service Centre closes for DE & T courses starting in July (Term B). Last day for changes in registration and for withdrawal without a 'W' standing recorded on a student's academic record.

SATURDAY, 17 JULY 2004

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 2004.

MONDAY, 19 JULY 2004

Summer Session, Term 2: Last date for withdrawal from most three-credit courses starting July 12 with withdrawal standing of 'W' recorded on a student's academic record.

Crane Resource Centre: recommended date for submission of materials for alternate format production for Winter Session, Term 1.

TUESDAY, 20 JULY 2004

Summer Session, Term 2: Last date for withdrawal from most six-credit courses starting July 12 without withdrawal standing of 'W' recorded on a student's academic record. Student Information System remains open for course withdrawals with 'W' standing.

MONDAY, 26 JULY 2004

Supplemental and deferred examination period (Winter Session), weekdays (July 26 to August 6 inclusive).

WEDNESDAY, 28 JULY 2004

Summer Session, Term 2: Last date for withdrawal from most six-credit courses starting July 12 with withdrawal standing of 'W' recorded on a student's academic record.

FRIDAY, 30 JULY 2004

Summer Session Term 1: all classes end. Examinations are held either this evening or on the following Saturday.

Summer Session Term 2: some courses end.

Examinations are held either this evening or on the following Saturday.

SATURDAY, 31 JULY 2004

Graduate Studies: last day for submission of doctoral theses to the Faculty of Graduate Studies for sending to the external examiner in time for November graduation (note: the final oral examination cannot be held until a minimum of 8 weeks has passed after transmission of a thesis to the external examiner).

AUGUST**MONDAY, 2 AUGUST 2004**

BC Day. University closed.

TUESDAY, 3 AUGUST 2004

Summer Session, Term 2: some courses begin (August 3 to 21 inclusive).

FRIDAY, 6 AUGUST 2004

Summer Session, Term 2: Last date for withdrawal from most three-credit courses starting August 3 without withdrawal standing of 'W' recorded on a student's academic record. Student Information System remains open for course withdrawals with 'W' standing.

SATURDAY, 7 AUGUST 2004

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 2004. Out-of-Province students may be granted permission write on August 28th if they miss the LPI sitting in their province. To seek permission, write to First-Year. English@ubc.ca.

MONDAY, 9 AUGUST 2004

International Student Services welcome services for new international (including US) and exchange students (August 09 to 27 inclusive, and ongoing).

TUESDAY, 10 AUGUST 2004

Distance Education and Technology: course information will be sent to students for courses beginning in September (Term A).

FRIDAY, 13 AUGUST 2004

Deadline for application for deferment of Winter Session tuition payment date. Students who do not meet the deferment deadline will be required to pay the first installment of tuition fees by September 8 to avoid financial hold procedure (see Fees section—published in Calendar).

Last date for withdrawal from most three-credit courses starting August 3 with withdrawal standing of 'W' recorded on a student's academic record.

Last day for Teaching and Research Assistants to apply for payroll deduction of Winter Session tuition fees. 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 installment of tuition fees by September 9 to avoid financial hold procedure (see Fees section—published in Calendar).

Disability Resource Centre: recommended date for submission of Exam Accommodation forms for Summer Session, Term 2 courses ending August 21.

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

MONDAY, 16 AUGUST 2004

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.

WEDNESDAY, 18 AUGUST 2004

Dentistry, D.M.D., third year: first day of program (subject to change).

FRIDAY, 20 AUGUST 2004

Summer Session Term 2: some courses end. Examinations are held either this evening or on the following Saturday.

WEDNESDAY, 25 AUGUST 2004

International Student Services orientation week for new international (including US) and exchange students begins (August 25 to 27 inclusive).

TUESDAY, 31 AUGUST 2004

2003/04 Academic Year ends.

II Establishment & Constitution

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 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 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 campus on Point Grey.

University Act

The *Universities Act* was rewritten in 1974 and has since been further revised. The University currently operates under the authority of the *University Act of the Province of British Columbia* (RSBC 1996, c468). Following are excerpts from the Act.

“The following corporations continue to be universities in British Columbia: (a) The University of British Columbia; (b) University of Victoria; (c) Simon Fraser University.”

“Each university is composed of a chancellor, a convocation, a board, a senate, and faculties.”

“Each university continues as a corporation, having the rights, powers, duties and liabilities set out in this Act.”

“The convocation of a university is composed of the following persons: (a) the chancellor, who is the chair; (b) the president; (c) the members of the senate; (d) all faculty members; (e) all persons who are graduates of the university; (f) all persons whose names are added to the roll of the convocation by the senate; (g) all persons not previously referred to in this section who are named on the roll of the convocation of that university immediately before to July 4, 1974.”

“The board is composed of fifteen members, as follows: (a) the chancellor; (b) the president; (c) two faculty members elected by the faculty members; (d) eight persons appointed by the Lieutenant Governor in Council, two of whom are to be appointed from among persons nominated by the alumni association; (e) two full time students elected from the student association; (f) one person elected by and from the full time employees of the university who are not faculty members.”

“The senate of each university is composed of the following: (a) the chancellor; (b) the president, who is its chair; (c) the academic Vice-President or equivalent; (d) the deans of faculties; (e) the chief librarian; (f) the director of continuing education; (g) a number of faculty members equal to twice the number provided in paragraphs (a) to (f), to consist of two members of each faculty elected by the members of that faculty, and the remainder elected by all the faculty members in the manner that they, in joint meeting, determine; (h) a number of full time students, equal to the number provided in paragraphs (a) to (f), elected from the student association in a manner that ensures that at least one student from each faculty is elected; (i) four persons who are not faculty members, elected by and from the convocation; (j) four persons appointed by the Lieutenant Governor in Council; (k) one member to be elected by the governing body of each affiliated college of the university; (l) additional members the senate may determine without altering the ratio set out in paragraphs (g) and (h).”

“A university must, so far as and to the full extent that its resources from time to time permit. . . (a) establish and maintain colleges, schools, institutes, faculties, departments, chairs, and courses of instruction; (b) provide instruction in all branches of knowledge; (c) establish facilities for the pursuit of original research in all branches of knowledge; (d) establish fellowships, scholarships, exhibitions, bursaries, prizes, rewards, and pecuniary and other aids to facilitate or encourage proficiency in the subjects taught in the university and original research in all branches of knowledge; (e) provide a program of continuing education in all academic and cultural fields throughout British Columbia; (f) generally, promote and carry on the work of a university in all its branches, through the co-operative effort of the board, senate, and other constituent parts of the university.”

“A university must be non-sectarian and non-political in principle.”

Coat-of-Arms

Argent three Bars wavy Azure issuant from the base of a demi Sun in splendour proper on a Chief of the second an open Book also proper edged strapped and buckled or inscribed with the words “Tuum est”.

Courses of Study and Degrees

The University offers instruction in each of its faculties and schools. Doctoral and master’s

degrees listed below are offered by the Faculty of Graduate Studies. For complete information on graduate programs, see p. 209. For a listing of graduate interdisciplinary programs offered, see *Interdisciplinary Studies* in the Faculty of Graduate Studies section on p. 241.

AGRICULTURAL SCIENCES

| | |
|--|------------------------------------|
| Bachelor of Environmental Design | B.End. |
| 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) |
| Bachelor of Home Economics | B.H.E. |
| Master of Landscape Architecture | M.L.A. |
| Master of Advanced Studies in Landscape Architecture | M.A.S.L.A. |
| Master of Science | M.Sc. |
| Master of Applied Science | M.A.Sc. |
| Doctor of Philosophy | Ph.D. |

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. |
| Master of Science | M.Sc. |
| Doctor of Philosophy | Ph.D. |

ARCHITECTURE

| | |
|--|----------|
| Master of Architecture | M.Arch. |
| Master of Advanced Studies in Architecture | M.A.S.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 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 | | JOURNALISM | | REHABILITATION SCIENCES | |
| Bachelor of Commerce | B.Com. | Master of Journalism | M.J. | Bachelor of Science in Occupational Therapy | B.Sc. (O.T.) |
| Bachelor of Business in Real Estate | B.B.R.E. | LAW | | Bachelor of Science in Physical Therapy | B.Sc. (P.T.) |
| Master of Business Administration | M.B.A. | Bachelor of Laws | LL.B. | Master of Science | M.Sc. |
| Master of Business Administration with Bachelor of Laws | M.B.A./LL.B. | Master of Business Administration with Bachelor of Laws | M.B.A./LL.B. | | |
| Master of Science in Business Administration | M.Sc. (Bus. Admin.) | Master of Laws | LL.M. | SCIENCE | |
| Doctor of Philosophy | Ph.D. | Doctor of Philosophy | Ph.D. | Bachelor of Science | B.Sc. |
| | | | | Master of Science | M.Sc. |
| | | LIBRARY, ARCHIVAL AND INFORMATION STUDIES | | Doctor of Philosophy | Ph.D. |
| COMMUNITY AND REGIONAL PLANNING | | Master of Library and Information Studies | M.L.I.S. | | |
| Master of Arts in Planning | M.A.P. | Master of Archival Studies | M.A.S. | SOCIAL WORK AND FAMILY STUDIES | |
| Master of Science in Planning | M.Sc.P. | Master of Archival Studies with Master of Library and Information Studies | M.A.S./M.L.I.S. | Bachelor of Social Work | B.S.W. |
| Doctor of Philosophy | Ph.D. | Doctor of Philosophy | Ph.D. | Bachelor of Arts | B.A. |
| | | | | Master of Social Work | M.S.W. |
| | | | | | |
| DENTISTRY | | | | DIPLOMAS | |
| Bachelor of Dental Science | B.D.Sc. | | | Accounting/Administration for Engineers/ Administration for Foresters/Applied Creative Non-Fiction /Art History/Collaborative Piano Studies/Computer Science/Education/Film Studies/Forestry (Advanced Silviculture)/Forest Engineering/Linguistics/Management of Aquaculture Systems/Meteorology/Periodontics (in conjunction with an M.Sc. in Dental Science)/Translation (French)/Urban Land Economics | |
| Doctor of Dental Medicine | D.M.D. | MEDICINE | | | |
| Master of Science | M.Sc. | Bachelor of Medical Laboratory Science | B.M.L.Sc. | | |
| Doctor of Philosophy | Ph.D. | Doctor of Medicine | M.D. | | |
| | | Doctor of Medicine with Doctor of Philosophy | M.D./Ph.D. | | |
| EDUCATION | | Master of Health Administration | M.H.A. | | |
| Bachelor of Education | B.Ed. | Master of Health Science | M.H.Sc. | | |
| Master of Education | M.Ed. | Master of Science | M.Sc. | | |
| Master of Educational Technology | M.E.T. | Doctor of Philosophy | Ph.D. | CERTIFICATES | |
| Master of Arts | M.A. | | | Advanced Studies (Library, Archival and Information Studies)/Bioinformatics/Oral Medicine and Oral Pathology/Post-Graduate Certificate in Technology-based Distributed Learning/Post-Graduate Certificate in Technology-based Learning for Schools/Real Property Assessment/Site Planning/Theatre Design and Technology | |
| Doctor of Education | Ed.D. | MUSIC | | | |
| Doctor of Philosophy | Ph.D. | Bachelor of Music | B.Mus. | | |
| | | Bachelor of Arts | B.A. | | |
| FORESTRY | | Master of Music | M.Mus. | | |
| Bachelor of Science in Forestry | B.S.F. | Master of Arts | M.A. | | |
| Bachelor of Science in Forestry | B.Sc. (Forestry) | Doctor of Musical Arts | D.M.A. | | |
| Bachelor of Science in Natural Resources Conservation | B.Sc. (Natural Resources Conservation) | Doctor of Philosophy | Ph.D. | | |
| | | | | Honorary Degrees | |
| Bachelor of Science in Wood Products Processing | B.Sc. (Wood Products Processing) | NURSING | | 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. | |
| | | Bachelor of Science in Nursing | B.S.N. | | |
| Master of Forestry | M.F. | Master of Science in Nursing | M.S.N. | | |
| Master of Science | M.Sc. | Doctor of Philosophy | Ph.D. | | |
| Master of Applied Science | M.A.Sc. | | | Academic Dress | |
| Doctor of Philosophy | Ph.D. | OCCUPATIONAL AND ENVIRONMENTAL HYGIENE | | 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 | |
| | | Master of Science | M.Sc. | | |
| HUMAN KINETICS | | Doctor of Philosophy | Ph.D. | | |
| Bachelor of Human Kinetics | B.H.K. | PHARMACEUTICAL SCIENCES | | | |
| Master of Human Kinetics | M.H.K. | Bachelor of Science in Pharmacy | B.Sc. (Pharm.) | | |
| Master of Arts | M.A. | Master of Science | M.Sc. | | |
| Master of Science | M.Sc. | Doctor of Pharmacy | Pharm.D. | | |
| Doctor of Philosophy | Ph.D. | Doctor of Philosophy | Ph.D. | | |

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

| | |
|------------------------------------|--|
| B.H.E. | turquoise |
| B.L.A. | maize with scarlet cord |
| B.Sc. (Agr.) | maize |
| B.Sc. (Dietet.) | turquoise with gold and white twisted cord |
| B.Sc. (Agroecology) | maize with gold and green twisted cord |
| B.Sc. (Food, Nutrition and Health) | maize with gold and white twisted cord |
| B.Sc. (Global Resource Systems) | maize with gold and blue twisted cord |
| B.A.Sc. | scarlet |
| B.Arch. | scarlet with white cord |
| B.S.N. | scarlet with twisted cord of University blue and white |
| B.A. | University blue |
| B.F.A. | University blue with magenta cord |
| B.Mus. | University blue with cord of alizarin crimson |
| B.S.W. | magenta |
| B.Com. | light grey with black and grey cord |
| B.D.Sc. | lilac and red with twisted cord on white |
| D.M.D. | lilac and red |
| B.Ed. | white with cord of University blue |
| B.H.K. | malachite green |
| B.S.F. | brown with green cord |
| B.Sc. (Forestry) | brown with a light blue cord |
| LL.B. | amethyst violet |
| B.M.L.Sc. | scarlet and royal blue twisted cord on white |
| B.Sc. (O.T.) | scarlet and white twisted cord on royal blue |
| B.Sc. (P.T.) | scarlet and white twisted cord on royal blue |
| M.D. | scarlet and royal blue |
| B.Sc. (Pharm.) | dark green with cord of scarlet |
| B.Sc. | light blue |

| | |
|------------------------------|---|
| B.H.E. | turquoise |
| Ed.D. | royal blue and light blue, with blue, white and gold chevron |
| D.M.A. | royal blue and alizarin crimson, with blue and gold chevron |
| Pharm.D. | American style with lining of University blue and with chevron of University blue and gold. |
| Ph.D. | blue and gold |
| M.A.S.A. | scarlet with a white and a grey cord |
| M.A.S. | University blue with silver and cadmium yellow twisted cord |
| M.A. (Planning) | University blue with dark green and slate grey |
| M.H.A. | red and pale blue |
| M.H.Sc. | scarlet and grey |
| M.L.I.S. | cadmium yellow |
| M.A.S. and M.L.I.S. | cadmium yellow with blue and silver twisted cord |
| M.A. (Children's Literature) | University blue with cadmium yellow cord |
| M.Sc. (Planning) | University blue with dark green and white |

Chancellor

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

President and Vice-Chancellor

M. C. Piper, B.Sc., M.A. Ph.D.

Board of Governors

EX-OFFICIO

The Chancellor, The President

ELECTED BY FACULTY

D.R. Danielson, B.A., M.A., Ph.D.; **G.A. Lawrence**, B.E., M.S., Ph.D. (Terms expire 2005)

APPOINTED BY THE LIEUTENANT-GOVERNOR IN COUNCIL

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ELECTED BY STUDENTS

Mark Fraser; **Erfan Kazemi** (Terms expire 2003)

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Senate

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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

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APPLIED SCIENCE

P. Adebar, B.E., M.A.Sc., Ph.D., P.Eng., M.C.S.C.E., M.A.C.I.; **D. B. Cherchas**, B.A. Sc., M.A.Sc., Ph.D., P.Eng.

ARTS

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COMMERCE AND BUSINESS

ADMINISTRATION

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DENTISTRY

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

EDUCATION

R. Irwin, B.Ed., D.P.Ed. (Lethbridge), M.Ed. (Vic.B.C.), Ed.D. (Brit. Col.); Vacancy

FORESTRY

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LAW

C. Boyle, LL.B., LL.M.; **P.T. Burns**, Q.C., LL.B., LL.M.

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PHARMACEUTICAL SCIENCES

D. W. Fielding, B.Sc., M.Sc., Ed.D.; **B. Rodrigues**, B.Sc., M.Sc., M.Sc., Ph.D.

SCIENCE

J.F. Carolan, A.B., Ph.D.; **J.W. Hepburn**, B.Sc., Ph.D. (Terms expire 2005)

ELECTED BY A JOINT MEETING OF THE FACULTIES

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ELECTED BY THE STUDENTS AT-LARGE

J. Lau; **C. Lenis**; **Y. Lu**; **G. Tsai**; **S. Yim**
(Terms expire 2003)

ELECTED BY CONVOCATION

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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 or school
- 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
- 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 fourteen 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.

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M. D. Whitehead, B.A., M.L.S. (Brit. Col.), Head

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P. Johnson, First Year Coordinator

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2053 Main Mall, Vancouver, B.C., V6T 1Z2
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E-mail: DAP@commerce.ubc.ca

FACULTY OF COMMERCE AND BUSINESS ADMINISTRATION
THE UNIVERSITY OF BRITISH COLUMBIA

GORDON CAMPBELL, MLA
Vancouver Point Grey

Best wishes for a successful
2003 - 2004 school year.

If I can assist you with any
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A: Budget Car Sales is the marketing arm for Budget Rent A Car and other major rental car firms and lease companies. Budget Car Sales is your best alternative to a brand new car. Budget offers a wider range of makes and models than you'll ever find at a new car dealer because we buy from almost every major manufacturer. We can sell for so much less because the cars have been leased for a few months or a few thousand miles. Not only does Budget purchase the vehicles at huge discounts, the initial depreciation is already factored in. When you buy at Budget, the price is already a more accurate reflection of the true value of the car.

Q: Are Budget Rental & Lease Cars & Trucks in good condition? Are they abused?

A: Most of our vehicles are leased by people like you and me. Holiday and business trips. No, they are not abused. They are serviced and maintained every time they are returned.

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Q: Does Budget Car Sales offer any kind of warranty protection?

A: Yes. Many Budget cars are still covered by the balance of the original new car warranty. That means if you have a problem, it can be fixed at any authorized dealer. But, for even greater peace of mind, we offer a 6 year, 160,000 km service contract as well as a 30 DAY MONEY BACK GUARANTEE if vehicle is mechanically defective and Budget is unable to repair it in a reasonable amount of time.

Q: I know Budget's prices are reasonable, but is it possible to finance?

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III Undergraduate Admissions

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 which 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 sixteen 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.

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 can make valuable contributions to its learning environment and therefore invites inquiries and applications from Aboriginal candidates to its many and diverse fields of study.

Those 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 first year programs, 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 of 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 (students.ubc.ca/drc) (see *Disability Resource Centre*, p. 56 in the Services, Organizations, and Facilities chapter of this Calendar) for a description of the services available and to arrange access to them.

Appeals

Applications are screened carefully in accordance with Senate policy. The Senate Admissions Committee reviews doubtful cases and cases of appeal against decisions made on the basis of Senate policy.

Appeals against admission decisions will be considered on applications for the current year only. Appeals should be submitted to the Senate Admissions Committee, c/o Enrolment Services, no later than the 15th of the month prior to the start of classes.

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 (students.ubc.ca/welcome) for more information.

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. Further information may be found at students.ubc.ca/welcome/programs/preparatory.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 at UBC. Please see *Language Proficiency Index Requirement for*

First-Year English, p. 22 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 grade of 70% or better on the provincial examination portion of BC English 12 or English Literature 12 or the equivalent; or a final grade of 5 or better on the International Baccalaureate Higher Level English a course; or a final grade of 4 or better on the Advanced Placement English Language and Composition or Literature and Composition courses.
- 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).
- The competence standard indicated on one of the tests of English language proficiency as listed in the table, 'English Language Proficiency Tests' below that evaluates skills in listening, reading, speaking, and writing.
- Successful completion of six credits of post-secondary first-year English studies for which UBC gives transfer credit.
- 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.

ENGLISH LANGUAGE PROFICIENCY TESTS

| | Test | Competence Level ¹ |
|-------|---|--------------------------------|
| CAEL | Canadian Academic English Language assessment with the speaking sub-test ² | overall 70 60 |
| CPE | Cambridge Proficiency Examination | C |
| IELTS | International English Language Testing System (Academic) | 6.5 with no part less than 6.0 |

| | Test | Competence Level ¹ |
|-------|--|------------------------------------|
| MELAB | Michigan English Language Assessment Battery with the MELAB Oral Interview ² | 85 |
| TOEFL | Test of English as a Foreign Language either the Paper-based test with the TWE (Test of Written English) and the TSE (Test of Spoken English) ² or the Computer-based test with the essay and the TSE (Test of Spoken English) ² | 55 4.0 50 22 4.0 50 |
| AEP | Academic English Program Certificate ³ | 600 |

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 To be implemented for Summer Session 2005.

³ From UBC's English Language Institute.

Language Proficiency Index Requirement for First-Year English

All programs require at least three credits of first-year English; most require six credits. Before enrolling in any first-year English course, Arts One, the Arts Foundations Program, or Science One, students must complete the Language Proficiency Index (LPI) and achieve a minimum score of level 5 (30/40) on the essay section of the examination.

THE LPI EXAMINATION

The LPI is a two and a half-hour 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. Part I requires students to identify errors in sentence structure; Part II requires them to identify errors in English usage; Part III involves the evaluation or summary of paragraphs; and Part IV involves the composition of an expository 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 and practice booklet entitled *Preparing to Write the LPI* is available from the LPI Office for a fee of CAD\$17 or can be mailed for a fee of CAD\$22 within Canada or CAD\$27 outside Canada.

RESULTS

Students' results will be mailed to them within four weeks of the writing of the examination and forwarded to the English Department immediately upon the completion of marking. The English Department does not release

results over the telephone. (Official LPI examination results are forwarded by mail to each student by the LPI office.) Students should keep the report of their results; they may be asked to present results in their English classes in September.

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 Science One; 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 Science One. Students in this latter category are encouraged to enrol in Writing 098, a non-credit course in the University Writing Centre. For more information on Writing 098, see *University Writing Centre*, p. 84 in the Alternative Study Options chapter under Other Study Options or visit the University Writing Centre website (www.cstudies.ubc.ca/wc).

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 grade of 'A' (80%) in Grade 12 English (senior year) in a Canadian secondary school outside of BC (final grade of 'A', 80%, in OAC English Language and Literature or Studies in Literature for Ontario applicants);
- those with a grade of 4 or better in the Advanced Placement course in literature and composition and those with a grade of 5 or better in the higher level International Baccalaureate course in English Literature;
- those who passed UBC's English Composition Test (ECT) prior to September 1992;
- those who have completed six credits of first-year English, acceptable for transfer to UBC.

DEADLINES FOR COMPLETION OF THE LPI

In order to be eligible for **Term 1 (September 2003)** English courses (ENGL 110, 111, 112, or 120) students must complete the LPI **on** or before the following deadlines:

- BC students: Saturday, July 26, 2003
- Out-of-Province students: Saturday, August 2, 2003
- International Students: Saturday, August 30, 2003

Out-of-Province and International students must email First-Year English (First-Year.English@ubc.ca) for permission to write on August 30th.

In order to be eligible for **Term 2 (January 2004)** English courses (ENGL 110, 111, 112, or 121) students must complete the LPI **on** or before the following deadlines:

- All Students: Saturday, October 25, 2003.
- Writing 098 Students: Saturday December 6, 2003.

In order to be eligible for **Summer Session, Term 1 and Term 2 (Summer 2004)** English courses (ENGL 110 or 112), students must complete the LPI on or before Saturday, February 21, 2004.

Any student who misses the deadline must contact the First-Year English Office (first-year.English@ubc.ca). For assistance, telephone 604-822-4247, 604-822-4259.

REGISTRATION FOR THE LPI

BC STUDENTS

The LPI is offered a number of times and at a number of locations around British Columbia each year. Students must register for the examination at least two weeks in advance.

On the registration form, or in a personal letter, the student should include his or her 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\$43 (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.

Students must present their tickets and photo identification in order to be admitted to the examination room on the day of the sitting.

Online registration and book order is available at www.lpi.ubc.ca and students may print their own admission tickets, in which case they will not receive a ticket from the LPI office.

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 high school, college or 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 of CAD\$65 (Canada or the USA), CAD\$85 (Western Europe, the Pacific Rim), or CAD\$100 (all other countries) may be paid by VISA, MasterCard, or personalized cheque payable to LPI. Application and payment may be made by fax or by mail as indicated above.

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 English Department; telephone 604-822-4247 or 604-822-5651.

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.htm)).

UBC-SFU-UVIC-UNBC Calculus Exam
c/o Mathematics Department
University of British Columbia
Vancouver, BC, V6T 1Z2
Tel: 604-822-2666

Email: challengeexam@math.ubc.ca

Applicants from a Secondary School in BC/Yukon

ADMISSION REQUIREMENTS

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

REQUIRED COURSES

| Grade | Required Courses ¹ |
|----------|---|
| Grade 12 | English 12 Three additional approved examinable Grade 12 courses ^{1,2} |

| Grade | Required Courses ¹ |
|----------|---|
| Grade 11 | English 11 Principles of Mathematics 11 Social Studies 11 or First Nations Studies 12 At least one approved Science 11 ³ An approved Language 11 ⁴ |

- ¹ Or approved International Baccalaureate or Advanced Placement courses.
- ² See the table *Specific Program Requirements for Applicants from a Secondary School in BC/Yukon*, p. 25.
- ³ See the table *Specific Program Requirements for Applicants from a Secondary School in BC/Yukon*, p. 25 for programs requiring two Science courses at the Grade 11 level.
- ⁴ 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 12 ¹ |
| Punjabi 12 |
| Spanish 12 |

¹ For further information refer to *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 23.

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

For alternate International Baccalaureate and Advanced Placement courses, see Approved

Advanced Placement and International Baccalaureate Courses in this section.

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 Litterature)
Français (Langue)
French
German
Gitksan
Hebrew (Maimonides School)
Italian
Japanese
Latin
Mandarin Chinese
Nisga'a
Nuxhalk
Punjabi
Russian
Shuswap
Spanish

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

INTERNATIONAL BACCALAUREATE AND ADVANCED PLACEMENT

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 some programs.

INTERNATIONAL BACCALAUREATE CERTIFICATE STUDENTS

For students who present results for one or more International Baccalaureate certificate courses, admission will be based on the higher of either the IB score or the approved BC Grade 12 course grade of an equivalent provincially examinable course (see the table *Approved Advanced Placement and International Baccalaureate Courses*, p. 24). Other IB courses not listed can be used as electives. In those cases where the IB score is not available at the time of admission selection, the BC Grade 12 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 |

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 (students.ubc.ca/welcome/apply/firstyearcredit.cfm).

ADVANCED PLACEMENT STUDENTS

For students who present results of one or more Advanced Placement (AP) courses, admission will be based on the higher of either the AP score or the approved BC Grade 12 course grade of an equivalent provincially examinable course (see the table *Approved Advanced Placement and International Baccalaureate Courses*, p. 24). Other AP courses not listed can be used as electives. In those cases where the AP grade is not available at the time of admission selection, the BC Grade 12 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 |

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 provided at the Admissions website (students.ubc.ca/welcome/apply/firstyearcredit.cfm).

APPROVED ADVANCED PLACEMENT AND INTERNATIONAL BACCALAUREATE COURSES

| BC Ministry Course | Advanced Placement | International Baccalaureate |
|---------------------------------|---------------------------------------|-----------------------------|
| Biology 12 | AP Biology | General Biology |
| Chemistry 12 | AP General Chemistry | Chemistry |
| English 12 | AP English Language and Composition | English Language A |
| English Literature | AP English Literature and Composition | English Literature |
| French 12 or Français Langue 12 | AP French (Language or Literature) | French Language B |
| Geography 12 | | Geography |
| Geology 12 | | |
| German 12 | AP German Language | German |
| History 12 | AP History (European or US) | History (Asian or European) |

| BC Ministry Course | Advanced Placement | International Baccalaureate |
|---|-------------------------------------|------------------------------|
| Japanese 12 | | Japanese |
| Mandarin 12 | | Mandarin |
| Physics 12 | AP Physics (B or C) | Physics |
| Principles of Mathematics 12 ¹ | | Further Math or Math Methods |
| Punjabi 12 | | |
| Spanish 12 | AP Spanish (Language or Literature) | Spanish (A or B) |

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).

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. 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 twelve 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.

ADULT BASIC EDUCATION (ABE)– BRITISH COLUMBIA ADULT GRADUATION DIPLOMA (BCAGD)

The University recognizes the ABE 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 Adult Basic Education (ABE) Advanced Level or Grade 11 courses in: English; Mathematics (ABE) or Principles of Mathematics 11; a science; one of Social Studies (ABE) or Social Studies 11 or First Nations 12 or language 11.

- 2 Four subjects at the ABE Provincial Level or Grade 12 including English and 3 additional subjects chosen from biology, chemistry, physics, Mathematics (ABE) or Principles of Mathematics 12, Computer Science (ABE), geology, geography, history, English literature, languages.
- 3 A minimum average of C+ or 67% based on the 4 ABE Provincial or Grade 12 courses presented which must be graded. Grade 12 course results must include the provincial examination component of the course.

Because of enrolment limitations, the academic standing required for admission to most programs is higher than C+ or 67%. 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 from a Secondary School in BC/Yukon.”

SPECIFIC PROGRAM REQUIREMENTS FOR APPLICANTS FROM A SECONDARY SCHOOL IN BC/YUKON

The table *Specific Program Requirements for Applicants from a Secondary School in BC/ Yukon* shows the required courses used in the calculation of the admission average for specific programs, as well as courses which are required but which are not used in the calculation of the average.

SPECIFIC PROGRAM REQUIREMENTS FOR APPLICANTS FROM A SECONDARY SCHOOL IN BC/YUKON

| 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) | Agricultural Sciences | 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) | Agricultural Sciences | 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 Two of Biology 11, 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 |

SPECIFIC PROGRAM REQUIREMENTS FOR APPLICANTS FROM A SECONDARY SCHOOL IN BC/YUKON

| 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 |
|--------------------------------|--|----------------|---|---|
| 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 |
| 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 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 Biology 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, Physics 11 Social Studies 11 |

¹ under review.

Applicants from a Secondary School in Canada outside of BC/Yukon

Applicants will be considered for admission to the University of British Columbia who have followed an academic program leading to university entrance. 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. 27 in this section.)

Completion of secondary school graduation 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 University degree is four years.

The following requirements apply:

- Ontario. Ontario Secondary School Diploma with six appropriate Ontario Academic Courses (OAC's) including English (OAC I) or a minimum of six grade 12 U/M courses including English (ENG40).
- Quebec. At least one year of an academic diploma program of a CEGEP with an overall average of 75% or a completed CEGEP diploma with an overall average of 68%. Transfer credit for up to one full year of degree study may be granted where the two-year diploma has been awarded.

- Alberta, Saskatchewan, Manitoba, New Brunswick, Nova Scotia, P.E.I., Newfoundland, and 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 Programs and Requirements website (students.ubc.ca/welcome/programs).

EARLY ADMISSION

Early admission is possible for students with strong academic standing enrolled in the final year of secondary school. Applicants must arrange for their schools to provide an official transcript which includes any final grades for the current year and a list of courses in progress with interim grades. Conditional offers of early admission are subject to satisfactory completion of secondary school graduation requirements and maintenance of the current admission average for the program to which acceptance has been offered. Offers of admission will be withdrawn from students who do not satisfy these conditions.

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. The Undergraduate Admissions Office 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) | Agricultural Sciences | English 12, Principles of Mathematics 12 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) | B.Com. | Commerce and Business Administration | English 12, Principle 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) | Agricultural Sciences | 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 Two of Biology 11, Chemistry 11, Physics 11 One of Chemistry 12, Geology 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, or Physics 12 |
| Midwifery | B.Mw. | Medicine | English 12, Biology 12, Chemistry 11 |
| Natural Resources Conservation | B.Sc. (Natural Resources Conservation) | Forestry | English 12, 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 (G.C.S.E.) or General Certificate of Education (G.C.E.), Advanced Level, with standing in at least five subjects, including English, with two at the Advanced Level.
- School Certificate (S.C.). 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 (H.S.C.).
- International Baccalaureate (I.B.). 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 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 (G.C.E.), Principal Level (H.S.C.), Higher Level (I.B.), 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 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, most programs 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 per cent 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/tgnew/). 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 requirements, as well as specific

program requirements which 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 which 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

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 on transfer should first make a

written request to Enrolment Services for a review of credit granted on transfer, and if they are not satisfied with the review decision, they should consult the dean of the faculty to which they are seeking admission.

International Applicants

The University welcomes applications from outstanding international students from around the world. Well-qualified applicants from secondary schools 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 on-line.

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, Canada, 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. 21.

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
Tel: 604-822-3014
Fax: 604-822-3599

For application and document deadlines for the various faculties and schools, see Application Deadlines (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 on the Web*, p. 29.

For those faculties or schools which have more eligible applicants than they can admit, applications received after the deadline will be returned to the applicants. For those faculties or schools which expect to have space available, late applications may be accepted. 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 which are not complete by the document deadline may be cancelled if the program sought has been filled by that date.

Documents submitted in support of applications become the property of the university and may not be returned to the student.

Notification of admission decisions is 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.

Application on the Web

Prospective students can now apply for admission to the University of British Columbia on the World Wide Web by using the PASBC Application form (students.ubc.ca/welcome/apply/).

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 one Winter Session to the next, whose statement of grades indicates eligibility to continue.

Students register using the Student Service Centre on the Web. Certain courses and sections are 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. 39. Deposits will be credited in full towards any assessed fees.

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.

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

WARNING: If all relevant documents have not been received by Enrolment Services at least six weeks prior to the beginning of the session applied for, it is unlikely the application for admission can be processed in time to permit registration.

Registration on the Web

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

Student Declaration and Responsibility

Each student is required to furnish the information necessary for the university record, to keep Enrolment Services informed of changes in name, address, etc., and is bound by the following declaration:

“I hereby accept and submit myself to the statutes, rules and regulations, and ordinances 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 university authorities do not assume responsibilities which naturally rest with adults. This being so, it is the policy of the university to rely 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.

Classification of Students

In terms of academic studies being followed there are ten categories 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. Students without a degree who are eligible for admission to the university may be admitted as unclassified students (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 are not admissible to or do not wish to enter a specific program. Students in category (b) other than those aged 65 years or over may take no more than 12 credits per academic year and no more than 18 credits in total while registered as unclassified. 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. 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 six credits of transfer credit may be at the undergraduate
- 4 Visitor. A student enrolled in studies for transfer to a degree program at another recognized university. For applicable fees, see the chapter *Fees*, p. 41. 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.
- 5 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.
- 6 Concurrent Studies. A student who is enrolled in Grade 11 or 12 in a BC secondary school and who has been admitted to the university to pursue concurrent studies (see *Concurrent Enrolment Policy*, p. 24 in this chapter under Applicants from a Secondary School in BC/Yukon).
- 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 *VI Fees, section 8 and 9*, p. 41. 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 advisers.

- 9 Post-Degree Trainee. A post-M.D. non-credit student who is pursuing further clinical or research training in his or her specialty within the Faculty of Medicine.
- 10 Pre-Degree Studies. Students in pre-degree studies may take no more than 24 credits in total while registered as pre-degree students. They are expected to take between six and 12 credits per academic year. Students require permission of a faculty adviser to register in courses and to continue in this category in subsequent academic years. This category includes the following: a student who is Aboriginal, in accordance with the Constitution Act of 1982, Part II, Section 35 (2), that is, an Indian, Inuit or Metis person of Canada and who is admitted to a First Nations Language course; a student who has successfully completed Humanities 101, 102, or Science 101 and who has the recommendation of the program.

OTHER APPLICANT TYPES

- Senior Citizen. A BC resident who is a Canadian citizen or permanent resident aged 65 years or over will normally be admitted as an Unclassified student. (Tuition fees are not charged; see the chapter *Fees*, p. 41.)
- Mature Applicant. An applicant classified as "mature" is one who is a resident of BC whose formal education has been interrupted and who does not meet the normal requirements for admission but 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.



St. John's College, UBC



Our academic residential college offers graduate students, postdoctoral researchers and visiting scholars an intellectually and socially enriching environment within which to pursue academic objectives as well as develop lifelong friendships through participation in the College community.

We offer single accommodation *with private bathrooms* for 182 residents-including 8 wheelchair accessible rooms, *and 11 couples suites*.

Common areas for resident use include the Dining Hall, the large Social Lounge, and several other social areas. Our creative executive chef and his team present both vegetarian and non-vegetarian meals with an international flavor as part of our mandatory meal plan.

Weekly seminars by invited speakers and residents provide the focus for an enriched intellectual environment at the college.

**FOR INFORMATION AND APPLICATION FORMS,
CONTACT OUR MEMBERSHIP SECRETARY
phone: 604-822-8790, e-mail: sjc.membership@ubc.ca
Applications are accepted throughout the year.**

The College also offers private guest rooms for short-term academic visitors to UBC; rooms feature private bath, double or queen bed, telephone, TV, and fridge.

Call 604-822-8788 for additional information and availability.

For more information about St.John's please check out our website at www.stjohns.ubc.ca, or contact us at 604-822-8788
email: sjc.reception@ubc.ca.

BROADWAY STATION DENTAL CENTRE

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Vancouver, BC V5N 4B8

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Dr. Lawrence Cheevers

Dr. Douglas Liu

Dr. Mark Parhar

Dr. Trevor Shew

Dr. Anik Saintonge

Open Monday through Saturday and Evenings

IV Academic Regulations

Academic Freedom

The members of the University enjoy certain rights and privileges essential to the fulfillment of its primary functions: instruction and the pursuit of knowledge. Central among these rights is the freedom, within the law, to pursue what seem to them fruitful avenues of inquiry, to teach and to learn unhindered by external or non-academic constraints, 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 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 which obstructs free and full discussion, not only of ideas which 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 *Human Rights Code* (BC) and the *Canadian Charter of Rights and Freedoms*. 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 assessments 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 the 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 of British Columbia 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.**

Examinations

Formal examinations are held in most courses in December and April. These are scheduled during official examination periods in December and April for Winter Sessions courses. 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 problems should follow the procedures for requesting Academic Concession (see the section *Academic Concession* in this chapter) as soon as possible.

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, audio or video cassette players 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. 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.

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 alternate 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 mailed to students following the Winter Session. 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 to make arrangements to meet the deadline.

Students can access the Student Service Centre (students.ubc.ca/ssc) for grades that are on the Student Information System and have been approved for release.

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. No later than one month from receipt of end of session results a student may make written application 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".

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.

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 section 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 section).

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 by the date specified in the University's Academic Year (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 a regularly scheduled December examination will be held at the University on one date in December near the start of the regular examination period 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 (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 center 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 centers 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 Registrar 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 six-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.

If a student, because of exceptional circumstances, is permitted 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 (P1), 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* in the chapter Undergraduate Admissions.

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 (P1) 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 (P1) 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 the section *Supplemental Examination Policy* under Examinations 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*). 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* under *Examinations* 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 the section *Withdrawal* in this chapter.

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 Courses which are not for credit toward the student's degree or diploma program will not be included when a student is considered for advancement.
- 5 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.
- 6 Students who have been required to discontinue or withdraw may be readmitted subject to the regulations of the faculty which they wish to enter.
- 7 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 at students.ubc.ca via the Student Service Centre weblink.

The application deadline for May Convocation is March 1. The earliest date to make an application for May Convocation is December 1st of the previous year. The application deadline for November Convocation is August 15. The earliest date to make an application for November Convocation is June 1.

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 re-application for the next convocation 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 mailed at the end of September. The receipt of a package does not confirm the satisfactory completion of your degree program. The faculty completes this approval process.

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* in the Fee Section.

Please check the following websites for the latest information on graduation: 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 effective dates for 2003/2004 are indicated in the accompanying tables in this section.

Fee refunds for withdrawals will be calculated on a pro-rata basis. (See *Refund of Fees* in the *Fees* chapter.)

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* in the *Academic Regulations* 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.

2003 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 | September 19, 2003 | Sept. 20, 2003–Nov. 21, 2003 | After November 21, 2003 |
| Term 1 Course | September 16, 2003 | Sept. 21, 2003–Oct. 10, 2003 | After October 10, 2003 |
| Term 2 Course | January 19, 2004 | Jan. 20, 2004–Feb. 13, 2004 | After February 13, 2004 |

2003 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 8, 2003 | Sept. 09, 2003–Sept. 15, 2003 | After September 15, 2003 |
| Term 1B Module (Period 6) | October 27, 2003 | Oct. 28, 2003–Nov. 3, 2003 | After November 3, 2003 |
| Term 2A Module (Period 1)* | January 12, 2004 | Jan. 13, 2004–Jan. 19, 2004 | After January 19, 2004 |
| Term 2B Module (Period 2) | March 1, 2004 | Mar. 2, 2004–Mar. 8, 2004 | After March 8, 2004 |

* Please note that Period 1 BAXX classes start the week of January 5, 2004

2004 SUMMER 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 1 Module (Period 3) | April 26, 2004 | April 27–May 3, 2004 | After May 3, 2004 |

COURSE DROP/WITHDRAWAL DATES FOR DE&T COURSES

DE&T course withdrawals must be made online, via the Student Service Centre (students.ubc.ca/ssc) up until the close of registration for term 1 courses; paper withdrawal forms will only be accepted after the close of registration (see below).

After the close of registration, students must fill out a paper Withdrawal Form, found in the *DE&T Learner's Guide* in their course package, or on the DE&T website (det.ubc.ca) located under the “Learner's Guide” section.

Withdrawal

Undergraduate students may withdraw from the University by using the Student Service Centre (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 adviser 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. 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 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. In the event of a tie vote, the case should be 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 (policy.ubc.ca/policy65.htm), 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 the section *Grading Practices* 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 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*), Aegrotat standing or Deferred standing (see *Grading Practices*) and withdrawal from the University (see *Withdrawal*).

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*).

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 may be required to satisfy

the University that the student is ready to continue studies.

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 the Registrar within four weeks after the announcement of final results (for the Winter Session not later than July 13) 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.

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 of British Columbia. 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. For more information

about other ways to order, students should visit students.ubc.ca/current online, 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

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.

COMPOSITION OF THE COMMITTEE

1.01 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.

TERMS OF REFERENCE

2.01 (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.

2.01 (2) Not only in this part, but in these regulations generally, a 'Faculty' shall be deemed to include, where necessary, any other appropriate

administrative unit of the University, and 'Dean of the Faculty' shall be deemed to refer, where necessary, to any other appropriate officer of the University.

2.02 (1) Subject to (2) of this paragraph, 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(b) of the *University Act*.

2.02 (2) 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.

2.03 (1) 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' it shall be construed to include the consideration of information which ought not to have been considered, and the failure to consider information that ought properly to have been considered.

2.03 (2) 'Allow an Appeal' means such one of the following as the Committee deems appropriate in any given case:

- 1 A 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 A 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.

2.04 (1) In all cases other than those falling within paragraph 2.03 the Committee shall dismiss the appeal.

2.04 (2) 'Dismiss the Appeal' means to decide that the decision being appealed from is confirmed.

2.05 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.

2.06 Members of the Committee will not discuss the substance of an appeal with any of the parties other than at a hearing.

2.07 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.

PROCEDURES PRIOR TO THE HEARING

3.01 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.

3.02 Within 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.

3.03 Within 15 days of receiving the regulations, the appellant shall file with the Registrar a statement of appeal. This should contain:

- 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;
- 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.

3.04 Within 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.

3.05 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:

- 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;
- 6 The names of any witnesses the faculty proposes to call at the hearing.

3.06 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.

3.07 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.

3.08 The time limits referred to in paragraphs 3.01-3.06 are intended as outside limits, and all parties are encouraged to make every effort to proceed more quickly if possible.

3.09 Not only in this part, but in these regulations generally, a reference to a number of days shall not be construed as including Saturdays and Sundays and any other days on which the university is closed.

3.10 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 on the request of the appellant or the faculty, his decision may be appealed to the Committee as a whole, and the Committee may, acting pursuant to its authority under Paragraph 2.05, extend the time limits as it sees fit.

3.11 The Senate Committee may, at its discretion, dismiss an appeal for lack of prosecution.

PROCEDURES AT THE HEARING

4.01 A quorum for any hearing before the Committee shall consist of at least five voting members, or any lesser number if that is agreed to by the appellant and the faculty.

4.02 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 duty and interest.

4.03 At the hearing, subject to the rulings of the Committee, the following procedure 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;
- 9 The appellant may respond to any matters arising out of the faculty's statement to which the appellant has not yet spoken.

4.04 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.

THE DECISION

5.01 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.

5.02 In the event of a tie vote an appeal shall be dismissed.

5.03 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.

5.04 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 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 which are set out below should not be construed as limiting the general authority of the President under the *University Act*.

OFFENCES

Misconduct subject to penalty includes, but is not limited to, the following offences:

- 1 Plagiarism. Plagiarism is a form of academic misconduct in which an individual submits or presents the 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 excerpts are used in paragraphs or essays, the author must be acknowledged through footnotes or other accepted practices. Substantial plagiarism exists when there is no recognition given to the author for phrases, sentences, and ideas of the author incorporated in an essay. Complete plagiarism exists when an entire essay is copied from an author, or composed by another person, and presented as original work. Students in doubt as to what constitutes a case of plagiarism should consult their instructor.
- 2 Submitting 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.
- 3 Cheating on an examination or falsifying material subject to academic evaluation. Cheating includes inter alia, having in an examination any materials other than those authorized by the examiners.
- 4 Impersonating a candidate at an examination or availing oneself of the results of such impersonation.
- 5 Submitting false records or information, in writing or orally, or failing to provide relevant information when requested.
- 6 Falsifying or submitting false documents, transcripts or other academic credentials.
- 7 Disrupting instructional activities, including making it difficult to proceed with scheduled lectures, seminars, etc., and with examinations and tests.
- 8 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.

- 9 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.
- 10 Students registered at UBC may use boards designated for the conduct of personal (but not commercial) business (such as the sale of used, personal articles, offers for board and lodging, solicitations for travel, etc.) Notices considered objectionable will be summarily removed and could result in disciplinary action. The university does not vet notices and is not a party to any offer, solicitation or transaction. The university accepts no liability for any damage or injury connected with any notice or information on this board.
- 11 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.
- 12 Attempting to engage in or assisting others to engage in or attempt to engage in conduct in respect of which disciplinary action may be taken.
- 13 Failing to comply with any penalty imposed for misconduct.

PENALTIES

The penalties which may be imposed, singly or in combination, for any of the above offences may include, but are not limited to, the following:

- 1 A failing grade or mark of zero in the course, examination, or assignment in which the academic misconduct occurred.
- 2 Suspension from the University for a specified period of time, or indefinitely. Students will not receive credit for courses taken at another institution during a suspension.
- 3 Suspension or cancellation of any scholarships or prizes.
- 4 A letter of reprimand.
- 5 Restitution in the case of damage to, or removal or unauthorized use of, property.
- 6 A notation of the academic discipline on the student's record in the Student Information System, which will appear on the student's Transcript of Academic Record. However, after a specified period of time, the student may appeal to the President to have this notation removed.

WARNING

- 1 The penalty for substantial or complete plagiarism, or for cheating, normally is suspension from the university.
- 2 The laying of charges under federal or provincial legislation, or the commencement of civil proceedings, does not preclude disciplinary measures being taken by the university.

PROCEDURES

Section 61 of the *University Act* gives the President of the University the power to suspend students and to deal summarily with any matter of student discipline. To advise the President on measures to be taken, the President has established the President's Advisory Committee on Student Discipline. An alleged instance of student misconduct deemed serious enough for action by the President shall be referred to this Committee unless otherwise directed by the President. The Committee will conduct a hearing at which the student is invited to appear. The Committee will report to the President, who will then make the final decision.

A student suspected or apprehended in the commission of an offence shall be notified within a reasonable period of time of intention to report the alleged offence to the department head, dean, or other appropriate person. The student shall also be given the opportunity to explain the incident and, if he or she requests, to meet with the department head, dean, or other appropriate person, before the alleged offence is reported to the President.

A record of a penalty imposed may be recorded on a student's official transcript.

A student who is a respondent in proceedings under the University's Policy on Discrimination and Harassment (#3) may be the subject of a disciplinary recommendation made to the President by a panel constituted under that policy.

APPEALS

A student has the right to appeal the decision of the President to the Senate Committee on Student Appeals on Academic Discipline.

A student who wishes to appeal the decision of the President must notify the University Registrar in writing and must provide a full explanation of the reasons for appealing. Such notification must be received by the Registrar within 45 days of the date of the President's letter to the student detailing the discipline imposed. The Registrar may extend this time limit.

Appeal hearings are relatively informal. They take place before several members of the University Senate. A student is entitled to be represented or assisted throughout the appeal process by an advocate who may be a friend, a relative or legal counsel. The student is entitled to explain the reasons for appealing either orally or in writing, and may call witnesses. A representative of the President presents the reasons for the President's decision.

The members of the Committee may ask questions of both the student and the President's representative. As soon as possible after the hearing is completed, the Committee will notify the student of its decision in writing.

1. Allocations, Contract, Change of Fees

Fees were current at the time of publication, but are subject to change. For current Fees, see students.ubc.ca/calendar.

Fees for the session commencing May 1, 2003 are reflected in the online Calendar and may be accessed at students.ubc.ca. 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 3, p. 39 and 17, p. 42 in this chapter, and *Withdrawal*, p. 35 in the chapter Academic Regulations).

2. Payment of Fees

Fees may be paid by the following methods:

- Online: Fee and deposit payments are accepted on the Student Service Centre. (students.ubc.ca/ssc) Log in and click on "myFinancial Account". You will need a Visa or MasterCard to use this option. *This is the preferred method of payment.*
- By Direct debit from your bank account. Tuition fees may be paid online through the Student Service Centre using "myFinancial Account". You will need your bank transit number and your bank account number. Both numbers are available on a cheque or on your bank statement. (This new option should be available in April.)
- By touch-tone or online banking, available through all banks, credit unions. (Your student number is your account number.) Please contact your branch for details.
- By cheque or cash at any branch of HSBC Bank Canada. A Tuition Fee Payment Form (students.ubc.ca/finance/fees) must accompany 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 the Tuition Fee Payment Office by the due date. Send cheque to: Tuition Fee Payments, Financial Services, The University of British Columbia, 1039-1874 East Mall, Vancouver, BC, V6T 1Z1.

- In person at the Tuition Fee Payment counter in Brock Hall. Students may pay by cheque or debit card only. Please note: No cash payments are accepted at the Tuition Fee Payment counter. Counter hours are 8:30 am to 4:00 pm, Monday to Friday.

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: students.ubc.ca/ssc.

3. Deposits

Undergraduate students must pay a \$100 deposit before they can register. Once students have registered in any course, this deposit becomes non-refundable. New international undergraduate students must pay \$500 before they can register for the first time, of which \$250.00 is refundable if the student withdraws from all Summer Session courses by April 30, 2003, or from all Winter Session courses by August 31, 2003. Deposits will be credited in full towards any assessed fees. Overdue amounts must be paid in full before paying the deposit.

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 *Payment of Fees*, p. 39 in this chapter for instructions on how to pay.

Graduate students and senior citizens do not pay a deposit.

4. Due Dates

The due date is Wednesday of the first week of classes for Winter Session Term 1, January 7 in Term 2, and May 7 in Summer Session (July

7 for courses and programs starting in Term 2 of Summer Session). The due date for any increase in a student's balance resulting from an assessment during a term is the seventh 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.

The due date for a student who has been given a fee deferment is the deferment date.

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

5. Outstanding Indebtedness

5A. 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 5.c, p. 39 and 5.d, p. 40). For tuition fees and student fee due dates (see Item 4, p. 39). The University may cancel the registration of students who are not attending.

5B. 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 5.c, p. 39 and 5.d, p. 40). For tuition fees and student fee due dates, see Item 4, p. 39). If the overdue amount is not paid in full by the first day of the next session, no future session registration will be allowed. They 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.

5C. FINANCIAL HOLD

A Student may be placed on financial hold in respect of indebtedness owed 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 Library may withdraw borrowing privileges and access to its collection of electronic information. Students will also be assessed a processing fee of \$30 in addition to the interest penalty. The financial hold will be removed when the outstanding balance, including all penalties, is paid in full.

5D. 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 4, p. 39.

5E. 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.

6. Undergraduate Tuition Fees

Fee payment in Winter Session may be in two installments. In general, the first installment covers tuition for Term 1 courses and the first half of full session courses plus most student fees and the second installment covers tuition for Term 2 courses and the second half of full session 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 Items 11, p. 41, 12, p. 41, 13, p. 41, 14, p. 42, 15, p. 42, 31, p. 49 and 32, p. 49 for an explanation of these additional amounts.

6A. PER-CREDIT FEES

A fee of \$115.30 per credit is charged for all undergraduate certificate, diploma, baccalaureate and post-baccalaureate programs except those programs listed below and listed in 6b and 6c Program Fees. Fees paid for a graduate program do not cover courses being taken to complete the requirements of an undergraduate degree.

| | |
|---|------------|
| 30-credit program at \$115.30 per credit | |
| Tuition (30 x \$115.30) | \$3,459.00 |
| Student Fees (see Items 12, 13, 14) | \$431.16 |
| Plus applicable student society fee (see Item 15) | \$ |
| | \$(total) |

| | |
|---|------------|
| 36-credit program at \$115.30 per credit | |
| Tuition (36 x \$115.30) | \$4,150.80 |
| Student Fees (see Items 12, 13, 14) | \$431.16 |

36-credit program at \$115.30 per credit

| | |
|--|---------------------|
| Plus applicable student society fee (see Item 15) | \$ |
| | \$(total) |
| B.A.Sc. Applied Science (year 1) | \$115.30 per credit |
| B.A.Sc. Applied Science (years 2-5) | \$124.30 per credit |
| B.Com. Commerce (year 1) | \$115.30 per credit |
| B. Com. Commerce (years 2-4) | \$154.70 per credit |
| BEDN Bachelor of Education (Elementary) years 1, 2 & 3 | \$119.75 per credit |
| BEDN Bachelor of Education (Elementary) year 4 & 5 | \$130.54 per credit |
| DEDU Diploma in Education | \$130.54 per credit |
| All other undergraduate programs in Education | \$130.54 per credit |
| B.Sc. (Pharm) Pharmaceutical Sciences | \$165.00 per credit |

6B. PROGRAM FEES

Program fees are assessed in two installments in Winter Session, and are charged for the following programs and year levels:

| | |
|---|--------------------------|
| Dentistry | |
| DMD and Combined DMD & B.Sc.—Students who begin their program starting 2003 | \$10,272.00 |
| DMD and Combined DMD & B.Sc.—Students who began their program starting 2002 | \$8,415.00 per year |
| DMD and Combined DMD and B.Sc.—Students who began their program prior to 2002 | \$7,480.00 per year |
| International Dental Degree Completion Program | \$30,480.00 |
| Residents | \$332.00 |
| Law (Full Time) | |
| Students who begin their program starting 2003 | \$7,000.00 |
| Students who began their program starting 2002 | \$6,000.00 |
| Students who began their program prior to 2002 | \$5,000.00 |
| International Students who began their program starting 2002 | \$16,928.00 ¹ |
| International Students who began their program prior to 2002 | \$16,512.00 ² |
| 1 | \$529.00 per credit |
| 2 | \$516.00 per credit |
| Law (Part Time) | |
| Students who begin their program starting 2003 | \$233.34 per credit |
| Students who began their program prior to 2003 | \$166.67 per credit |

Medicine

| | |
|---|---------------------|
| MD and Combined MD & B.Sc.—Students who begin their program starting 2003 | \$10,272.00 |
| MD and Combined MD & B.Sc.—Students who began their program starting 2002 | \$8,415.00 per year |
| MD and Combined MD & B.Sc.—Students who began their program prior to 2002 | \$7,480.00 per year |
| Residents | \$332.00 |

Pharmaceutical Sciences

| | |
|-----------|---------|
| Residents | \$70.00 |
|-----------|---------|

6C. CERTIFICATE OF ADVANCED STUDY

No candidate will pay total fees of less than the first three instalments and will continue to pay the full instalment rate plus authorized student fees until degree completion.

| | |
|-----------------------------------|------------|
| Three (3) instalments per year of | \$1,066.66 |
| On-leave fee, per year | \$269.00 |

7. International Undergraduate Students

7A. OVERVIEW

International Students who began an undergraduate program in Summer 2002 will be assessed tuition fees in the amount of \$529.00 per credit. Cost-of-living increases will be implemented annually. Where reciprocity agreements exist, international students shall pay regular fees.

International students who began an undergraduate program prior to Summer Session 2002 will be assessed \$516.00 per credit for Summer Session 2003 and Winter Session 2003/04, for the duration of their programs. Where reciprocity agreements exist, international students shall pay regular fees.

7B. STUDENT VISA TO PERMANENT RESIDENT STATUS

If an international student becomes a Permanent Resident on or before the tuition fee due date of the term (see Notes 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.

Notes

Tuition fee due dates are as follows:

| | |
|-------------------------------|---|
| Winter Session, Term 1 | Wednesday of the 1st week of classes |
| Winter Session, Term 2 | January 7 |
| Summer Session | May 7 |

EXAMPLE: FEE SCHEDULE

| Session of First Admission to UBC Program | SESSION REGISTERED | | TUITION FEE PAID PER CREDIT (IN CANADIAN DOLLARS) | |
|---|--------------------|----------------|---|----------------|
| | Summer 2003 | Winter 2003/04 | Summer 2004 | Winter 2004/05 |
| Prior to Summer 2001 | 516 | 516 | 516 | 516 |
| Summer 2001 | 516 | 516 | 516 | 516 |
| Winter 2001/2 | 516 | 516 | 516 | 516 |
| Summer 2002 | 529 | 529 | 529+* | 529+* |
| Winter 2002/3 | 529 | 529 | 529+* | 529+* |
| Summer 2003 | 529 | 529 | 529+* | 529+* |
| Winter 2003/4 | -- | 529 | 529+* | 529+* |

* Tuition per credit will equal \$529 plus the annual cost-of-living increase that reflects cost increases in wages and salaries, library acquisitions, supplies and equipment, utility charges, and other related education costs.

Permanent Resident status is attained as of the "Landed on" date, indicated on the Record of Landing, not the "Date Issued".

For information related to International students regarding Medical Insurance fees see 29b, p. 49.

For information on Permanent Resident status see 7b, p. 40.

8. Unclassified Students, Qualifying Students, Visiting, Auditors and Others—Canadian Citizens and Permanent Residents

Unclassified students, qualifying students, auditors, students registered for concurrent studies and students not working toward a degree are assessed a fee of \$115.30 per credit for undergraduate courses (normally those numbered under 500). For undergraduate Law courses \$233.34 per credit. For graduate courses (normally those numbered 500 and above) the fee is \$271.56 per credit. If a course has a zero (0) credit value, fees will be assessed at one (1) credit at the applicable course-level fee.

9. Unclassified Students, Qualifying Students, Visiting, Auditors and Others—International Students

Unclassified students, qualifying students, auditors, students registered for concurrent studies and students not working toward a degree who first entered UBC in Summer 2002 will be assessed tuition fees in the amount of \$529.00 per credit for both undergraduate courses and graduate courses. If the course has a zero (0) credit value, fees will be assessed at one (1) credit at the applicable course-level fee. Cost-of-living increases will be implemented annually. (see Example Fee Schedule in section 7.)

Unclassified students, qualifying students, auditors, students registered for concurrent studies and students not working toward a degree who first entered UBC prior to Summer 2002 will be assessed tuition fees in

the amount of \$516.00 per credit for undergraduate courses (normally those numbered under 500). For graduate courses (normally those numbered 500 and above) the fee is \$529.00 per credit. If the course has a zero (0) credit value, fees will be assessed at one (1) credit at the applicable course-level fee. (See Example Fee Schedule in section 7.)

10. 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. Some Distance Education and Technology and special fees may be assessed. This does not apply however to programs in areas such as Dentistry, Law, Medicine and Nursing or any faculty or school where existing facilities and resources are limited.

11. Graduating Class Fee

A fee of \$7, 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.

12. Athletics and Recreation Fee

A fee of \$162.66 per year is assessed for all students enrolled in a program of 18 credits or more. Students taking fewer than 18 credits will be assessed at \$9.04 per credit. This fee is authorized by the Board of Governors and is used to support athletic and recreation programs and facilities.

13. Alma Mater Society Fees

13A. MANDATORY 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 |
| Total | \$33.50 |

Students taking fewer than 18 credits are assessed fees of \$1.86 per credit.

In addition, all students are assessed an Athletics and Intramurals fee.

Athletics and Intramurals fee of \$21.00

The maximum AMS fees payable for the period September 1 to August 31 are \$54.50. Graduate students on Schedule B are assessed \$37.75.

13B. AMS FEES WITH OPT-OUT PROVISIONS

In addition, all students assessed the above AMS or GSS fees regardless of credit load or place of residence will be assessed a maximum fee of \$209.00 for the period September 1 to August 31, made up as follows:

Extended Health and Dental Plan \$187.00

Students who already have an equivalent extended health and dental plan may opt out of the AMS Health and Dental plan. If covered, students may enrol their spouse and/or dependants by completing an enrolment form and paying an additional fee. Contact www.studentcare.net/works for deadlines and more information.

Students registered in the Winter Session must apply to opt out or enrol their spouse/dependants by the end of the third week of classes in September. Students registered in the Winter Session, Term 2 only must apply for opt outs or enrolments by the end of the third week of classes in January. The extended health and dental insurance plan is not available to students who are registered only in the Summer Session.

Students wishing to enrol or opt out should contact studentcare.net/works within the first three weeks of class: Room 61, Student Union Building, telephone 1-877-795-4421 (toll free), or visit www.studentcare.net.

Check your fees at students.ubc.ca/ssc to verify if you are assessed the Health and Dental Plan fee. For Plan details, enrolment and opt-out deadlines, visit www.studentcare.net.

| | |
|--------------------------|---------|
| Student Aid Bursary Fund | \$12.00 |
| Student Legal Fund | \$1.00 |
| AMS Services | \$9.00 |

Students who wish to opt out of the Student Aid Bursary Fund fee, the Student Legal 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 am to 2 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. 61 in the chapter Services, Organizations and Facilities for more information.

13C. U-PASS

In February 2003, UBC students approved an AMS fee increase of \$20 per month during the Winter Session for the U-Pass, which will provide UBC students with unlimited, all zone, access to public transit in the Greater Vancouver Regional District.

Subject to approval by the Board of Governors and conclusion of the final agreement with TransLink, the U-Pass will be assessed to all students, regardless of credit load, beginning September 2003.

Details of the fees will be available in the online version of the Calendar when they have been approved.

14. Ubyssesey Publication Fee

A fee of \$5 per year was authorized by student referendum and the Board of Governors (see below for the opt-out procedure). This fee will be used to fund the operation of *The Ubyssesey* paper. The contribution will be assessed as follows:

| | |
|---|-------------------|
| 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 |

All students must pay the assessed amount by the due date (see Item 4). Students who wish to opt out of this fee may do so by applying in person to The Ubyssesey Publications Society Business Office, Student Union Building, Room 23 (basement), 10:30am to 2:30pm (closed 12 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 tuition account.

15. 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:

| | |
|----------------------------|---------|
| Agriculture (B.Sc. (Agr.)) | \$30.00 |
| Agriculture (B.L.A.) | \$20.00 |

| | |
|--|----------|
| Architecture | \$20.00 |
| Arts (B.A., B.F.A., B.Mus. and Diploma Programs) | \$13.00 |
| Commerce (B.Com.) | \$266.00 |
| Dentistry | \$115.00 |
| Education (including Diploma Programs) | \$10.00 |
| Engineering | \$45.00 |
| Family and Nutritional Sciences (B.H.E.), Forestry | \$7.00 |
| | \$50.00 |
| Human Kinetics | \$10.00 |
| Law | \$148.00 |
| Medicine: First and second years | \$38.00 |
| Medicine: Third and fourth years | \$48.00 |
| Nursing | \$28.50 |
| Pharmacy | \$18.00 |
| Rehabilitation Sciences | \$6.00 |
| Social Work | \$5.00 |
| Science | \$12.00 |

16. Graduate Student Society Fees

The following fees are authorized by student referendum and the Board of Governors. See *Graduate Student Society*, p. 57 in the chapter Services, Organizations and Facilities for more information. The annual fees are :

| | |
|--------------------------|---------|
| Capital Improvement Fund | \$5.00 |
| Graduate Student Society | \$34.00 |

16A. OTHER GRADUATE STUDENT SOCIETY FEES

There is an additional authorized student fee of \$10 for students in Community and Regional Planning and \$5 for students in Forestry. These fees are collected by the student societies. For students in Library, Archival and Information Studies a \$20.00 fee is collected one time only (not annually) by the School of Library, Archival and Information Studies on behalf of the student society.

17. Refund of Fees

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. 34 and *Withdrawal*, p. 35 in the chapter Academic Regulations.) If a withdrawal is not approved, the student will be liable for all assessed fees including any interest penalty. Students must apply to the Department of Financial Services to receive payment.

17A. UNDERGRADUATE STUDENTS

The first \$100 of tuition fees paid for any session is non-refundable.

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 |

17B. GRADUATE STUDENTS

Graduate students who withdraw during first two weeks of University 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 University or from Summer Session after registration will be calculated as shown below.

Term 1 /Term 2/ Summer Session

| | |
|-------------------------------|---|
| 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 |

17C. UNDERGRADUATE STUDENT FEES

If a student's sessional credit load drops below 18 credits:

- 1 on or before September 16 for Term 1 courses, or
- 2 on or before September 19 for two-term courses, or
- 3 on or before January 19 for Term 2 courses.

The Athletics and Recreation fee, the Ubyssesey Publication fee and the AMS fees listed under *Item 13.a. Mandatory AMS Fees*, p. 41 are adjusted based on credit load.

18. Master's Degree Tuition Fees - Canadian Citizens & Permanent Residents (Landed Immigrants)

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 plus authorized student fees. See *Item 18.W, Student Fees*, p. 45.

All graduate students are automatically assessed fees according to Schedule A. 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 (www.grad.ubc.ca/currstudents/records/forms.htm). 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.

Special program fees apply to programs listed below.

Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 5, Outstanding Indebtedness*, p. 39.)

18A. 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).

Schedule A

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$1,066.66 |
| Instalment No. 2 | \$1,066.66 |
| Instalment No. 3 | \$1,066.66 |
| After instalment six (6) | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18B. SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS)

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).

Schedule B

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$609.62 |
| Instalment No. 2 | \$609.62 |
| Instalment No. 3 | \$609.62 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18C. FEES PAYABLE ON 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 Main Library. Student fees are not prorated.

18D. MASTER OF ARCHITECTURE

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).

Schedule A

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$1,217.33 |
| Instalment No. 2 | \$1,217.33 |
| Instalment No. 3 | \$1,217.33 |
| After instalment six (6) | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS)
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).

Schedule B

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$698.26 |
| Instalment No. 2 | \$698.26 |
| Instalment No. 3 | \$698.26 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18E. MASTER OF ARCHIVAL STUDIES (MAS), MASTER OF LIBRARY AND INFORMATION STUDIES (MLIS) AND JOINT MAS/MLIS

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).

Schedule A

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$1,094.66 |
| Instalment No. 2 | \$1,094.66 |
| Instalment No. 3 | \$1,094.66 |
| After instalment six (6) | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS)
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).

Schedule B

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$628.05 |
| Instalment No. 2 | \$628.05 |
| Instalment No. 3 | \$628.05 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18F. MASTER OF BUSINESS ADMINISTRATION

No candidate will pay less than four (4) installments plus authorized student fees.

| | |
|---|-------------|
| Minimum program fees (15-month Program) | \$28,000.00 |
| Four (4) instalments of | \$7,000.00 |
| After instalment four (4): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| On-leave fee, per year | \$269.00 |

PART-TIME

No candidate will pay less than nine (9) instalments plus authorized student fees.

| | |
|--------------------------------------|-------------|
| Minimum program fees | \$28,000.00 |
| Nine (9) instalments of: | \$3,111.11 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| On-leave fee, per year | \$269.00 |

18G. MASTER OF EDUCATION (ADULT LEARNING AND GLOBAL CHANGE)

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

Schedule A

| | |
|------------------|------------|
| Instalment No. 1 | \$2,083.33 |
| Instalment No. 2 | \$2,083.33 |
| Instalment No. 3 | \$2,083.33 |

After instalment six (6)

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18H. MASTER OF EDUCATION, MASTER OF ARTS IN EDUCATION

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).

Schedule A

| | |
|------------------|------------|
| Instalment No. 1 | \$1,598.33 |
| Instalment No. 2 | \$1,598.33 |
| Instalment No. 3 | \$1,598.33 |

After instalment six (6)

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS)

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).

Schedule B

| | |
|------------------|----------|
| Instalment No. 1 | \$916.66 |
| Instalment No. 2 | \$916.66 |
| Instalment No. 3 | \$916.66 |

After instalment nine (9):

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18I. MASTER OF EDUCATION PROGRAMS OFF-CAMPUS

There will be a special tuition fee, payable in three (3) instalments per year for M.Ed. and M.A. programs in Education, partially offered off-campus. No candidate will pay total fees of

less than nine (9) instalments plus authorized student fees.

| | |
|------------------|------------|
| Instalment No. 1 | \$1,250.00 |
| Instalment No. 2 | \$1,250.00 |
| Instalment No. 3 | \$1,250.00 |

After instalment nine (9):

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18J. MASTER OF ENGINEERING

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).

Schedule A

| | |
|------------------|------------|
| Instalment No. 1 | \$1,333.33 |
| Instalment No. 2 | \$1,333.33 |
| Instalment No. 3 | \$1,333.33 |

After instalment six (6)

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

SCHEDULE B (AVAILABLE TO PART-TIME STUDENTS)

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).

Schedule B

| | |
|------------------|----------|
| Instalment No. 1 | \$764.00 |
| Instalment No. 2 | \$764.00 |
| Instalment No. 3 | \$764.00 |

After instalment nine (9):

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18K. MASTER OF HEALTH ADMINISTRATION

No candidate will pay less than six (6) instalments plus authorized student fees.

| | |
|------------------------|-------------|
| Minimum program fees | \$22,000.00 |
| Six (6) instalments of | \$3,666.67 |

After instalment six (6)

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18L. MASTER OF HUMAN KINETICS

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).

Schedule A

| | |
|------------------|------------|
| Instalment No. 1 | \$1,232.00 |
| Instalment No. 2 | \$1,232.00 |
| Instalment No. 3 | \$1,232.00 |

After instalment six (6)

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS)

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).

Schedule B

| | |
|------------------|----------|
| Instalment No. 1 | \$706.74 |
| Instalment No. 2 | \$706.74 |
| Instalment No. 3 | \$706.74 |

After instalment nine (9):

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18M. MASTER OF JOURNALISM

No candidate will pay total fees of less than five (5) instalments and will continue to pay the full instalment rate plus authorized student fees until degree completion.

| | |
|-------------------------|------------|
| Five (5) instalments of | \$1,620.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18N. MASTER OF LANDSCAPE ARCHITECTURE

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).

Schedule A

| | |
|------------------|------------|
| Instalment No. 1 | \$1,166.66 |
| Instalment No. 2 | \$1,166.66 |
| Instalment No. 3 | \$1,166.66 |

After instalment six (6)

Schedule A (Continued)

| | |
|--------------------------------------|------------|
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS)

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).

Schedule B

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$667.48 |
| Instalment No. 2 | \$667.48 |
| Instalment No. 3 | \$667.48 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

180. MASTER OF SCIENCE IN GENETIC COUNSELLING

No candidate will pay total fees of less than five (5) instalments plus authorized student fees.

| | |
|---|-------------|
| Minimum program fees (two-year program) | \$30,000.00 |
| Five (5) instalments of | \$6,000.00 |
| Each subsequent year, continuing fee | \$1,462.00 |
| On-leave fee, per year | \$269.00 |

18P. MASTER OF SOCIAL WORK (DISTANCE EDUCATION)

No candidate will pay total fees of less than nine (9) instalments plus authorized student fees.

| | |
|--------------------------------------|-------------|
| Minimum program fees | \$10,474.00 |
| Nine (9) instalments of | \$1,163.78 |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18Q. MASTER OF SOFTWARE SYSTEMS

No candidate will pay total fees of less than four (4) instalments plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|--------------------------------------|-------------|
| Minimum program fees | \$16,000.00 |
| Four (4) instalments of | \$4,000.00 |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18R. COMBINED BACHELOR OF APPLIED SCIENCE/MASTER OF ENGINEERING

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).

Schedule A

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$1,333.33 |
| Instalment No. 2 | \$1,333.33 |
| Instalment No. 3 | \$1,333.33 |
| After instalment six (6) | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension Fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS)

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).

Schedule B

| | |
|--------------------------------------|------------|
| Instalment No. 1 | \$764.00 |
| Instalment No. 2 | \$764.00 |
| Instalment No. 3 | \$764.00 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee, per year | \$269.00 |

18S. COMBINED MASTER OF ARTS (ASIA PACIFIC) AND BACHELOR OF LAWS

No candidate will pay total fees of less than six (6) instalments plus authorized student fees.

| | |
|--------------------------------------|------------|
| Two (2) instalments per year of | \$4,033.33 |
| After instalment six (6) | |
| Three (3) instalments of | \$1,066.66 |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee per year | \$269.00 |

18T. COMBINED MASTER OF BUSINESS ADMINISTRATION AND BACHELOR OF LAWS

No candidate will pay total fees of less than eight (8) instalments plus authorized student fees.

| | |
|--------------------------------------|------------|
| Two (2) instalments per year of | \$6,125.00 |
| After instalment eight (8): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee per year | \$269.00 |

18U. COMBINED MASTER OF BUSINESS ADMINISTRATION AND MASTER OF ARTS (ASIA PACIFIC)

No candidate will pay total fees of less than seven (7) instalments plus authorized student fees.

| | |
|--------------------------------------|------------|
| Two (2) instalments per year of | \$4,457.15 |
| After instalment seven (7) | |
| three instalments of | \$1,066.66 |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee per year | \$269.00 |

18V. COMBINED MASTER'S DEGREE AND DIPLOMA IN DENTISTRY

No candidate will pay total fees of less than six (6) instalments plus authorized student fees.

| | |
|--------------------------------------|-------------|
| Minimum program fee | \$11,358.00 |
| Two (2) instalments per year of | \$1,893.00 |
| After instalment six (6): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| Extension fee, per year | \$2,053.00 |
| On-leave fee per year | \$269.00 |

18W. STUDENT FEES

The annual student fees for students paying according to Schedule A are 100% of those in Items 12, p. 41, 13, p. 41, 14, p. 42 and 16, p. 42. The annual student fees for students paying according to Schedule B are 50% of those in Items 12, p. 41, 13.a, p. 41 and 14, p. 42 plus 100% of Items 13.b, p. 41 and 16, p. 42. Some of the 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.

Graduate students are required to pay student fees regardless of credit load or their place of residence.

19. Master's Degree Tuition Fees—International Students

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 plus authorized student fees as listed under *Item 18.W, Student Fees*, p. 45 until degree completion.

Special program fees apply to the Master of Architecture, Master of Business Administration, Master of Engineering, Master of Journalism, Master of Landscape Architecture, Master of Software Systems, Master of Science in Genetic Counselling and Combined Master of Business Administration and Bachelor of Laws as noted below.

All graduate students are automatically assessed fees according to Schedule A. 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 (www.grad.ubc.ca/currstudents/records/forms.htm). 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.

International students admitted to programs charging tuition fees of \$7,200 are eligible for an International Partial Tuition Scholarship of \$3,600 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.

Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 5, Outstanding Indebtedness*, p. 39.)

For information related to International students regarding Medical Insurance fees see *29b*, p. 49.

For information on Permanent Resident status see *7b*, p. 40.

19A. SCHEDULE A (AVAILABLE TO ALL STUDENTS NEWLY REGISTERED AS OF SEPTEMBER 1997)

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 three (3) instalments plus authorized student fees and will continue to pay the full

instalment rate plus authorized student fees until degree completion.

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

Schedule A

| | |
|------------------------|------------|
| Instalment No. 1 | \$2,400.00 |
| Instalment No. 2 | \$2,400.00 |
| Instalment No. 3 | \$2,400.00 |
| On-leave fee, per year | \$849.00 |

19B. SCHEDULE B (AVAILABLE ONLY TO PART-TIME STUDENTS NEWLY REGISTERED AS OF SEPTEMBER 1997)

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 nine (9) instalments plus authorized student fees and will continue to pay the full instalment rate plus authorized student fees until degree completion.

Schedule B

| | |
|------------------------|------------|
| Instalment No. 1 | \$1,380.00 |
| Instalment No. 2 | \$1,380.00 |
| Instalment No. 3 | \$1,380.00 |
| On-leave fee, per year | \$849.00 |

19C. FEES PAYABLE ON COMPLETION OF DEGREE

Candidates who have paid more than the minimum for the degree (three instalments on Schedule A or nine on Schedule B) 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 Main Library. Student fees are not prorated.

19D. MASTER OF ARCHITECTURE

No candidate will pay total fees of less than three (3) instalments, plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|-----------------------------------|-------------|
| Minimum fee | \$10,000.00 |
| Three (3) instalments per year of | \$3,333.33 |
| On-leave fee, per year | \$849.00 |

19E. MASTER OF BUSINESS ADMINISTRATION

No candidate will pay total fees of less than four (4) instalments, plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|--------------------------------|-------------|
| Minimum fee (15-month Program) | \$28,000.00 |
| Four (4) instalments of | \$7,000.00 |
| On-leave fee, per year | \$849.00 |

PART-TIME

| | |
|--------------------------|-------------|
| Minimum program fees | \$28,000.00 |
| Nine (9) instalments of: | \$3,111.11 |
| On-leave fee, per year | \$269.00 |

19F. MASTER OF ENGINEERING

No candidate will pay total fees of less than three (3) instalments, plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|-----------------------------------|--------------|
| Minimum fee | \$ 15,000.00 |
| Three (3) instalments per year of | \$ 5,000.00 |
| On-leave fee, per year | \$ 849.00 |

19G. MASTER OF JOURNALISM

No candidate will pay total fees of less than three (3) instalments, plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|------------------------------------|-------------|
| Minimum fee | \$10,000.00 |
| Three (3) installments per year of | \$3,333.33 |
| On-leave fee, per year | \$849.00 |

19H. MASTER OF LANDSCAPE ARCHITECTURE

No candidate will pay total fees of less than three (3) instalments, plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|------------------------------------|-------------|
| Minimum fee | \$10,000.00 |
| Three (3) installments per year of | \$3,333.33 |
| On-leave fee, per year | \$849.00 |

19I. MASTER OF SCIENCE IN GENETIC COUNSELLING

No candidate will pay total fees of less than five (5) instalments, plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|--|-------------|
| Minimum program fee (two-year program) | \$30,000.00 |
| Five (5) installments of | \$6,000.00 |
| On-leave fee, per year | \$849.00 |

19J. MASTER OF SOFTWARE SYSTEMS

No candidate will pay total fees of less than four (4) instalments, plus authorized student fees, and will continue to pay the full instalment rate until degree completion.

| | |
|-------------------------|-------------|
| Minimum program fees | \$16,000.00 |
| Four (4) instalments of | \$ 4,000.00 |
| On-leave fee, per year | \$849.00 |

19K. COMBINED MASTER OF BUSINESS ADMINISTRATION & BACHELOR OF LAWS

No candidate will pay total fees of less than eight (8) instalments, plus authorized student

fees, and will continue to pay the full instalment rate until degree completion.

| | |
|-----------------------------|------------|
| Two instalments per year of | \$9,848.00 |
| On-leave fee, per year | \$849.00 |

20. Master's Degree Tuition Fees - International Students Registered Prior to September 1997

Every candidate enrolled in a master's program is required to maintain continuous registration by paying tuition instalments according to Schedule A or B plus authorized student fees, as listed under *Item 18.W, Student Fees*, p. 45. Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 5, Outstanding Indebtedness*, p. 39.)

Candidates who change from full-time to part-time study must apply in writing to Enrolment Services to change from Schedule A to Schedule B. Such a change will normally be allowed retroactive to the date on which part-time study began. The total fees assessed following a change to Schedule B will not normally be less than those already assessed under Schedule A at the time of the change. Any overpayment after the candidate is moved to the new schedule will be applied first to currently assessed fees. 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 initial payment.

20A. SCHEDULE A (FOR ALL STUDENTS REGISTERED PRIOR TO SEPTEMBER 1997)

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 three (3) instalments plus authorized student fees.

Schedule A

| | |
|------------------|----------|
| Instalment No. 1 | \$960.00 |
| Instalment No. 2 | \$960.00 |
| Instalment No. 3 | \$960.00 |

20B. SCHEDULE B (FOR PART-TIME STUDENTS REGISTERED PRIOR TO SEPTEMBER 1997)

No candidate who selects Schedule B will pay total fees of less than the first nine (9) instalments plus authorized student fees until degree completion.

Schedule B

| | |
|------------------|----------|
| Instalment No. 1 | \$552.00 |
| Instalment No. 2 | \$552.00 |
| Instalment No. 3 | \$552.00 |

20C. FEES APPLICABLE TO BOTH SCHEDULES A AND B

Candidates enrolled in a master's program beginning September 1996 will continue to pay the full instalment rate until degree completion.

Fees applicable to both Schedules A and B for candidates enrolled beginning September 1996

| | |
|------------------------|----------|
| On-leave fee, per year | \$340.00 |
|------------------------|----------|

Fees applicable to both Schedules A and B for candidates enrolled prior to September 1996

| | |
|---|------------|
| Each subsequent year, continuing fee ¹ | \$1,847.00 |
|---|------------|

| | |
|------------------------|----------|
| On-leave fee, per year | \$340.00 |
|------------------------|----------|

| | |
|-------------------------|------------|
| Extension fee, per year | \$2,595.00 |
|-------------------------|------------|

¹ Students on Schedule A pay the continuing fee after instalment six (6). Schedule B students after instalment nine (9).

20D. FEES PAYABLE ON COMPLETION OF DEGREE

Candidates who have paid more than the minimum for the degree will have their 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 Main Library. Student fees are not prorated.

21. Doctoral Degree Tuition Fees - Canadian Citizens & Permanent Residents (Landed Immigrants)

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 schedule below.

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 below.

Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 5, Outstanding Indebtedness*, p. 39.)

All candidates are considered to be 'full-time' for the assessment of tuition and authorized student fees. 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.

| | |
|------------------|------------|
| Instalment No. 1 | \$1,066.66 |
| Instalment No. 2 | \$1,066.66 |

| | |
|--------------------------------------|------------|
| Instalment No. 3 | \$1,066.66 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| On-leave fee, per year | \$269.00 |
| Extension fee, per year | \$2,053.00 |

21A. FEES PAYABLE ON 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 Main Library. Student fees are not prorated.

21B. DOCTOR OF PHARMACY

No candidate will pay less than five (5) instalments plus authorized student fees.

| | |
|--------------------------------------|-------------|
| Minimum program fees | \$37,550.00 |
| Five (5) instalments of | \$7,510.00 |
| After instalment five (5): | |
| Each subsequent year, continuing fee | \$1,462.00 |
| On-leave fee, per year | \$269.00 |

21C. DOCTOR OF EDUCATION IN EDUCATIONAL LEADERSHIP

No candidate 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.

| | |
|---|-------------|
| Minimum program fees | \$25,473.00 |
| Three (3) instalments per year of | |
| Instalments #1 | \$1,415.18 |
| Instalments #2-9 | \$2,830.33 |
| Instalment #10 | \$1,415.18 |
| After instalment (10), until degree completion: | |
| Each subsequent year, continuing fee | \$2,606.58 |
| Three (3) instalments per year | \$868.85 |
| On-leave fee, per year | \$269.00 |

21D. COMBINED DOCTOR OF PHILOSOPHY AND DOCTOR OF MEDICINE

No candidate will pay less than eighteen (18) instalments plus authorized student fees.

| | |
|--|------------|
| Three (3) instalments per year of | \$2,067.55 |
| After three (3) instalments in year six: | |
| Each subsequent year, continuing fee | \$1,462.00 |
| On-leave fee, per year | \$269.00 |

21E. STUDENT FEES

The annual student fees are the same as those for full time (Schedule A) Master's students. See *Item 18.W, Student Fees*, p. 45.

22. Doctoral Degree Tuition Fees—International Students

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 below. Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 5, Outstanding Indebtedness*, p. 39.) 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.

International students admitted to programs charging tuition fees of \$7,200 are eligible for an International Partial Tuition Scholarship of \$3,600 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 towards the International Partial Tuition Scholarship. Students are advised to contact their department for details.

For information related to International students regarding Medical Insurance fees see *29b*, p. 49.

For information on Permanent Resident status see *7b*, p. 40.

| | |
|-----------------------------------|------------|
| Three (3) instalments per year of | \$2,400.00 |
| On-leave fee, per year | \$849.00 |

22A. FEES PAYABLE ON 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 Main Library. Student fees are not prorated.

22B. DOCTOR OF EDUCATION IN EDUCATIONAL LEADERSHIP

No candidate will pay less than six (6) instalments plus authorized student fees.

| | |
|-----------------------------------|-------------|
| Minimum program fee | \$25,473.00 |
| Three (3) instalments per year of | |

| | |
|--|------------|
| Instalment #1 | \$1,415.18 |
| Instalment #2-9 | \$2,830.33 |
| Instalment #10 | \$1,415.18 |
| After instalment ten (10), until degree completion | |
| Three (3) instalments per year | \$868.85 |
| On-leave fee, per year | \$849.00 |

22C. DOCTOR OF PHARMACY

No candidate will pay less than five (5) instalments plus authorized student fees.

| | |
|-------------------------|-------------|
| Minimum program fee | \$49,050.00 |
| Five (5) instalments of | \$9,810.00 |
| On-leave fee, per year | \$849.00 |

22D. STUDENT FEES

The annual student fees are the same as those for full time (Schedule A) Master's students. See *Item 18.W, Student Fees*, p. 45.

23. Doctoral Degree Tuition Fees - International Students Registered Prior to September 1997

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 schedule below. Failure to pay fees will result in a financial hold and an interest penalty. (See *Item 5, 'Outstanding Indebtedness'*, p. 39.)

All candidates are considered to be 'full-time' for the assessment of tuition and authorized student fees. The normal fee for the doctoral program is paid in three (3) instalments per year according to the following schedule plus authorized student fees. No candidate in any doctoral degree 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.

| | |
|---|------------|
| Instalment No. 1 | \$960.00 |
| Instalment No. 2 | \$960.00 |
| Instalment No. 3 | \$960.00 |
| After instalment nine (9): | |
| Each subsequent year, continuing fee ¹ | \$1,847.00 |
| Extension Fee per year ¹ | \$2,595.00 |
| On-leave fee per year | \$340.00 |

¹ Candidates enrolled in a doctoral program beginning September 1996 will continue to pay the full instalment rate until degree completion.

23A. FEES PAYABLE ON COMPLETION OF DEGREE

Candidates who have paid more than the minimum for the degree (the first six 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 Main Library. Student fees are not prorated.

23B. STUDENT FEES

The annual student fees are the same as those for full time (Schedule A) Master's students. See *Item 18.w, Student Fees*, p. 45.

24. 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 first program. Fees for second program continue as assessed until degree completion.

Students registered in one Graduate degree program and one Undergraduate program:

Fees are assessed for both programs until minimum payments completed for Grad program. Undergrad fees will continue to be assessed.

Students registered in one Graduate degree program and as an Unclassified or Qualifying 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.

25. Qualifying Students

Qualifying students will be assessed fees on a per-credit basis for all courses taken (see *Items 8*, p. 41 and *9*, p. 41). Fees paid under these circumstances will not subsequently be credited in a graduate degree program.

26. Visiting Students

Visiting undergraduate students will be assessed fees at the prevailing per-credit rate (see *Items 6*, p. 40, *7*, p. 40, *8*, p. 41) or *9*, p. 41 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 8*, p. 41 and *9*, p. 41) plus authorized student fees.

Other visiting graduate students may register for the non-credit activity 'Visiting Graduate Student.' 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.

27. Universities Graduate Exchange Agreements

Graduate students in good standing and paying tuition fees at one of the following universities: Alberta, Brandon, Calgary, Lethbridge, Manitoba, McGill, Northern British Columbia, Regina, Saskatchewan, Simon Fraser, Toronto, or Victoria can register at UBC as exchange graduate students without paying tuition or student fees. See *Visiting Students under the Graduate Exchange Agreement*, p. 213 under the Faculty of Graduate Studies.

28. Undergraduate Formal Exchange Programs

Students visiting UBC on approved exchange programs covered by a formal agreement between their home university and UBC pay fees to their home university. These fees cover credit courses taken in Winter Session.

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

29. Medical Insurance

29A. OVERVIEW

Students from outside the Province of British Columbia are responsible for ensuring that they have basic medical insurance as a condition of their acceptance to the University. See *Student Health Service*, p. 60 under Services, Organizations and Facilities for details or contact International Student Services for more information.

All UBC students that are assessed student fees are also assessed the *AMS/GSS Extended Health and Dental Plan fee*, p. 41. This is an extended health and dental plan which provides coverage, in addition to basic medical covered by MSP, for example most prescription drugs, travel health insurance, vision care and dental care. This fee is assessed only in the Winter Session and provides coverage from September 1 to August 31.

29B. NEW INTERNATIONAL STUDENT MANDATORY MEDICAL INSURANCE

The University provides a mandatory basic medical insurance program for all international students as a condition of registering as a student.

| | |
|---|----------|
| New International Student Mandatory Medical Insurance | \$110.00 |
|---|----------|

Anyone residing in BC for longer than six months is required by law to enrol in the British Columbia Medical Services Plan (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. The UBC student plan is mandatory for all UBC international students and will provide basic coverage during this waiting period. Coverage will last until the student's eligibility date for BC MSP. This policy will ensure that international students have adequate medical coverage from the time they leave home (up to ten days prior to arrival) and while they are waiting for BC MSP to be effective.

The fee for the initial three-month period will be assessed when students register and will be included with their tuition fees and other student fees. Fees can be accessed through the Student Service Centre (SSC) (students.ubc.ca/ssc). There will be an opportunity to opt out of the initial plan if a student already has BC MSP. For complete information, consult www.international.ubc.ca and follow the links for Health Insurance.

All UBC students that are assessed student fees are also assessed the *AMS/GSS Extended Health and Dental Plan fee*, p. 41. This is an extended health and dental plan which provides coverage, in addition to basic medical covered by MSP, for example most prescription drugs, travel health insurance, vision care and dental care. This fee is assessed only in the Winter Session and provides coverage from September 1 to August 31.

30. Summer Session 2003

The maximum student society fees payable for the period September 1 to August 31, 2003 are:

| | |
|-------------------------------|----------|
| Athletics and Recreation Fee | \$162.66 |
| AMS Fee | \$33.50 |
| AMS Athletics and Intramurals | \$21.00 |
| AMS Services | \$9.00 |
| AMS Student Aid Bursary Fund | \$12.00 |
| AMS Student Legal Fund | \$1.00 |
| Ubyssy Publications | \$5.00 |

Summer Session students who have not already paid the maximum fees will be assessed as follows:

| | |
|-------------------------------|-------------------|
| Athletics and Recreation Fee | \$9.04 per credit |
| AMS | \$1.86 per credit |
| AMS Athletics and Intramurals | \$21.00 |
| AMS Services | \$9.00 |
| AMS Students Aid Bursary Fund | \$12.00 |
| AMS Student Legal Fund | \$1.00 |
| Ubyssy Publications | \$0.29 per credit |

Students should refer to the Summer Session *Calendar* (students.ubc.ca/calendar) 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.)

31. Distance Education & Technology Courses

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

Refunds will be granted if applied for in writing and received at the Distance Education and Technology 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 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 \$40.75 is payable with your examination application. The following fees also apply:

| | |
|--|----------|
| Forestry 111 (Section 99A): | \$100.00 |
| Forestry 202 and 203 (Sections 99B): | \$65.00 |
| Forestry 237, 238, 308, 309 (Section 99C): | \$65.00 |
| Forestry 405 (Section 99A): | \$80.00 |
| Soil Science 200 (Section 99C): | \$65.00 |

32. Special Fees

FEE TABLES

Fees shown in the tables below are for most programs. Some programs have higher or additional fees. See individual faculty/school entries for details.

Undergraduate Application Processing Fees

| | |
|---|----------|
| For applicants who are Canadian citizens or Permanent Residents of Canada | \$60.00 |
| For UBC students who are applying for readmission 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 |

Graduate Application Processing Fees

| | |
|---|----------|
| Application fee, per department, for all graduate programs except master-level Commerce programs | \$90.00 |
| Application fees for master's-level programs in the Faculty of Commerce and Business Administration | \$125.00 |

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 |
|--|---------|

Medicine

| | |
|--|-----------------|
| Canadian Electives Application Fee | \$100.00 |
| Dean's Letter of Reference, Single Copy | \$15.00 |
| 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 |

Other Fees

| | |
|---|----------|
| Applied Science, B.A.Sc. Annual Professional Activities Fee | \$100.00 |
|---|----------|

The fee is assessed for all students registered in the B.A.Sc. program upon entry into each year of the program. The funds generated by the fee will be used by the Faculty of Applied Science to support projects and programs that will enhance the professional aspects of the B.A.Sc. student experience. An Advisory Committee, which includes faculty members and students, will determine the allocation of funds.

| | |
|---|----------|
| B.Sc. (Pharm.) practice fee for students in fourth year | \$203.75 |
| Co-operative Education Program, fee per work term | \$450.00 |
| Co-operative Education Program Workshops | \$150.00 |
| Wood Products Processing Co-operative Education Program—Practical Wood-working course | \$400.00 |
| Deferred examination written off-campus, per paper | \$60.00 |
| Dentistry, short-term visiting students | \$51.00 |
| Dishonoured cheque | \$15.25 |
| Duplicate tuition fee receipts (incl. GST) | \$6.42 |
| Diploma, duplicate or replacement (incl. GST) | \$57.78 |
| Diploma, certified copy, each copy (incl. GST) | \$6.42 |
| Engineering lab insurance | \$6.00 |
| Financial Hold Processing Fee | \$30.00 |
| Distance Education and Technology special examination (where permitted), per paper | \$40.00 |

Other Fees (Continued)

| | |
|--|----------|
| Library (replacement cards) | \$6.00 |
| Review of Assigned Standing, per course | \$50.00 |
| Student Exchange Application Fee (non-refundable) all applicants | \$75.00 |
| Student Exchange Administration Fee (refundable) all applicants | \$250.00 |
| Supplemental examination written at UBC, per paper | \$30.00 |
| Supplemental examination written off-campus, per paper | \$60.00 |

Field Trip & Field Course Fees

| | |
|--|----------|
| Agroecology 300 | variable |
| Anthropology 306 | variable |
| Architecture 502 | variable |
| Biology 205 (optional field trip) | variable |
| Biology 326 (optional field trip) | variable |
| Biology 328 (optional field trip) | variable |
| Biology 409 | variable |
| Biology 426 | variable |
| Biology 427 | variable |
| Biology 428 (optional field trip) | variable |
| Earth and Ocean Sciences 223 | variable |
| Earth and Ocean Sciences 328 | variable |
| Earth and Ocean Sciences 473 | variable |
| Earth and Ocean Sciences 573 | variable |
| Geography 309 | variable |
| Geography 379 | variable |
| Landscape Architecture 511: accomodation, instruction, administration, transportation, meals | variable |

Forestry Field Courses

| | |
|---|----------|
| Natural Resources Conservation (CONS 451) | variable |
| Forestry 351 (Interior Field Trip) | variable |
| Forest Operations 352 | variable |
| Forestry 451 (Coast Field Trip) | variable |
| Forestry 551 | variable |
| Wood Science and Industry 353 | variable |

Calendar Fees (GST inclusive)

| | |
|------------------------|---------|
| Calendar Fee | \$5.35 |
| Calendar sent by mail: | |
| Canada | \$12.85 |
| USA | \$18.85 |
| International | \$27.85 |

32A. TRANSCRIPT OF ACADEMIC RECORD

Official transcripts ordered from the Student Service Centre (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 email (transcripts.students@ubc.ca) will normally be mailed or available for pickup within five working days. During peak periods, processing time may be longer.

| | |
|---|---------|
| Each copy ¹ | \$5.35 |
| Additional fee for courier delivery, each copy: | |
| in Canada | \$14.00 |
| in USA | \$21.00 |
| outside Canada and USA | \$28.00 |

¹ Includes 7% GST.

32B. LIBRARY–EXTRAMURAL SERVICES

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

33. Tax Receipts (T2202A)

This form is mailed by Enrolment Services in February to all qualified students. Tuition fee receipts and Education Credit Certificates are combined on one form. The Athletics and Recreation and Ubyyssey Publication fees qualify for the tuition tax credit and will be included on the T2202A.

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

VI Services, Organizations and Facilities

Contact Directory

For complete listings of UBC's Faculty and Administrative Directory visit www.directory.ubc.ca.

EMERGENCY & HEALTH SERVICES

| | |
|---|---|
| Counselling Services | 604-822-9260; or see Student Services listing |
| On campus: Fire, rescue, ambulance, hazardous materials | 911 |
| UBC Emergency First Aid | 604-822-4444 |
| RCMP | 911; 604-224-1322 |
| Security, Emergency number | 604-822-2222 |
| Student Health | 604-822-7011 |
| Vancouver Hospital, UBC Site | 604-822-7222 |
| Women Student's Office (students.ubc.ca/women) | 604-822-2415 |
| Health Services (students.ubc.ca/health) | 604-822-7011 |
| Hazardous Materials Response, Fire Dept. | 604-822-4567 |
| Health Safety & Environment | 604-822-2029 |
| Security (www.security.ubc.ca), Main office | 604-822-8609 |

STUDENT SERVICES

| | |
|--|--------------|
| Admission, Undergraduate (students.ubc.ca/welcome) | 604-822-3014 |
| Admission, Graduate (www.grad.ubc.ca) | 604-822-2848 |
| Alumni Services (www.alumni.ubc.ca) | 604-822-3313 |
| Alma Mater Society (www.ams.ubc.ca) | 604-822-2901 |
| Awards | |
| Awards, Undergraduate (students.ubc.ca/finance/awards) | 604-822-5111 |
| Awards, Graduate (www.grad.ubc.ca) | 604-822-4556 |
| Bursaries (students.ubc.ca/finance/awards) | 604-822-5111 |

STUDENT SERVICES (CONT.)

| | |
|---|--|
| Scholarships (students.ubc.ca/finance/awards) | 604-822-5111 |
| Books, UBC Bookstore (www.bookstore.ubc.ca) | 604-822-2665 |
| Continuing Studies (www.cstudies.ubc.ca) | 604-822-1444 |
| Counselling Services | |
| Counselling for all admitted and registered students (students.ubc.ca/counselling) | 604-822-3811; 604-822-9260 |
| Speakeasy (peer counselling) (www.ams.ubc.ca) | 604-822-3700 |
| Distance Education (det.cstudies.ubc.ca) | 604-822-6500 |
| Enrolment Services | 604-822-2844 |
| Exam Schedules (students.ubc.ca/schedule) | 604-822-3483 |
| Exchange Programs (www.international.ubc.ca/exchange) | 604-822-0942 |
| Fees (students.ubc.ca/finance/fees) | 604-822-2844 |
| First Nations Services (longhouse.ubc.ca) | 604-822-8940 |
| Fraternities and Sororities (www.ams.ubc.ca/clubs/greek) | ubcgreeks@hotmail.com |
| International Students Exchange Students (international.ubc.ca/exchange) | 604-822-0942 |
| International House (www.international.ubc.ca/ihouse) | 604-822-5021 |
| International Student Orientation (www.international.ubc.ca/orientation) | 604-822-5021 |
| International Graduate Student Orientation (www.gss.ubc.ca/orientation) | 604-822-3203 |
| Language Programs & Services (www.languages.ubc.ca) | 604-822-0800 |
| Recruitment and Reception (www.welcome.ubc.ca) | 604-822-8999 |
| Records & Registration | 604-822-2844 |
| Registrar's Office (students.ubc.ca) | see Enrolment Services |
| Student Financial Assistance & Awards (students.ubc.ca/finance/awards) | 1-877-272-1422; see also Awards. |

STUDENT SERVICES (CONT.)

| | |
|---|-------------------------------------|
| Student Information Centre | 1-877-272-1442; 604-822-9836 |
| Student Recruitment & Admission | 1-877-272-1422; see also Admission. |
| Student Service Centre (students.ubc.ca/ssc) | web only |
| Student Societies | 604-822-2844 |
| Undergraduate Student Society (www.ams.ubc.ca) | 604-822-2901 |
| Graduate Student Society (www.gss.ubc.ca) | 604-822-3203 |
| Students with Disabilities | |
| Exam accommodations (students.ubc.ca/drc) | 604-822-5844 |
| Interpreter services (students.ubc.ca/drc) | 604-822-5844 |
| Alternate format materials (students.ubc.ca/drc) | 604-822-5844 |
| Tuition Fees | see Fees. |

SUPPORT FACILITIES, CENTRES & ORGANIZATIONS

| | |
|---|--------------|
| Athletics (www.athletics.ubc.ca) | |
| 24 Hour T-Bird Results/Upcoming Events | 604-822-BIRD |
| Aquatic Centre–Pool Schedule Information | 604-822-4521 |
| Campus Recreation & Fitness | 604-822-6000 |
| Community Sports camp enquiries | 604-822-3688 |
| Intramural Sports & Legacy Games | 604-822-6000 |
| Thunderbird Stadium/Playing Fields | 604-822-6121 |
| UBC BirdCoop Fitness Facility | 604-822-6294 |
| UBC Coast Club Tennis Centre | 604-822-2505 |
| War Memorial Gym | 604-822-3094 |
| Thunderbird Winter Sports Centre | 604-822-6121 |
| Art Gallery, Morris and Helen Belkin (www.belkin-gallery.ubc.ca) | 604-822-2759 |

SUPPORT FACILITIES, CENTRES
& ORGANIZATIONS (CONT.)

| | |
|--|------------------------------|
| Careers (www.careers.ubc.ca) | 604-822-4011 |
| Centres | |
| Asian Centre (www.interchange.ubc.ca/ubcintl/asianctr/index.html) | 604-822-0810 |
| Canadian Centre for the Culture of Microorganisms (www.botany.ubc.ca/cccm/index.html) | 604-822-4825 |
| Centre for Intercultural Language Studies | 604-822-5457 |
| Centre for Teaching and Academic Growth (www.tag.ubc.ca) | 604-822-9149 |
| Chan Centre for the Performing Arts (www.chancentre.com) | 604-822-9197 |
| International Centre for Criminal Law Reform and Criminal Justice Policy (www.icclr.law.ubc.ca) | 604-822-9875 |
| University Writing Centre (www.writingcentre.ubc.ca) | 604-822-9564 |
| Chaplains | |
| Anglican | 604-224-1410 |
| Baptist | 604-222-9207 |
| Canadian Southern Baptist | 604-326-0179 |
| Jewish | 604-224-4748 |
| Latter Day Saints | 604-585-1828 |
| Luthern | 604-224-1614 |
| Muslim | 604-822-2379 |
| Pentecostal Assemblies of Canada | 604-222-0160 |
| Presbyterian | 604-822-1207 |
| Roman Catholic | 604-822-4463 |
| United Church | 604-224-3722 |
| Child Care (www.childcare.ubc.ca) | 604-822-5343 |
| Classroom Services (students.ubc.ca/schedule) | 604-822-9946 |
| Computer Systems | see IT Services |
| Counselling | see Student Services listing |
| Email accounts | see IT Services |
| Employment | 604-822-4011 |

SUPPORT FACILITIES, CENTRES
& ORGANIZATIONS (CONT.)

| | |
|---|-------------------------|
| First Nations Services | 604-822-8940 |
| Food Services (www.foodserv.ubc.ca) | 604-822-FOOD |
| Frederic Wood Theatre | 604-822-2678 |
| Gardens | |
| Botanical Gardens (www.ubcbotanicalgarden.org) | 604-822-9666 |
| Herbarium (www.botany.ubc.ca/herbarium) | 604-822-3344 |
| Nitobe Memorial Garden (www.ubcbotanicalgarden.org/nitobe) | 604-822-9666 |
| Health services (students.ubc.ca/health) | 604-822-7011 |
| Housing (www.housing.ubc.ca) | 604-822-2811 |
| Human Resources (www.hr.ubc.ca) | 604-822-2811 |
| Information Technology Services (www.itservices.ubc.ca) | 604-822-6611 |
| Email Accounts | 604-822-6611 |
| Internet Access | 604-822-6611 |
| Museums | |
| Museum of Anthropology (www.moa.ubc.ca) | 604-822-5087 |
| M.Y. Williams Geological Museum | 604-822-2449 |
| Zoological Museum (www.zoology.ubc.ca/z/research.html#museums) | 604- |
| Parking | see Transportation. |
| Recreation | see Athletics. |
| Rick Hansen Institute (www.rickhansen.org) | 604-876-6800 |
| Room bookings | see Classroom Services. |
| Senate (students.ubc.ca/senate) | 604-822-2951 |
| Transportation | |
| Parking & Access Control (www.parking.ubc.ca) | 604-822-6786 |
| Transportation alternatives (www.trek.ubc.ca) | 604-822-RIDE |
| UBC Bookstore | 604-822-2665 |

Services, Organizations and Facilities

Student Service Units

ADMISSIONS

Deborah Robinson, Associate Registrar & Director
Rosalie Phillips, Associate Director

Undergraduate 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 chapter *Undergraduate Admission*, p. 21 in this Calendar.

For graduate student admissions requirements, see *The Faculty of Graduate Studies*, p. 209, under the chapter “Faculty, Colleges & Schools” in this Calendar.

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

*Office hours 8:00 am to 4:00 pm, Mondays
Thursday and Friday; 9:30 am to 4:00 pm Tues-
day; and 8:00 am to 5:30 pm Wednesday.*

ALMA MATER SOCIETY

Oana Chirila, President
Laura Best, Vice President Academic and Student Affairs
Josh Bowman, Vice President Administration
Sam Saini, Vice President External Affairs
Brian Duong, Vice President Financial

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, child-care, 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 39,000 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 (listed above), 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 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 246, 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 252, telephone 604-822-6868. 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 246, telephone 604-822-2361. 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 252, 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 *Ubysey* paper
- bi-weekly AMS email newsletter
- 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 Communications Coordinator, at 604-822-1961.

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. Student Service Directors and student volunteers run these Services.

Through student fees, the following services are provided for and by the students of UBC:

| | |
|------------------------|--|
| AMS Advocacy Office | 604-822-9855; student representation |
| AMS Exam Database | www.ams.ubc.ca/services/ ; online archive of exams |
| AMS Internship program | 604-822-9268 |
| AMS Joblink | 604-822-5627; an employment centre |
| AMS Ombuds office | 604-822-4846; promotes fair treatment of students |
| AMS Orientations | 604-822-6101; a guide to student and academic life |
| AMS Mini-school | 604-822-1989; course offerings outside the classroom |
| AMS Rentsline | 604-714-4848, 604-730-2010; off campus housing |
| AMS Safewalk | 604-822-5355; campus walkers |
| AMS Speakeasy | 604-822-3777 (Info), 604-822-3700 (Crisis); peer counselling and information |
| AMS Student Events | 604-822-9342; helps student groups plan and promote their own events |
| AMS Subtitles | www.amsubtitles.com ; online bookstore |
| AMS Tutoring | 604-822-9084 |
| AMS Volunteer Services | 604-822-9268 |
| AMS Yardstick | www.ams.ubc.ca/services/yardstick/home.html ; online teacher evaluation |

For more information, contact the Vice-President, Academic/University Affairs at 604-822-3092. 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 Campus Recreation and the Legacy Games, 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 |
| Intramural Sports/Legacy Games | 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 | 604-822-3094 |
| Winter Sports Centre | 604-822-6121 |

AWARDS

Deborah Robinson, Associate Registrar & Director
Barbara Crocker, Associate Director

The office of Student Financial Assistance and Awards administers academic scholarships and awards for undergraduates. The Faculty of Graduate Studies administers academic awards for graduate students. Current UBC students may inquire about their awards through the Student Service Centre (students.ubc.ca/ssc).

SCHOLARSHIPS

Student Financial Assistance and Awards offers a wide range of scholarships and awards to recognize students with high academic standing, together with demonstrated leadership skills in their school and community. A majority of scholarships are awarded on the recommendation of a specific faculty or department. However, entrance, summer, and affiliation scholarships all require applications.

These scholarships and awards are made available through individual and corporate donors as well as from the University operating budget.

Entrance Scholarships

Major entrance scholarships with annual values ranging from \$2,500 to \$10,000 are offered to

students with outstanding academic records, together with demonstrated leadership skills in the school and the community. Students who receive renewable scholarships payable over four years must maintain scholarship standing to be eligible to receive the award. To retain scholarship standing students must be enrolled in at least 27 credits, and obtain an overall sessional average of at least 82% with no failed courses. Students entering UBC directly from secondary school must be nominated by their secondary school for major entrance scholarships by February 28. Please visit our website (students.ubc.ca/finance) for further information. Entrance awards include the following:

- Bank of Montreal National Scholarship
- National Scholarships
- Hugh M. Brock National Entrance Scholarship
- Royal Canadian Legion Scholarship
- The Bert Henry Memorial Scholarship
- Chancellor's Entrance Scholarship
- President's Entrance Scholarships
- University of BC Royal Institution Entrance Scholarships
- Charles A. and Jane C. A. Banks Foundation Entrance Scholarships

Undergraduate Scholar Program

New students may be selected through UBC's admissions process for the UBC Undergraduate Scholar Program (USP) Scholarship. This program recognizes students who have achieved academic excellence in secondary school. Students who achieve an overall average of 95% or greater (based on interim grades), on the appropriate provincially examinable grade 12 courses that satisfy the admission requirements for the program to which the student has applied, receive an unconditional offer of early admission.

High School USP recipients qualify for a \$2500 scholarship, as well as early admission (secondary school graduation expected), and an assured double room assignment in the undergraduate residence, or if living off campus, they have an opportunity to purchase a student parking permit (for offers made before July 31) and an early course registration date.

Students who achieve an average of 92% to 94.99% on the appropriate courses receive an early admission offer (secondary school graduation expected), an assured double room in the undergraduate residence, or if living off campus, an opportunity to purchase a student parking permit (offers made before July 31) and an early course registration date. Based on the final grade average of 92% these students will receive an offer of the \$2500 USP. Continuing students at UBC who achieve at least an 85% average on their best 27 credits with no failed courses each year, will qualify for the USP.

Note: Since deadlines may change from year to year, students planning to enter UBC should check the website for information and application details.

AWARDS FOR INTERNATIONAL UNDERGRADUATE STUDENTS

UBC is pleased to offer the International Leader of Tomorrow awards for outstanding international students who do not have the economic means to study at the post-secondary level. To be eligible for these awards, students must:

- show that they would not be able to attend UBC without receiving the level of financial assistance specified in the award
- demonstrate an exceptional level of academic merit
- be intending to study in Canada on a study permit
- be nominated by an accredited school or college which they are currently attending.

Consideration is also given to a student's extra-curricular achievement and leadership abilities.

These awards are open only to new applicants to UBC undergraduate degree programs, including those entering directly from secondary school and those entering as transfer students. Students cannot apply for these awards—they must be nominated by their school or college. Nominations are limited to one nominee per institution. The awards are renewable for a maximum of three years, depending on the length of the student's program, provided academic standing is maintained and the student remains on a Canadian study permit. This requirement must be satisfied at the time of initial receipt of the award as well as at each registration period during the award period and upon any renewal of the award.

International Undergraduate Scholar Program

These \$2,500 CAD awards are based solely on academic merit. All undergraduate students on a Canadian study permit who are applying to study at UBC or are currently studying at UBC are automatically considered for these awards. This program is under review and some changes are expected in future years.

International Partial Tuition Scholarship

International students admitted to graduate programs assessing tuition fees of \$7,200 CAD are eligible for a scholarship of \$3,600 CAD, applied directly to tuition fees. Students are eligible as long as they do not receive external scholarship or external funding that covers their tuition.

AWARDS FOR GRADUATE STUDENTS

The Faculty of Graduate Studies administers awards for graduate students.

Awards (Graduate Students)
Faculty of Graduate Studies
The University of British Columbia
6371 Crescent Road
Vancouver, BC, V6T 1Z2
Tel: 604-822-8501

Faculty of Graduate Studies website
(www.grad.ubc.ca)

University Graduate Fellowships

Each year the University awards approximately 400 University Graduate Fellowships (UGFs) to students in full-time study or research leading to a graduate degree. Awards are made on the

basis of academic excellence and are open to any graduate student regardless of citizenship. The annual stipend for a full UGF is \$16,000 CAD and for a partial UGF \$8,000 CAD. Awards are made on the basis of nominations provided to the Faculty of Graduate Studies by departments. Students are advised to check with their departments for internal application deadlines.

CONTACT INFORMATION

Awards (Undergraduate Students)
Student Financial Assistance & 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

Awards website (students.ubc.ca/finance)

CAREER SERVICES

Una Walsh, Acting Director

Career Services connects students and alumni with part-time and full-time work, both on and off campus, 24 hours a day through the use of a comprehensive website (www.careers.ubc.ca). Companies hold information sessions and interview candidates on campus as part of the on campus recruitment program. Career consulting and personalized job search assistance, including résumé and interview expertise, are available, as are a variety of job search workshops.

Career Services
The University of British Columbia
Student Development & Services
2307-1874 East Mall
Vancouver, BC, V6T 1Z1
Career Services website
(students.ubc.ca/careers)

Office hours 8:30 am to 4:00 pm, Monday to Friday.

CHAPLAINS

Students are invited to consult the following chaplains and advisers, whose services are offered on a voluntary basis:

| | | |
|--|---------------------------|--------------|
| Rev. Roberta Fraser, B.Sc., M.Div. | Anglican | 604-224-1410 |
| TBA | Baptist | 604-222-9207 |
| Rev. Kelly Manire, B.S., M.Div. | Canadian Southern Baptist | 604-326-0179 |
| Mr. Eyal Lichtman | Jewish | 604-224-4748 |
| Bishop Ron Patrick B.Ed., M.Ed., Ed.D. | Latter Day Saints | 604-585-1828 |
| Rev. Peter H. Fischer, B.A., M.Div. | Lutheran | 604-224-1614 |
| Dr. Ismail Laher | Muslim | 604-822-2379 |

| | | |
|---|----------------|--------------|
| Rev. Roberta Fraser, B.Sc., M.Div. | Anglican | 604-224-1410 |
| Mr. Arthur Howard B.Sc. (Agr.), Dip.C.S., M.Div. | Pentecostal | 604-222-0160 |
| TBA | Presbyterian | 604-822-1207 |
| Sister Gertrude Jocksch, SC B.A., M.Div., D.Min. | Roman Catholic | 604-822-4463 |
| Rev. Jim O'Neill, CSB B.Sc., M.Div. | Roman Catholic | 604-822-4463 |
| Rev. Dr. Seiichi Ariga, B.Eng., M.Eng., Ph.D., M.Div. | United Church | 604-224-3722 |
| Rev. Dr. Ed Searcy B.A., M.Div., D.Min. | United Church | 604-224-3722 |

CLASSROOM SERVICES

Justin Marples, Director

Classroom Services, located in Brock Hall, is responsible for the management of the University's learning spaces including coordination of rooms and AV equipment, classroom maintenance and renovations. In addition, this unit provides scheduling functions for courses, ad hoc use of classrooms, and exam schedules, and processes requests for liquor licences for functions held in unlicensed areas of campus.

For classroom bookings or more information, contact us by email (classroomservices.ubc.ca) or see our website, below.

Classroom Services
Enrolment Services
The University of British Columbia
1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-9946
Email: classroomservices@students.ubc.ca
Web: Classroom Services website (students.ubc.ca/schedule)

COUNSELLING SERVICES

Cheryl Washburn, Director

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, relationship, career and/or educational concerns. Counselling 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 also houses the Student Development Library containing information on personal growth, career development, international opportunities, corporations, calendars from other universities and past exams.

Counselling Services
Student Development & Services
The University of British Columbia
1200-1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-3811

Counselling Services website
(students.ubc.ca/counselling)

Office hours 8:00 am to 4:00 pm, Monday and Friday, and 8:00 am to 5:00 pm Tuesday, 9:00 am to 5:00 pm Wednesday and 8:00 am to 8:00 pm Thursday.

DISABILITY RESOURCE CENTRE

Janet Mee, Director

The Disability Resource Centre was established to facilitate the development of programs and initiatives which foster the participation of persons with disabilities in post-secondary education. The DRC works with the University community and the community at large to eliminate systemic, structural and attitudinal barriers to the participation of students, faculty, staff and visitors at UBC.

The Centre coordinates services such as mobility assistance, interpreting and captioning, and facilitates the provision of specialized equipment for faculty, staff and students with disabilities. UBC students with disabilities may also be eligible for note taking, peer tutoring, library book retrieval assistance and/or accommodated examinations. The Crane Resource Centre, a unit of the DRC, produces materials in alternate formats and provides access to and training on adaptive technological equipment for blind and visually or print impaired persons.

Disability Resource Centre
Student Development & 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

Disability Resource Centre website
(students.ubc.ca/drc)

ENROLMENT SERVICES

YES! Your Enrolment Services

Brian J. Silzer, Registrar & Associate Vice-President
Diane Kent, Executive Coordinator
Associate Registrars: **Audrey Lindsay**, **Deborah Robinson**, **Gaylea Wong**

Enrolment Services aims to provide the best possible service to the UBC Community, in support of UBC's goal of becoming Canada's finest university.

Enrolment Services comprises the units listed below. See individual listings in for more details.

Administrative Services

Director, **Alvia Branch**

Administrative Services provides administrative support to Enrolment Services and Student Development & Services.

Admissions

Associate Registrar and Director, **Deborah Robinson**
See *Admissions*, p. 53 for further details.

Classroom Services

Director, **Justin Marples**

See *Classroom Services*, p. 56 for further details.

Communications Services

Assistant Registrar and Director, **Angela Runnals**

Communications Services provides communications support and web- and print-based publications design and production to Enrolment Services and Student Development & Services.

Records & Registration Services

Associate Registrar and Director, **Gaylea Wong**

See *Records & Registration*, p. 59 for further details.

Senate & Curriculum Services

Assistant Registrar, **Lisa Collins**

See *Senate & Curriculum Services*, p. 59 for further information.

Student Financial Assistance & Awards

Associate Registrar and Director, **Deborah Robinson**

See *Student Financial Assistance*, p. 59 and *Awards*, p. 54 for further details.

Student Information Systems

Associate Registrar and Director, **Audrey Lindsay**

See *Student Information Systems*, p. 61 for further details.

Student Recruitment & Advising

Associate Registrar and Director, **Deborah Robinson**

See *Student Recruitment & Advising*, p. 61 for further details.

Many Enrolment Services publications, including the *Calendar* (students.ubc.ca/publications/calendar) and the *Undergraduate Viewbook* (students.ubc.ca/welcome) are available online. All printed publications are available from the Student Information Centre and from Enrolment Services' second floor counter, in Brock Hall.

EQUITY OFFICE

The Equity Office provides confidential advice, support and assistance to UBC students, staff and faculty who believe that they may be experiencing discrimination or harassment on one 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. The Equity Office is located in room 2306, Brock Hall, 1874 East Mall, Vancouver, BC, V6T 1Z1; telephone 604-822-6353. See also the Equity Office website (www.equity.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 First Nations 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 First Nations activities on campus. The Longhouse serves as a "home away from home" where First Nations students, families, and friends can gather to study, share, and socialize in an environment that reflects the cultural traditions of First Nations. 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, and administrative offices.

The House of Learning promotes a number of initiatives designed specifically for First Nations students. These include: First Nations Health Careers, Native Indian Teacher Education Program (NITEP), First Nations Legal Studies, First Nations Forestry Programs, First Nations Studies Program (Faculty of Arts), Aboriginal Fisheries Programs, Chinook Program (Commerce) and Ts'kel Graduate Studies. FNHL works with faculties across the university to enrich courses and programs with First Nations content.

In addition, the House of Learning works with the University to increase First Nations access to the University. As a result of this, the Canadian Aboriginal Students Admission Policy was established. For more information, see *Canadian Aboriginal Students*, p. 21 in the chapter, Undergraduate Admission. The House of Learning also provides information on post-secondary opportunities and offers counselling and support services for First Nations students. Other goals of the House of Learning include increasing the First Nations leadership on campus, and promoting international relations and exchange for the advancement of Indigenous peoples around the world.

The First Nations House of Learning welcomes current and prospective First Nations students to visit The Longhouse at 1985 West Mall, The University of British Columbia, Vancouver, BC, V6T 1Z2; telephone 604-822-8940, fax 604-822-8944, or visit the First Nations House of Learning website (www.longhouse.ubc.ca).

FRATERNITIES AND SORORITIES

Fraternities and sororities are recognized by the Senate of UBC as student organizations. Since 1926, members of Greek Letter Organizations (ten fraternities and seven sororities) on campus provide valuable leadership experience and academic, social and athletic opportunities for their members. The Greek community is also active in fund-raising and volunteering for charity, benefiting over 50 Lower Mainland philanthropic organizations. A new "Greek Village" will open on campus in September 2003 to provide housing for members of the Greek system. Recruitment period, aka "Rush", occurs in September, during which all

UBC students are invited to learn more about Greek life and membership. For more information, please visit 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 fee paid with tuition fees, all of the 7000 graduate students are members of GSS. From the \$39 fee, \$34 goes to fund GSS activities and \$5 goes to a Capital Improvement Fund (monies allocated specifically for the 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 Nooner, 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

SINGLE STUDENT HOUSING—WINTER SESSION

Information booklets, application forms and rate sheets for residences are available from the Department of Housing and Conferences.

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.

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 or Ritsumeikan-UBC House residences.

Department of Housing and Conferences
The University of British Columbia
Vancouver, BC V6T 1Z1
Tel: 604-822-2811
Fax: 604-822-6935
Email: information@housing.ubc.ca
www.housing.ubc.ca

*Hours of operation 8:30 am to 4:00 pm,
Monday to Friday (closed on weekends and
statutory holidays)*

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
Department of Housing and Conferences
The University of British Columbia
1874 East Mall
Vancouver, BC Canada V6T 1Z1
Tel: 604-822-2812
Fax: 604-822-6935
Email: thunderbird@housing.ubc.ca
www.housing.ubc.ca

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
Department of Housing and Conferences
The University of British Columbia
1874 East Mall
Vancouver, BC Canada V6T 1Z1
Tel: 604-822-2812
Fax: 604-822-6935
Email: reservations@housing.ubc.ca
www.housing.ubc.ca

Summer Session Term 2 registrants only
should contact:

Conferences and Accommodation
Department of Housing and Conferences
The University of British Columbia
1874 East Mall
Vancouver, BC, Canada V6T 1Z1
Tel: 604-822-1010
Fax: 604-822-1001
Email: reservations@housing.ubc.ca
www.housing.ubc.ca

STUDENT FAMILY HOUSING

Unfurnished apartments and townhouses are available on a yearly tenancy basis in Acadia Park residence for couples with or without children and single parents with children. Applicants should contact:

UBC Student Family Housing
Department of Housing and Conferences
The University of British Columbia
1874 East Mall
Vancouver, BC Canada V6T 1Z1
Tel: 604-822-4411
Fax: 604-822-6935
Email: family@housing.ubc.ca
www.housing.ubc.ca

FACULTY/STAFF HOUSING

Unfurnished apartments are available on a yearly tenancy basis in University Apartments residence for singles and couples with or without children. Qualified faculty and staff applicants should apply to:

Faculty/Staff Housing
Department of Housing and Conferences
The University of British Columbia
1874 East Mall
Vancouver, BC Canada BC V6T 1Z1
Tel: 604-822-4411
Fax: 604-822-6935
Email: family@housing.ubc.ca
www.housing.ubc.ca

RESIDENCE ADVISORS

Employment positions as residence advisors are offered each year to students who have previous experience living in a university residence or other group living settings, and who have demonstrated ability to relate well to others in a community environment, to maintain high academic standards, and to participate actively in student life. This is a once-in-a-lifetime work experience that offers outstanding leadership training and development. You will benefit from a meaningful experience that will better prepare you for the world after university. More information and an application form is available in early

January at www.housing.ubc.ca or 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.

INTERNATIONAL HOUSE

Thomas H. Flinn, Paul Harris Fellow of Rotary International, Vancouver South Rotary Club, Honorary Founding Life Member
Herrick B. Young, Executive Director, International House Incorporated, New York, Honorary Founding Life Member
Brice Macdougall, Rotary Club of Vancouver Representative
Harvey White, Rotary Club of Vancouver South Representative
Maurice Copithorne, Chair, International House Advisory Board, Paul Harris Fellow of Rotary International
Winnie L. Cheung, Executive Director, International House

International House is a social and cultural centre for international and intercultural learning on the UBC campus. Committed to fostering and celebrating lifelong understanding, respect and friendship among people from all nations and cultures, International House offers a welcoming environment for international students and scholars, promotes and builds international competencies and cross-cultural knowledge and takes a leading role in internationalization at UBC.

In collaboration with community partners, UBC faculty, staff, alumni and students, I. House offers a variety of social activities, cultural celebrations and educational workshops such as: Explore Canada and Explore the World Discussion Series, ESL classes, multicultural wellness programs, Language Circles and Festiva. It also acts as a campus resource on international opportunities and is home base to a variety of internationally-oriented student clubs, International Student Advisors (ISAs) and the International Peer Program.

International House is surrounded by a beautifully landscaped garden and offers 2 lounges, a reading corner, a piano, board games, a large screen tv, internet access, pool, table tennis, foosball and a pub. Our programs, special events and facilities are open to all members of the UBC community.

To stay connected to the international community and receive weekly updates on programs, international opportunities and much more, join the I. House listserv by sending an email (majordomo@interchange.ubc.ca). Leave the subject field blank and in the body of the message type "subscribe i-house".

International House
The University of British Columbia
1783 West Mall
Vancouver, BC
V6T 1Z2
Tel: 604-822-5021
Fax: 604-822-5099

Website (www.international.ubc.ca)

INTERNATIONAL STUDENT INITIATIVE

Donald Wehrung, Director
Karen McKellin, Associate Director

One of the strategies adopted for implementing UBC's Trek 2000 goal to internationalize the university is by increasing the numbers of international students at UBC from around the world. This strategy is being implemented as part of the International Student Initiative which began in 1996 when the Board of Governors authorized the University to increase the participation of international students in undergraduate, post-baccalaureate, diploma, and professional graduate programs.

As a result of this Initiative, the University is working actively to attract and retain outstanding students from a geographically diverse range of countries, including the United States and countries in Asia, Europe, and Latin America. 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 those services that are 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 apply.

The Initiative has established an International Student Recruitment and Reception Office to handle inquiries from prospective international students, to provide pre-admissions advising services and to coordinate the university's international recruitment activities. For more information, see International Student Recruitment and Reception.

INTERNATIONAL STUDENT RECRUITMENT AND RECEPTION

Under the leadership of UBC's International Student Initiative, the International Student Recruitment and Reception Office responds to international inquiries and provides information and pre-admission advising services to prospective international students, whether they are inquiring from within Canada, from the USA, 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.

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, admissions, application, English language admission standards, tuition, scholarships, housing,

campus tours and transition services for newly-admitted students contact

International Student Recruitment and Reception
Room 1206, 1874 East Mall, Brock Hall
Vancouver BC, V6T 1Z1
Tel: 604-822-8999
Fax 604-822-9888

or visit the UBC Welcome website (www.welcome.ubc.ca).

RECORDS AND REGISTRATION

Gaylea Wong, Associate Registrar and Director

Records and 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, statistics and reporting, and the Information Centre.

Students may obtain their student record, register for courses and perform many other tasks through the Student Service Centre (students.ubc.ca/ssc).

Public access terminals are located in Brock Hall.

Records and Registration
Enrolment Services
The University of British Columbia
2016-1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-2844
Fax: 604-822-5945
Website (students.ubc.ca)

*Office hours 8:00 am to 4:00 pm, Mondays
Thursday and Friday; 9:30 am to 4:00 pm
Tuesday; and 8:00 am to 5:30 pm Wednesday.*

INFORMATION CENTRE

Trek 2000's mandate to attract and retain excellent students and to increase the scope and quality of services to students led to the creation of the Student Information Centre. The mandate of the Information Centre 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.

The Information Centre opened on July 12, 1999, and is located in a kiosk on the main floor of the Brock Hall concourse. It is the first point of contact for many students and visitors to campus. Staff provide basic information about the UBC campus, and general information about admission, awards, registration and other services available to students. They sell Calendars and take transcript requests, book workshops and arrange appointments with Enrolment Services or Student Development & Services staff or refer students to faculty advisors. Peer advisors, funded in part by the Alma Mater Society, have been a valuable addition to the service base. Many questions can be answered directly by staff; students are referred to other locations when necessary. In these cases, staff ensure that the referral is accurate. "One-stop shopping" for email and telephone requests has also been established.

Information Centre
The University of British Columbia
1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-6099
Fax: 604-822-5945
Email: student.information@ubc.ca
Website (students.ubc.ca)

SCHOLARSHIPS

See *Awards*, p. 54 for further details on Scholarships.

SENATE & CURRICULUM SERVICES

Lisa Collins, Assistant Registrar

Senate and Curriculum Services manages Senate-approved academic information (including information for publication in the UBC Calendar), provides Senate and Faculty administrative support, facilitates curriculum approval, student appeals, and conducts University elections.

Office hours are 8:30 am to 4:30 pm, Monday to Friday. For elections and curriculum inquiries contact Eric Smith (eric.smith@ubc.ca) at 604-822-9952; for Senate and Faculty support inquiries contact Karminie de Silva (karminie.desilva@ubc.ca) at 604-822-5239. The Senate website (students.ubc.ca/senate) lists Senate and Senate Committee membership.

SORORITIES

See *Fraternities & Sororities*, p. 57.

STUDENT DEVELOPMENT AND SERVICES

Student Development & Services comprises the units listed below and provides services to students in partnership with academic units, Alma Mater Society and Graduate Student Society.

STUDENT DEVELOPMENT & SERVICES UNITS

| | |
|----------------------------|--|
| Career Services | Una Walsh, Acting Director |
| Counselling Services | Cheryl Washburn, Director |
| Disability Resource Centre | Janet Mee, Director |
| Student Health Service | Patricia Mirwaldt, Director |
| International House | Winnie Cheung, Executive Director |
| Student Development | Janet Teasdale, Director (Leadership, Orientation and Transition, Peer Programs, Student Development Officers) |
| Student Exchange Programs | Katherine Beaumont, Director |

Career Services Una Walsh, Acting Director

Women Students' Office Marsha Trew, Director

Please refer the respective sections under "Student Service Units" in this chapter of the Calendar for further information.

STUDENT FINANCIAL ASSISTANCE

Deborah Robinson, Associate Registrar & Director

UBC's Board of Governors has endorsed the principle that "no qualified domestic student should be denied the opportunity to attend the University of British Columbia solely for financial reasons." To meet this principle, the University has substantially increased support of students through its bursary, part-time work, and emergency loan programs. Eligibility for financial assistance is based on an assessment of financial ability of the student, and in some cases their family. Students receiving support are expected to apply for provincial and federal loans and apply for UBC's work-study program.

The major source of financial assistance for UBC students are the federal and provincial student loan programs. More than 11,000 students at UBC obtain support from these programs. The amount of support offered to students varies according to their individual situation. Support for students with dependants is greater than that for single students without dependants. Funding also varies according to the amounts awarded by the student's home province, the cost of the program of study, and many other factors. For information about these programs and how to apply, please visit our website (students.ubc.ca/finance).

Students are encouraged to apply for loans early in order to qualify for UBC's other programs such as Work Study and the General Bursary Program. Applications for these programs are available on our website in mid August. Please visit the website to verify application deadlines and details. A special application for awards limited to students with disabilities is available in June and must be submitted by October 15th. A limited number of affiliation bursaries are administered by UBC and require a special application that must be submitted by June 30th.

To qualify for student loans and UBC's need-based programs, students must be registered in an approved program and engaged in full-time study (generally 60 percent of a full-time course load). In most 8-month undergraduate programs this is 9 credits **each term**. Please check with our office to check eligibility requirements for certificate, diplomas, and qualifying studies.

STUDENTS WITH DISABILITIES AND PART-TIME STUDENTS

Students with disabilities can apply to have the full-time requirement reduced. For details on how to apply, please contact our office.

Canadian citizens or permanent residents, who can establish financial need and provide an acceptable rationale for attending part-time, (e.g. caring for a disabled dependent or students with a permanent disability) may qualify for Canada Study Grant for High-Need Part-Time Students. This grant is intended to assist with the cost of tuition, books, and other direct educational costs for students who are unable to register in full-time studies.

INTERNATIONAL STUDENTS

International students who will require financial support to attend UBC must arrange this support prior to their arrival in Canada. International students are eligible for the International Leader of Tomorrow Award and the Undergraduate Scholars Program (USP). See *Awards*, p. 54 for details. They are also eligible for those prizes and awards that are based on faculty recommendation. Competition for these awards is keen and the monetary value of each award varies. International students registered in research-based graduate programs (non-ISI) are eligible for limited financial assistance. International students are required to demonstrate financial sufficiency according to the requirements outlined by Citizenship and Immigration Canada for **each year** they are studying at UBC.

Students from the United States of America are eligible to apply for Subsidized and Unsubsidized Stafford Loans to attend UBC. Further details about these programs may be obtained from the office of Student Financial Assistance and Awards (and on our website students.ubc.ca/finance).

International students who encounter unexpected financial difficulties may apply to the office of Student Financial Assistance & Awards for consideration for emergency bursaries. These bursaries are generally small one-time grants to assist students in meeting basic needs until they can make other financial arrangements. Bursaries will not cover tuition and living expenses on an on-going basis.

CONTACT INFORMATION

Student Financial Assistance & 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

Financial Assistance website
(students.ubc.ca/finance)

STUDENT HEALTH SERVICE

Patricia Mirwaldt, M.D., Director

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 Residence which offers health and wellness advice in some of the residences on campus, and The Student Health Service website (students.ubc.ca/health) provides health information specific to the concerns of University students.

MEDICAL INSURANCE

Application forms for medical insurance coverage are available at the Student Health Service and at International Student Services. 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).

The AMS/GSS offers a mandatory Extended Health and Dental Plan (if you have equivalent coverage, you may opt-out). For information on its fees, please see *section 13(B)*, p. 41 in chapter 5, Fees. For information regarding the program, please visit their website (www.studentcare.net/ubc) for information on fees, applications, coverage and opting out.

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 (MSPBC). Unmarried students whose parents are covered by the MSPBC 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

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

International students are advised to have adequate medical insurance and to obtain a three-month coverage, either in their country of origin or immediately upon arrival in British Columbia. After three months, holders of either student or working visas are eligible for coverage under the Medical Services Plan of British Columbia. (Application should be made on arrival.) For further information view students.ubc.ca/international/handbook/health.

MEDICAL REQUIREMENTS FOR REGISTRATION

The University reserves the right to require a medical examination if circumstances warrant.

The Faculties of Dentistry and Medicine and the School of Rehabilitation Sciences have special medical requirements.

- Faculty of Dentistry: see *Registration and Orientation*, p. 178 in that section under "Admission".
- Faculty of Medicine: see *Application Procedure*, p. 294 under Doctor of Medicine, Admission.
- School of Rehabilitation Sciences: see *Other Requirements*, p. 348 under Bachelor of Science in Occupational Therapy, Admission or *Other Requirements*, p. 350 under Bachelor of Science in Physical Therapy, Admission.

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

Student Health Services website
(students.ubc.ca/health)

Clinic hours are 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 to 5 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), The University of British Columbia; telephone 604-822-4858.

STUDENT INFORMATION SYSTEMS

Audrey Lindsay, Associate Registrar and Director
Student Information Systems, a unit of Enrolment Services, is responsible for development, ongoing maintenance, enhancements 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 aid, admissions, advising, registration, grades processing, sessional evaluation, degree audit, graduation, student financial account, course management, course scheduling and room bookings. The Student Information Systems unit is also responsible for office automation support within all Enrolment Services and Student Development & Services units by providing desktop equipment, server hardware, software and technical support.

Student Information Systems
Enrolment Services
The University of British Columbia
2016-1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-6343

Student Service Centre website
(students.ubc.ca/ssc)

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.

STUDENT LEGAL FUND SOCIETY

The Student Legal Fund Society (mypage.direct.ca/s/slfs) (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.

STUDENT RECRUITMENT & ADVISING

Deborah Robinson, Associate Registrar & Director
Student Recruitment & 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 aid, student housing, cam-

pus life, and other student services at UBC. The office also provides services, including course planning, to help incoming students plan their transition to UBC.

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 visits to UBC for groups of secondary school students upon request from counsellors and teachers. Individual students can arrange to take a guided walking tour of campus by calling Student Recruitment & Advising or by registering online. The office also coordinates a wide variety of events and programs designed to help prospective students learn more about academic options and student life at UBC. Visit our website (students.ubc.ca/welcome) for more information.

Student Recruitment & Advising
Enrolment Services
The University of British Columbia
1206-1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-4319 or 1-877-272-1422

Website (students.ubc.ca/welcome)

Office hours 8:30 am to 4:30 pm, Monday to Friday.

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, it was nominated for a Canadian Association of Journalists award in 1997 and again in 1998—the only student-run newspaper to receive this distinction. In 1998, the year of *The Ubyyssey's* 80th anniversary, a \$50,000 endowment was set up to award an annual scholarship of \$3,000. 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.

WOMEN STUDENTS' OFFICE

The Women Students' Office promotes the development of women students' full potential and challenges barriers to the inclusion of all women. The WSO:

- promotes student success;
- supports the development of women students' full potential;

- identifies and addresses systemic problems, areas, and any issues for women experiencing intersecting inequalities; and
- assists faculties and departments in developing an equitable and inclusive learning environment for all women students.

The WSO works with faculties and departments to assist them in creating an excellent and equitable learning environment for women students.

SERVICES & ACTIVITIES

For information on services and activities, please contact:

Women Students' Office
Student Development & Services
The University of British Columbia
1203-1874 East Mall
Vancouver, BC, V6T 1Z1
Tel: 604-822-2415 or 1-877-272-1422

Women Students' Office website
(women.ubc.ca/wso.htm) or women.ubc.ca.

Office hours 8:30 am to 12:30 pm, Monday to Friday or call for an appointment.

Campus Services and Facilities

ALUMNI ASSOCIATION BOARD OF DIRECTORS

EXECUTIVE COMMITTEE

Jane Hungerford, B.Ed (1967), Chair; **Tammie Mark**, B.Com. (1988), Treasurer; **Leslie Konantz**, Acting Executive Director

MEMBERS-AT-LARGE (2001 TO 2003)

Billy Wan, B.Com. (1982); **David Elliot**, B.Com. (1969); **Martin Ertl**, B.Sc. (1993)

EX-OFFICIO

Martha C. Piper, UBC President; **Allan McEachern**, B.A. (1949), LL.B. (1950), LL.D.(1990), UBC Chancellor

The UBC Alumni Association was founded in 1917 on the principle that graduates enjoy a life-long relationship with UBC beginning with their student years. The Association's mission is to use its unique position to serve alumni, the University and its students by fostering communications, networking and access to resources that enrich the lives of alumni and students and advance the reputation of the University. Membership is open to all graduates of the University and is automatic upon graduation. The Association is governed by a Board of Directors elected by the membership.

Since 1915, UBC has granted over 202,000 degrees, and alumni are located across Canada and in more than 120 countries around the globe. The Association produces and distributes the alumni magazine, *Trek*, and provides member services and programs. An address file is maintained for all alumni by the University. This forms part of the roll of Convocation from which the Chancellor and Convocation members of Senate are elected every three years.

The Association sets criteria for the N.A.M. MacKenzie Scholarships, the Walter H. Gage Bursary Fund, and John B. Macdonald Bursary

Fund and a number of individual scholarships and bursaries. The Association is also one of the trustees of the Walter Gage Memorial Fund which provides support for student projects.

The Association coordinates a wide range of activities including career mentor programs, reunions, student events, programs for young alumni and graduates of specific faculties, and events for alumni living in Canada, U.S. and international cities. Outstanding graduates are honoured annually. An online community for UBC graduates can be accessed through the Association website.

The Alumni Association offices are in:

Cecil Green Park
6251 Cecil Green Park Road
Vancouver, BC, V6T 1Z1

Tel: 604-822-3313 or 1-800-883-3088.

For further information contact the office at the above number or visit the Alumni Association website (www.alumni.ubc.ca).

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 UBC International Liaison Office. 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, located at 1871 West Mall, has multi-functional facilities suitable for conferences, seminars, workshops, exhibitions, and cultural performances. Space can be booked by university and public groups, with priority given to Asia-related events. Information on the UBC Asian Centre facilities is available on the UBC International Liaison Office website (www.interchg.ubc.ca/ubcintl). Enquiries about booking the auditorium, tea gallery, and meeting rooms may be made by calling UBC International at 604-822-3114. The Asian Centre is open during the regular hours of the Asian Library; tel: 604-822-2427.

MORRIS AND HELEN BELKIN ART GALLERY

Scott Watson, B.A., M.A. (Brit. Col.), Director and Curator

Mary Williams, Administrator, Travelling Exhibitions Coordinator, Registrar

Owen Sopotniuk, Preparator and Collections Manager

Naomi Sawada, Public Programs and Publicity Coordinator

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 the 1960s–70s, the Gallery achieved a national profile with

exhibitions that challenged the limits of curating and presented innovative work by artists who would establish Vancouver as a world centre for photo-conceptualist practice. The gallery was an exhibition gallery only until 1994, when it began to house and administer the University art collection.

On June 14, 1995, the Fine Arts Gallery was rededicated the Morris and Helen Belkin Art Gallery and opened its new premises. The building was made possible by the generous support of the Morris and Helen Belkin Foundation, the Province of British Columbia World of Opportunity Campaign and the University of British Columbia. In January 2001, the Belkin opened a satellite gallery in downtown Vancouver. As a venue for collaboration and experimentation by Vancouver artists and curators, the programming includes exhibitions, special events and visiting artist residencies.

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 Collection is the third largest public art collection in the province and contains over 2,000 artworks and 20,000 archival items relating to the post-war history of art in Vancouver and the avant-garde narratives of the 1960s–70s including: the Peter Day Concrete Poetry Collection; the Kenneth Coutts-Smith Archive; the Morris/Trasov Archive; and the Archive of Eric Metcalfe and Kate Craig. The Morris and Helen Belkin Gallery, with the Museum of Anthropology, the Department of Anthropology and Sociology, and the Department of Art History, Visual Art and Theory offers theoretical training in Curatorial Studies as a component of a graduate degree program.

Through a regular program of exhibitions, publications, loans, special services, projects, and exchange programs, the gallery participates in the national and international community of institutions concerned with contemporary art. The gallery serves students, scholars, researchers, and public on local, national, and international levels.

The Gallery is funded by the UBC Faculty of Arts, the Morris and Helen Belkin Foundation, the Belkin Gallery Endowment for Acquisitions and Exhibitions, private and corporate sponsorship, and government arts funding agencies.

The Morris and Helen Belkin Art Gallery is located at 1825 Main Mall, The University of British Columbia, Vancouver, BC, V6T 1Z2, telephone 604-822-2759, fax 604-822-6689. The Belkin Satellite is located at 555 Hamilton Street, Vancouver, British Columbia, V6B 2R1. For more information, visit the Morris and Helen Belkin Art Gallery website (www.belkin-gallery.ubc.ca).

BOOKSTORE

The UBC Bookstore, which is the second largest university bookstore in Canada, is a self-supporting operation 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 three locations: the main campus store, the UBC Health Sciences Bookshop and UBC Bookstore Robson Square. Its website (www.bookstore.ubc.ca) provides general information and secure online ordering.

The main campus store is open Monday to Friday from 9:30 am to 5:00 pm and on Saturday from 11:00 am to 5:00 pm. During the first week of classes, store hours are extended. Exact dates and hours are posted at the Bookstore and on the website at www.bookstore.ubc.ca and are subject to change.

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

COURSE BOOKS

Course Books and materials are normally available two to three weeks prior to the beginning of classes. The Bookstore operates the FastStart Textbook Reservation Service, which is free to UBC students. Coursebook 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 and \$700 for books and supplies per term, depending on their program. Used course books are available for sale whenever possible. Major used book buybacks are held at the beginning and end of Terms 1 and 2. The Bookstore also buys back books on a daily basis 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 sportswear, gifts and souvenirs; school/office supplies and office furniture. UBC Clothing and gifts are also available online.

COMPUTER SHOP

Located in the Bookstore, the Computer Shop carries Apple and IBM as well as name brand peripherals and UBC Premium (IBM compatible) notebooks. 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 Shop” at www.bookstore.ubc.ca or call 604-822-4748 for more information.

HEALTH SCIENCES BOOKSHOP

UBC Health Sciences Bookshop carries over 8,000 titles specializing in medical and allied health sciences plus diagnostic equipment. Store hours are Monday to Saturday from 10:00 am to 5:00 pm. Located at 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).

UBC BOOKSTORE ROBSON SQUARE

This store carries titles related to courses held at UBC Robson Square plus reference and general book titles, UBC sportswear, gifts, stationery and educationally-priced software. In addition, this location specializes in books for the legal profession. Store hours are Monday to Friday from 10:30 AM to 5:00 PM. Located at 800 Robson Street, Vancouver, B.C. V6Z 2C5. Tel: 604-822-6453; email rsquare@interchange.ubc.ca.

BOTANICAL GARDEN

The history of the UBC Botanical Garden 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 Dr. John Davidson. In 1916, the collections established at Essondale 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 first 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 Shop in the Garden; the Botanical Garden Nursery (10 ha); and the Nitobe Memorial Garden (1 ha), an authentic Japanese Tea and Stroll garden (please see separate listing). The main garden consists of a number of separate gardens and garden elements, including a Food Garden, Physick (apothecary's) Garden, Winter Garden, Alpine Garden, Arbour Garden (displaying woody climbers), 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 is a must-see at any time of the year, displaying small and unusual plants from around the world. Here the visitor can view a remarkable array of plants in a stunning 1-hectare mountainside setting. Built on a west-facing hillside, this garden was constructed using 2,000 tonnes of pyroxine andesite boulders imported from the BC Interior.

Named for the Honourable David C. Lam, the province's first Chinese-Canadian Lieutenant Governor, the Asian Garden includes more than

five hundred species, subspecies, varieties and forms of rhododendrons alone. Situated among towering native conifers at the garden's main entrance, this garden also features significant collections of maples, clematis, magnolia and sorbus, as well as many other rare and unusual trees, shrubs, climbers and herbaceous perennials. The Asian Garden is a place of rare beauty and enjoyment to walk in the forest, an exploration of the interesting and exotic, and a gateway to the rest of the garden.

UBC Botanical Garden and the Shop in the Garden (with a select variety of plants and gifts for the connoisseur gardener) are located at 6804 SW Marine Drive. Phone: 604-822-3928. Fax: 604-822-2016. Public horticultural information service (Tues and Wed 1–3 PM): 604-822-5858. 24 hr event information line: 604-822-9666. Email: botg@interchange.ubc.ca. For more information visit the Botanical Garden website (www.ubcbotanicalgarden.org). Admission for UBC students is free with student card.

NITOBÉ MEMORIAL GARDEN

UBC Botanical Garden administers the Nitobe Memorial Garden. This garden, which opened in June 1960, is dedicated to the memory of Dr. Inazo Nitobe. Dr. Nitobe was a distinguished educator and international civil servant, who did much to interpret Japan to the West and the West to Japan. 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 for the campus. Plants contained in the garden are of both Japanese and North American origin. The garden has been rated 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 famous Museum of Anthropology. For contact information, please see the Botanical Garden listing or visit the garden's website (www.ubcbotanicalgarden.org/nitobe). Admission for UBC students is free with student card.

CAMPUS SECURITY

Campus Security is charged with responsibility for the security of the UBC campus. Campus Security serves the UBC community by enforcing regulations (including but not limited to parking regulations), preserving lawful and peaceful activities, and promoting safety.

Campus Security operates on a 24 hours/day, 365 days/year basis. It conducts regular patrols of the campus. In addition, Campus Security offers free transportation around campus through a Security Bus shuttle that runs from 5:30 pm to 1:30 am, 7 days/week from September to April.

In an effort to deter crime and enhance personal safety, Campus Security personnel are authorized to request identification from any persons on UBC property and to require any person to leave UBC property. Campus Security works in close conjunction with the UBC Detachment of the RCMP.

Campus Security is an administrative unit of the University. For administrative matters, please call the Campus Security Clerk at 604-822-8274 during regular business hours.

For emergencies, Campus Security dispatch may be reached 24 hours/day, 7 days/week at 604-822-2222.

CHAN CENTRE FOR THE PERFORMING ARTS

Sid Katz, Acting Managing Director

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 audience and artists alike. The 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 is an ideal space for classical drama, small musicals, cabaret and solo performance 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).

CHILD CARE FACILITIES

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 (child_care@brock.housing.ubc.ca), 2881 Acadia Road, Vancouver, BC, V6T 1S1; telephone 604-822-5343, fax 604-822-9195. For detailed information about each of the child care centres, visit the UBC Child Care Services website (www.childcare.ubc.ca).

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 fund-raising and donor recognition activities are organized by the office's central and facilities-based Development Staff.

There are a number of ways an individual can contribute to the University. Individual donors may make one-time or annual donations, or contribute through bequests, gifts-in-kind, and other planned gifts. Many initiatives 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).

FINANCIAL SERVICES

Financial Services provides general accounting services for the University and processes tuition fee payments. The main areas of responsibility include: financial reporting, research accounting, financial reporting and invoicing to granting agencies, endowment accounting, cheque distribution, payroll, special processing for leaves and tuition waivers, accounts payable, processing vendor invoices, cash receipts, journal vouchers, requisition processing, central financial systems support and development and review of interfaces. General accounting services are located at 305-2075 Westbrook Mall, Vancouver, BC, V6T 1Z1, telephone 604-822-2454.

TUITION FEE PAYMENTS

To better serve the student community, the Tuition Fee Area of Financial Services is located in Brock Hall, 1039-1874 East Mall, Vancouver, BC, V6T 1Z1, telephone 604-822-2906. For more information, visit the Financial Services website (www.finance.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 including the Bread Garden, Subway, Pizza Pizza and Koya Japan and Manchu Wok. Snack bars, Starbucks 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. 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; call 604-822-6828. Food Services also has Gift Baskets and Gift Certificates available for gift giving anytime of the year, please visit the Food Services website (www.foodserv.ubc.ca) for more information.

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 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.

BONUS CARD

The Bonus Card, a debit card, has been created to provide convenience, and savings (up to 20%) to the University community. It can be used at all UBC Food Services locations, including Starbucks coffee bars, Bread Garden, Subway and the full service restaurants. For more information contact the Meal Accounts Office (kanak@foodserv.ubc.ca) at 604-822-5839.

ADMINISTRATION OFFICE

For more information, hours of operation and special events, visit the Food Services website (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
Telephone 604-UBC-FOOD (822-3663)

Website: www.foodserv.ubc.ca

HERBARIUM

F. R. Ganders, B.A., B.S. (Wash. State), M.A., Ph.D. (Calif.), F.L.S., Director of the University Herbarium
M. Berbee, B.S. (Minn.), M.S., Ph.D. (Calif., Davis), Curator of Fungi
T. Goward, B.A. (Mt.All.), Curator of Lichens
M. W. Hawkes, B.Sc., Ph.D. (Brit. Col.), Curator of Algae
H. Kennedy, B.S., M.S., Ph.D. (Calif., Davis), Curator of Vascular Plants
S. C. Lindstrom, B.S. (Reed), M.Sc., Ph.D. (Brit. Col.), Research Associate, Algae
W. B. Schofield, B.A. (Acadia), M.A. (Stan.), Ph.D. (Duke), Curator of Bryophytes

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, there are over 30,000 specimens in the lichen collection. 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).

HUMAN RESOURCES

In the University-wide initiative Trek 2000, UBC recognizes that people are its most

important resource. a focus on the best professional practices and the ability to be a model learning organization are the cornerstones of the University's strategic plan for human resources. The Human Resources Department has the primary responsibility for employing the best human resource practices for the University and the community it serves; and for ensuring that the practices reflect the University's mission, values and vision.

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 wishes to be recognized as a good employer. Students seeking employment opportunities should contact their departments directly or consult the Career Services website (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

UNITING PEOPLE...CONNECTING IDEAS

At ITServices, we work closely with University of British Columbia students, faculty, staff and alumni to provide information technology services, support and leadership. Find out how we are helping UBC to become Canada's leading university at www.itservices.ubc.ca.

COMMUNICATION AND COLLABORATION

my.ubc.ca—The first stop for students, faculty and staff to access campus services online, my.ubc.ca is an integral part of UBC's eStrategy initiative. The website provides personalized access to the University's online resources including course registration and fees, library borrower status, web-based email access and numerous other services. For more information visit my.ubc.ca.

UBC Wireless Network—Equipped with notebooks and inexpensive Wi-Fi wireless cards, students, faculty, and staff can connect to the Internet and course information anywhere on campus. Get high speed wireless connectivity for free when on campus and use the technology anywhere that is Wi-Fi enabled. For more information, visit www.wireless.ubc.ca.

Campus-Wide Login—All registered UBC students are entitled to a Campus-Wide Login (CWL), which enables convenient access to many UBC online services. To activate your Campus-Wide Login account, sign up at www.cwl.ubc.ca.

Email and Internet Access—All students can register for a UBC email box and 20 hours of dial-in time per month at netinfo.ubc.ca.

Residence Telephones—ResTel is the telephone service for UBC students in Thunderbird, Ritsumeikan, St. Andrew's, St. John's College, Vancouver School of Theology, and Carey Hall

residences. For more information, visit voice.itservices.ubc.ca.

Residence High speed Internet access—Students living in residence can access the Internet at speeds several hundred times faster than the fastest dial-up modems with ITServices' ResNet service. For more details, including availability, visit www.resnet.ubc.ca.

E-LEARNING

Online courses—ITServices' Course Management (WebCT) server hosts over 800 web-based courses for faculties and departments across the University, representing over 55,000 course seats. Students can access course materials 24 hours per day, seven days per week. Courses are also accessible through the UBC portal, my.ubc.ca. To find out more, visit www.mywebct.ubc.ca.

Educational Technology—Telestudios, a division of ITServices, develops leading-edge technology-based educational communication tools for online and distance learning. Services include interactive multimedia, television production, webcasting, videoconferencing, presentation facilities, photography and digital imaging. Visit www.telestudios.ubc.ca for more information.

OTHER INFORMATION TECHNOLOGY SERVICES

- Computer network equipment consulting and installation.
- Educational software licensing.
- Faculty and administrative directory, www.directory.ubc.ca.
- Network services and high speed Internet access.
- Printing and document management
- Residence cablevision.
- Telephone services, voice.itservices.ubc.ca.

For more information, visit ITServices website (www.itservices.ubc.ca).

CUSTOMER SUPPORT CENTRE

Online: www.itservices.ubc.ca/support

Email: help@itservices.ubc.ca

Tel: 604-822-2008

In person: Room 100 of the L.S. Klink Building

Hours: 8:30 am–4:30 pm Monday–Friday (excluding statutory holidays).

Subscribe to the ITServices channel at my.ubc.ca.

THE MEDIA GROUP

See *The Media Group*, p. 271 in the *College of Health Disciplines*.

MUSEUM OF ANTHROPOLOGY

Michael Ames, B.A. Hnrs (UBC), Ph.D. (Harv), Acting Director

Michael Blake, B.A. (Brit. Col.), M.A., Ph.D. (Michigan), Curator of Archaeology; Director of the Laboratory of Archaeology

Miriam Clavir, B.A. (Tor.), M.A. (Queen's), Ph.D. (Leicester), Senior Conservator

Elizabeth L. Johnson, B.A. (Bucknell), M.A., Ph.D. (Cornell), Curator of Ethnology

Carol E. Mayer, B.A. (Brit.Col.), Cert.Soc.Anth. (Cantab.), Ph.D. (Leicester), Curator of Ethnology

Sue Rowley, B.A. (Tor.), Ph. D. (Cambridge), Curator of Public Archaeology

The Museum of Anthropology was founded in 1947 and now houses about 35,000 ethnographic artifacts. Of these, the Northwest Coast collection is outstanding, consisting of a broad ethnographic range of materials, both ceremonial and domestic, some donated and others purchased with grants made by Dr. H. R. MacMillan, Dr. Walter C. Koerner, the Leon and Thea Koerner Foundation, and the Museum of Anthropology Shop Volunteers.

The Asian collections are extensive and include gifts made by the Fyfe-Smith family and items purchased by the Museum to extend the range of materials to illustrate the history of Japanese and Chinese Art. Also included are gifts from the late Mr. and Mrs. B. E. Clegg, the Japanese Association of Prefectural Governments, Dr. and Mrs. Miguel Tecson and Victor Shaw. Classical materials of Greece, Cyprus, and Rhodes are mainly from the gift of Mrs. Sid Leary and the Baroness Van Haersolte.

The Laboratory of Archaeology is housed in the Museum and operates independently. Its collections are made up of almost 200,000 archaeological artifacts, which, are primarily the result of four decades of UBC faculty and student research in south western British Columbia.

Artifacts gathered before 1914 from the domestic and ceremonial life of the Oceanic cultures were the gift of Mr. Frank Burnett. A major donation of 600 pieces of fifteenth to nineteenth century European ceramics by Dr. Walter Koerner is featured in a ceramics gallery, located in the west wing, which opened in 1990. The addition of this collection to the Asian, Central and South American, and European ceramics already represented in the Museum provides a unique resource in Canada for ceramics research. The wing also contains teaching and research spaces. A world-wide collection of approximately 5,000 textiles is regularly studied by classes and researchers.

Collections from North American First Nations cultures are reasonably extensive and the Inuit material from the Coppermine River area, much of which was collected by Michell Pierce in 1930, is excellent. The Inuit collections have grown substantially through recent acquisitions. These collections of both old and contemporary material 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 Museum of Anthropology opened in its new building at 6393 NW Marine Drive on May 30, 1976. The building was part of a Centennial gift from the federal government to the people of British Columbia to allow the University to share the collections of the UBC Museum of Anthropology with the public and to house the additional gift of the First Nations collection of Walter and Marianne Koerner of Vancouver. The spectacular building enhances the Museum's collection of massive carvings of the Northwest Coast, and permits the public display of most of its ethnographic collections in the visible storage galleries.

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.

THE PACIFIC MUSEUM OF THE EARTH

The Pacific Museum of the Earth (PME) is a new and exciting museum that combines the collections of the former MY Williams Planet Earth Museum and the Pacific Mineral Museum. The PME is located in the newly renovated first floor of the Earth and Ocean Sciences Main building located at 6339 Stores Road (the former Geological Sciences Centre). The museum includes displays of spectacular rocks and minerals, 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. Collected in southwestern Alberta in 1913, this dinosaur illustrates a number of features peculiar to the hadrosaurs or hooded dinosaurs. These were common in some parts of Canada during the Upper Cretaceous Period. Minerals, rocks and fossils are drawn from departmental collections, individuals and societies and total approximately 40,000 items. Over the coming year we will continue to expand the number and types of displays to more accurately reflect the broader academic and research interests of the Department of Earth and Ocean Sciences. For information on Earth and Ocean Sciences, the PME and directions, please refer to our website (www.eos.ubc.ca).

The Museum is open to the public 8:30 am to 4:30 pm Monday to Friday. General

information can be reached at 604-822-2449. To book a group tour, please call 604-822-2713.

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 not free. Either a permit or an hourly or daily fee must be paid by all vehicle operators.

Parking permits are sold at the Parking Office to allow students, faculty and staff to park their vehicles in various registered-vehicle 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 April on our secure website (www.ubcparking.com).

B Lots provide inexpensive daily parking for students and visitors. Pay parking lots and parking meters are provided for proximity parking in prime areas of the campus. Exact coinage is required for these machines as no change is given.

Parking regulations are strictly enforced on the campus. These regulations remain in effect throughout the year, and all students, faculty staff and visitors of the University are responsible for familiarizing themselves with them.

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.html).

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).

PUBLIC AFFAIRS OFFICE

This office is responsible for communicating UBC's mission, key messages, and values to both its internal community of students, faculty, and staff, and to the broader external community via news media.

The primary goals of the office are to keep the campus community informed about developments in University policies, research, teaching,

staff, and events, increase public understanding and support for UBC, encourage public use of campus facilities and attractions, and promote interaction between the University and the private and public sectors. 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 the tabloid newspaper *UBC Reports*, *Annual Report*, *Annual General Meeting*, *Experts Guide*, the UBC website, the Public Affairs website and brochures. 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).

UBC ROBSON SQUARE

UBC Robson Square serves as a vital link between the University and the community. Comprehensive services including program information, registration services, the Women's Resources Centre, UBC Commerce Executive Education, UBC Continuing Studies, UBC Counselling Psychology, the UBC Bookstore, UBC Library, and UBC Career Connections are now readily accessible in the heart of downtown.

With over 66,000 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, exhibitions and special events.

For more information, please visit our website (www.robsonsquare.ubc.ca).

UBC Robson Square
800 Robson Street
Vancouver, BC
V6Z 3B7
Tel: 604-822-3333
Fax: 604-822-0070

Email: Robson.info@ubc.ca

UBC'S E-STRATEGY

UBC's e-Strategy is a campus-wide initiative to support work, learning and research using online technologies. If you are a UBC student, e-Strategy is already making your life easier. The myUBC portal offers convenient, personalized access to web mail, library account information and many other campus services. UBC's wireless network allows notebook computer users to connect to the Internet from almost anywhere on campus. And thousands of UBC students are already using online course materials and tools to enhance their learning experience.

Find out how you can tap into the benefits of e-Strategy at www.e-strategy.ubc.ca.

ZOOLOGICAL MUSEUMS

W.P. Maddison, B.Sc. (Toronto), Ph.D. (Harvard), Curator of the Spencer Entomological Museum
J. N. M. Smith, B.Sc. (Edin.), D.Phil. (Oxon.), Curator of the Cowan Vertebrate Museum
E.B. Taylor, B.Sc., M.Sc., Ph.D. (Brit. Col.), Curator of the UBC Fish Museum

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, 2100 clutches of bird eggs, and 1600 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. This museum is now being run by part-time staff, so use is limited. Tel: 604-822-4665.

The George J. Spencer Entomological Museum now contains about 600,000 specimens mostly from British Columbia and the 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. Tel: 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. Tel: 604-822-3379.

Centres and Institutes

Please note additional centres and institutes involved in research and development are listed within the Calendar under the chapters *Research Units and Faculties, Colleges & Schools*.

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:

- 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 combined marine and freshwater algal collections consist of approximately 400 strains representing 14 algal classes. All of the major algal groups appearing in the marine phytoplankton are represented. The major emphases are on local species of ecological and toxicological importance and on those that may be of importance in biotechnology. Currently, 75% 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. The dinoflagellate collection is one of the largest in the world. The fungal collection contains hundreds of strains of fungi and 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 through the Department of Botany website (www.botany.ubc.ca). The CCCM (cccm@interchange.ubc.ca) 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.

CENTRE FOR INTERCULTURAL LANGUAGE STUDIES

Dr. Patricia Duff, Director

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, contact Dr. Patricia Duff (patricia.duff@ubc.ca), Director; telephone: 604-822-9693. Visit our website (www.lerc.educ.ubc.ca/fac/duff/cils/index.htm).

CENTRE FOR TEACHING AND ACADEMIC GROWTH

Gary Poole, Ph.D., Director

Since its establishment in 1987, the Centre's mission has been to foster quality teaching and learning across the university. The Centre for Teaching and Academic Growth (TAG) 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).

INTERNATIONAL CENTRE FOR CRIMINAL LAW REFORM AND CRIMINAL JUSTICE POLICY

Frances M. Gordon, 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 the University of British Columbia.

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.

For more information, please contact the centre at 604-822-9875, fax: 604-822-9317 or visit the International Centre for Criminal Law Reform and Criminal Justice Policy website (www.icclr.law.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 improve quality of life for people with spinal cord injury and to ultimately 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

Affiliated and Residential Colleges

AFFILIATED THEOLOGICAL COLLEGES

The University Act, section 81(1) states that the "university shall be non-sectarian in principle," and section 81(2), that "Notwithstanding subsection (1), a theological college incorporated in the Province may be affiliated with a university under a resolution or order made by Senate in that behalf and approved by the board." An affiliated college has the right to representation of one member on the University 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 by the University Senate.

CAREY THEOLOGICAL COLLEGE

Canadian Baptist Ministries

Brian F. Stelck, B.Ed., M.Ed., M.Div., Ph.D., Ordained Minister and President

Barbara H. Mutch, B.R.E., M.A., D.Min., Ordained Minister, Director of Supervised Ministry, Director of Doctor of Ministry,

Charles Bental, Professor of Pastoral Studies

Mark G. Davies, B.A., M.Div., M.Ed., Ph.D., Ordained Minister

Erb Gullison, Professor of Family Ministries, Registered Psychologist

John C. Zimmerman, A.B., M.Div., D.Min., Ordained Minister, Professor, Applied Theology, Professor Emeritus

Benno Przybylski, B.Sc., M.Div., M.A., Ph.D., Professor of Biblical Studies

Cam E. Yates, B.Sc., MRE, Ordained Minister, Registrar and Administrative Officer

Paul Beckingham, B.Ed., Dip.CS., M.Div., D.Min., Ordained Minister, CBM Visiting Professor of Church & Mission

Timothy Colborne, B.A., M.Div., D.Min., Centre for Spiritual Formation

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 and, in cooperation with Regent College, a Master of Divinity.

More information about the college may be obtained from Carey Theological College, 5920 Iona Drive, Vancouver, BC, V6T 1J6. Tel: 604-224-4308; fax 604-224-5014; and via email (careytc@unixg.ubc.ca) and the Carey Theological College website (www.interchg.ubc.ca/careytc).

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.

Inquiries should be addressed to The Registrar, Regent College, 5800 University Boulevard, Vancouver, BC, Canada V6T 2E4. More information about the college may be obtained on the Regent College website (www.regent-college.edu).

ST. MARK'S COLLEGE

Roman Catholic

Rev. T. James Hanrahan, C.S.B., B.A., M.A., L.M.S., Principal

Rev. Leo J. Klosterman, C.S.B., B.A., M.S., Ph.D., Registrar

Rev. Denis April, C.S.B., B.A., M.L.S., Librarian

Rev. James O'Neill, B.Sc., M.Div., Chaplain

Sr. Gertie Jocksch, S.C., B.A., M.Div., D.Min., Chaplain

St. Mark's College offers certificate programs in theology and religious education, a diploma program in spirituality, and a limited number of other courses in theology at several levels. It also provides a theological library open to all members of the university, and facilities for worship and pastoral care. It also provides facilities for Corpus Christi College with whom St. Mark's works closely. The President of CCC is Dr. David Sylvester.

Inquiries can be directed to St. Mark's College, 5935 Iona Drive, Vancouver, BC, V6T 1J7. Telephone 604-822-4463, fax 604-822-6659. Visit St. Mark's website (www.geocities.com/~stmarks)

VANCOUVER SCHOOL OF THEOLOGY

Anglican, United, Presbyterian, United Methodist

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 for those interested in further academic study, seeking further development in their spiritual journey, or wishing to develop further perspectives in theological thought for personal enrichment. Five concentrations are offered: Spirituality, Spirituality and Spiritual Direction, Bible, History & Theology or Integrative Studies.
- Master of Divinity (M.Div.) degree—a three to four year program for those who desire preparation for a variety of lay ministries, with a focus on both theoretical and practical skills in ministry.
- Master of Divinity (Testamur) degree—a three to four year program for those interested in ordained ministry. This program is accepted for ordination by the Anglican, United Church and Presbyterian churches in Canada and the United Methodist and Presbyterian churches in the United States.
- 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 in any specialization in which the students' interests and VST's resource coincide.
- 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 Masters of Divinity degree program by extension to prepare candidates identified and sponsored by Aboriginal communities and their churches for professional and lay ministry.

During the month of July, VST offers one or two-week short courses in a variety of subjects related to spirituality through the Chalmers Institute Summer School and the Native Ministries Consortium Summer School. All are welcome to attend.

The VST Library is one of the major theological libraries in North America. It is open to all with a valid UBC Library card.

Vancouver School of Theology is housed in the Iona and Chancellor Buildings east of Gage Towers. It continues the traditions of the former Anglican and United Church colleges, both of which were built on the UBC campus in 1927. The Presbyterian Church in Canada was associated with VST in 1984. VST is formally affiliated with UBC and is fully accredited by the Association of Theological Schools in the United States and Canada.

Inquiries should be directed to The Registrar, Vancouver School of Theology, 6000 Iona Drive, Vancouver, BC, V6T 1L4; email (vstinfo@vst.edu); telephone 604-822-9563, fax 604-822-9212. More information can be obtained on Vancouver School of Theology's website (www.vst.edu).

RESIDENTIAL COLLEGES

CAREY HALL

Within the Carey Theological College, Carey Hall provides residence and dining facilities for 40 co-educational undergraduate UBC students, mostly in single rooms. 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. 263 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. With and through 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. 267 under the Faculty of Graduate Studies, Centres and Institutes for further details.

2003-04

VII UBC Library

The University of British Columbia Library is the second largest research library in Canada. It is a depository library for publications of the governments of BC, Canada, and the United Nations. Its collections of rare and unique books and archival materials support researchers from around the world.

There are libraries at ten locations on campus and at four locations off campus, supporting teaching and research across disciplines. The Library's newest facility is located at UBC Robson Square. Together the libraries house over 4.4 million books; 33,698 journal and series subscriptions; over 18,000 electronic indexes and databases; 4.9 million microforms; and 1.5 million documents, media and other items.

Catherine Quinlan, University Librarian
Library Information: 604-822-6375

The UBC Library Website

The UBC Library Website (www.library.ubc.ca) is a link to a world of scholarly information. Students can connect to the catalogue of the Library's books, journals, videos, pamphlets and sound recordings; access online article indexes, electronic journals and texts; connect to other libraries in BC and around the world; and more. The UBC Library Website is available in all libraries and via remote access 24 hours a day.

Electronic Resources

A wide range of full-text electronic resources is available on the UBC Library Website (www.library.ubc.ca). The Library subscribes to many electronic journals, from sources such as Elsevier Science, EBSCO, and JSTOR, to a wealth of material published online by scientific societies. In addition, many article indexes on the UBC Library Website include full-text. Several major electronic texts in the humanities are available, and help with textual analysis tools is provided in the Library. Course readings selected by instructors are made available on the Web whenever possible. The Library holds extensive files of electronic data for research in economics, demography, public opinion, geography, world politics, and other social sciences and humanities fields. Data files are obtained from many sources, including the federal and provincial governments, individual researchers, and private organizations. UBC Library is also a participant in Statistics Canada's Data Liberation Initiative to provide Canadian academic institutions with affordable access to Statistics Canada data files and databases for teaching and research.

Computer Facilities

More than 400 UBC Library Website (www.library.ubc.ca) workstations are available in the libraries to connect to information resources anywhere in the world and to look up books and other library materials. Labs located in Koerner, Main, and Woodward libraries provide computers for other Web activities. David Lam, Koerner, and Law libraries provide Internet access ports for laptop computers.

Services

REFERENCE AND INFORMATION

Reference and information staff in all libraries are available for consultation at all academic levels, from introductory to advanced, on the information resources of any discipline supported by the University, including resources on the Internet. Subject specialists provide in-depth assistance with searching for bibliographic citations or other reference materials, advice on researching term papers or theses, and instruction in using online and CD-ROM databases. 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 organization. Pick up copies at any Information or Reference Desk or read them on the UBC Library Website (www.library.ubc.ca). At the Library main page, select "How To".

RESEARCH SKILLS AND INFORMATION TECHNOLOGY INSTRUCTION: INFORMATION CONNECTIONS

The Information Connections program provides instruction at all levels on getting the most from an increasing variety of electronic and print information sources. Classes cover the essentials of searching the UBC Library Website (www.library.ubc.ca), subject-specific research skills such as how to use specialized databases to look up journal articles, how to find information on the World Wide Web, and more. Information Connections features interactive, hands-on workshops in state-of-the-art computer labs, self-paced online tutorials, one-on-one consultation with research specialists, and instructional sessions for credit courses, during or outside class time. A schedule of classes is published each term. Ask for a copy of the Information Connections brochure at any Reference or Information Desk or on the UBC Library Website, select "How To".

PEOPLE WITH DISABILITIES

Students, faculty, and staff with mobility or print disabilities can 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. Video players that display closed-captions are located in Education, Koerner, and David Lam libraries. Koerner Library also has a Chroma CCD colour video document magnifier and a public TTY/TDD telephone. For more information about services to people with disabilities, contact the Disability Resource Centre at 604-822-5844 (voice) or 604-822-9049 (TDD).

DISTANCE EDUCATION STUDENTS

The Extension Library provides library and information services to registered UBC students who are living at a distance from the campus and taking credit distance education courses or completing some other UBC degree requirement. Extension Library staff locate and send library materials, as well as provide other assistance needed to complete research assignments. Materials are mailed free-of-charge within Canada. Requests can be submitted by phone, fax or email. The Extension Library connects distance education students to all the resources of the Library. Its own collection includes readings for Continuing Studies' Distance Education courses and readings for courses offered by the Faculty of Education's Office of Continuing Professional Education.

ORDER/DELIVERY SERVICES

Several document delivery services are available to students, faculty, and staff. Through the UBC Library's own service, books, articles, and other materials in the Library's collection can be gathered for pick-up at a Library branch, mailed, or faxed. Fees are charged for most transactions. CISTI Orders is a self-service electronic ordering service for documents from Canada Institute for Scientific and Technical Information (CISTI), Canada's largest library for science, engineering, and medicine. The Library covers the cost of CISTI Orders for students, faculty, and staff. **Ingenta**, indexing over 26,000 publications, offers document ordering and delivery by fax or mail. Fees are charged. For more information, on the UBC Library Website (www.library.ubc.ca), select "Order from Other Libraries".

INTERLIBRARY LOAN

Materials not available by other means 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.

LIBRARY CARDS

A valid UBC Library card is required to borrow materials from the Library and to access online files and services. Library cards also serve as UBC student ID cards and voting ID for student elections. In September, signs are posted on campus indicating where to obtain a Library card. At other times of the year, Library cards are issued in Walter C. Koerner Library and at UBC Library Robson Square. Most Library cards must be renewed each year.

UBC CARD

The UBCcard is the University's new official student identification card that facilitates Library loans, photocopying, and access to online files and services. The UBCcard is a multi-functional card that is valid for up to four years, allowing students to avoid yearly line-ups. Using an innovative technological platform, the UBCcard will replace the many separate University-administered cards circulating throughout campus, thereby providing students with enhanced service and convenience.

Students will be able to obtain their UBCcards beginning March 2003 from the Walter C. Koerner Library. For more information, contact the UBCcard Customer Help Desk at 604-822-2406 or log onto the UBCcard website (www.ubccard.ubc.ca).

Library Branches and Collections

ASIAN LIBRARY

The Asian Library holds the largest collection in Canada of materials in Chinese, Japanese, Korean, Indonesian, and south Asian languages. The collection is particularly strong in literature, history, geography, fine arts, and religion. Notable are the Pu'Ban collection of Chinese rare books, the depository of Japanese government publications from the National Diet Library in Tokyo, and the Japanese-Canadian Archives relating to the history of Japanese immigration to Canada since 1877. The Asian Library is located in the Asian Centre, 1871 West Mall.

DAVID LAM LIBRARY

The collection of the David Lam Management Research Library covers all facets of business management and administration, including accounting, collective bargaining, finance, marketing, and urban land economics. Notable collections include the Hong Kong Asian Commerce collection, and collections focusing on statistics, transportation, international finance, sales and marketing. David Lam Library also has extensive collections of annual reports, providing full-text information for

Canadian and US publicly-traded companies. The David Lam Library is located in the Henry Angus Building, 2053 Main Mall.

EDUCATION LIBRARY

The Education Library supports the academic and research mission of the Faculty of Education. The collections comprise children's books, school texts, and multimedia for K-12; as well as books, journals, and electronic resources on teaching strategies and research in education. The Education Library has recently acquired the collection of the Canadian Children's Book Centre, 1986 to the present. A high priority is given to materials reflecting Canadian content and approaches and to materials pertaining to education in BC. The Education Library is located in the Neville Scarfe Building, 2125 Main Mall.

FINE ARTS LIBRARY

The Fine Arts Library is one of the largest art libraries in Canada. Fine Arts collects materials on art history, architecture, community and regional planning, costume, dance, 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; the Alinari Photo Archive of major Italian art works; and the Courtauld Institute Illustration Archives. A facsimile edition of *The Book of Kells*, one of the masterpieces of Western art, is on permanent display in the Fine Arts Library. The Fine Arts Library is located in the Main Library, 1956 Main Mall.

LAW LIBRARY

The Law Library's collection exceeds 200,000 volumes and includes journals, law reports, statutes, legal textbooks, and treatises. The Library collects the primary materials of the law, case reports and statutes, from most common law jurisdictions. Textbooks and treatises are collected on subjects such as estates and trusts, taxation, customs and excise, criminal law, torts, real property, copyright, labour relations, and transportation and maritime law. The Law Library also has a number of electronic information sources, as well as legal materials in microform, audiocassette, and video-recording formats. The Law Library is located in the George F. Curtis Building, 1822 East Mall.

MACMILLAN LIBRARY

The MacMillan Library specializes in materials relating to forestry, agriculture, and food science. The collection includes books, journals, article indexes, and bibliographic databases of major importance to the disciplines of agriculture, food science and technology, environmental sciences, pollution management, landscape architecture, aquaculture, and forestry in North American and tropical regions. The MacMillan

Library is located in the MacMillan Building, 2357 Main Mall.

MAIN LIBRARY

The Main Library houses the collections of the Fine Arts Library, Rare Books and Special Collections, the University Archives, the Map Library, and the Science and Engineering Division, as well as older Humanities and Social Sciences materials, including inactive journals. The Chapman Learning Commons is also housed in Main Library. Main Library is located at 1956 Main Mall.

MAP LIBRARY

The Map Library houses the University's primary map collection, one of the largest in Canada. Its collection of over 170,000 maps and 4,000 atlases includes topographic maps at various scales covering most countries of the world; thematic maps on a variety of subjects such as roads, land use, zoning, demography, history, soils, forestry, minerals, and tourism; and Canadian and American hydrographic charts. The Map Library also has travel guides, gazetteers, cartographic reference books, and CD-ROM atlases. The Map Library is located in Walter C. Koerner Library, 1956 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, numerical analysis, number theory, and 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 collection of rare books, Canadian history and literature, archival research materials, and collections of historic maps and photographs. Areas of specialization include British Columbia authors, books published in or about BC, pre-Confederation Canada, Pacific Northwest history, Arctic exploration, fur trade, pre-1900 Canadian travel and exploration, early 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. The Division is also the location of Vancouver's National Archives of Canada Access Site. Rare Books and Special Collections is located in Main Library, 1956 Main Mall.

SCIENCE AND ENGINEERING DIVISION

Science and Engineering provides reference service and collections for chemistry; physics; geological sciences; computer science; chemical and bio-resource engineering; civil, electrical, mechanical and environmental engineering; atmospheric science; oceanography; transportation; and mathematics. The Science and Engineering Division is located in Main Library, 1956 Main 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.

UNIVERSITY ARCHIVES DIVISION

The University Archives Division 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, the University Archives Division acquires the private papers of selected faculty members, administrators and alumni, as well as the records of independent student, alumni, and employee organizations. The 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. The University Archives Division is located in Main Library, 1956 Main Mall.

WALTER C. KOERNER LIBRARY

Koerner Library houses materials on the humanities and social sciences, including philosophy, psychology, religion, history, geography, economics, political science, sociology, languages and literature, and more. The collection in Koerner includes CD-ROM databases, bibliographies, directories, encyclopedias, dictionaries, maps, microforms, numeric data files, newspapers, calendars of other universities, and a core 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, southeast Asian, and Pacific Rim countries. PATSCAN, the patent search service, is located in Koerner Library. PATSCAN holds complete copies of recent US patents, PCT applications, and Canadian Patent documents. PATSCAN provides access to many online patent databases, such as Dialog, Orbit, and STN. Much patent information is free to students and faculty members. Use of some of the international databases and services to the private sector are on a cost recovery basis. PATSCAN is a member of the Canadian Technology Network. The Walter C. Koerner Library is located at 1958 Main Mall.

WOODWARD BIOMEDICAL 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 St. Paul's Hospital Library, 1081 Burrard Street; Biomedical Branch Library at Vancouver Hospital and Health Sciences Centre, 700 West 10th Avenue; and Eric Hamber Library at Children's and Women's Health Centre of BC, 4480 Oak Street.

2003-04

VIII Research Units

Vice President Research

The Vice President Research has a wide range of administrative functions which are both internal and external to the University. The general mandate is as follows:

- 1 to be a champion and advocate for research to UBC's internal and external communities;
- 2 to foster collaborations in research and creative, scholarly and professional activities among scholars in various fields both within and outside UBC;
- 3 to foster an environment that ensures that faculties and schools, and the library, are provided with efficient support services relating to research administration and information on funding sources, grant procedures, and other relevant matters;
- 4 to establish and maintain effective liaison with agencies and institutions such as the national granting councils, research foundations, teaching hospitals, and external research centres, business, industry, government and the public;
- 5 to promote technology transfer and oversee the management of intellectual property issues;
- 6 to foster international linkages and research collaboration;
- 7 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 and University-Industry Liaison Office. 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 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 two veterinarians and by periodic serological 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 under the guidelines of the Canadian Council on Animal Care.

OFFICE OF RESEARCH SERVICES

The Office of Research Services (ORS) serves a dual role in the area of funded research: service to researchers, and responsibility to the University for the application of policies and procedures.

Services include: providing information on sources of research support through an on-line database, a website, and a monthly research bulletin; supplying of application forms and guidelines; personal communication/consultation regarding appropriate funding sources; departmental presentations by Office staff, and organization of presentations by granting agency representatives.

The Office processes applications to external agencies and funds awarded, negotiates and administers public sector subcontracts and project grants (PGs), and administers grants, awards and prizes awarded by UBC.

The ORS responsibilities to the University include: the vetting of signatures on grant and contract proposals and final approval on behalf of the University; the application of UBC policies; 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 the University's academic researchers. The UILO negotiates research agreements with industry and supports the commercialization of ideas and technological innovations arising from the University and its affiliated organizations. UBC includes twelve faculties and is affiliated with the Vancouver Coastal Health Authority and the Provincial Health Services Authority. In addition, UBC participates in 21 of the national Networks of Centres of Excellence, of which the Canadian Genetic Diseases Network is headquartered at UBC.

UBC is one of Canada's top research universities. In the 2001/2002 fiscal year, UBC received \$260 million in sponsored research funding for more than 4,500 research projects. Research activities lead to an annual average of 125 invention disclosures. It is the UILO's responsi-

bility to evaluate, protect, market and license those inventions that have commercial application. In total, UBC has a pool of over 600 technologies that are either available for licensing, collaborative research and development, or joint development with an existing license or option holder. 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 raising awareness both on- and off-campus of the technology transfer process.

For more information on the UILO including statistics on UBC technology transfer activities, see the UILO website (www.uilo.ubc.ca).

Advanced Materials and Process Engineering Laboratory

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, Metals and 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 *Metals and Materials Engineering*, p. 108 under the Faculty of Applied Science).

Students interested in doing graduate work at in 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.science.ubc.ca/~ampel) for further information.

Biotechnology Laboratory

Dr. Phil Hieter, Director

The Biotechnology Laboratory offers 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 Biotechnology Laboratory span five faculties and ten departments at UBC. Research activities are organized into three separate areas: human/animal molecular biology, fermentation/process engineering and plant/forest molecular genetics.

Graduate students wishing to work with faculty members in the Biotechnology Laboratory 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 Biotechnology Laboratory, or information can be accessed on the Biotechnology Laboratory website (www.biotech.ubc.ca).

BC Research

BC Research Inc. is an integrated science, technology and innovation company, focused on opportunities in new technology development and product innovation. BC Research also provides contract consulting, laboratory analysis, and research services to clients and partners located in the Pacific Northwest and throughout the world. Areas of focus are the biological and chemical sciences, including: biotechnology, chemical analysis and processes, occupational health and safety, ergonomics, environmental technology, and ship dynamics.

Located on the UBC Campus, BC Research maintains close cooperation with the science, engineering and other related departments of the University. The company employs over 85 individuals, most of which are professional scientists, engineers and technologists.

Students undertaking graduate studies may be able to carry out their research in association with BC Research. The thesis topics for such students will be in areas of interest common to the University and to BC Research and this arrangement is likely to be of most interest to students planning a career in industrial research or development. Normal procedures will apply for acceptance of students and evaluation of the thesis. For more information contact (info@bcresearch.com) or visit the BC Research website (www.bcresearch.com).

Centre for Applied Conservation Research

J.L. Innes, Director

The Centre for Applied Conservation Research was established to find science-based solutions to complex conservation problems within managed and natural landscapes. We conduct 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. Our research

assists with both planning and determining the effectiveness of improved management practices. We provide opportunities for high-calibre graduate students to work on issues that are both complex and immediately relevant. We also encourage 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 Faculty of Forestry, the Centre is closely associated with the Departments of Zoology, Botany and Geography, and with the Centre for Biodiversity Research. Research activities are profiled on the CACR website (www.forestry.ubc.ca/conservation).

Centre for Biodiversity Research

D. Schluter, Director

The Centre for Biodiversity Research (a unit in the Faculty of Science) is concerned with all aspects of biodiversity research. Faculty members and their students from the Departments of Botany, Earth and Ocean Sciences, Microbiology and Zoology are cooperating to investigate the measurement of biological diversity, the role of biodiversity in ecosystem function, factors endangering biodiversity, uses of biological diversity and the many aspects of biodiversity conservation. There is close association with the Centre for Applied Conservation Biology in the Faculty of Forestry and the Fisheries Centre in the Faculty of Graduate Studies. For more information contact the Centre (biodiversity.centre@ubc.ca) or visit the Centre for Biodiversity Research website (www.zoology.ubc.ca/biodiversity).

Centre for International Business Studies

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 businessmen and women, 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. For example it supports, through its North American Mobility grant, exchanges of gradu-

ate students with the US and Mexico. 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).

Centre for Research on Economic and Social Policy

Jon Kesselman, Director

The UBC Centre for Research on Economic and Social Policy, 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 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'. 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 (www.arts.ubc.ca/cresp). Inquiries about the Centre (cresp@econ.ubc.ca) may be addressed to the Project Administrator or Director in Buchanan Tower 997 - 1873 East Mall, UBC, Vancouver, BC V6T 1Z1.

Institute for Computing, Information and Cognitive Systems

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, and 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 B.C. 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' diverse research groups. Details are available on the ICICS website (www.cicsr.ubc.ca).

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. These include representatives from: the Faculties of Commerce, 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; and from the following institutes: Asian Research, Lui Centre for Global Studies, and Resources and Environment; 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. 269 for transmittal to the council.

Pulp and Paper Centre

The Pulp and Paper Centre houses collaborative research and teaching programs between the University of British Columbia and the Pulp and Paper Research Institute of Canada (Paprican). Affiliates of the Centre drawn from University faculty members and Paprican staff supervise graduate student research in a variety of engineering fields. These academic activities are linked to the industry through Paprican's post-graduate program begun more than seventy years ago at McGill University. More information is available on the Pulp and Paper Centre's website (www.ppc.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 80% 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 supports programs of post-

graduate studies at McGill University, The University of British Columbia, and Ecole Polytechnique assisting student research for advanced degrees under the supervision of staff members and University faculty at these universities. The program at UBC is housed in the Pulp and Paper Centre.

Remote Sensing Council

B. Klinkenberg (Geography), Chair

Studies in various aspects of remote sensing leading to either master's or doctoral degrees in Agroecology, Astronomy, Computer Science, Earth and Ocean Sciences (Atmospheric Science, Geology, Geophysics, or Oceanography), Electrical and Computer Engineering, Forestry and Geography are coordinated by the Remote Sensing Council.

Students enter the program by admission as a master's or doctoral candidate in one of the above. The discipline department and the student's committee chair are selected from the department or faculty which 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 various associated departments and include a wide range of modern equipment which is continually being updated. Scholarships, fellowships and teaching research assistantship 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).

Tri-University Meson Facility

The TRI-University Meson Facility (TRIUMF) is Canada's largest national accelerator facility for research in particle and nuclear physics. Located on the UBC campus, it is operated as a joint venture by the University of Alberta, and the University of British Columbia, Carleton University, Simon Fraser University and the University of Victoria.

Facilities at TRIUMF, based on medium-energy, 0.5 GeV high-current accelerator, are used primarily for fundamental physics experiments in nuclear and particle physics.

The fundamental and applied science program includes particle physics, nuclear physics, materials science, life sciences, and medicine. Proton beams from the cyclotron are used to produce intense secondary beams of exotic ions, neutrons, pions or muons for basic research. The beam is also used for proton therapy of cancer, in Canada's only such treatment centre.

New science came on-stream in 1999 from the 38-million-dollar radioactive beams facility, ISAC, with a strong focus on nuclear astrophysics research. 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 three 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.

More information may be obtained from the TRIUMF website (www.triumf.ca).

2003-04

IX Publications

BC Asian Review

Tara Barnett, Maiko Behr, Andrew Dyche, Allen Haاهيم, Shiho Maeshima, Nicki Magnolo, Leif Olsen, Keying Wu, 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 on intellectual, political, and historical topics; textual studies in both ancient and contemporary sources; literary pieces, translations, and reviews covering all regions of Asia. Produced in electronic format since 1998, the journal now invites critical feedback from a worldwide audience. The editors welcome submissions from graduate students, scholars and researchers at universities in Canada and abroad. Inquiries may be directed to the editors (bcarinfo@interchange.ubc.ca) or c/o UBC Department of Asian Studies, Asian Centre, 1871 West Mall, Vancouver, BC, V6T 1Z2. Additional information is available through the BC Asian Review website (www.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.

The Offices of *BC Studies* are located at 162 Buchanan E, 1866 Main Mall, V6T 1Z1. For copies and subscriptions, contact BC Studies (write_us@bcstudies.com) at 604-822-3727, fax 604-822-0606 or visit the BC Studies website (www.bcstudies.com).

Canadian Journal of Civil Engineering

D. 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 28th 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 17 prominent civil

engineers from across Canada, and by the Assistant to the Editor, Kelly Lamb. The Journal's editorial office (cjce@civil.ubc.ca) is based in the Department of Civil Engineering at UBC. For more information, telephone 604-UBC-CJCE (822-2523), fax 604-822-0568, or visit the CJCE website (www.nrc.ca/cgi-bin/cisti/journals/rp/rp2_desc_e?cjce).

Canadian Literature

E. M. Kröller, Susan Fisher, Editors
G. Deer, I. Higgins, K. McNeilly, A. M. Rocheleau, Associate Editors

Canadian Literature, a quarterly journal founded in 1959, is published at the University of British Columbia. This refereed journal features critical articles on Canada's literature, new poems by Canadian poets, and reviews of significant Canadian publications. 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. 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 new 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 also highlights new developments in environmental engineering and science. The *Journal*, which is now in its second year, is published bi-monthly, in both electronic and hard copy form.

Dan Smith, Professor of Civil & Envir. Eng. at the University of Alberta, and Don Mavinic, Professor of Civil Engineering at UBC, are the Senior and Co-Editor, respectively, of the *Journal*. They are assisted by an international Editorial Board of 15 prominent individuals, and by the Assistant to the Editor, Kelly Lamb. 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

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. The journal's offices are located at 164-1855 West Mall, Vancouver, BC, V6T 1Z2; telephone 604-822-6508; email (enquiry@pacificaffairs.ubc.ca). For more information, visit the Pacific Affairs website (www.pacificaffairs.ubc.ca).

Pacific Educational Press

Catherine Edwards, Director

Pacific Educational Press is a 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.

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; history and philosophy of education; and contemporary issues in education.

Pacific Educational Press's offices are in Hut O4, 6365 Biological Sciences Road, behind the Scarfe Building. Information about the press or any of its titles may be obtained from PEP's website (www.pep.educ.ubc.ca) or from Catherine Edwards, Director of Pacific Educational Press, Faculty of Education, University of British Columbia, Vancouver, BC, V6T 1Z4. Telephone 604-822-5385; Fax 604-822-6603; email (pep@interchange.ubc.ca).

PRISM international

Elizabeth Bachinsky, Marguerite Pigeon, Editors
Michelle Winegar, 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 2002, *PRISM* won first prizes in the National and Western Magazine Awards for non-fiction, and the full-length version of the play *Unity (1918)* by Kevin Kerr excerpted in 40:3 won the 2002 Governor General's Award for Drama.

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 CAD\$2,000, runners up CAD\$200 each. Annual Prize for Literary Non-Fiction: deadline September 30, First Prize CAD\$1500. Annual Poetry Prize, CAD \$500. Tri-Annual Stageplay Prize: deadline April 30, 2003. More information is available on the *PRISM* website (prism.arts.ubc.ca).

UBC Press

R. Peter Milroy, Director

Jean Wilson, Associate Director, Editorial

George Maddison, Associate Director, Marketing and Operations

UBC Press was founded in 1971 and publishes 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. Books published by UBC Press are peer-reviewed and must be approved for publication under the University's imprint by a board of faculty members appointed by the President. The Press distributes its books in North America and works with a network of sales agents, distributors, and library jobbers in North America to ensure distribution in a wide range of other countries.

In addition to its role as a publisher, the Press occasionally provides book production services to members of the UBC community who wish to produce books and conference proceedings under their own auspices. It is also a major Canadian marketing agent for scholarly and reference works from other publishers. It provides marketing and distribution services for the Royal British Columbia Museum, Canadian Forest Service-Northern Forestry Centre, Canadian Wildlife Service-Pacific Region, and Western Geographical Press (University of Victoria). It acts as Canadian agent for a number of American university presses (including Washington, Arizona, New Mexico, Washington State, Oregon State, New England, Michigan State, Michigan University, and New York) and United Kingdom publishers including Open University Press, Manchester University Press, Jessica Kingsley Publishers, and Pluto Press.

The main areas in which UBC Press publishes are Canadian and British Columbian history and political science, sociology, urban studies, Native studies, Northern studies, Asian studies, environmental studies, forestry, natural history, geography, archaeology, anthropology, linguistics, and law.

Recently published books include: *Making Native Space: Colonialism, Resistance, and Reserves in British Columbia*, by Cole Harris; *Preserving What is Valued: Museums, Conservation, and First Nations*, by Miriam Clavir; *Being a Tourist: Finding Meaning in Pleasure Travel*, by Julia Harrison; *The Cost of Climate Policy*, by Mark Jaccard, John Nyboer, and Bryn Sadownik; *Globalization and Well-Being*, by John Helliwell; and *Street Protests and Fantasy Parks: Globalization, Culture, and the State*, by David R. Cameron and Janice Gross Stein.

The Press frequently co-publishes books with institutions such as the Canadian Museum of Civilization, the Royal British Columbia Museum, the Royal Ontario Museum, and university presses 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 600 Markham Street, 2nd floor, Toronto, ON, M6G 2L8; telephone 416-535-9670, fax 416-535-9677. There is also a Kelowna office, where Randy Schmidt, Acquisitions Editor, is located: telephone 250-769-8746, fax 250-769-8711. Queries about publication should be addressed to Jean Wilson (wilson@ubcpres.ubc.ca), Associate Director, Editorial, 604-822-6376, or Emily Andrew (andrew@ubcpres.ubc.ca), Senior Editor, 416-535-9670.

Shipping and warehousing are done by unipresses, 34 Armstrong Avenue, Georgetown, ON, L7G 4R9; telephone 905-873-9781, 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. Complete electronic books-in-print listings and other information about the Press are available on the UBC Press website (www.ubcpres.ca); telephone 604-822-5959, fax 604-822-6083; or contact unipresses.

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.

Co-operative Education programs, approved by the BC government, are available currently in Applied Science, Arts, Commerce, Forestry, 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. 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 respective 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

Distance Education and Technology (DE&T) offers flexible learning through print-based materials, audio tapes, video and teleconferencing, CD-ROM and the Internet. Courses are designed to provide options to UBC students, and others, 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.

Distance education provides options in terms of where and when you learn. You may study independently, with the guidance of an instructor who grades and comments on your work or you may study online, communicating with your instructor and other students in your 'virtual' classroom.

Many courses have up to six sessional offerings each year. Standards in the final examinations are the same as those for on-campus students.

To learn more about DE&T and discover if distance education is right for you, visit the Distance Education and Technology website (det.ubc.ca). DE&T's At-A-Glance course schedule and annual publication may also be obtained at: 2329 West Mall, UBC, Vancouver, BC, V6T 1Z4; tel: 604-822-6500; email (det@studies.ubc.ca).

EXCHANGE PROGRAMS

Opportunities are available for the exchange of graduate and undergraduate students with other universities both internationally and in Canada through the Student Exchange Programs. Commerce graduate exchanges are managed through the Master's Program Office, Faculty of Commerce and Business Administration.

UNIVERSITY-WIDE STUDENT EXCHANGE PROGRAMS

Student exchange programs offer UBC students the opportunity to study at one of 150 partner universities, in over 40 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, which 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. Participation is conditional upon acceptance to UBC.

Graduate students are eligible for exchange and should consult the Student Exchange Program office for more information. Commerce graduate exchange is managed through the Master's Program Office of the Faculty of Commerce and Business Administration.

Information sessions are held throughout the first term. Partner information, including academic calendars, is available online at the Student Exchange Program (SEP) website (students.ubc.ca/international/exchange). The website also links to partner universities and explains the selection and application process. Paper copies of partner university materials are located in the Student Development Library in Room 1200, Brock Hall. Applications are due in December or January each year.

The Student Exchange Programs office is located in Brock Hall, 1037-1874 East Mall, UBC, Vancouver, BC, V6T 1Z1; telephone 604-822-0942, fax 604-822-9885. More information may be obtained on the Student Exchange Program (SEP) website (students.ubc.ca/international/exchange).

STUDY ABROAD OPPORTUNITIES

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 Student Exchange Office (students.ubc.ca/international/exchange) by March 2004. More information on both programs can be found at the Queen's University International Study Centre website (www.queensu.ca/isc).

CANADIAN YEAR IN FREIBURG
The Canadian Year in Freiburg (CYF) offers Canadian students the opportunity to study for 11 months at a German university under the guidance of a Canadian Professor for UBC credit. CYF provides the opportunity to master the German language and study in depth the cultural heritage of the German-speaking countries within the European context, as well as current events. Interested students must apply through the Department of Germanic Studies, Faculty of Arts, by January. More information on CYF can be found at the official website (www.trentu.ca/cyf).

DENMARK'S INTERNATIONAL STUDIES PROGRAM (DIS)
Denmark's International Studies Program (DIS) is a study abroad program taught in English in Copenhagen for third and fourth year students, offering courses in Arts, Engineering, Environmental Studies, International Business, Architecture and Design, and Marine Biology and Ecology. Students pay tuition and program fees to the DIS program, with some scholarships available. Student Exchange Programs coordinates applications to this program.

EUROPEAN SUMMER STUDY PROGRAMME
The Manchester Business School European Summer Study Programme is a five-week, six credit program (June 1- July 5, 2003) that provides a hand-on exposure to business, management, and related fields within the European Union and Eastern Europe. Fifty students from around the world collaborate on group projects, attend lectures, and visit companies and universities in the UK, the Czech Republic, France, and Spain. Applications are due at Student Exchange Programs in January. Students on the program pay a program fee directly to Manchester Business School.

OTHER STUDY ABROAD OPPORTUNITIES
More information is available at the Student Exchange Program Office. Some faculties also offer specific study abroad opportunities.

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 in the Student Development Library, Room 1200 Brock Hall, where students can research these options. Before enrolling in any program, students should consult departmental advisers 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. 35 in the chapter *Academic Regulations*).

KOREA-UBC UNIVERSITY JOINT ACADEMIC PROGRAM

The Korea-UBC University Joint Academic Program started in 2001 with the goal of facilitating cultural exchanges and enhancing academic cooperation between the two institutions. It helps enrich the education experience of students by providing the environment that enable the program participants to take regular credit courses offered by the faculties of UBC, while enjoying learning cultural diversity on campus.

Every year 100 students are chosen by Korea University via a strict selection process, based on the applicant's English capability and academic performance, to participate in the program. The program participants can take any regular credit courses (up to 30 credits per year) offered by the UBC Faculties of Arts, Commerce, Agriculture, and Science.

The participants arrive at the end of August to attend UBC Orientation and stay until the end of school year. Some may choose to remain and take summer session courses, while others return to Korea after graduation. On completion of the program, students receive the program certificate and course credits are transferred to the home university.

While at UBC, the students live on different campus residences, actively participating 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 institutions. It is located in the Place Vanier residence complex, emphasized with a Korean traditional garden.

A Korea University professor resides on campus on a yearly basis to liaison between the two universities.

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

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 nearly 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 - a direct, high-speed, Ethernet connection to UBC's computer network. 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 20 workstations, containing a Macintosh computer, a VHS deck and monitor, and a Sony language-lab terminal. 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 226 A 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 (Director)
Tel: 604-822-9511
(Administrative Coordinator)
Fax: 604-822-9515

Information can also be obtained from the Ritslab website (www.ritslab.ubc.ca).

UBC-TEC DE MONTERREY JOINT ACADEMIC PROGRAM

The University of British Columbia is one of Canada's leading institutions for global learning and international growth. Our goal to strengthen 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.

Through the Joint Academic Program, Tec students can spend up to year at UBC and take undergraduate courses in the Faculty 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 the Student Exchange Program.

These programs encourage students to engage in cross-cultural learning and develop a greater understanding of the world outside their own country. A residence unit has been built to further support interaction among domestic and international students. All UBC students, as well as Tec students who intend to study at UBC, are encouraged to apply for student housing at Tec de Monterrey-UBC House scheduled to open in September 2003.

For program options, including a complete list of certificates offered, visit our website (www.tec.ubc.ca). Or contact:

Ms. Silvia Martínez
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. Contact the exchange office for more information.

Student Exchange Program
Student Development and Services
Brock Hall Room 1037, 1874 East Mall
General Information: 604-822-0942
Fax: 604-822-9885
Email: student.exchange@ubc.ca
Website (students.ubc.ca/exchange)

Other Study Options

CONTINUING STUDIES

With approximately 20,000 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, pursue a degree at a distance, or explore topics out of general interest. For more information, visit the Continuing Studies website (www.cstudies.ubc.ca) or call 604-822-1444.

NON-CREDIT PROGRAMS

Continuing Studies offers over 700 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 telephone to be sent a free calendar or view our website. Continuing Studies is located at 5997 Iona Drive, Vancouver, BC, V6T 1Z1; telephone 604-822-1444, fax 604-822-1599; email (information@cstudies.ubc.ca).

CAREER CONNECTIONS

Part of Continuing Studies, UBC Career Connections is an exciting new centre created to link the University's resources, expertise and knowledge with the community. Located at UBC Robson Square, Career Connections is the downtown meeting place for the delivery of innovative professional, career and community programs and services for students, alumni and the community. Personal career services offered by Career Connections include free drop-in advising and job-search workshops (Networking, Resume Writing and Interview Skills). Contact Career Connections at 604-822-3333 or the website (www.cstudies.ubc.ca/connections).

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 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 604-822-1437, email (intercultural.studies@cstudies.ubc.ca) or visit our website (cic.cstudies.ubc.ca).

COMPUTER AND TECHNOLOGY STUDIES

UBC Continuing Studies' Division of Applied Technology offers daytime, evening and weekend classes at UBC Point Grey campus as well as at UBC Robson Square. A wide range of courses and certificate programs focus on new technologies in the Internet, multimedia, IT, information systems and software development. For more information, visit the website (www.tech.ubc.ca) or call 604-822-1420.

DISTANCE EDUCATION AND TECHNOLOGY

DE&T offers non-credit courses in conjunction with Continuing Studies. For further details call 604-822-6500; email (det@cstudies.ubc.ca). Visit our website (det.ubc.ca). See also *Distance Education & Technology*, p. 81, in this chapter.

ENGLISH LANGUAGE INSTITUTE

The English Language Institute offers courses in English as a second language for students who wish to build their competence and confidence in using English before applying for post-secondary programs. A 12 week (10 weeks in summer) Intensive English Program (IEP) is available year-round at elementary to advanced levels. Successful completion of the academic IEP level 600 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 1Z1; telephone 604-822-1555, fax 604-822-1579, email (esl@eli.ubc.ca), or visit the English Language Institute website (www.eli.ubc.ca).

LANGUAGE PROGRAMS AND SERVICES

Language Programs and Services offers non-credit courses in 13 languages (French, Spanish, Italian, German, Dutch, Japanese, Mandarin, Arabic, Portuguese, Punjabi, Hungarian, Polish and Ukrainian) 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 the Language Programs website (www.languages.ubc.ca).

MATHEMATICS 098, 099

In conjunction with the Mathematics Department at UBC, Continuing Studies offers MATH 098 and 099, two non-credit pre-calculus courses designed to help students refresh their

basic math skills or prepare for first-year calculus courses at UBC. Classes are “user-friendly” and offer individual attention.

MATH 098 is intended primarily for UBC students who need to refresh their basic math skills. MATH 098 is intended for all students who have not studied math recently and who need to establish a solid foundation of skills before continuing with MATH 099 or first year math courses. There are no prerequisites, but a minimum of high school Math 11 is recommended.

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 or who are over 18 years of age are also welcome.

UBC students may register at students.ubc.ca; others must register directly with Continuing Studies. Phone 604-822-9564 or visit the Continuing Studies MATH website (www.cstudies.ubc.ca/math).

THIRD AGE PARTNERS IN LEARNING

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 from September to April. Telephone 604-822-1462.

Third Age Spring Lecture Series

For close to three decades, Continuing Studies has been offering the Third Age Spring Lecture Series, an intellectually stimulating program for those who are retired or semi-retired, 55 or over. The program features special events and morning lectures on topics such as art, archaeology, literature, political science and history. Participants can join for one or all four weeks. Telephone 604-822-1444.

UNIVERSITY WRITING CENTRE

See *University Writing Centre*, p. 84, in this chapter.

WOMEN'S RESOURCES CENTRE

See *Women's Resources Centre*, p. 84, in this chapter.

HUMANITIES 101

Humanities 101, the cornerstone program in UBC's outreach initiative in Vancouver's Downtown Eastside, is a 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 teachers and tutors, the course offers an intensive survey of a variety of subjects in the liberal arts and social sciences, including Literature, Film, Anthropology, Philosophy, Economics, History and Composition. Each year Humanities 101 takes in 25 students, providing them with course materials, bus transportation to and from Point Grey campus, meal tickets and child care if required.

Students receive full access to all university facilities, including the UBC Libraries.

Admission information is available on the Humanities 101 website (www.arts.ubc.ca/programs/humanities/H101.htm), or at the office, 1866 Main Mall, Buchanan C378, UBC, Vancouver, BC, V6T 1Z1; telephone 604-822-0028; email hum101@interchange.ubc.ca.

UBC LEARNING EXCHANGE

UBC's Learning Exchange is a community outreach initiative located in the Downtown Eastside area of Vancouver. Created in 2000, the role of the Learning Exchange is to foster connections between people at UBC and people in the Downtown Eastside who share common interests.

A commitment to build stronger links between UBC and the community-at-large is one of the five central elements of Trek 2000, UBC's strategic plan for the future. UBC believes that a university's role in the community is to facilitate the exchange and application of knowledge to share resources, to encourage constructive debate about community issues, to build capacity through learning, and to work with community members to find understanding and meaning.

The UBC Learning Exchange focuses on three key areas of activity: Providing educational opportunities to people who live and work in the Downtown Eastside Providing opportunities for UBC students to develop an understanding of society through first-hand volunteer work Promoting the formation of partnerships between people at UBC and people in the Downtown Eastside that make the sharing of expertise and resources possible.

The UBC Learning Exchange (www.learningexchange.ubc.ca) may be reached by phone at 604-408-5164, or by fax at 604-408-5192.

ENTREPRENEURSHIP 101

Entrepreneurship 101 has been designed through a partnership between the UBC Learning Exchange, UBC Commerce and members of the Downtown Eastside community. Entrepreneurship 101, sponsored by HSBC Bank Canada, offers low-income members of the community the opportunity to enhance their understanding of the fundamentals of business theory, principles and practice. This non-credit program includes classes on identifying opportunity, financing and marketing a business, human resource issues and building a personal mission statement.

MUSIC APPRECIATION 101

The UBC Learning Exchange and the School of Music sponsor this course. Music Appreciation 101 offers residents of Vancouver's Downtown Eastside and other inner-city communities an opportunity to learn about and appreciate music at the level of an introductory university course. It is a barrier-free, non-credit course intended to offer educational opportunities to individuals that historically have had difficulty accessing a university education. The course covers the basic elements of music (e.g. tone and rhythm), the history of the Western music tradition and an introduction to non-Western

traditions. Students will also attend a variety of live performances.

UNIVERSITY WRITING CENTRE

The University Writing Centre offers Writing 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). The purpose of this course is twofold: to assist students in developing the language and composition skills needed to achieve the necessary level 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 which 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.

UBC students enrol in Writing 098 using the Student Service Centre (students.ubc.ca/ssc). The course schedule is listed under “University Writing Centre Courses.” Non-UBC students should call the Writing Centre and enrol through Continuing Studies. An online section of Writing 098 is available for students who cannot attend courses on campus. Phone 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 students at UBC, as well as a free online writers' workshop with email text submission tool.

Please note that course fees and withdrawal procedures for writing courses and *MATH 098 and 099*, p. 83, 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 University Writing Centre website (www.writingcentre.ubc.ca).

WOMEN'S RESOURCES CENTRE

Programs and services for men and women are offered at the Women's Resources Centre at UBC Robson Square, 800 Robson Street, Vancouver. Services include free drop-in counselling for personal and career issues and referrals to and information about community resources and agencies. Personal programs focus on self-awareness and communication skills. Career programs such as Vocational Testing, and Life/Work Coaching help people make positive life changes. Certificate programs in Peer Counselling, Cross-Cultural Counselling and Working with an Aging Population are offered in a six-month format or an intensive six-week program. Telephone 604-822-8585 or view the Women's Resources Centre website (www.cstudies.ubc.ca/wrc).

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1 The Faculty of Agricultural Sciences

Dean's Office

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Fax: 604-822-6394

Agricultural Sciences Website (www.agsci.ubc.ca)

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 Bachelor of Home Economics, the Master of Science, the Master of Landscape Architecture, the Master of Advanced Studies in Landscape Architecture, and the Doctor of Philosophy. The Faculty also offers the post-degree, two-year Diploma in Management of Aquaculture Systems. The Bachelor of Environmental Design degree is offered jointly by the Faculty of Agricultural Sciences through its Landscape Architecture Program and by the Faculty of Applied Science through its School of Architecture.

Note: The Faculty of Agricultural Sciences 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 issues in the social sciences, as well as design, planning and management.

Bachelor of Environmental Design

The Bachelor of Environmental Design (ENDS) Program is a 4 year, non-professional degree offered jointly by the Landscape Architecture Program in the Faculty of Agricultural Sciences and the School of 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, or for those who wish to have a greater understanding of the role of design in the broad environmental decision-making processes of society.

The first and second years of the program focus on giving the student a general academic background in the Arts and Sciences. 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 in the second year. Prospective students enrol in a first year university program of their choice at a recognized university of college. For first year admission requirements students are directed to the admission requirements of those institutions and their respective programs of study. Students are encouraged, where appropriate to their program of study, to complete the UBC equivalent of 6 credits of first year English, and GEOG 101 (6) in their first year studies.

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. Students seeking transfer from other universities and colleges may be granted advanced credit for parallel courses in the first two years of the ENDS Program where standings obtained are above minimum passing grade at those institutions.

For detailed Program and Admission information, interested students are encouraged to contact the ENDS Program Office directly at ends@interchange.ubc.ca or telephone 604-822-6916. Information regarding the ENDS Program is available at www.ends.arch.ubc.ca and www.ends.agsci.ubc.ca.

DEGREE REQUIREMENTS

Second Year¹

| | |
|------------------------|-----------|
| AGSI 250 | 6 |
| ENDS 211 | 3 |
| LARC 421 | 3 |
| Electives ² | 18 |
| Total Credits | 30 |

Third Year

| | |
|----------------------|-----------|
| ARCH 404 | 3 |
| ARCH 405 | 3 |
| ENDS 301 | 6 |
| ENDS 302 | 6 |
| ENDS 320 | 3 |
| LARC 420 | 3 |
| LARC 422 | 3 |
| LARC 440 | 3 |
| Total Credits | 30 |

Fourth Year

| | |
|--|------------|
| ARCH 403 | 3 |
| ARCH 437 | 3 |
| ENDS 401 | 6 |
| ENDS 402 and ARCH 411 ³ or | 6+3 |
| ENDS 403 and LARC 431 ⁴ | 6+3 |
| ENDS 410 | 3 |
| ENDS 440 | 3 |
| PLAN 425 | 3 |
| Total Credits | 30 |
| Minimum Credits for Degree | 120 |

¹ Students are encouraged to complete the UBC equivalent of ENGL 110 (3), ENGL 112 (3), and GEOG 101 (6) in their first year studies. Those who have not completed these courses will be required to do so in the second year of the ENDS Program as part of their elective requirements.

² Selected from a list of Program recommendations upon consultation with a Faculty Advisor.

³ Students declaring a 'Pre-Architecture' option.

⁴ Students declaring a 'Pre-Landscape/Planning' Option.

Bachelor of Science in Agroecology

Agroecology 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

The Agricultural Sciences Academic Advising Office (Student Services) is located in Room 270, MacMillan Building. 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.

ADMISSION

Students should refer to *Undergraduate Admission*, p. 21. 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.

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 of 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. 33.

- 4 Students will be classified or promoted according to the following criteria:
 - (A) to second year level: successful completion of 24 or more credits of prescribed courses of first year.
 - (B) 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.
 - (C) 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 in some courses will receive credit for the courses passed upon reinstatement in the Faculty. Fail standing will be assigned in a session when a student
 - (A) has taken a study program of 15 credits or more and passed in less than 60% of it; or
 - (B) has taken 15 credits or more and has a sessional average of less than 55%; or
 - (C) has taken a study program of less than 15 credits and passed in less than 50% of it; or
 - (D) has taken less than 15 credits and has a sessional average of less than 50%
- 6 At the end of a probationary year, the student may be reinstated; if there has been insufficient improvement the student will not be permitted to proceed to the next year level. Only one probationary year is allowed in a student's program. Probationary status will be assigned to a student
 - (A) who is readmitted to the Faculty after having been required to withdraw or

- (B) 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.

- 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 in the Faculty of Agricultural Sciences who wish to take courses at other institutions for transfer of credit toward the Bachelor of Science in Agroecology must obtain permission in advance from the Associate Dean Academic.
- 9 A student who decides to withdraw from the University should refer to the chapter *Academic Regulations*, p. 31 in this Calendar. See *Withdrawal*, p. 35.

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.

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 60 credits depend on the program specialization chosen by the student. In their third and fourth year, students must complete at least 12 credits of Agroecology (AGRO) courses numbered 300 or above, in addition to AGRO core courses.

ENGLISH REQUIREMENT

To qualify for the Bachelor of Science in Agroecology, students must complete at least three 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. 22. 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 Agricultural Sciences.

Students who have not completed at least three credits of first-year English will not normally be permitted to enrol in third-year or higher-level courses in the Faculty.

Student performance on written work in all courses in the Faculty of Agricultural Sciences may be evaluated in part on grammar and syntax.

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 Agricultural Sciences.

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. Pre-veterinary students are therefore advised to follow the Animal Studies concentration in the Agroecology program or the Nutrition Major in the Food, Nutrition and Health program.

The course requirements for admission to W.C.V.M. are six credits each of English, biology, biochemistry, chemistry, physics and mathematics; three 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. Students in our program will receive sufficient animal experience via animal studies emphasis/nutrition major courses and by working in our Faculty animal units. For information and program approval, contact the Academic Advising Office.

B.S.C. AGROECOLOGY AND PRE-VETERINARY PROGRAM

First Year

| | |
|-------------------------------|----|
| AGSC 100 | 1 |
| ENGL 112 | 3 |
| BIOL 112/121 | 6 |
| BIOL 140 | 1 |
| CHEM 111/113 or 121/123 | 8 |
| MATH 102/103 or equivalent | 6 |
| Physics 1st year ¹ | 3 |
| Elective | 3 |
| Total Credits | 31 |

Second Year

| | |
|---|----|
| AGSC 250 | 6 |
| AGRO 260 | 6 |
| ECON 101 and ECON 102 | 3 |
| Concentration Requirements and Electives ^{1,2} | 15 |
| Total Credits | 30 |

Third Year

| | |
|----------|---|
| AGSC 350 | 6 |
| AGRO 360 | 3 |
| AGRO 361 | 3 |

Third Year (Cont.)

| | |
|---|----|
| Concentration Requirements and Electives ² | 18 |
| Total Credits | 30 |

Fourth Year

| | |
|----------|---|
| AGSC 450 | 3 |
| AGRO 460 | 3 |
| AGRO 461 | 3 |

| | |
|---|----|
| Concentration Requirements and Electives ¹ | 18 |
| Total Credits | 30 |

Overall 4 year total 121

¹ Pre-veterinary students are required to take PHYS 101 and 102, or PHYS 121 and 122, BIOL 112 and MICB 202. In third and fourth year, pre-veterinary students follow an Animal Studies program.

² Students in agroecology can take the general program or pursue areas of special interests 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 1 of AGRO 326, 327, 328.

RESOURCE ECONOMICS

In second year, students are required to take ECON 201 and 202, 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.

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. 88 as listed under the Bachelor of Science in Agroecology.

ADMISSION

Students should refer to the chapter *Undergraduate Admission*, p. 21 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. 90, *Food Market Analysis*, p. 90, and the *Food and Nutritional Sciences Double Major*, p. 90 is restricted. See those sections for details.

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 89 as listed under the Bachelor of Science in Agroecology.

DEGREE REQUIREMENTS

Candidates for the B.Sc. (FNH) degree must complete the requirements as spelled out for each major.

ENGLISH REQUIREMENT

To qualify for the Bachelor of Science in Food, Nutrition and Health students must complete at least three 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. 22. 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 Agricultural Sciences.

Student performance on written work in all courses in the Faculty of Agricultural Sciences may be evaluated in part on grammar and syntax.

Students who have not completed at least three credits of first-year English will not normally be permitted to enrol in third-year or higher-level courses in the Faculty.

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 (students.ubc.ca/calendar/courses.cfm), IHHS, or visit the website at 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 program is designed to provide academic background for students interested in pursuing careers as professional dietitians or nutritionists. Graduates of the program may apply for a dietetic internship following graduation in order to qualify for membership in the Dietitians of Canada or the BC Dietitians' and Nutritionists' Association.

ADMISSION

Admission to the Dietetics major is limited to students who have already completed 30 credits of university or college coursework, which must include all the pre-requisites of English (3 credits), Biology 112, Biology 121, Biology 140 and Chemistry 111/113 or 121/123, or their equivalents. Six credits in Social Science (PSYC 100 or SOCI 100 or equivalent) are recommended. Admission is based on a minimum academic standing of at least 70% calculated on a minimum of 21 credits of university or college courses including all pre-requisites and any other courses required by the program. For applicants who have only completed all the pre-requisites but no other required courses, up to 5 credits of unrestricted electives will be used to calculate their standing. Due to enrolment limitations, the academic standard required for admission may be higher than the published minimum. See the website (www.agsci.ubc.ca) for updated information.

DIETETICS MAJOR

Second Year

| | |
|---------------------------|----|
| AGSC 250 | 6 |
| BIOL 200/201 ¹ | 6 |
| CHEM 203/204 or 205/233 | 6 |
| FNH 200 | 3 |
| FNH 250 | 3 |
| FNH 270 | 1 |
| IHHS 200 | 3 |
| Elective | 3 |
| Total Credits | 31 |

Third Year

| | |
|------------------------|----|
| AGSC 350 | 6 |
| BIOC 302 ¹ | 3 |
| COMM 329 | 3 |
| FNH 340 | 3 |
| FNH 341 | 3 |
| FNH 350 | 3 |
| PHYL 301 | 6 |
| Electives ² | 3 |
| Total Credits | 30 |

Fourth Year

| | |
|-------------------------------------|------------------|
| AGSC 450 | 3 |
| FNH 440 | 3 |
| FNH 470 | 4 |
| FNH 471 | 3 |
| FNH 472 | 2 |
| FNH 473 | 3 |
| FNH 475 | 3 |
| Electives ² | 9 |
| Total Credits | 30 |
| Overall 4 year total credits | 121/(124) |

¹ Students may take BIOC 300 in lieu of BIOL 201/ BIOC 302.

² For students who did not complete the social science requirement prior to entry to the dietetics program, electives completed during the program must include 6 credits of social science (PSYC 100, SOCI 100 or equivalent).

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 of the industry. Students wishing to specialize in or concentrate on certain areas should consult the program advisor.

ADMISSION

The first two years of the Food Market Analysis Major are comprised of the core of the FNH program. Students may apply to the Food Market Analysis Major after completing at least 21 credits of the listed first year courses (or their equivalents), including courses in each of Biology, Chemistry, Economics, English and Math. Admission to the Food Market Analysis Major is limited to students who have achieved an academic standing of at least 70%, calculated on the best 21 credits of the required courses in the previous year.

FOOD MARKET ANALYSIS MAJOR

First Year

| | |
|----------------------------|----|
| AGSC 100 | 1 |
| ENGL 112 | 3 |
| BIOL 112/121 | 6 |
| BIOL 140 | 1 |
| CHEM 111/113 or 121/123 | 8 |
| MATH 102/103 or equivalent | 6 |
| ECON 101/102 | 6 |
| Total Credits | 31 |

Second Year

| | |
|---------------------------|---|
| AGSC 250 | 6 |
| FNH 200 | 3 |
| FNH 250 | 3 |
| CHEM 205/233 | 6 |
| BIOL 200/201 ¹ | 6 |
| MICB 202 | 3 |

Second Year (Cont.)

| | |
|-----------------|----|
| PHYS 101 or 121 | 3 |
| Total Credits | 30 |

Third Year

| | |
|---|----|
| AGSC 350 | 6 |
| BIOC 302 ¹ | 3 |
| FNH 301 | 3 |
| Food Science electives ² | 9 |
| FRE 295/COMM 295 or ECON 201 | 3 |
| Food Market Analysis Electives ³ | 6 |
| Total Credits | 30 |

Fourth Year

| | |
|---|------------|
| AGSC 450 | 3 |
| FNH 403 | 3 |
| Food Science electives ² | 3 |
| Food Market Analysis Electives ³ | 6 |
| Restricted Electives ⁴ | 12 |
| Unrestricted Electives | 6 |
| Total Credits | 33 |
| Overall 4 year total credits | 124 |

¹ Students may take BIOC 300 in lieu of BIOL 201/ BIOC 302.

² Choose at least 12 credits of FNH electives from the following list: FNH 300, 301, 302, 309, 313, 325, 401, 425, 490, 497.

³ Select at least 12 credits from the following list: FRE 302, FRE 306, FRE 340, FRE 420, FRE 475.

⁴ Select at least 12 credits from the following list of upper-year courses for non-Commerce Students: COMM 329, 457, 458, 465, 473, 493 (COMM 457 is a pre or co-requisite for COMM 458, 465, 473, 493).

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 111/113 or 121/123 | 8 |
| MATH 102/103 orequivalent | 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 ¹ | 3 |
| FNH 300 | 3 |
| FNH 301 | 3 |
| FNH 302 | 3 |
| FNH 309 | 3 |
| FNH 313 | 3 |
| MICB 353 | 1 |
| FNH 325 | 6 |
| 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 ² | 6 |
| Total Credits | 15 |
| Overall 5 year total credits | 138 |

¹ Students may take BIOC 300 in lieu of BIOL 201/ BIOC 302.

² Select at least 9 credits from the following list of courses: FNH 452, 453, 454, 470, 471, 475, 490, 497, 498, 499.

**FOOD SCIENCE CONCENTRATION
AND 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 at the undergraduate level can pursue a food science concentration or a food science major. Students wishing to specialize in or concentrate on certain areas should consult the program advisor.

**FOOD SCIENCE CONCENTRATION
AND MAJOR**

| First Year | |
|----------------------------|-----------|
| AGSC 100 | 1 |
| ENGL 112 | 3 |
| BIOL 112/121 | 6 |
| BIOL 140 | 1 |
| CHEM 111/113 or 121/123 | 8 |
| MATH 102/103 or equivalent | 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 equivalent | 3 |
| Total Credits | 31 |

| Third Year | |
|-----------------------|-----------|
| AGSC 350 | 6 |
| BIOC 302 ¹ | 3 |
| FNH 300 | 3 |
| FNH 301 | 3 |
| FNH 302 | 3 |
| FNH 309 | 3 |
| FNH 313 | 3 |
| MICB 353 | 1 |
| FNH 325 | 6 |
| Total Credits | 31 |

| Fourth Year–Food Science Concentration | |
|---|-----------|
| AGSC 450 | 3 |
| FNH 403 | 3 |
| Restricted Electives ² | 12 |
| Unrestricted Electives | 12 |
| Total Credits | 30 |

| Fourth Year–Food Science Major | |
|---------------------------------------|---|
| AGSC 450 | 3 |
| FNH 401 | 3 |
| FNH 403 | 3 |
| FNH 425 or FNH 497 or FNH 499 | 6 |
| Restricted Electives ² | 9 |

Fourth Year–Food Science Major (Cont.)

| | |
|-------------------------------------|------------|
| Unrestricted Electives | 6 |
| Total Credits | 30 |
| Overall 4 year total credits | 123 |

¹ Students may take BIOC 300 in lieu of BIOL 201/ BIOC 302.

² To be selected in consultation with a program advisor. May include courses in FNH, agroecology, agricultural sciences, food and resource economics, commerce, economics, immunology, biochemistry, pharmacology, molecular biology, genetics, etc.

HUMAN ECOLOGY MAJOR

Human Ecology is a unique interdisciplinary study of humans and their interaction with the near environment. Study in this area integrates science, life science, social science including course work in food science, nutritional science, family studies, human development, resource management and electives from related areas. Students will be prepared to enter the Home Economics Education Program at UBC once they have completed this major. This program prepares graduates for employment opportunities in secondary schools as Home Economics teachers. Students will also be well prepared for graduate work in many of the areas of human ecology.

| Year 1 | Credits |
|----------------------------|----------------|
| AGSC 100 | 1 |
| ENGL 112 | 3 |
| BIOL 121 | 3 |
| BIOL 121 | 3 |
| BIOL 140 | 1 |
| CHEM 111/113 or 121/123 | 8 |
| MATH 102 or equivalent | 3 |
| ECON 101/102 | 6 |
| One of: PSYC 100, SOCI 100 | 6 |
| Total | 34 |

| Year Two | Credits |
|-----------------|----------------|
| AGSC 250 | 6 |
| FNH 200 | 3 |
| FNH 250 | 3 |
| HECO 200 | 3 |
| BIOL 200/201 | 6 |
| CHEM 233/235 | 4 |
| MICB 202 | 3 |
| FMST 200 | 3 |
| Total | 31 |

| Years 3 and 4 | Credits |
|----------------------|----------------|
| AGSC 350 | 6 |
| AGSC 450 | 3 |
| FNH 340/341 | 6 |
| FNH 342 | 3 |
| FNH 313 | 3 |
| FNH 355 | 3 |
| FNH 473 | 3 |
| FMST 320 | 3 |
| FMST 338 | 3 |
| FMST 310 | 3 |
| FMST 312 or 314 | 3 |

| Years 3 and 4 (Cont.) | Credits |
|---|---------|
| FMST 316 | 3 |
| Unrestricted electives | 12 |
| Restricted program electives ¹ | 6 |
| Overall 4 year total | 125 |

¹ Restricted program electives will be chosen from a list in consultation with a faculty advisor. At least three credits must be selected from FNH 350, FNH 351, FNH 471, FNH 472.

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 sciences 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 111 or 121 | 4 |
| CHEM 113 or 123 | 4 |
| MATH 102 or 180 or 184 | 3/(4) |
| MATH 103 | 3 |
| ECON 101 | 3 |
| Non-science elective | 3 |
| Total Credits | 31/(32) |

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 ¹ | 3 |
| MICB 202 | 3 |
| PHYS 101 or 121 | 3 |
| Total Credits | 31 |

Third Year

| | |
|-------------------------------------|---|
| AGSC 350 | 6 |
| BIOC 302 ² | 3 |
| PHYL 301 or equivalent ³ | 6 |
| FNH 350 | 3 |

| Third Year (Cont.) | Credits |
|-----------------------------------|---------|
| FNH 351 | 3 |
| Unrestricted Electives | 6 |
| Restricted Electives ⁴ | 3 |
| Total Credits | 30 |

Fourth Year

| | |
|---|----|
| AGSC 450 | 3 |
| FNH 450 | 3 |
| FNH 451 | 3 |
| Nutrition Specialization Electives ⁵ | 9 |
| Unrestricted Electives | 9 |
| Restricted Electives ⁴ | 3 |
| Total Credits | 30 |

Overall 4 year total credits 122/123

- ¹ prerequisite Biology 12 or BIOL 111
- ² Alternate BIOC300 for BIOL 201/BIOC302
- ³ Alternate AGRO 311 & 312 or BIOL 353 or BIOL 355
- ⁴ 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)
- ⁵ Nutrition Specialization Electives (at least 9 credits from FNH 301,452,453,454,470,471,472,473,475,490*,497*,498,499~*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. 88 as listed under the Bachelor of Science in Agroecology.

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.agsci.ubc.ca/main/grs/apply.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. 92 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 Agricultural Sciences 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. 88 as listed under the Bachelor of Science in Agroecology.

DEGREE REQUIREMENTS

To qualify for the Bachelor of Science in Global Resource Systems, students must complete at least three 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. 22. 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 Agricultural Sciences.

Student performance on written work in all courses in the Faculty of Agricultural Sciences may be evaluated in part on grammar and syntax.

Students who have not completed at least three 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 111 or 121 | 4 |
| ECON 101 | 3 |
| ENGL 100-level ¹ | 3 |
| Language ² | 6 |
| MATH 100, 102, 104, 180, or 184 | 3-4 |
| Program Electives ³ | 9/8 |
| Total Credits | 32 |

Second Year

| | |
|--------------------------------|-----------|
| AGSC 250 | 6 |
| GRS 290 ⁴ | 1/2 |
| Language ² | 6 |
| Program electives ⁵ | 11/10 |
| Unrestricted Electives | 6 |
| Total Credits | 30 |

Third and Fourth Years

| | |
|--|------------|
| AGSC 350 | 6 |
| AGSC 450 | 3 |
| Field Experience ⁶ | 3 |
| GRS 390 ⁷ | 1-2 |
| GRS 490 | 2 |
| Resource Specialization Electives ⁸ | 21 |
| Regional Specialization ⁹ | |
| Anthropology and Culture | 3 |
| Economics and Commerce | 3 |
| Geography, History, and Political Science | 3 |
| Regional Specialization Electives | 9 |
| International Experience ¹⁰ | 0 |
| Program electives ⁵ | 3/2 |
| Unrestricted Electives | 3 |
| Total Credits | 60 |
| Overall 4 year total | 122 |

¹ ENGL 112 is recommended.

² 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 program advisor.

³ 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.

⁴ At least 1 credit is required.

⁵ Courses that provide further foundation for the resource specialization. Typically in agricultural sciences, biology, chemistry or economics. Must be approved by a program advisor.

⁶ Met by AGRO 300 or a field studies course that is pre-approved by a program advisor.

⁷ At least 1 credit is required.

⁸ 300- 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.

⁹ 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.

¹⁰ Met by learning in the region of specialization for at least one term, or three month period. Options include participation in UBC's Student Exchange Program or work-based learning (internships). Must be pre-approved by a program advisor.

Bachelor of Home Economics

Although the Bachelor of Home Economics program will continue until September 1, 2005, only individuals previously admitted under the BHE program are eligible. These individuals have until September 1, 2005 to complete their degree requirements.

Home Economics is an interdisciplinary field of study concerned with improving the quality of everyday life. Study in this area integrates biological, physical and social sciences, and includes course work in family studies, human development, family resource management, foods and nutrition, and clothing, textiles and design, as well as electives from supporting areas.

Home Economics is an interdisciplinary field of study concerned with improving the quality of everyday life. Study in this area integrates biological, physical and social sciences, and includes course work in family studies, human development, family resource management, foods and nutrition, and clothing, textiles and design, as well as electives from supporting areas.

Graduates of the Home Economics program may be employed in a variety of positions in business and industry (especially in the areas of food, clothing and textiles), and in government agencies and extension services. Graduates of the comprehensive option of the program may also, with additional training, be employed in teaching. Graduates of the family life education option are often employed by community agencies and institutions which address the educational or human services needs of children and youth, adults, or the elderly.

ACADEMIC ADVISING

This program is in the process of being revised. Academic advising is required for all new admissions to the B.H.E. program. Call 604-822-5987 for an appointment with the

program advisor and to obtain a copy of updated course schedules and program planning information.

All students returning to the program are encouraged to consult with a program advisor during the spring advising session to obtain program advice and course approval. Updated program planning information will be mailed to returning students prior to the advising session.

The Faculty reserves the right to make academic advising mandatory prior to registration for students with academic problems.

ADMISSION

Students seeking admission to the Home Economics program should apply to the University for admission to the Faculty of Agricultural Sciences. (See *Undergraduate Admission*, p. 21). Students applying to UBC for the first time should follow the standard application procedure. Students currently registered in another program of study at UBC must apply by submitting a "Change of Faculty" form to Enrolment Services. The deadline for receipt of applications is March 31. Admission to these programs is based on completion of prerequisites and applicants' previous year or University entrance grade point average calculated according to the procedures developed by Enrolment Services.

British Columbia secondary school graduates will be considered for admission if they have an average grade of 67% (or better) based on the requirements in Undergraduate Admission, and the admission requirements of the various programs described below. Applicants will be selected on the basis of their secondary school records.

A student who has completed appropriate studies with satisfactory standing beyond Grade 12 may be considered for admission and the granting of advance credit. Credit on transfer from a BC college is restricted to first- and second-year-level university studies.

The University reserves the right to reject applicants for admission on the basis of their overall academic records even if they technically meet entrance requirements and to limit enrolment if its facilities and resources are inadequate.

Mathematics 12 is required. Biology 11, Chemistry 12 and as many home economics courses at the Grades 11 and 12 levels as possible are recommended.

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 88 as listed under the Bachelor of Science in Agroecology.

DEGREE REQUIREMENTS

A minimum of 120 credits is required for the B.H.E. program. A minimum of 48 credits is required of courses in Family Sciences (FMSC), Home Economics (HMEC), or Food, Nutrition and Health (FNH). In their third and fourth years, students must complete at least 48 credits in courses numbered 300 or above. All students are required to take the following common core

of 69 credits of course work. The remaining 51 credits consist of specialization course requirements including program electives as noted under each specialization.

BACHELOR OF HOME ECONOMICS

First and Second Years

| | |
|------------------------------|----|
| HMEC 100 | 3 |
| FMSC 200 | 3 |
| BIOL 110 or 115 ¹ | 3 |
| CHEM 111 and 113 | 6 |
| ECON 100 | 6 |
| ENGL 112 | 3 |
| ENGL 110, 111, 120 or 121 | 3 |
| PSYC 100 | 6 |
| STAT 203 | 3 |
| FNH 200 | 3 |
| FNH 250 | 3 |
| Total Credits | 42 |

Third and Fourth Years

| | |
|----------------------------|----|
| FMSC 310 | 3 |
| FMSC 320, 322, 324, or 326 | 3 |
| FMSC 338 | 3 |
| FMSC 350 | 3 |
| FMSC 422 ² | 3 |
| HMEC 300 | 3 |
| HMEC 352 | 3 |
| HMEC 360 | 3 |
| PHIL 433, 434, or 435 | 3 |
| Total Credits | 27 |

¹ Students with at least 80% in Biology 12 are not required to take BIOL 110 or 115 and may substitute a three-credit elective.

² Alternative research method courses may be acceptable and should be chosen in consultation with an advisor.

OPTIONS

Specializations are designed to provide academic preparation for a variety of home economics careers in community settings, teaching, government and business.

COMPREHENSIVE (CMPR)

Students who wish to qualify for the after-degree program in the Faculty of Education or for a variety of positions in business, industry, and government agencies, must take in addition: FNH 340, 341; HUNU 205 and 301; HMEC 354, 452 and 454; plus 15 program elective credits chosen in consultation with an advisor. Students are also requested to consult an advisor when selecting the remaining 15 electives.

FAMILY CONSUMER SERVICES/CLOTHING AND TEXTILES (FCTX)

Students who wish to prepare as home economists in business (clothing and textile focus) must take in addition: COMM 329, 457 and 465; HMEC 354 and 452; plus 18 program elective credits chosen in consultation with an advisor. Students are also requested to

consult an advisor when selecting the remaining 18 electives.

FAMILY CONSUMER SERVICES/FOOD AND NUTRITION (FCNU)

Students who wish to prepare as home economists in business (foods and nutrition focus) must take in addition: COMM 329, 457 and 465; FNH 340 and 341; HUNU 205 and 301; plus 12 program elective credits chosen in consultation with an advisor. Students are also requested to consult an advisor when selecting the remaining 18 electives.

FAMILY LIFE EDUCATION (FLED)

Students who wish to prepare as family life educators must take in addition: FMSC 436 plus 12 program elective credits from FMSC courses chosen in consultation with an advisor. Students are also requested to consult an advisor when selecting of the remaining 36 credits of electives.

ENGLISH REQUIREMENT

Students admitted directly from secondary school are expected to complete six credits of English in their first year. To be eligible for first-year English requires an 'A' in English 12, or a score of 5 or 6 on the Language Proficiency Index (LPI) examination. If not eligible for first-year English, students will be permitted to register in no more than 12 credits per term until a satisfactory LPI score is achieved. Such students are advised to complete the non-credit writing course offered through the University Writing Centre.

Students accepted as transfers from other post-secondary institutions, or who are re-admitted to the School after being required to discontinue, will not be permitted to register for any credit courses unless they have completed the first-year English requirement, or are eligible to register for first-year English.

UBC students will not be permitted to satisfy the first-year English requirement at another institution.

Students must satisfy the first-year English requirement before registering for any additional language courses.

After completing 30 credits toward the Bachelor of Home Economics, students will not be permitted to register for any additional credit courses until they obtain an LPI score of 5 or 6.

After completing 60 credits toward the Bachelor of Home Economics, students must complete the first-year English requirement before registering in any additional credit courses.

Diploma in Management of Aquaculture Systems

The Faculty of Agricultural Sciences, UBC in conjunction with the Faculty of Science and Technology, Malaspina University-College, offers a post-degree Diploma in Management of Aquaculture Systems. The program allows Canadian and foreign public or private personnel to fill gaps in their previous training

and experience in aquaculture, and to obtain relevant job skills.

ADMISSION

Admission to the Diploma program requires either a bachelor's degree in an area relevant for the management of aquaculture systems, or a minimum of two years relevant post secondary education plus at least three years relevant work experience in aquaculture.

Students are selected on the basis of grades in previous post-secondary education programs, extra-curricular activities, work experience, and reasons for wanting to enrol in the program. Students apply to the Faculty of Agricultural Sciences, UBC, where admission evaluation and selection will be carried out. Admitted students are assigned a student number and given an eligibility to register by Enrolment Services.

For applicants whose native language is not English, proficiency in English needs to be demonstrated at the time of application by submitting the score on the Test of English as a Foreign Language (TOEFL). A TOEFL score of 550 or greater is required.

All completed application forms for the Management of Aquaculture Systems (joint with Malaspina University-College) must be accompanied by an application fee of CAD\$41 and a program fee of CAD\$400.

DIPLOMA REQUIREMENTS

The program requires a minimum of 30 credits, with a minimum of 15 credits from UBC. Credit for university courses at Malaspina University-College transfers directly to UBC. Credit for technical courses at Malaspina University-College transfers to UBC as 'Diploma Credit Courses.' UBC Enrolment Services maintains a transcript of records.

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 towards their UBC degree. Interested students should see *Alternative Study Options*, p. 81 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

The University of British Columbia's Student Exchange Program (SEP) 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.bcia.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 agrologist in the province of British Columbia is expected to register as a member of the BCIA. Applications should be forwarded to the Registrar, BCIA.

BC Society of Landscape Architects

In order to practice as a Professional Landscape Architect in the Province of British Columbia, it is necessary to be registered as a member in the British Columbia Society of Landscape Architects (www.bcsla.org) as laid down in the BC Landscape Architects Act. A student who plans to become a landscape architect may enrol with the Society. Applications should be forwarded to the Registrar, BC Society of Landscape Architects.

Arrangements exist for students in the Faculty to regularly receive the communications and periodicals of the profession upon payment of a nominal fee. For further information contact the Landscape Architecture office.

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 Agricultural Sciences. 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 of Agricultural Sciences to Polish agricultural universities and visits by scientists from the Polish agricultural universities to the Faculty.

Academic Staff

AGROECOLOGY

PROFESSORS

T. M. Ballard, B.S.F., M.F., Ph.D. (Wash.). Emeritus; **T. A. Black**, B.S.A. (Brit. Col.), M.Sc., Ph.D. (Wis.); **C. P. Chanway**, B.Sc. (Winn.). B.S.Ag. (Manit.), M.Sc., Ph.D. (Brit. Col.); **K. M. Cheng**, B.S. (Tenn. Tech.), M.S. (S. Illinois), Ph.D. (Minn.); **S. Cheng**, B.Sc. (Nat. Taiwan Univ.), M.Sc., Ph.D. (McGill); **Q. Cronk**, B.A., Ph.D. (Cantab.); **B. E. Ellis**, B.Sc. (New Brunswick), Ph.D. (Brit. Col.); **D. G. Fraser**, B.A. (Tor.), Ph.D. (Glas.); **F. B. Holl**, B.Sc., M.Sc. (Manit.), Ph.D. (Cantab.), P.Ag., Emeritus; **M. B. Isman**, M.Sc. (Brit. Col.), Ph.D. (Calif.); **P. A. Jolliffe**, B.Sc. (Queen's), Ph.D. (Brit. Col.); **J. W. Kronstad**, B.S. (Oregon State), M.S., Ph.D. (Wash.); **L. M. Lavkulich**, M.Sc. (Alta.), Ph.D. (C'neil.); **R. S. McKinley**, B.Sc. (Guelph), M.Sc. (York), Ph.D. (Waterloo); **J. H. Myers**, B.Sc. (Chatham Coll.), M.S. (Tufts), Ph.D. (Indiana); **M. D. Pitt**, B.Sc., M.S., Ph.D. (Calif.), P.Ag., Emeritus; **R. Rajamahendran**, B.V.Sc. (Ceylon), M.Sc., Ph.D. (McG.); **V. C. Runeckles**, B.Sc., Ph.D. (Lond.), Dipl. Imp. Coll., F.R.S.A., M.B.C.S.L.A. (Hon.), P.Ag.; **H. E. Schreier**, B.A. (Colorado), M.Sc. (Sheffield), Ph.D. (Brit. Col.); **D. M. Shackleton**, B.Sc. (Leicester), M.Sc. (W.Ont.), Ph.D. (Calg.); **M. Shaw**, M.Sc., Ph.D. D.Sc. (McG.), F.A.P.S., F.R.S.C., Emeritus; **I. E. P. Taylor**, B.Sc., Ph.D. (Liv.); **M. K. Umadhyaya**, B.Sc. (Ag.) (Jawaharlal Nehru Agric.), M.Sc. (Indian Agric. Res. Inst.), M.A. (Princ.), Ph.D. (Mich.), P.Ag., C.P.H., C.P.C.S.

ASSOCIATE PROFESSORS

A. A. Bomke, M.S. (Southern Illinois), Ph.D. (Ill.); **R. J. Copeman**, B.Sc. (McG.), Ph.D. (Wis.); **G. Kennedy**, B.A. (Brit. Col.), M.Sc. (Minn.), Ph.D. (Purdue); **M. D. Novak**, B.Eng. (McG.), M.Sc. (W.Ont.), Ph.D. (Brit. Col.); **D. M. Weary**, B.Sc., M.Sc. (McG.), Ph.D. (Oxon).

ASSISTANT PROFESSORS

S. Binns, B.Sc. (Guelph), Ph.D. (Ottawa); **S. Gulati**, M.S., Ph.D. (Maryland); **M. Krzic**, B.Agron., M.S. (Belgrade), Ph.D. (UBC); **A. Riseman**, MS., Ph.D. (Penn State); **M. von Keyserlingk**, B.Sc. (UBC), M.Sc. (Alta.), Ph.D. (UBC).

ADJUNCT PROFESSORS

L. M. Arthur, B.A. (Pacific Lutheran), M.A., Ph.D. (Arizona); **M. Curran**, B.Sc. (Victoria), M.Sc., Ph.D. (Brit. Col.); **A. B. de Passillé**, M.Sc., Ph.D. (McGill); **D. L. Ehret**, B.Sc. (Alta.), M.Sc. (Ill.), Ph.D. (Brit. Col.); **J. E. Elliott**, M.Sc. (Ott.), Ph.D. (Brit. Col.); **D. Henderson**, B.Sc. (Trent), M.Sc. (Manit.), Ph.D. (Brit. Col.); **D. A. Higgs**, B.Sc. (Vic.B.C.), B.Sc., Ph.D. (Manit.); **G. K. Iwama**, M.Sc., Ph.D. (Brit. Col.); **J. A. Love**, B.V.M.S. (Glas.), M.R.C.V.S. (U.K.), Ph.D. (Tor.); **B. N. McLellan**, B.Sc., M.Sc., Ph.D. (Brit. Col.); **D. M. Rochon**, B.A., M.S., Ph.D. (Wayne State); **J. Rushen**, B.S., Ph.D. (Queensland); **D. A. Theilmann**, B.Sc., M.Sc. (Queen's), Ph.D. (Texas A & M).

INSTRUCTOR

A. Rojas, M.A., Ph.D. (York).

LECTURERS FROM OTHER DEPARTMENTS

A. P. Wharton, B.Sc. (North Wales) (part-time).

COMMUNITY AND ENVIRONMENT

PROFESSORS

P. M. Condon, B.Sc., M.L.A. (Mass.); **M. Quayle**, B.L.A. (Guelph), M.L.A. (Calif., Berkeley).

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ASSISTANT PROFESSORS

D. T. Luymes, B.L.A. (Brit. Col.), M.L.A. (Guelph).

ADJUNCT PROFESSORS

W. Marsh, B.A. (Central Mich.), M.A. (Missouri), Ph.D. (Mich.).

FOOD, NUTRITION AND HEALTH

PROFESSORS

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HONORARY PROFESSORS

R. Blair, B.Sc. (Glas.), Ph.D. (Aberdeen), 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.) (Brit. Col.), A.M., Ph.D. (Chic.); **G. E. Chapman**, B.Sc. H.Ec. (Sask.), M.Sc., Ph.D. (Tor.); **B. J. Skura**, M.Sc. (Alta.), Ph.D. (Brit. Col.).

ASSISTANT PROFESSORS

T. Beatty, B.A. (Laval), M.Sc. (Montreal), Ph.D. (Calif., Berkeley); **K. M. Keiver**, B.Sc. (Brit. Col.), M.Sc., Ph.D. (Guelph); **R. L. Levy-Milne**, B.Sc. (Tor.), M.Sc., Ph.D. (Nfld.); **S. T. Lund**, B.S. (Mich.), M.S. (Minn.), Ph.D. (Minn.); **C. H. Scaman**, M.Sc. (Brit. Col.), Ph.D. (Alta.); **Z. Xu**, B.Sc. (Jiangxi), M.Sc., Ph.D. (Guelph).

ADJUNCT PROFESSORS

P. L. Arcus, B.Ag.Sc. (New Zealand), M.Ag.Sc. (Massey), Ph.D. (Iowa State); **T. Beveridge**, M.Sc., Ph.D. (Brit. Col.), F.C.I.F.S.T.; **P. A. Bowen**, B.Sc. (Agr.) (Brit. Col.), M.Sc. (Brit. Col.), Ph.D. (U of Cal-Davis); **M. Cliff**, B.Sc. (Brit. Col.), M.Sc. (U.C. Davis), Ph.D. (Missouri); **J. Joneja**, B.Sc., Ph.D. (Birm.); **G. Mazza**, Ph.D. (Alta.), F.C.I.F.S.T.; **S. Nakamura**, B.Sc. (Shiman, Japan), Ph.D. (Tottori, Japan); **B. D. Oomah**, M.Sc. (Timiryazev Acad., Moscow); **G. M. M. Sandberg**, M.Sc., Ph.D. (Brit. Col.); **J. Zawistowski**, M.Sc. (Warsaw), Ph.D. (Manit.).

LECTURER FROM ANOTHER DEPARTMENT

S. M. Innis, Paediatrics.

2003-04

2 The Faculty of Applied Science

Dean's Office

M. Isaacson, Dean

P. E. Adebare, Associate Dean

D. B. Cherchas, Associate Dean

A. B. Dunwoody, Associate Dean

2006-2324 Main Mall
Vancouver, BC V6T 1Z4

Tel: 604-822-6413;

Engineering Student Services 604-822-6556

Fax: 604-822-7006

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, Metals and Materials Engineering and Mining and Mineral Process 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*, p. 113 and *The School of Nursing*, p. 331.

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. In addition, the Faculty contains the Centre for Metallurgical Process 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. 209. 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, Metals and 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. 23). Depending on the transfer credit in engineering received from first-year Science (see *Admission from Science*, p. 98), 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 in CEME 2053. 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 not later than March 31. 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 extra-curricular 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 gradepoint average of at least 2.5, including any failed courses, with a gradepoint 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 per cent 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 | Exemptions |
|-----------------------------------|------------|
| CHEM 121 and 123 | CHEM 154 |
| PHYS 101 and 102 (or 121 and 122) | 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 |
|-------------------------|-------------------------|
| CPSC122 | CPSC152 |
| CPSC 124 and 126 (Pair) | CPSC 152 and 128 (Pair) |
| 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. 101. 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 gradepoint 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

On graduation, a student will be granted a Degree with Distinction if they obtain an average of not less than 80% in the Winter Session of the final year and either a minimum of 75% in each of the preceding two Winter Sessions or, if the minimum of 75% is not achieved in one or more of the preceding two Winter Sessions, an overall average in the three years of 80% or higher. To be eligible, students must have had full-time status for all four years, with no failed courses.

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 the Office of Awards and Student Financial Assistance 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 the Office of Awards and Student Financial Assistance.

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. 35.

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. 22.) 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/August.

Supplemental examinations for courses which terminate in December will normally be made available to students only during the supplemental examination period in July-August.

APPEALS

A student may appeal an admission or year standing decision. Current students may appeal a year standing decision to Faculty of Applied Sciences 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. 22).

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. 99).

COMPLEMENTARY STUDIES COURSES

Students must take complementary studies courses totalling at least 21 credits. The minimum requirements are as follows:

- 1 Professional development—APSC 121 (1), 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 three-credit engineering economics course, usually taken in third or fourth year. Approved courses include:

CHBE 459, CIVL 403, EECE 450, MECH 431, MMAT 455, and MMPE 396.

- 4 Impact of technology on society (3). Acceptable courses include: APSC 261 (3), APSC 262 (3), CIVL 200 (3), CPSC 430 (3), GEOG 310 (3), HIST 215 (3), HIST 425 (6), PHIL 435 (3/4), POLI 361 (3/6), SOCI 260 (3/6), URST 200 (6). 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 six 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 three 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 the Minor.

Minor in Information Technology

| | |
|---|---|
| APSC 380 | 3 |
| CPSC 152 | 3 |
| CPSC 252 | 3 |
| EECE 314 | 3 |
| Six credits from the following courses: | |
| CIVL 584 | 3 |
| COMM 335 | 3 |
| EECE 369 | 3 |
| EECE 456 | 3 |
| MECH 492 | 3 |
| MECH 595 | 2 |

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, Mechanical Engineering, Electro-mechanical Engineering, Metals and 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 three-credit Co-operative Education course (see *Special Fees*, p. 49) 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. 98.

Other students will need to contact Engineering Student Services for advice on their first-year program. This also includes all students interested in the Chemical Engineering-Chemistry Honours program in the Department of Chemical and Biological Engineering.

FIRST-YEAR CURRICULUM

| First Year | |
|-----------------------|---|
| APSC 121 | 1 |
| APSC 122 | 0 |
| APSC 150 ¹ | 6 |
| CHEM 154 ¹ | 3 |
| CPSC 152 | 3 |
| ENGL 112 ² | 3 |
| MATH 100 | 3 |

First Year (Continued)

| | |
|--|----|
| MATH 101 | 3 |
| MATH 152 | 3 |
| PHYS 153 | 6 |
| PHYS 170 | 3 |
| Complementary Studies Electives ³ | 3 |
| Total Credits | 37 |

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. 99.

TYPICAL TRANSFER PROGRAM FOLLOWING FIRST-YEAR SCIENCE

First Year

| | |
|--|----|
| APSC 121 | 1 |
| APSC 122 | 0 |
| APSC 151 | 3 |
| APSC 201 | 3 |
| CPSC 152 | 3 |
| MATH 152 | 3 |
| MATH 253 | 3 |
| MATH 255 | 3 |
| PHYS 170 | 3 |
| STAT 251 | 3 |
| Complementary Studies Electives ¹ | 6 |
| Total Credits | 31 |

¹ See *Complementary Studies Courses*, p. 99.

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 options:

- Process,
- Environmental, or
- Biological.

The Environmental and Biological Options are modifications to the regular Process Option 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. Interested students should apply for the Chemical and Biological Engineering option 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 options may be limited.

CHEMICAL ENGINEERING

Second Year

| | |
|----------|---|
| APSC 201 | 3 |
| CHBE 241 | 3 |
| CHBE 242 | 3 |
| CHBE 251 | 3 |
| CHBE 262 | 3 |
| CHEM 250 | 2 |
| CHEM 251 | 3 |
| CHEM 260 | 4 |
| MATH 253 | 3 |
| MATH 256 | 3 |

Complementary

Studies Electives¹

Plus one of the options listed below.

Process (Option 1)

| | |
|----------|---|
| APSC 278 | 3 |
|----------|---|

Environmental (Option 2)

| | |
|----------|---|
| BIOL 112 | 3 |
|----------|---|

Biological (Option 3)

| | |
|----------|---|
| BIOL 112 | 3 |
|----------|---|

| | |
|---------------|----|
| Total Credits | 36 |
|---------------|----|

Third Year

| | |
|----------|---|
| CHBE 330 | 3 |
| CHBE 344 | 3 |
| 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.

Process (Option 1)

| | |
|----------|---|
| CHBE 363 | 2 |
|----------|---|

| | |
|---------------------|---|
| Technical Electives | 6 |
|---------------------|---|

Environmental (Option 2)

| | |
|----------|---|
| CHBE 364 | 2 |
|----------|---|

| | |
|----------|---|
| CHBE 373 | 3 |
|----------|---|

| | |
|---------------------|---|
| Technical Electives | 3 |
|---------------------|---|

Biological (Option 3)

| | |
|----------|---|
| CHBE 365 | 2 |
|----------|---|

| | |
|----------|---|
| CHBE 381 | 3 |
|----------|---|

Third Year (Continued)

| | |
|---------------------|----|
| Technical Electives | 3 |
| Total Credits | 34 |

Fourth Year

| | |
|----------|---|
| APSC 450 | 2 |
| CHBE 444 | 3 |
| CHBE 455 | 3 |
| CHBE 459 | 3 |
| CHBE 464 | 3 |
| EECE 263 | 3 |

Plus one of the options listed below:

Process (Option 1)

| | |
|----------|---|
| CHBE 454 | 6 |
|----------|---|

| | |
|----------|---|
| CHBE 456 | 3 |
|----------|---|

| | |
|----------|---|
| CHBE 457 | 3 |
|----------|---|

| | |
|----------|---|
| CHBE 474 | 3 |
|----------|---|

| | |
|---------------------|---|
| Technical Electives | 6 |
|---------------------|---|

Environmental (Option 2)

| | |
|----------|---|
| CHBE 452 | 6 |
|----------|---|

| | |
|----------|---|
| CHBE 484 | 3 |
|----------|---|

| | |
|----------|---|
| CHBE 485 | 3 |
|----------|---|

| | |
|---------------------|---|
| Technical Electives | 9 |
|---------------------|---|

Biological (Option 3)

| | |
|----------|---|
| CHBE 453 | 6 |
|----------|---|

| | |
|----------|---|
| CHBE 481 | 3 |
|----------|---|

| | |
|---------------------|---|
| Technical Electives | 9 |
|---------------------|---|

| | |
|--|---|
| Complementary Studies Electives ¹ | 3 |
|--|---|

| | |
|---------------|----|
| Total Credits | 38 |
|---------------|----|

¹ See *Complementary Studies Courses*, p. 99.

CHEMICAL ENGINEERING–CHEMISTRY HONOURS

The Chemical Engineering–Chemistry Honours program is 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 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 |
| 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 449 ¹ | 6 |
| CHEM Electives ¹ | 6 |

Fifth Year

| | |
|------------------------|----|
| 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 six 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 six credits of CHBE electives.

² See *Complementary Studies Courses*, p. 99.

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. 99.

² End of Term 2, first year.

³ See *Complementary Studies Courses*, p. 99.

⁴ This course counts towards requirement 1 under *Complementary Studies Courses*, p. 99.

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. 99.

² This course counts towards requirement 1 under *Complementary Studies Courses*, p. 99.

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 252 | 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 253 | 3 |
| MATH 256 | 3 |
| MATH 266 | 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 4 to 6 students share access to assigned meeting rooms, workstations containing common engineering design tools and reference materials.

| | |
|----------|----|
| APSC 201 | 3 |
| CPSC 252 | 4 |
| EECE 201 | 7 |
| EECE 202 | 16 |
| MATH 253 | 3 |
| MATH 256 | 3 |
| MATH 266 | 3 |

| | |
|---------------|----|
| APSC 201 | 3 |
| Total Credits | 39 |

COMPUTER ENGINEERING

| | |
|--|----|
| Third Year | |
| EECE 310 | 3 |
| EECE 315 | 4 |
| EECE 320 | 3 |
| EECE 353 | 4 |
| EECE 359 | 3 |
| EECE 360 | 3 |
| EECE 374 | 4 |
| EECE 375 | 6 |
| STAT 251 | 3 |
| Complementary Studies Electives ¹ | 6 |
| Total Credits | 39 |

| | |
|---------------------|----|
| 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 |
| CPEN Electives | 6 |
| Technical Electives | 3 |
| Total Credits | 36 |

¹ See *Complementary Studies Courses*, p. 99.

COMPUTER ENGINEERING ELECTIVES

Choose from the following courses:

- EECE 417 (3), 423 (3), 440 (3), 443 (3), 453 (3), 454 (3), 458 (3), 459 (3), 466 (3), 467 (3), 468 (3), 478 (3), 479 (3), 480 (3), 481 (3), 487 (3), 417 (3), 423 (3), 440 (3), 443 (3), 458 (3);
- CPSC 304 (3), 311 (3), 312 (3), 320 (3), 322 (3), 404 (3), 405 (3), 410 (3), 411 (3), 415 (3), 416 (3), 418 (3), 422 (3).
- Other courses may be substituted with the approval of the Computer Engineering undergraduate coordinator.

TECHNICAL ELECTIVES

Choose from the following courses:

- Any 300- or 400-level Electrical and Computer Engineering course not in the core program.
- Other courses from a list made available by the Department in March.

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 |

Third Year (Continued)

| | |
|--|----|
| EECE 315 | 4 |
| EECE 320 | 3 |
| EECE 321 | 3 |
| EECE 369 ¹ | 3 |
| EECE 375 | 6 |
| EECE 379 | 3 |
| STAT 251 | 3 |
| Complementary Studies Electives ² | 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 ³ | 9 |
| Total Credits | 36 |

¹ Students may replace EECE 369 with either EECE 359 or 360.

² See *Complementary Studies Courses*, p. 99.

³ To be chosen from a list of electives available from the Department.

ELECTRICAL ENGINEERING

| | |
|--|----|
| Third Year | |
| EECE 314 | 3 |
| EECE 352 | 3 |
| EECE 356 | 4 |
| EECE 359 | 3 |
| EECE 360 | 3 |
| EECE 361 | 2 |
| EECE 364 | 4 |
| EECE 373 | 4 |
| EECE 379 | 3 |
| 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 |
| Technical Electives ² | 21 |
| Total Credits | 37 |

¹ See *Complementary Studies Courses*, p. 99.

² Electives total 21 credits with at least 15 credits from Groups A, B, and C below, with at least three credits from each. The remaining six credits are to be selected from a list made available by the Department in March.

FOURTH YEAR ELECTRICAL ENGINEERING ELECTIVES

- Group A: Signals, Communications, Control—EECE 453 (3), 454 (3), 460 (3), 466 (3), EECE 468 (3).
- Group B: Electrophysics—EECE 470 (3), 479 (3), 480 (3), 481 (3), 482 (3), 483 (3), 488 (3).
- Group C: Systems, Technology, Applications—EECE 452 (3), 456 (3), 457 (3), 458 (3), 459 (3), 465(3), 467 (3), 476 (3), 478 (3), 486 (3), 487 (3), 493 (4), 494 (3), 495 (4).
- Group D: Other Courses—EECE 451 (3), 490 (3), 491 (3).

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 68% in MATH 226/227 or MATH 253/317 or MATH 217 (MATH 220 is recommended for students taking MATH 253/317 or MATH 217),
- obtaining a 68% average in the following courses: MATH 300 and 301 (instead of 266), 320, 321, 400, 401 and three additional credits chosen from MATH 322, 323, 345, 402, 403, 405, 416–429, 449.

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. Jeff Young, Room 331 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 for application is March 31.

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 must obtain technical work experience outside the normal academic activities in order to satisfy the degree requirements. Most students obtain this experience by fulfilling the requirement of the Co-operative Education placements, which consist of four separate terms as shown in the table below. Students not wishing to follow the Co-operative Education route must, upon entering the program, confer with the Director of Engineering Physics regarding alternate arrangements. These may include work experience outside the Co-operative Education program and/or the completion of company-sponsored Technical Projects.

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.

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 | Fall | Winter | Summer |
|-----------------------|------|--------|--------|
| 1 Applied Science | Acad | Acad | Open |
| 2 Engineering Physics | Acad | Coop#1 | Acad |
| 3 Engineering Physics | Acad | Acad | Coop#2 |

| Year | Fall | Winter | Summer |
|-----------------------|--------|--------|--------|
| 4 Engineering Physics | Coop#3 | Acad | Coop#4 |
| 5 Engineering Physics | Acad | Acad | |

The following program-year by program-year curriculum tables are specific to students registered in the corresponding years of Engineering Physics during the 2003/2004 Academic Year.

Students entering year 2 in September 2001 or later should be aware that there will be fewer formal Options available when they get to year five. Instead, these students will be able to use technical elective courses to obtain specialized training in sub fields of Earth and Ocean Sciences, Applied Physics, Computer Science, Applied Mathematics, Electrical Engineering, Mechanical Engineering or Metals and Materials Engineering.

ENGINEERING PHYSICS

Second Year

| | |
|--|-----------|
| APSC 201 | 3 |
| APSC 278 ¹ | 3 |
| CPSC 252 | 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 | 2 |
| PHYS 259 | 2 |
| PHYS 270 ⁴ | 2 |
| Complementary Studies Electives ⁵ | 3 |
| Total Credits | 39 |

- 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 See *Complementary Studies Courses*, p. 99.

Third Year

| | |
|----------|---|
| EECE 253 | 2 |
| MATH 257 | 3 |
| MATH 300 | 3 |
| MATH 318 | 3 |
| MECH 280 | 3 |
| PHYS 350 | 3 |
| PHYS 352 | 2 |
| PHYS 354 | 3 |

| Third Year (Continued) | |
|--|-----------|
| PHYS 454 | 3 |
| Plus one of the options listed below. ¹ | |
| Path A | |
| EECE 254 | 3 |
| EECE 256 | 3 |
| EECE 259 | 3 |
| EECE 320 | 3 |
| Path B | |
| MECH 260 | 3 |
| MECH 352 | 3 |
| MECH 357 | 6 |
| Total Credits Path A | 37 |
| Total Credits Path B | 37 |

¹ Students interested in the Electrical or Computer Science Options in fourth and fifth years should follow Path A. Students interested in the Mechanical Option in fourth and fifth years should follow Path B.

| Fourth Year | |
|--|-----------|
| APSC 459 | 5 |
| MATH 301 | 3 |
| PHYS 450 | 3 |
| Complementary Studies Electives ¹ | 3 |
| Plus one of the options listed below. | |
| Option 1 (Electrical) | |
| EECE 359 | 3 |
| EECE 360 | 3 |
| Technical Elective ^{2,3} | 3 |
| Option 2 (Mechanical) | |
| MECH 365 | 2 |
| MECH 370 | 3 |
| Technical Electives ^{2,3} | 3 |
| Option 3 (Computer Science) | |
| CPSC 315 | 3 |
| CPSC 318 | 3 |
| CPSC 352 | 4 |
| Total Credits Option 1 | 23 |
| Total Credits Option 2 | 22 |
| Total Credits Option 3 | 24 |

¹ See *Complementary Studies Courses*, p. 99.

² The technical elective courses should be chosen to ensure a consistent package of courses in one subdiscipline 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. | |
| Option 1 (Electrical) | |
| MMAT 478 | 3 |

| Fifth Year (Continued) | |
|--|-----------|
| EECE 450 | 3 |
| EECE 453 | 3 |
| EECE 454 | 3 |
| Minimum of technical electives relevant to Electrical Engineering ¹ | 9 |
| Option 2 (Mechanical) | |
| EECE 485 | 3 |
| MECH 431 | 3 |
| MECH 465 | 4 |
| MECH 466 | 4 |
| Minimum of technical electives relevant to Mechanical Engineering ¹ | 6 |
| Option 3 (Metals and Materials) | |
| EECE 485 | 3 |
| MMAT 378 | 3 |
| MMAT 451 | 2 |
| MMAT 455 | 3 |
| Minimum of technical electives relevant to Metals and Materials Engineering ¹ | 9 |
| Option 4 (Geophysics) | |
| EECE 450 | 3 |
| EOSC 352 | 3 |
| EOSC 354 | 3 |
| EOSC 451 ² | 3 |
| EOSC 452 ² | 3 |
| Minimum of technical electives, from an Engineering discipline and three from a related discipline ¹ | 6 |
| Option 5 (Computer Science) | |
| 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 |
| Minimum of technical electives from a relevant Engineering discipline ¹ | 9 |
| Option 6 (Oceanography) | |
| EECE 450 | 3 |
| EOSC 370 | 3 |
| EOSC 371 or 477 ³ | 3 |
| EOSC 473 | 3 |
| Minimum of technical electives, at least three credits of which must be from an Engineering discipline ¹ | 9 |
| Total Credits Option 1 | 40 |
| Total Credits Option 2 | 39 |
| Total Credits Option 3 | 39 |
| Total Credits Option 4 | 40 |
| Total Credits Option 5 | 40 |
| Total Credits Option 6 | 40 |

¹ Chosen in consultation with the director.

² Offered only in alternate years.

³ Take EOSC 371 or 477, whichever was not taken in previous years.

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 220/217,
- obtaining a 68% average in the following courses, over and above those required of the regular Engineering Physics degree: MATH 320/321/401 and three credits chosen from MATH 322, 323, 345, 402, 403, 405, 416–419, 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.

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.

Students who have entered second year in September 2002 or later should be aware that there will no longer be specified options in the program. The options outlined below will be completed by those students, who entered the program prior to September 2002:

1. Fuels and Minerals,
2. Applied Geophysics, and
3. Environmental and Geotechnical.

Students in Option 1 are given the choice of focusing on hydrocarbon exploration and production or mineral exploration and development. Option 2 is for those interested in the application of geophysics to mineral or petroleum exploration or to geotechnical and environmental engineering. Applications of mathematics and physics are emphasized in Option 2. Option 3 is a common choice for those interested in the application of geology to water resources, foundation engineering and construction or environmental matters.

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 |

Second Year (Continued)

Select either:

| | |
|---------------|----|
| EOSC 220 | 3 |
| EOSC 221 | 3 |
| or | |
| EOSC 324 | 3 |
| EOSC 252 | 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 |
| MMPE 303 | 3 |
| One of EOSC 320, EOSC 321, EOSC 322 | 3 |
| One of EOSC 327, EOSC 353, EOSC 422 | 3 |
| One of EOSC 328 ¹ , EOSC 428 ¹ | 3 |
| Technical Electives | 6 |
| Complementary Studies Electives ² | 6 |
| Total Credits | 40 |

¹ End of third year.² See Complementary Studies Courses.**FUELS AND MINERALS OPTION****Fourth Year**

| | |
|---------------------------------------|---|
| APSC 450 | 2 |
| EOSC 331 | 3 |
| EOSC 332 | 3 |
| EOSC 350 | 3 |
| EOSC 351 | 3 |
| EOSC 432 | 3 |
| EOSC 447 | 6 |
| MMPE 396 | 3 |
| MMPE 403 | 3 |
| Technical Electives | 6 |
| Plus one of the options listed below. | |

Fuels Option

| | |
|----------|---|
| EOSC 425 | 3 |
|----------|---|

Minerals Option

| | |
|---------------|----|
| EOSC 424 | 3 |
| Total Credits | 38 |

APPLIED GEOPHYSICS OPTION**Fourth Year**

| | |
|---|----|
| APSC 450 | 2 |
| EOSC 329 | 3 |
| EOSC 447 | 6 |
| EOSC 450 | 3 |
| EOSC 451 ¹ | 3 |
| EOSC 452 ¹ | 3 |
| EOSC 453 | 3 |
| One of CIVL 403, MMPE 396 | 3 |
| Three of CIVL 311, EOSC 331, EOSC 432, EOSC 434 | 9 |
| Technical Electives | 3 |
| Complementary Studies Electives ² | 3 |
| Total Credits | 41 |

¹ EOSC 353, 451 and 452 are currently offered in alternate years. Students entering third year should consult the Geophysics undergraduate advisor. Note that one of EOSC 451 and 452 must be taken in third year.² See Complementary Studies Courses.**ENVIRONMENTAL AND GEOTECHNICAL OPTION****Fourth Year**

| | |
|---------------------|---|
| CIVL 402 | 2 |
| CIVL 403 | 3 |
| CIVL 410 | 3 |
| CIVL 411 | 3 |
| EOSC 433 | 2 |
| EOSC 434 | 3 |
| EOSC 447 | 6 |
| Technical Electives | 6 |

Plus one of the options listed below.

Environmental Option

| | |
|----------|---|
| CIVL 405 | 3 |
| EOSC 429 | 3 |
| EOSC 430 | 3 |

Geotechnical Option

| | |
|---------------|----|
| EOSC 350 | 3 |
| EOSC 351 | 3 |
| MMPE 403 | 3 |
| Total Credits | 37 |

INTEGRATED ENGINEERING

The Integrated Engineering program is intended to provide a non-specialized engineering education by means of courses in the following core disciplines: materials, solid mechanics, fluid mechanics, and systems involving chemical, electro-mechanical and biological components. Significant emphasis is placed on engineering design by means of a design/project course given in each year of the program. Design projects in these courses directly involve the subject matter of courses taken in the program, but may require independent learning.

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 can often be made up within the program schedule. Consult the Program Director for assistance in such cases.

The Integrated Engineering program is under the jurisdiction and administration of the Dean of Applied Science. All inquiries concerning the program should be directed to the Program Director via the office of the Dean of Applied Science.

The program has been developed to satisfy all Canadian Engineering Accreditation Board (CEAB) requirements for accreditation of engineering programs. The program is currently undergoing accreditation review.

There is a co-operative education option (Co-op) where students normally take eight academic semesters and five work semesters over a five-year period. Students should refer to the Co-operative Education Program in this Calendar for more information.

INTEGRATED ENGINEERING PROGRAM**Second Year**

| | |
|-----------------------|----|
| APSC 201 | 3 |
| APSC 230 | 6 |
| APSC 278 | 3 |
| APSC 279 | 1 |
| CHBE 241 | 3 |
| CIVL 215 ¹ | 4 |
| EECE 263 | 3 |
| EECE 280 | 2 |
| MATH 253 | 3 |
| MATH 255 | 3 |
| MECH 260 | 3 |
| MECH 270 | 3 |
| Total Credits | 37 |

Third Year

| | |
|--|----|
| APSC 330 | 6 |
| CHBE 344 | 3 |
| EECE 365 | 3 |
| MECH 360 | 3 |
| MECH 375 ¹ | 3 |
| MMAT 280 | 3 |
| STAT 251 | 3 |
| One of CHBE 356, EECE 360 | 3 |
| Technical Electives ² | 6 |
| Complementary Studies Electives ³ | 3 |
| Total Credits | 36 |

Fourth Year

| | |
|----------|---|
| APSC 430 | 6 |
| APSC 450 | 2 |
| MMAT 380 | 3 |
| MMAT 381 | 1 |

Fourth Year (Continued)

| | |
|---|----|
| MMPE 482 | 3 |
| One of CIVL 409, CHBE 373, CHBE 465 | 3 |
| One of CIVL 403, EECE 450, MECH 431, MMAT 455, MMPE 396 | 3 |
| Technical Electives ² | 12 |
| Complementary Studies Electives ³ | 3 |
| Total Credits | 36 |

¹ CIVL 215 (in 2nd year) and MECH 375 (in 3rd year) may be replaced by CHBE 251 (in 2nd year) and CHBE 351 (in 3rd year).

² Technical electives must have an appropriate amount of engineering science and engineering design content. Several elective streams are available; consult the Program Director for advice.

³ See *Complementary Studies Courses*, p. 99.

MECHANICAL ENGINEERING

In addition to the regular Mechanical Engineering program, a Thermofluids Option is available. A five-year combined B.A.Sc./M.Eng. is also offered in Electro-Mechanical Design Engineering (see *Electro-Mechanical Design Engineering (B.A.Sc./M.Eng.)*, p. 107).

MECHANICAL ENGINEERING**Second Year**

| | |
|-----------------------|----|
| APSC 201 | 3 |
| APSC 278 | 3 |
| APSC 279 | 1 |
| EECE 263 | 3 |
| MATH 253 | 3 |
| MATH 256 | 3 |
| MECH 201 | 3 |
| MECH 202 | 3 |
| MECH 203 ¹ | 1 |
| MECH 250 | 1 |
| MECH 251 | 3 |
| MECH 260 | 3 |
| MECH 265 | 3 |
| MECH 270 | 3 |
| MECH 280 | 3 |
| Total Credits | 39 |

Third Year

| | |
|---------------|----|
| EECE 365 | 3 |
| MECH 301 | 2 |
| MECH 302 | 2 |
| MECH 351 | 8 |
| MECH 352 | 3 |
| MECH 360 | 3 |
| MECH 365 | 2 |
| MECH 370 | 3 |
| MECH 375 | 3 |
| MECH 380 | 3 |
| MECH 392 | 2 |
| MMAT 380 | 3 |
| Total Credits | 37 |

Fourth Year²

| | |
|--|----|
| APSC 450 | 2 |
| EECE 485 | 3 |
| MECH 430 | 3 |
| MECH 431 | 3 |
| MECH 457 | 6 |
| MECH 465 | 4 |
| MECH 466 | 4 |
| Technical Electives ³ | 6 |
| Complementary Studies Electives ⁴ | 6 |
| Total Credits | 37 |

¹ Taken at end of Term 2 of second year or prior to Term 1 of third year.

² Students pre-register for fourth year courses with a faculty advisor towards the end of third year. Each student takes 25 credits as core in the fourth year, and chooses a minimum of six credits of Technical Electives and six credits of Complementary Studies Electives.

³ To be chosen from a course list available in the Department Office.

⁴ See *Complementary Studies Courses*, p. 99.

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.

To complete this option, students will modify third- and fourth-year programs. In third year, students will replace MECH 392 with MECH 386. The third-year design projects must be related to thermofluids and approved by the program director. Students pursuing naval architecture will take MECH 340 instead of MECH 386, and must choose a project in naval architecture.

In fourth year, the technical electives and design project must be approved by the program director. In addition to the two technical electives, students normally will replace either MECH 465 or MECH 466 with a technical elective that supports the work in the senior design project course. Students pursuing naval architecture will take available naval architecture courses as the technical electives, and must complete a computer-aided ship design project in the project course, MECH 457.

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.

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 an average of 68% in MATH 300, 301, 317, 320, 321, 400, and six credits chosen from MATH 318, 345, 402, 405, 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 accommodate 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.)

Admission into this combined undergraduate/graduate degree program is limited to a small number of 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. 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. Students must meet Graduate Studies admission requirements in their third and fourth years (see *The Faculty of Graduate Studies*, p. 209). 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 |

| Second Year (Continued) | |
|--|----|
| MECH 280 | 3 |
| Total Credits | 42 |
| Third Year | |
| APSC 278 | 3 |
| APSC 279 | 1 |
| EECE 254 | 3 |
| EECE 283 | 2 |
| EECE 314 | 3 |
| EECE 373 | 4 |
| MECH 303 | 2 |
| MECH 351 | 8 |
| MECH 360 | 3 |
| MECH 365 | 2 |
| MECH 375 | 3 |
| MECH 392 | 2 |
| MMAT 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. 99.

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 six credits of Mechanical Engineering Technical Electives.

METALS AND MATERIALS ENGINEERING

Metals and 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 Cooperative Education Program during the first week of second year.

METALS AND MATERIALS ENGINEERING

| Second Year | |
|--|----|
| APSC 201 | 3 |
| APSC 278 | 3 |
| APSC 279 | 1 |
| MATH 253 | 3 |
| MATH 255 | 3 |
| MECH 260 | 3 |
| MMAT 250 | 4 |
| MMAT 252 | 4 |
| MMAT 263 | 4 |
| MMAT 280 | 3 |
| Complementary Studies Electives ¹ | 6 |
| Total Credits | 37 |
| Third Year | |
| MMAT 350 | 4 |
| MMAT 358 | 3 |

| Third Year (Continued) | |
|------------------------|----|
| MMAT 359 | 1 |
| MMAT 361 | 4 |
| MMAT 363 | 3 |
| MMAT 365 | 3 |
| MMAT 378 | 3 |
| MMAT 380 | 3 |
| MMAT 381 | 1 |
| MMAT 382 | 4 |
| MMAT 389 | 1 |
| MMAT 390 | 1 |
| MMAT 394 | 4 |
| MMAT 398 | 1 |
| STAT 251 | 3 |
| Total Credits | 39 |
| Fourth Year | |
| APSC 450 | 2 |
| MMAT 455 | 3 |
| MMAT 464 | 3 |
| MMAT 465 | 3 |
| MMAT 466 | 3 |
| MMAT 467 | 3 |
| MMAT 489 | 1 |
| MMAT 498 | 1 |
| Technical Electives | 20 |
| Total Credits | 39 |

¹ See *Complementary Studies Courses*, p. 99.

FOURTH YEAR ELECTIVES

CHBE 477 (3); EECE 263 (3), 370 (3); MECH 360 (3); MMAT 451 (2), 452 (2), 454 (2), 456 (2), 458 (3), 469 (3), 472 (3), 474 (2), 478 (3), 479 (2), 482 (3), 484 (2), 486 (2), 493 (2), 494 (3), 495 (3).

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 | 3 |
| MMPE 290 | 4 |
| MMPE 293 | 0 |
| MMPE 295 | 3 |
| STAT 251 | 3 |
| Complementary Studies Electives ¹ | 3 |
| Total Credits | 38 |

| Third Year | |
|----------------------------------|----|
| APSC 278 | 3 |
| APSC 279 | 1 |
| EECE 263 | 3 |
| MMPE 302 | 3 |
| MMPE 304 | 3 |
| MMPE 305 | 4 |
| MMPE 331 | 3 |
| MMPE 333 | 3 |
| MMPE 338 | 3 |
| MMPE 391 | 3 |
| MMPE 393 | 1 |
| MMPE 396 | 3 |
| Technical Electives ² | 6 |
| Total Credits | 39 |

| Fourth Year | |
|--|----|
| APSC 450 | 2 |
| EECE 370 | 3 |
| MMPE 402 | 3 |
| MMPE 404 | 3 |
| MMPE 410 | 3 |
| MMPE 432 | 3 |
| MMPE 480 | 2 |
| MMPE 491 | 4 |
| MMPE 493 | 1 |
| Technical Electives ² | 9 |
| Complementary Studies Electives ¹ | 3 |
| Total Credits | 36 |

¹ See *Complementary Studies Courses*, p. 99.

² Selected with the approval of the Department.

Joint UNBC/UBC Program: Environmental Engineering

The Environmental Engineering program is a 4.5 year (9 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. Admission into the third year of the program will require a cumulative average of at least 68% over the previous two years. Students admitted into the third year of the program will receive a thorough (two-year) 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 and 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. Taking account of summer work terms, this leads to 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 120-0.5 | 0.5 |
| CHEM 121-0.5 | 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 |
| PHYS 111-4 | 4 |
| CORE 101-3 | 3 |
| Total Credits | 39 |

Second Year (taken at UNBC)¹

| | |
|---------------|----|
| BIOL 201-3 | 3 |
| CHEM 200-3 | 3 |
| CHEM 220-3 | 3 |
| ENSC 200-3 | 3 |
| ENVS 201-3 | 3 |
| ENVS 202-3 | 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)

| | |
|---------------------------------|----|
| CHBE 241 | 3 |
| CHBE 242 | 3 |
| CHBE 346 | 3 |
| CHBE 364 | 2 |
| CHBE 373 | 3 |
| CHBE 484 | 3 |
| CHBE 489 | 3 |
| CIVL 200 | 3 |
| CIVL 210 | 4 |
| CIVL 215 | 4 |
| Technical Elective ³ | 3 |
| Total Credits | 34 |

Fourth Year (taken at UBC)

| | |
|----------------------------------|----|
| APSC 450 | 2 |
| CHBE 351 | 3 |
| CHBE 459 | 3 |
| CHBE 485 | 3 |
| CIVL 315 | 4 |
| CIVL 316 | 4 |
| CIVL 408 | 3 |
| CIVL 416 | 3 |
| MMPE 391 | 3 |
| Design Elective ² | 3 |
| Technical Electives ³ | 6 |
| Total Credits | 37 |

Fifth Year (taken at UNBC)¹

| | |
|------------------------|----|
| ENVS 401 | 3 |
| ENSC 417 | 6 |
| ENVS 418 | 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.

See UNBC course descriptions at the UNBC website. (www.unbc.ca/calendar/course_desc.html)

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. 109.

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 and 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 ten 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 (C.E.A.B.) of the Canadian Council of Professional Engineers (www.ccppe.ca). Graduates of C.E.A.B.-accredited programs are accepted as being fully qualified academically for professional engineering registration 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).

Centre for Advanced Technology in Microfabrication

N. A. F. Jaeger (Electrical and Computer Engineering), Director

The Centre for Advanced Technology in Microfabrication was created to foster graduate student training and research in the design, fabrication, and theory of operation of electronic, opto-electronic, integrated-optic, and micromachined devices, in particular, silicon, compound semiconductor, and lithium niobate

based integrated circuits. A solid state micro-fabrication laboratory in the Department of Electrical and Computer Engineering in the core of the present program of the Centre.

Centre for Metallurgical Process Engineering

I. V. Samarasekera, Director

The Centre for Metallurgical Process Engineering has been established to facilitate and foster research and graduate training related to metals and materials processes. The Centre encompasses processes in both the ferrous and non-ferrous industries from raw materials preparation to metal finishing. Processes for the production of other materials such as ceramics, electronic materials and composites are receiving increasing attention. Emphasis is placed on interdisciplinary studies which reflect the complexity of overall process routes and individual unit operations. The Centre actively promotes closer links with the metals and materials industry together with the involvement and support by industry of programs within the Centre.

The Centre has a board of management comprising the Dean of Applied Science (chair), the Dean of Graduate Studies and the head of the Department of Metals and Materials Engineering.

A technical advisory council with representatives from industry, government and the university has been formed to make recommendations concerning research projects and graduate programs.

Academic Staff

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DEPARTMENT OF CIVIL ENGINEERING

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P.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.; **S. N. Rogak**, B.A.Sc. (Brit. Col.), M.S., Ph.D. (Cal. Tech.), P.Eng., Mem. S.A.E., Mem. A.W.M.A.; **D. P. Romilly**, B.A.Sc., Ph.D. (Wat.), P.Eng., Mem. S.E.M., Mem. A.S.M., Mem. S.A.E., Mem. R.E.S.N.A.

ASSISTANT PROFESSORS

W. K. Bushe, B.Sc. (Alta.), Ph.D. (Cantab.); **M. Davy**, B.ENG (Univ College, London), Ph.D., (Univ College, London); **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. (Brit. Col.), Ph.D. (M.I.T.-Harv.), Mem. A.S.M.E., Mem. I.E.E.E.; **O. Kesler**, B.S.E. (Univ of Penn), S.M (MIT), Sc.D. (MIT); **W. Merida**, B.Sc. (Trent), M.A.Sc. (Univ of Victoria), Ph.D., (Univ of Victoria); **C. F. Ollivier-Gooch**, B.A., B.S. (Rice), M.S., Ph.D. (Stan.), Mem. A.S.M.E., Mem. A.I.A.A.; **J. A. Olson**, B.A.Sc., Ph.D. (Brit. Col.), Mem. C.P.P.A., Mem. T.A.P.P.I.; **R. N. Rohling**, B.A.Sc. (Brit. Col.), M.Eng. (McG.), Ph.D. (Cantab.).

SENIOR INSTRUCTOR

D. W. McAdam, B.Sc. (Alta.), Ph.D. (Brit. Col.), P.Eng.

INSTRUCTORS

P. Cramond, B.A.Sc. (Brit. Col.), P.Eng; **J. Mikkelsen**, B.A.Sc., M.A.Sc. (Brit. Col.), P.Eng., Mem. S.N.A.M.E.

ADJUNCT PROFESSORS

D. Kiel, B.Sc., M.Sc. (Alta.), Ph.D. (Cantab.), P.Eng; **P. L. Ko**, Ph.D. (Brit. Col.), P.Eng., Mem. A.S.M.E.; **A. Koehler**, Ph.D. (Aachen), P.Eng; **D. Ouellet**, B.Eng., Ph.D. (Sher.), Mem. C.P.P.A., Mem. T.A.P.P.I.

DEPARTMENT OF METALS AND MATERIALS ENGINEERING

S. L. Cockcroft, Head

PROFESSOR EMERITUS

E. B. Hawbolt, B.A.Sc., M.A.Sc., Ph.D. (Brit. Col.), P.Eng; **T. R. Meadowcroft**, B.A.Sc. (Brit. Col.), D.I.C., Ph.D. (Lond.), P.Eng; **A. Mitchell**, B.A., M.A., D.Phil. (Oxon.), P.Eng., C.Eng.

PROFESSORS

D. B. Dreisinger, B.Sc., Ph.D. (Queen's), P.Eng., Industrial Research Chair in Hydrometallurgy; **A. Poursartip**, B.A., M.A., Ph.D. (Cantab.); **R. C. Reed**, B.A., Ph.D. (Cantab.); **I. V. Samarasekera**, B.Sc. (Sri Lanka), M.Sc. (Calif.), Ph.D. (Brit. Col.), P.Eng.; **T. Troczynski**, B.Sc., M.Sc. (Poland), Ph.D. (McM.), P.Eng; **D. Tromans**, B.Sc., Ph.D. (Leeds).

ASSOCIATE PROFESSORS

P. V. Barr, B.Sc., M.Sc. (New Br.), Ph.D. (Brit. Col.), P.Eng; **S. L. Cockcroft**, B.Sc., B.A.Sc., M.A.Sc., Ph.D. (Brit. Col.), P.Eng; **D. G. Dixon**, B.S., Ph.D. (Nevada); **M. Militzer**, Dip. Phys. (Dresden), Ph.D. (Acad. Sciences, GDR), Dofasco Chair; **W. J. Poole**, B.E.Sc., (W.Ont.), Ph.D. (McM), P.Eng; **R. Vaziri**, B.Sc. (Lond.), M.A.Sc., Ph.D. (Brit. Col.).

ASSISTANT PROFESSORS

A. Alfantazi, B.Eng. (Laur.), M.A.Sc., Ph.D. (Queen's), P.Eng; **G. Fernlund**, Civ. Ing., M.Sc. (Sweden), M.A.Sc., Ph.D. (Tor.); **D. M. Majjer**, B.A.Sc., Ph.D. (Brit. Col.), P.Eng; **C.W. Sinclair**, B.Eng., Ph.D. (McMaster); **R. Wang**, B.E. (Zhejiang), M.Sc., Ph.D. (Harbin Inst. of Technology, China); **M. A. Wells**, B.Eng. (McG.), Ph.D. (Brit. Col.).

ADJUNCT PROFESSORS

A. Akhtar, B.Sc., B.E. (India), Ph.D. (Brit. Col.); **J. A. Gonzalez Dominguez**, B.Sc., M.Sc. (Mexico), Ph.D. (Brit. Col.); **G. Oprea**, B.Sc., M.Sc., Ph.D.

(Romania); **G. G. Richards**, B.A.Sc., Ph.D. (Brit. Col.), P.Eng; **G. Van Weert**, B.Sc., M.Sc. (Netherlands), M.A.Sc. (Tor.), Ph.D. (Netherlands).

DEPARTMENT OF MINING ENGINEERING

M. J. Scoble, Head

PROFESSORS

J. S. Laskowski, B.Sc., M.Sc., Ph.D., D.Sc. (Silesian Univ. of Technology), M.C.I.M., M.A.I.M.E., M. Amer. Chem. Soc., Amer. Fine Particle Society; **J. A. Meech**, B.Eng. (McG.), M.Sc. (Eng.), Ph.D. (Queen's), P.Eng., F.C.I.M.; **M. J. Scoble**, A.C.S.M. (Camborne), M.Sc. (Leicester), 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. (Brit. Col.), M.Sc. (Tor.), Ph.D. (Stan.), P.Eng., M.C.I.M., M.S.M.E.; **R. C. Pakalnis**, B.Eng. (McG.), M.A.Sc., Ph.D. (Brit. Col.), P.Eng., M.C.I.M.

ASSISTANT PROFESSORS

R. A. Hall, B.Sc. (UNB), M.Sc., Ph.D. (Queen's), P.Eng., M.C.I.M., M.S.M.E., M.A.S.M.E.; **B. Klein**, B.A.Sc., Ph.D. (Brit. Col.), P.Eng., M.C.I.M., M.A.I.M.E.; **M. Morin**, B.Eng. (McMaster), M.Sc., Ph.D. (Queen's), P.Eng., M.C.I.M., M.S.M.E., M.C.L.R.A.; **M. Pawlik**, B.Sc. (Poland), Ph.D. (Brit. Col.), M.C.I.M.; **M. M. Veiga**, B.Sc. (Catholic Univ. of Rio de Janeiro), M.Sc. (Fluminense Federal), Ph.D. (Brit. Col.) P.Eng., M.C.I.M.

ADJUNCT PROFESSORS

T. Atkinson, D.Sc. (Nott.), D. Eng. (Witw.), Ph.D. (Lond.); **G.R. Balden**, B.Sc., M.Sc. (Queen's), Ph.D. (McGill), P.Eng., M.C.I.M.; **M. M. Ghomshai**, M.Sc. (Tehran), Ph.D./D.Eng. (France); **R.W. Lawrence**, B.Sc., Ph.D. (Queen's); **M.G. Lipsett**, B.Sc., Ph.D. (Queen's); **W. E. Stanley**, B.Sc. (Michigan Tech.), P.Eng.

DEAN'S OFFICE

CO-OPERATIVE EDUCATION PROGRAMS

J. Kagetsu, Director
N. Benda, Coordinator; **J. Copland**, Coordinator;
M. Lachmann, Coordinator; **J.W. Otto**, Coordinator;
S. Swallow, Coordinator.

TECHNICAL COMMUNICATION CENTRE

D.M. Shultz, B.A., M.A. (Brit. Col.), Sr. Instructor, Director
A. Berndt, B.A. (Brit. Col.), M.A. (Carleton), Instructor;
T. Teslenko, B.A., Ph.D. (Ukraine), Ph.D. (S.F.U.), Instructor.

3 The School of Architecture

A SCHOOL WITHIN THE FACULTY OF APPLIED SCIENCE

Director's Office
Christopher Macdonald, Director
402-6333 Memorial Road
Vancouver, BC V6T 1Z2
Tel: 604-822-2779
Fax: 604-822-3808

Architecture Website (www.architecture.ubc.ca)

The School of Architecture offers a graduate professional program of study leading to the Master of Architecture as well as a post-professional Master of Advanced Studies in Architecture (M.A.S.A.). The Bachelor of Environmental Design degree is offered jointly through the Faculty of Agricultural Sciences, through its Landscape Architecture Program and the Faculty of Applied Science, through its School of Architecture.

Architecture is one of several professions concerned with the human environment: the architect is educated to understand and participate in the design of the built environment. As an academic discipline, architecture relates the humanities, sciences, technology and the creative arts. The study of architecture demands a sound academic background and an ability in the realm of creative problem solving. It is essential therefore that all students entering the School of Architecture be academically mature and that they possess an imaginative outlook. The School selects students from a variety of disciplines on which to build architectural understanding and anticipate responsible professional competence.

Master of Architecture

The Master of Architecture (M. Arch.) program is a first-professional graduate program designed for those with an undergraduate degree who have an interest in becoming licensed professional architects. While an undergraduate degree in a field related to architecture may be advantageous, it is not a necessary prerequisite as the demonstration of interest and aptitude in the field occurs as part of the application process to the program. The Master of Architecture is a very intensive course that fulfils the educational requirements for architectural registration.

The Master of Architecture (M. Arch.) program is three and one-half years' duration; students studying on a part-time basis will need more than this time to fulfil degree requirements.

ACADEMIC ADVISING

Advising is available with faculty members assigned for each year level. Please refer to the current School handbook. Advisors for first-year students are available at the August Introductory Workshop.

ADMISSION

Students entering the Master of Architecture program should demonstrate interest and potential in the broad field of the creative arts and architecture. Prior instruction and experience in the arts, crafts, or other design oriented activities, with emphasis on visual communication in various media, is extremely valuable. Similarly the selection of university courses covering a broad range of studies in the arts, humanities and social sciences on the one hand, and the physical and applied sciences on the other, offers a desirable breadth and mix of academic experience. Irrespective of specific degree requirements within various faculties or universities, the School of Architecture considers it desirable that entering students have completed university-level course work in mathematics, physics, English literature and composition.

For prospective applicants seeking information and guidance in preparation for entry, a School Prospectus is available on request and at the School of Architecture website (www.architecture.ubc.ca).

Candidates for admission to the School of Architecture are generally required to hold a bachelor's degree or equivalent from a recognized college or university. In the final two years of the undergraduate degree program, candidates should have obtained upper Second Class standing or better in senior-level course work, i.e., upper half of the 'B' range for numerical scales, 76% or better in percentage scales, or 3.3 on most 4.0 point scales. Applicants must demonstrate aptitude for the study of architecture and creative potential. Applicants who do not meet the academic requirements but demonstrate advanced architectural achievement may be considered for admission.

Students entering the program with an undergraduate degree normally take a minimum of three and one-half years to complete the requirements. Students holding a pre-professional architecture degree (e.g., Bachelor of

Environmental Design, Bachelor of Environmental Science, or Bachelor of Arts with a Major in Architecture) may be given advanced standing and may in some cases be able to complete the degree in two and one-half years. As noted above, a Bachelor of Environmental Design Degree program, offered jointly by the Faculty of Agricultural Sciences, through its Landscape Architecture Program and the Faculty of Applied Science, through its School of Architecture, has commenced. The School's admissions committee will determine advanced standing on the basis of the applicant's undergraduate transcript and portfolio.

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 at the University of British Columbia along with a non-refundable fee. An online application can be made at the following address: www.grad.ubc.ca/app/
- Biographical statement. A brief summary (in résumé form) including work experience, travel or other relevant experience. A single page in prose form to flesh out or give depth to the résumé is also required.
- Statement of interest. A brief statement of the reasons for desiring to study architecture as well as reasons for selecting the UBC School of Architecture.
- 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 is provided in the Information for Prospective Applicants brochure issued by the School.
- Transcripts. Two official transcripts of all post-secondary study completed to date (up to and including December) should be forwarded directly from the originating institution (including UBC) If an applicant is currently completing a degree, an evaluation will be made on the transcripts to date. Any 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 sent directly to the School of Architecture by the referees.

Interest in the program far exceeds the School's resources and facilities, thus places are awarded on a competitive basis. The School reserves the right not to accept applicants for admission even though they may nominally meet the entrance requirements. All admissions must be approved by the Faculty of Graduate Studies.

All applicants to the School should note that a workshop course is mandatory for entering students. This workshop course is an integral part of the design program in first year. It is normally one week in duration and takes place late in August. Dates and other particulars concerning the workshop course are normally provided with the letter of acceptance. Students who are unable to attend the complete workshop course or who fail to remit the course fee by the prescribed time will have their admission cancelled. A workshop fee of CAD\$350 is payable within two weeks of the date of an applicant's acceptance of admission. One hundred fifty dollars (CAD\$150) of the fee is refundable until July 1. After this time, no refund is possible.

Students accepted for admission to the School who subsequently find that they are unable to attend must re-apply for admission at a later date.

READMISSION AND REINSTATEMENT

Any student who does not maintain continuous registration by keeping up with fee payments through all years until graduation is presumed to have withdrawn. Students may be reinstated or readmitted upon recommendation of the School and with the approval of the Dean of Graduate Studies. For regulations concerning readmission and reinstatement see *Withdrawal, Reinstatement and Readmission*, p. 216 under the Faculty of Graduate Studies, Academic Regulations.

ACADEMIC REGULATIONS

STANDING AND PROMOTION

A student must

- 1 obtain at least 60% in any course taken in the program for a student to be granted credit for the course. However, only fifteen credits of Pass-level standing (60-67%) may be counted towards the program; for all other courses credited to the program, at least 68% must be obtained; and
- 2 obtain at least 65% in ARCH 500 and at least 68% in ARCH 540 and 549;

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 Fall Term;

- 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.

Students who do not attain at least 68% in ARCH 540 must repeat the tutorial.

Failure to obtain credit for a total of three tutorials will require the student to withdraw from the School and the student will not be permitted to re-register in the program.

Students should be aware that, under Graduate Studies regulations, when repeating a failed course, a minimum mark of 74% must be obtained.

FOURTH TERM REVIEW

Faculty approval is required, based on a portfolio including work from ARCH 500, 501, 520 and 521 submitted on completion of ARCH 521, before a student may proceed to ARCH 540. If this approval is not given, the student will be required to re-register in ARCH 521. The criteria to be used in determining faculty approval will be: overall academic standing in design, design ability in a broad range of design topics and demonstration of a 'state of readiness' to proceed with the graduation project.

HONOURS STANDING

A student who has obtained an average of 80% or above in the final year and 75% or above during the two previous years with no subject below 60% will be recognized by the School to have attained Honours standing. This standing is not an official component of the University grading system.

PORTFOLIO

All students are required to keep a portfolio of their work in each tutorial for review by faculty members at the end of each term in which the tutorial is held. The portfolio must contain, at a minimum, all the presentation drawings from each project in a tutorial, but these may be 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 the tutorials or other dispute regarding the student's standing.

ADVANCED STANDING

As noted under *Admission*, p. 113, advanced standing is normally established at the time of admission. Beyond that and depending on previous experience and success in both graduate level studio and course work, in certain circumstances students may be granted advanced standing.

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.

EVALUATIONS AND APPEALS

In the event that a student disagrees with the evaluation for a particular course, the student should first consult the instructor of the course and then, if necessary, seek the advice of the chair of the Standings and Promotions Committee. If a re-read of a course examination is requested, the student should follow the normal University procedure.

In the event that a student disagrees with the evaluation in a design tutorial, a student should:

- 1 Consult the design tutor(s) involved, and then, if still not satisfied, formally request in writing to the Director that an appeal committee be established to hear the case. This request will only be granted if it occurs within ten days from the time the marks are available on the Student Information System. The appeal committee will consist of three of the full-time design tutors plus the Director, ex-officio, and will have the authority to interview all persons involved and to recommend to the Director that the grade be affirmed or changed. The decision of the Director shall be final with respect to the academic aspect of the appeal. Any change of grade must be approved by the Dean of the Faculty of Graduate Studies.
- 2 If the student is not satisfied with respect to procedure or feels unjustly dealt with, the student can appeal further through the Registrar to the Senate Committee on Appeals on Academic Standing. For details, see *Senate Appeals on Academic Standing*, p. 36.

PRACTICAL EXPERIENCE

In the summer months students are encouraged to gain practical experience in areas closely related to their interests in the School. Travelling is encouraged, or work in an architect's, engineer's, landscape architect's or planner's office. Alternatively, research is suggested at a university or with a public or private organization. Experience in the field of construction is also recommended. The School will advise the student whenever possible.

DEGREE REQUIREMENTS

Instruction in the School is offered through several types of courses:

- The Introductory Workshop, mandatory for all new students entering the program, for a period of approximately one week prior to Labour Day; involves the study of selected environments in the form of an extended field trip.
- Lecture courses and seminars
- Design tutorials based on individual instruction using the project method. The student develops designs and communicates ideas through drawing for projects which may be hypothetical, or proposals for actual projects and sites. 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 in three and one-half years, an incoming student must complete satisfactorily a minimum of 119 credits of course work selected on the basis of the following program of study:

- Workshop Courses—ARCH 502
- Lecture/Seminar Courses—ARCH 503, 504¹, 505¹, 511¹, 512¹, 513¹, 515, 531, 532, 533, 541, 543, and one of² 523, 538³, 561
- Design Courses—ARCH 500, 501, 520, 521, 540
- Twenty-one credits of electives which may be selected from—ARCH 517, 522, 523, 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. ARCH 504 and 511 are taken concurrently with ARCH 500 design tutorial.

² Other history/theory offerings may be available for credit. A published list will be available from the School.

³ Winter Session study abroad.

Students holding a pre-professional architecture degree, as noted in the Admissions section above, 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 the School of 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 Promotions Committee.

See *Chapter XII: Courses* for course descriptions. More detailed course information is contained in the student handbook, which is available from the School.

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 one of the nine-credit tutorial courses in ARCH 520, 521 or 540, so as to make up a full term's work abroad.

CO-OPERATIVE EDUCATION PROGRAM

The added co-operative component to the Architecture program provides motivated, qualified students in the Master of Architecture with paid employment experience directly relevant to their academic program under the supervision of practicing professionals.

Adding one year to complete the Master of Architecture degree, the program is an optional program of two consecutive terms; placement begins in either January or May. The co-operative experience must be followed by a full year of academic study.

Students who wish to be considered for the program must meet all requirements of the School of Architecture and will be selected on the basis of academic performance, written and oral communication skills, and general suitability for the work environment as judged by the Architecture Co-operative Education Office. Students intending to enter this program may apply in their second term. Specific deadlines are available at the Architecture office.

Faculty advisors or co-ordinators visit students at their places of work and provide advice on the work term reports that are a requirement of the program.

Total enrolment is subject to the work placements and faculty advisors. Acceptance into the program does not guarantee appropriate work placements in every work term. Students participating in the program will register in ARCH 555 and ARCH 556 and pay for both the usual graduate fees and the Co-operative Education course fees (See *Special Fees*, p. 49) for each work term once a suitable position is confirmed. In order to graduate in a Co-operative Education Program in Architecture, a student must complete 6 co-op credits included in the normal academic requirements of the Master of Architecture program.

EXPENSES

Apart from the cost of living and tuition, certain additional expenses must be anticipated to cover books, equipment, Introductory Workshop (ARCH 502), the computer lab and the materials shop.

Students electing to participate in a Study Abroad Program must be prepared to meet further expenses.

GRADUATION PROJECT

Special requirements and conditions apply to the graduation project, which includes both ARCH 548 and ARCH 549.

PART 1 (ARCH 548): RESEARCH, PREPARATION AND DEFINITION OF THE GRADUATION PROJECT

In order to enrol in ARCH 548, a student must have successfully completed all the requirements for second year. Each student undertaking ARCH 548 must attain agreement from a member of available faculty (a published list will be available from the School) to act as a mentor for the project. The mentor must approve the topic and agree on the approach. A statement of intent, approved by the mentor, must be submitted by the end of the first week of term. A proposal for a specific project, approved by the mentor,

must be submitted by the end of the seventh week of term. The ARCH 548 report is due on the last day of course work for the term.

The ARCH 548 report must be completed in one term and a grade assigned prior to the marks meeting of that term. Should the work be incomplete a fail grade will automatically be assigned. The student may then re-register for ARCH 548 in the following term.

If the ARCH 548 report is not graded with a satisfactory standing at the end of the term in which it was started, the student may not proceed with ARCH 549 in the following term.

PART 2 (ARCH 549): DESIGN AND PRESENTATION OF THE GRADUATION PROJECT

No student will be permitted to proceed with ARCH 549 until the student has passed ARCH 548 and reduced any outstanding course requirements to a maximum of 18 credits.

Each student enrolled in ARCH 549 shall work under the supervision of a committee, the chair of which will normally be the mentor from ARCH 548, or a member of the full-time design faculty chosen from the published list. The student, with the approval of the chair, will select two additional members for the committee who may be from the School's faculty or the community at large. Under the direction of the chair, the student will call a minimum of four meetings of the committee at appropriate stages of the project to review progress. At the first meeting of the committee, the terms of reference for the project and the expectations of the committee will be defined. At the term-end meeting, to be held by the specified date near the end of term, the committee will determine whether the project is substantially complete, and is to be prepared for public presentation.

At the term-end meeting the following conditions apply: students whose work is judged to be substantially complete and of acceptable quality will be required to make a public presentation of their work at the final review on a date scheduled by the School. Should the committee decide that the project is not substantially complete, it will assign a fail grade. In extraordinary circumstances the committee may recommend that the student work on the project for one additional term.

At the final review, the grade for ARCH 549 will be established by the committee in consultation with the assigned group of faculty and guest critics, immediately following the public presentation. In order to obtain credit for the course, the student must attain a mark of not less than 68%.

The Graduation Project represents the final requirement for the Master of Architecture degree and is required to be submitted to the Director's Office. The graduation project consists of the ARCH 548 report and a representation of the ARCH 549 design thesis. The project must conform to the specifications set forth by the School.

If a fail grade or no credit is assigned for ARCH 549, the student will be required to withdraw from the School for a minimum period of twelve months. The student may then re-register for ARCH 549 and begin again with a new

topic, mentor and committee. It will be necessary for the student to undertake preparatory work acceptable to the new committee chair without credit, prior to re-registering.

Failure to attain the necessary requirements after repeating ARCH 549 will require the student to withdraw from the School, and the student will not be permitted to re-register in the program.

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. 213 under Classification of Student in the section Faculty of Graduate Studies.

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 designed for those who have a professional degree in architecture or a related field and have some experience in the field. It is an intensive course culminating in a thesis for those who wish to expand their knowledge in a particular area. The degree can be completed in sixteen months. Two terms of full-time residency are required. This is a research degree and as such 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 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. Areas of study are History and Theory, Building Technology, Advanced Design Research and Digital Media, Impact of Buildings on Energy and Resource Use, and Housing and Urban Design. Information on research interests of the faculty is available at the School of Architecture Website (www.architecture.ubc.ca).

Information for prospective M.A.S.A. applicants is available in the School's Prospectus on request and at the School of Architecture website (www.architecture.ubc.ca). Students are selected on a competitive basis dependant 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 15th. **Note: Only applications received prior to January 15th will be considered for University Graduate Fellowships.**

- Application form and fee. An online appli-

cation can be made at the following address: www.grad.ubc.ca/app/.

- Transcripts. Two official transcripts of all post-secondary study should be forwarded directly from the originating institution. The admission requirements of the Faculty of Graduate Studies (www.grad.ubc.ca) must be fulfilled prior to being considered by the School of Architecture.
- 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 sent directly to the School of Architecture by the referee.
- 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 résumé form including education, work experience, travel and other relevant experience. Prose form can be used to elaborate on key areas of the résumé.
- 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

The student should consult the Faculty of Graduate Studies for University policies (www.grad.ubc.ca).

DEGREE REQUIREMENTS

Students must complete a minimum of 30 credits including the following:

COURSE WORK

- ARCH 568 (3 credits) Research Methods in Architecture. This course is to be taken in the Fall Term 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.

Professional Association

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. The Reciprocity Agreement of Canadian Architectural Licensing Associations, signed by all ten provinces, allows properly qualified architects to move easily from one Canadian province to another to practice their profession. Properly qualified architects can also move easily between jurisdictions in Canada and the United States that have signed the Inter-Recognition Agreement Between the National Council of Architectural Registration Boards (NCARB) and the Committee of Canadian Architectural Councils (CCAC). As of January 30, 2003, all 10 provinces in Canada and all 50 states in the United States as well as the District of Columbia and the Northern Mariana Islands [dependant area] have signed the agreement.

General requirements for architectural registration include graduation from an accredited professional program, a minimum of three years of approved work experience, and completion of the NCARB Architectural Registration Examination. Additional requirements may include professional development courses and an oral exam. These requirements vary from province to province and applicants should obtain the details from the appropriate provincial association.

In British Columbia, students are encouraged to make contact with the profession by applying for admission to the Architectural Institute of British Columbia (AIBC) as a Student Associate. Interested students should contact the offices of the AIBC at 100-440 Cambie St., Vancouver, BC, V6B 2N5; telephone 604-683-8588.

Bachelor of Environmental Design

The Bachelor of Environmental Design (ENDS) Program is a 4 year, non-professional degree offered jointly by the Landscape Architecture Program in the Faculty of Agricultural Sciences and the School of 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, or for those who wish to have a greater understanding of the role of design in the broad environmental decision-making processes of society.

The first and second years of the program focus on giving the student a general academic background in the Arts and Sciences. 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 in the second year. 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 are encouraged, where appropriate to their program of study, to complete the UBC equivalent of 6 credits of first year English, and GEOG 101 (6) in their first year studies.

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. Students seeking transfer from other universities and colleges may be granted advanced credit for parallel courses in the first two years of the ENDS Program where standings obtained are above minimum passing grade at those institutions.

For detailed Program and Admission information, interested students are encouraged to contact the ENDS Program Office directly at ends@interchange.ubc.ca or telephone 604- 822-6916. Information regarding the ENDS Program is available at www.ends.arch.ubc.ca and www.ends.agsci.ubc.ca.

DEGREE REQUIREMENTS

Second Year¹

| | |
|------------------------|----|
| AGSI 250 | 6 |
| ENDS 211 | 3 |
| LARC 421 | 3 |
| Electives ² | 18 |
| Total Credits | 30 |

Third Year

| | |
|---------------|----|
| ARCH 404 | 3 |
| ARCH 405 | 3 |
| ENDS 301 | 6 |
| ENDS 302 | 6 |
| ENDS 320 | 3 |
| ENDS 420 | 3 |
| LARC 422 | 3 |
| LARC 440 | 3 |
| Total Credits | 30 |

Fourth Year

| | |
|------------------------------------|-----|
| ARCH 403 | 3 |
| ARCH 437 | 3 |
| ENDS 401 | 6 |
| ENDS 402 and ARCH 411 ³ | 6+3 |
| ENDS 403 and LARC 431 ⁴ | 6+3 |
| ENDS 410 | 3 |
| ENDS 440 | 3 |
| PLAN 425 | 3 |

Fourth Year (Continued)

| | |
|----------------------------|-----|
| Total Credits | 30 |
| Minimum Credits for Degree | 120 |

- Students are encouraged to complete the UBC equivalent of ENGL 110 (3), ENGL 112 (3), and GEOG 101 (6) in their first year studies. Those who have not completed these courses will be required to do so in the second year of the ENDS Program as part of their elective requirements.**
- Selected from a list of Program recommendations upon consultation with a Faculty Advisor.**
- Students declaring a 'Pre-Architecture' option.**
- Students declaring a 'Pre-Landscape/Planning' option.**

Academic Staff

PROFESSORS

Raymond J. Cole, B.Sc. (Civ.Eng.) (City University, London), Ph.D. (Wales), M.A.I.B.C. (Honorary); **Patricia Patkau**, B.I.D. (Manit.), M.Arch. (Yale), M.A.I.B.C., F.R.A.I.C., F.A.I.A., R.C.A.; **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. Techn.) (Harv.), M.A.I.B.C., N.C.A.R.B.; **Patrick Condon**, B.Sc., M.L.A. (Mass.), A.S.L.A.; **Christopher Macdonald**, B.E.S. (Man.), A.A. Dipl. (Hons.) (Architectural Association, UK), M.R.A.I.C., ARB.; **Sherry McKay**, B.A., M.A., Ph.D. (Brit. Col.); **George S. Wagner**, B.A. (Bard College, NY), M.Arch. (Wash.); **Ronald B. Walkey**, B.Arch. (Brit. Col.), M.Arch. (Calif., Berkeley), M.R.A.I.C.; **Deborah E. B. Weiner**, B.A. (Calif., Berkeley), M.A. (Calif., Los Angeles), M.A., Ph.D. (Princ.).

ASSISTANT PROFESSORS

John W. Bass, B.F.A., B.Arch. (Rhode Island School of Design); **Oliver Lang**, Dipl. Ing. Arch. (Berlin), M.S.A.A.D. (Col.), AK-NW; **Inge Roecker**, B.E.S., M.Arch. (Man.), AK-BW; **Joel Shack**, B.Arch. (Tor.), M.O.A.A.

ADJUNCT PROFESSORS (2002/03)

Ron Davis, B.A. Sc. (Brit. Col.), P. Eng; **Dejan Radoicic**, Dipl. Ing. (Univ. of Belgrade), P. Eng; **Geoff White**, A. Sc. T.

SENIOR INSTRUCTOR

Stephen I. Taylor, B.A.Sc. (Brit. Col.), M.S. (Cal.Tech.), P.Eng., A.P.E.G.B.C., M.A.I.B.C. (Honorary).

SESSIONAL LECTURERS (2002/03)

Greg Johnston, B.Ap.Sc. (Mechanical Eng.) (Brit. Col.), B.Arch. (Montreal), MAIBC, MRAIC, APEGBC; **Daniel Millette**, B.A. (hons.) (Univ Ottawa), M.A., M.A.S.A., Ph.D. (Brit. Col.); **Zwanette Pereboom**, B.Sc., M.Arch., LL.B. (Brit. Col.), M.A.I.B.C.; **Dan Sundvick**, B.A.Sc. (Brit. Col.), P.Eng., A.P.E.G.B.C.

VISITING SCHOLAR (2002/03)

Linda Lee, B.A. (Bowdoin College), M.Arch. (Univ Michigan).

LECTURERS IN PRACTICE (2002/03)

Martin Lewis, B. Arch. (Tor.), MRAIC; **William Pechet**, B.A., B.F.A. (Vic. B.C.), B. Arch. (Brit. Col.).

SESSIONAL LECTURERS (2001/02)

Ken Cavalier, B.A. (Brit. Col.), Ph.D. (Northwestern); **Mathew Cohen**, B.A. (Vermont), M.A. (Syracuse), M. Arch. (Harv.), R.A. (Wash.); **Zwanette Pereboom**,

B.Sc., M.Arch., LL.B. (Brit. Col.), M.A.I.B.C.; **Ali Shakarchi**, B.Sc. Arch. (Baghdad), MASA (Brit. Col.); **Dan Sundvick**, B.A.Sc. (Brit. Col.), P.Eng., A.P.E.G.B.C.

ADJUNCT PROFESSORS (2001/02)

Ron Davis, B.A.Sc. (Brit. Col.), P.Eng; **Greg Johnston**, B.Ap.Sc. (Mechanical Eng.) (Brit. Col.), B.Arch. (Montreal), MAIBC, MRAIC, APEGBC; **Dejan Radoicic**, Dipl. Ing. (Belgrade), P.Eng; **Geoff White**, A.Sc.T.

2003-04

4 The Faculty of Arts

Dean's Office

Nancy Gallini, Dean

J. Evan Kreider, Associate Dean

Margery Fee, Associate Dean

Douglas Pulleyblank, Associate Dean

W. Peter Ward, Associate Dean

John Cooper, Assistant Dean, Arts Academic Advising

Anne-Marie Fenger, Assistant Dean

Wendy Trigg, Director of Arts Academic Advising

B130-1866 Main Mall

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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, Bachelor of Social Work. The Faculty also offers Diplomas in Applied Creative Non fiction, Applied Linguistics, Art History, Film Studies, French Translation and the Certificate in Theatre Design and Technology. For information on the Bachelor of Music see *The School of Music*, p. 321. The Bachelor of Social Work is described in *The School of Social Work and Family Studies*, p. 403.

For information about the Master of Arts, Master of Fine Arts, Master of Music, Master of Social Work, Doctor of Philosophy, and Doctor of Musical Arts, see *The Faculty of Graduate Studies*, p. 209. The Master of Journalism is described in *The School of Journalism*, p. 279. Programs leading to the Master of Archival Studies and the Master of Library and Information Studies are described in *The School of Library, Archival and Information Studies*, p. 287.

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 as listed above.
- Interdisciplinary programs in Asian Area Studies, Canadian Studies, Critical Studies in Sexuality, B.A. Program in 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 Office and through departmental and Interdisciplinary Studies Advisors.

The staff of the Academic Advising Office 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 Office. See *Program Planning*, p. 119 below and *Program Requirements*, p. 123.

The Academic Advising Office, located in Room A201 of the Buchanan Building, is open throughout the year, Monday to Friday, from 9:30 am to 4:00 pm.

Daily and weekly appointments are available to students who wish to speak with advisors in the Academic Advising Office. To schedule an appointment with an advising officer or the

Assistant Dean, 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 Office 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 the Academic Advising Office. Likewise, students wishing to register for more than 30 credits in any Winter Session must obtain permission to do so from the Academic Advising Office, 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 *Undergraduate Admission*, p. 21. 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 the Academic Advising Office. (See *Academic Concession*, p. 120 in this section below and *Academic Concession*, p. 35 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, 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 (students.ubc.ca/ssc). After these dates, students are not normally permitted to withdraw from courses but can apply for *Academic Concession*, p. 120 (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. 34 and *Withdrawal*, p. 35).

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. 33). 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 the Academic Advising Office, 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. 34), Aegrotat Standing, Deferred Standing, and withdrawal from the University.

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 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.

Deferred Standing may be granted when a student has a valid reason for not completing course requirements as scheduled, but does not qualify for Aegrotat Standing. 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. 35 and *Grading Practices*, p. 33 in the chapter "Academic Regulations" of this Calendar.)

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 3 credits deferred from the Winter session until August, that student should not enrol in more than 9 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. 27 and in *Faculty Requirements*, p. 121.

Students who are accepted on transfer from other post-secondary institutions must either have met the English requirement (see *Faculty Requirements*, p. 121) or be eligible to enrol in first-year English (see note 1, *English Requirement*, p. 122) 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 the Academic Advising Office.

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. 31.)

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. 120.

SCHOLARSHIPS AND AWARDS

Information on scholarships and awards available to academically outstanding students can be found at the Office of Student Financial

Assistance and Awards website (students.ubc.ca/finance/awards).

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 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 six-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. 121 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 re-admission after one full year, but no student required to withdraw has a right to re-admission.

Students required to withdraw before completing 54 or fewer Arts-eligible credits can qualify for re-admission 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 re-admission will be adjudicated by the Arts Admissions Committee. In considering an application for re-admission, the Arts Admissions Committee will take into account any and all evidence of a student's ability to perform satisfactorily at the university level.

FACULTY 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 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 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 the Academic Advising Office, 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-DET courses).

Students are not permitted to register in more than 4 Science courses, a maximum of 16 credits (6 courses including Mathematics and Computer Science for a further 7 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
- 4 The Faculty of Arts literature requirement

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 | |
| | | | No | ACPR | Eligible to continue | |
| | Yes | Fail | Required to withdraw | | | |
| Fewer than 12 | 45% to 54.9% | N.A. | N.A. | Fail | Required to withdraw | |
| | | | Yes | Fail | Required to withdraw | |
| | less than 45% | N.A. | N.A. | Pass | Eligible to continue | |
| | | | No | ACPR | Eligible to continue | |
| | 45% to 54.9% | 55% or more | less than 55% | N.A. | Pass | Eligible to continue |
| | | | | Yes | Fail | Required to withdraw |
| less than 45% | N.A. | No | Fail | Eligible to continue | | |
| | | | Yes | Fail | Required to withdraw | |

Each 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*, p. 22.
- 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 six 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.

LANGUAGE REQUIREMENT

In order to fulfil the language requirement, students must either:

- 1 have successfully completed a Grade 12 course in an approved language other than English while in high school, or
- 2 write an examination, if they have knowledge of an approved language, but no High 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 110, German 210, Greek 200, Hebrew 405, Indonesian 200, Italian 200 or 201, Japanese 103 or 151, Korean 200, Latin 200, Polish 210, Portuguese 202, Punjabi 200, Russian 200, Sanskrit 200, SCAN 402 (Swedish), Spanish 105 or 200, Ukrainian 225.

Students who can document their ability to use American Sign Language (ASL) will be considered as having fulfilled the Faculty of Arts Language requirement.

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 Advising Office. 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 Office. 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 six credits in the Faculty of Science, or
- 2 GEOG 101, or GEOG 102 and three additional credits in a Faculty of Science course, or GEOG 103 and three additional credits in a Faculty of Science course, or GEOG 102 and GEOG 103, or
- 3 FRST 300.

COGS 200 and COGS 400 and PSYC Science courses (those with a 60 or higher in the last two digits) may not be used to satisfy the 6 Science credits required for a BA degree.

Science courses that include laboratory work are recommended. Students may, however, choose to meet the science requirement through successful completion of six credits from the following list of courses: ANSC 316; 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.

LITERATURE REQUIREMENT

Students must successfully complete six 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 | 400 |
| Asian Studies | 308, 341, 342, 347-352, 357-360, 364, 368, 398, 444, 460, 464 |
| Central, Eastern, and Northern European Studies | 202 |
| Chinese | all 300- and 400-level literature courses except 300-302 |
| Classical Studies | 310, 313, 314, 317, 318, 336, 337 |
| Drama | 200, 201, 300 |
| English | all 200-, 300- and 400-level literature courses, except 229, 301-340, 352, 399, 408, 409, 412, 419 |
| French | 220, 300, 320, 321, 330, 400, 403, and all 400-level literature courses except 402, 426, 427, 499 |
| German | 301, 302, all 300- and 400-level literature courses |
| Greek | all 300- and 400-level literature courses except 302 |
| Hindi-Urdu | 400 |
| Italian | all Italian 300- and 400-level literature courses except 449 |
| Italian Studies | 310, 431 |
| Japanese | all 300- and 400-level courses |
| Korean | 410 |

| Subject (Cont.) | Course Requirement |
|--|--|
| Latin | all 300- and 400-level literature courses |
| Philosophy | 375 |
| Religion, Literature and the Arts (RGLA) | 371, 372, 471 |
| Religious studies | 311 |
| Russian | 206, 207, 305, 306, 407-412 |
| Sanskrit | 300 ² |
| Scandinavian | 411-414 |
| Slavic Studies | 307 |
| South Asian Languages | 440 |
| Spanish | 220, 312; all 300- and 400-level literature courses except 449 |
| Theatre | 245 |
| Women's Studies | 224 |

- 1 Pre-requisites for these 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-(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 200-299 in the subjects in which they have received such credit/placement.

Students accepted into Creative Writing 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 six 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 the history, theory and composition of music and a maximum of eight credits from the ensemble courses in musical performance;
- all courses designated Family Studies (FMST);
- eighteen 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 8 credits). For further information on enrolment in graduate courses, see *Enrolment in Graduate Courses*, p. 125 below.

After completing at least 54 credits and no more than 75 credits, students must enter one of the following programs. Depending on the program chosen they must make application to do so, or identify their program using the Student Service Centre (students.ubc.ca/ssc) see 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.

- **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. 130.

- **The Honours or Major program** can be combined with a Minor.

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. 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 Courses, 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.

MINOR PROGRAM

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 specializa-

tion 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 need to apply to the Faculty of Arts Academic Advising Office no later than February 1 for graduation in May and no later than August 15 for graduation in the Fall, to have their Minor in Arts recognized.

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 Academic Advising Office 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 may do so by taking a Minor in this area as part of their BA 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 pre-requisites for their majors in these 12 credits without permission. Students must ensure that they have pre-requisites 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 the Faculty of Arts Advising Office 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.

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 the Academic Advising Office, 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.

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.

SUMMARY OF PROGRAM REQUIREMENTS

| | 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 |

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, humanities-based program focused on a specific theme of basic human concern. 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 Faculty requirements listed above 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 faculty members to students, comes through weekly lectures, twice weekly seminars of 20 students, and weekly tutorials of 4 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 and departmental requirements for first-year History and Philosophy.

On successful completion of Arts One and additional courses equivalent to twelve 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.

Information about Arts One (www.arts.ubc.ca/arts1) can be obtained from the Arts One Program Assistant (artstone@interchange.ubc.ca), telephone 604-822-3430. Arts One faculty members will be available during the summer

for students wishing to discuss the program. Registration for Arts One is accomplished in the same way as registration in other courses in the Faculty of Arts.

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, eight-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 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. For details consult the Foundations Program website (foundations.arts.ubc.ca). Completion of 16 Foundations credits satisfies the first-year English requirement in Arts. Second-year standing is obtained upon completion of the 24 Foundation credits and six 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.

CO-OPERATIVE EDUCATION PROGRAM

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 *Special Fees*, p. 49.

Each successfully completed Co-operative Education course is assigned three 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 twelve 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 reports 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 six Arts Co-op course credits.

For further information on the program, please contact the Arts Co-operative Education Office, Buchanan C369, or visit the Arts Co-op website (www.arts.ubc.ca/co-op).

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 Applied Science 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. Where possible, students should meet with an advisor from the Board of Studies prior to enrolling in their first year of courses.

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. 219 in the Graduate Studies section. See also *Museum Studies*, p. 146. The department also collaborates with Archaeology, Canadian 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, 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; three 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 three 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.

Group B

1 Six credits from the following ethnographic area courses: ANTH 302-304, 315, 350-353, 401-403, 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 three 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 three 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 Six credits from the following ethnographic area courses: ANTH 302-304, 315, 350-353, 401-403, 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 three credits from Group A and at least three 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. 126).

Group B

Any courses in the ethnographic areas list (see third- and fourth-year requirements under *Major in Anthropology*, p. 126.)

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 Courses (students.ubc.ca/calendar/courses.cfm) under “Anthropology” 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.

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 Courses (students.ubc.ca/calendar/courses.cfm) and *Courses Which are Ancillary to Archaeology*, p. 127.

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 building offers extensive archaeological facilities and houses collections from various parts of the world.

Classical archaeology 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 which depend to a greater or lesser extent on material deriving from archaeological work; these courses are concerned with archaeological interpretations and, as such, they may be of great value to students specialising 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 which concentrates on material culture in the period of written records, with an emphasis on North America.

Courses in biology, botany, and zoology which 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, 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 WHICH ARE ANCILLARY TO ARCHAEOLOGY

ANTH 140, 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, 422

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.

ART HISTORY, VISUAL ART, AND THEORY

The Department of Art History, Visual Art, and Theory 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 purposes of general education or for professional activity in the fields of art, and the available programs reflect both the areas of focus and the depth of concern.

In Art History, the Department offers the degrees of Bachelor of Arts (Major and Honours), Master of Arts and Doctor of Philosophy. 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 in the discipline. See *Diploma in Art History*, p. 155.

The Bachelor of Fine Arts and Master of Fine Arts are offered in Visual Art. See *Bachelor of Fine Arts*, p. 152.

The Bachelor of Arts in Visual Arts is available for those intending to pursue a post graduate program in secondary education, but is also often taken by those with other career goals. Brochures which introduce art history and studio goals, programs, and courses are available from the Department.

For information on graduate programs, see *Fine Arts*, p. 221 in the Graduate Studies section.

Formerly Fine Arts (FINA), courses are now listed under ARTH and VISA.

MAJOR IN ART HISTORY

FIRST AND SECOND YEARS

Students must take any 12 credits in Art History, of which at least six credits must be in art history.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- ARTH 300 (3)
- 18 credits of Art History courses numbered 300 or above in one of the following three areas¹: Western art and architecture, indigenous art of the Americas, or Asian art.

- six credits in Fine Arts courses numbered 300 or above in indigenous art of the Americas or Asian art courses for students in Western art, or six credits in Western art for students in indigenous art of the Americas or Asian art.
- three credits in a 400-level art history seminar.

No more than six credits of cross-listed courses offered by other departments, excepting ARTH 329, may be counted toward the minimum requirements for the Major.

1 See the departmental Art History brochure and consult an advisor for courses in these areas.

HONOURS IN ART HISTORY

FIRST AND SECOND YEARS

Students must take any 12 credits in ARTH or VISA, of which six must be in art history and in which first or second class standing must be obtained.

THIRD AND FOURTH YEARS

Same requirements as for the Major, except that 12 credits in art history numbered 300 or above and ARTH 499 are required in addition, for a total of 48 credits of Art History courses in the third and fourth years.

A reading knowledge of at least one language other than English, appropriate to the field of study, is recommended.

MAJOR IN VISUAL ART

This program is intended for, but not limited to, students contemplating a post B.A. professional program in education.

FIRST YEAR

Requirements of the first year Bachelor of Arts program, including ARTH 181 with a grade of at least 68%. Students must also complete six credits of art history (with a grade of at least 68%) in the first two years prior to entering the B. A. in Visual Arts program in third year.

SECOND YEAR

Twelve credits from ARTH 281 to 290.

THIRD AND FOURTH YEARS

Admission to the Major requires an average of at least 68% in four second year studio art courses.

Students must take a minimum of 30 credits in courses numbered 300 and above, including at least 12 credits in art history and 18 credits in Visual Art courses.

A maximum of 12 credits in Art Education (ARTE 303, 305) courses may be substituted for studio art course requirements. Students are not permitted to take ARTE 400 level courses as part of the Bachelor of Arts in Studio Arts requirements. Potential education students are also advised to choose 18 credits of electives in a single non VISA discipline (any prerequisites should be taken in the second year), which should be chosen in anticipation of a second teaching area.

Students from community colleges intending to enter the Visual Arts program should normally apply to the University at the end of their first year. However, transfer students may be accepted into the B.A. in Visual Arts in third

year, subject to the submission of transcripts showing the completion of courses equivalent to 12 credits from VISA 281 to 290 with an average grade of at least 68%, an assessment of a portfolio of works and, if possible, an interview. Arrangements for this should be made with the Department by March 31. In all cases, admission will depend upon the spaces available and is at the discretion of the Faculty. Admission to the University of British Columbia is dependent upon the student's meeting the entrance requirements of the University.

MINOR IN VISUAL ARTS

Admission to the Visual Arts minor program requires an average of at least 68% in the second-year studio art courses. Course Selection Outline:

- VISA 181, 6 credits
- ARTH 100 or 200 level, 6 credits (or alternate 6 credits by permission of the Department)
- VISA 281-290, a minimum of 6 credits
- ARTH 300 level and above, 6 credits
- VISA 300 level and above, 12 credits

Students are well advised to plan their programs carefully as senior studio courses have restrictive prerequisites.

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.

- 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.

Description of these courses can be found under Arts Studies (ASTU) in Courses (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. 222 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, which 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, which 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 are open to all students in the Faculty of Arts. Courses in category 2 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.

The Department offers Honours and Major programs in Chinese, Japanese, and South Asian Languages, and, in co-operation with other departments, a Major program in Asian Area Studies which requires less language study.

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

Students who intend to do graduate work specializing in the Asian field are encouraged to take at least 18 credits in a single discipline (e.g., history, political science, geography, anthropology).

Students interested in Asian Area Studies should also note ASTU 201 and 202, two courses in the UBC-Ritsumeikan Joint Program. See *Arts Studies*, p. 128.

FIRST AND SECOND YEARS

Students anticipating a Major in Asian Area Studies must complete the following 24 credits of prerequisites:

- 1 ASIA 100 and 101;
- 2 two of the three courses ASIA 200, 208 and 209; and
- 3 twelve credits of instruction in one of the languages of the area (Chinese, Hindi-Urdu,

Indonesian, Japanese, Korean, Punjabi, Sanskrit).

While students are urged to take the 12 credits of language during the first two years, upper-year credit will still be given if they take it later; that is, Asian Area Studies Majors may take 100- and 200-level Asian language courses as part of their required 48 credits of upper-level Arts courses.

Students having no prior background in the language must take one of the following sequences:

- CHIN 100,101,110, and 111; or CHIN 102 and 112.
- HIND 102 and 200
- INDO 102 and 200
- JAPN 100 and 101, or JAPN 102 and 180, or JAPN 280(002) and either 200 or 201, or JAPN 180
- KORN 102 and 200 or 104
- PUNJ 102 and 200
- SANS 102 and 200.

Students having prior background in an Asian language may be required to take 12 credits of upper-level work in the language.

First- and second-year students are also encouraged to take other relevant 100- and 200-level courses such as: ANTH 100; ECON 100; FINA 251; HIST 125, 270; RELG 204.

THIRD AND FOURTH YEARS

The Major in Asian Area Studies requires 30 credits of upper-level courses in the third and fourth years. These should include at least 18 credits of courses offered in the Department of Asian Studies (Asian Studies, Chinese, Japanese, etc.). Chinese and Japanese courses numbered 200 and above may also be counted for this Major, if they are taken in the third and fourth years.

Up to 12 credits of the 30 may consist of approved courses outside the Department. Courses having a primary focus on Asia are likely to be approved; consult an advisor in the Department of Asian Studies.

MINOR IN ASIAN AREA STUDIES

The Minor in Asian Area Studies requires

- at least 12 credits of an Asian language (Chinese, Hindi, Indonesian, Japanese, Korean, Punjabi, Sanskrit) at the appropriate level;
- ASIA 100 and 101; and
- at least 18 credits from senior courses (300 or 400 level) taught in the Department of Asian Studies.

MAJOR IN CHINESE

FIRST AND SECOND YEARS

Students must take

- CHIN 100, 101,110 and 111; or CHIN 102 and 112; (b) either CHIN 200 and 201; or CHIN 202; (c) either CHIN 210 and 211; or CHIN 212; or CHIN 330 and 331; or CHIN 332.
- CHIN 180 is equivalent to CHIN 100-101 and 280 to 200-201.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- 18 to 24 credits in courses in Chinese numbered 300 or above, which must include (a) either CHIN 300 and 301; or CHIN 320 and 321; or CHIN 322; (b) either CHIN 330 and 331; or CHIN 332 (if not already taken in the first two years), and a 400-level course;
- ASIA 350; and
- 3 to 9 credits in Asian Studies courses on China numbered 300 or above.

MINOR IN CHINESE

Students must complete

- ASIA 100 and 101;
- 12 credits from CHIN 100, 101, 102, 110, 111, 112, 200, 201, 202, 210, 211, 212 for students without previous knowledge of Chinese or 12 credits from CHIN 300, 301, 302, 310, 311, 312, 320, 321, 322, 330, 331, 332, 430, 431, 432, 440, 441, 442 for students with previous knowledge of Chinese;
- 6 to 12 credits in Asian Studies courses on China numbered 300 or above; and
- 6 to 12 credits from CHIN 410, 411, 412, 450, 451, 452, 460, 461, 470, 471, 472, and 481.

MAJOR IN JAPANESE

FIRST AND SECOND YEARS

Students must take

- JAPN 150 and 151, or JAPN 100, 101, 102 and 103 or 104; and 200–201, 202–203.
- JAPN 180 is equivalent to JAPN 150-151 or 100, 101, and 102, 103, and JAPN 280 or 200-201 and 202-203.

THIRD AND FOURTH YEARS

- 18 to 24 credits in courses in Japanese numbered 300 and above, including 6 credits of Classical Japanese and 6 credits of Japanese 400-level coursework
- ASIA 350
- 3 to 9 credits in Asian Studies courses on Japan numbered 300 or above

A Double Major in Chinese and Japanese is possible, but will probably require more than four years. Students interested in a Double Major should seek departmental advice at an early stage.

MINOR IN JAPANESE

Students must take 12 credits in JAPN courses at the 100 and/or 200 level and 18 credits in JAPN courses at the 300 and/or 400 level.

MINOR IN KOREAN

Students take 30 credits of Korean language, of which at least 18 must be in courses numbered 300 and above.

MAJOR IN SOUTH ASIAN LANGUAGES

FIRST AND SECOND YEARS

Students are required to take a total of 18 credits in lower-level (100 to 200) South Asian

language courses, including 12 credits in one language from among Hindi-Urdu, Punjabi, and Sanskrit, and six credits in another. Students with previous knowledge of any of the three languages must consult a department advisor for placement. ASIA 100, 101, and 208 are recommended.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- 18 to 24 credits in South Asian language courses, including 12 credits in one language from among Hindi-Urdu, Punjabi, and Sanskrit, and six credits in another. At least 12 of these credits must be in courses numbered 300 or above;
- ASIA 350; and
- 3 to 9 credits in Asian Studies courses on South Asia numbered 300 or above.

HONOURS IN CHINESE OR JAPANESE

FIRST AND SECOND YEARS

As for Major in Chinese (Japanese), with at least a 76% average. ASIA 100 and 101 are recommended.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- 36 credits in Chinese (Japanese) numbered 300 or above (including 342 and 442)
- 24 credits from Asian Studies courses selected in consultation with the Department
- 12 credits outside the Asian field

In addition to the cross-listed 300- and 400-level courses bearing on China and Japan, the following courses will be accepted as Asian Studies courses for Major or Honours programs in Chinese and Japanese, subject to the approval of the Department: ANTH 303¹, 322, 402, 403¹, 410¹, 416; ECON 341¹, 342; FINA 351, 352, 353, 354, 451, 452, 453, 454; GEOG 380, 425, 468, 481, 485; HIST 423; POLI 321, 322¹, 330, 368, 421¹; RELG 361, 364, 367, 431; THTR 340¹.

HONOURS IN SOUTH ASIAN LANGUAGES

FIRST AND SECOND YEARS

As for Major in South Asian Languages, with at least a 76% average. ASIA 100 and 101 are recommended.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- 36 credits in South Asian languages numbered 300 or above.
- 24 credits from Asian Studies courses selected in consultation with the Department.
- 12 credits outside the Asian field.

In addition to the cross-listed 300- and 400-level courses bearing on South Asia, the following courses will be accepted as Asian Studies courses for a Major or Honours program in South Asian Languages, subject to the approval of the Department: ANTH 302, 403², 410²;

ECON 341; FINA 357, 358, 457, 458; GEOG 380; POLI 323; RELG 364, 452.

A brochure describing the offerings of the Department of Asian Studies in more detail is available from the Department.

- 1 When the area covered is China or Japan.
- 2 When the area covered is South Asia.

B.A. PROGRAM IN INTERDISCIPLINARY STUDIES

The B.A. Program in Interdisciplinary Studies (IDST) 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 advisor to obtain approval. The Program may be appropriate as preparation for professional programs in Arts and 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 B.A. Program in Interdisciplinary Studies, students must have completed at least 54 and not more than 75 credits towards the Bachelor of Arts (students granted special permission to enter the program with more than 75 credits should expect to 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 Faculty of Arts English language requirements; and obtained approval of their proposed course of study.

Applications will be evaluated three times a year, and must be received before May 12, August 20, and November 15 of each year. Inquiries should be addressed to the B.A. Program in Interdisciplinary Studies, 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 one category, including an 18-credit 'primary concentration' in one discipline; and
- 2 at least 12 credits of 300/400-level course work in one other 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. Also students may include in their degrees up to 18 credits in courses outside the Faculties of Arts and Science. 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 on the B.A. Program in Interdisciplinary Studies may be found on the Arts website, under programs: www.arts.ubc.ca (this program was formerly the General B.A. Program).

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 either FREN 121 (3) and FREN 122 (3), or FREN 122 (3) and FREN 123¹ (3)
- 2 ECON 101 (3) and 102 (3) or POLI 101² (3)
- 3 six credits (total) from the following courses: ANTH 201 (3/6), 220 (3), 221 (3), 222 (3); ECON 101² (3), ECON 102² (3); ENGL 222 (3); GEOG 290 (3); HIST 135 (6); POLI 101² (3); SOCI 100 (6), 210³ (3/6).

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.

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 Six 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), 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)
 - 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)

- 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)
- WMST 205 (3), 210 (3).

MINOR IN CANADIAN STUDIES

The Minor is comprised of 12 credits (with no more than six 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 three of the five major areas of study listed above.

- 1 Students intending to meet more than the minimum program requirements in French are advised to complete FREN 222 (3) and 223 (3).
- 2 Neither ECON 101, ECON 102, nor POLI 101 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 or SOCI 300.

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. For information on graduate programs, see *Germanic Studies*, p. 225 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 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
- Three additional credits from the above list of courses or from GERM 314, 401, 402, 405, 407, 420, 430
- Six credits from any of the above courses or, after consultation with the departmental advisor, 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 six 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 131, 132; 231, 232; 332, 337, 338
- With German 11 or 12, or with untutored knowledge: GERM 231, 232; 332, 337, 233, 333. 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 332, 337; 334, 335;
- one of GERM 320/321; one of 350/351; one of 450/451; and
- nine additional credits from German courses 301 to 451 (excluding 339, 433, 434, 439, 449).

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 339, 433, 434, 439, 449). Alternatively, up to three 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 three 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.

FIRST AND SECOND YEARS (FOR STUDENTS WITH PREVIOUS KNOWLEDGE OF GERMAN)
As for Major.

THIRD AND FOURTH YEARS (FOR STUDENTS WITH PREVIOUS KNOWLEDGE OF GERMAN)
Students must take 18 credits of senior courses in German (excluding 339, 430, 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
- Nine additional credits from GERM 314, 401, 402, 405, 407, 420, or 430.
- Students may submit a six-credit Honours essay (GERM 449) in place of 339 or any other six credits of senior work, aside from required courses.
- 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.
- One university-level course in a language other than English or German.

Students with an advanced proficiency in the German language may take credits towards the honours in first or second years.

HONOURS IN GERMAN

FIRST AND SECOND YEARS (FOR STUDENTS WITH PREVIOUS KNOWLEDGE OF GERMAN)
As for Major.

THIRD AND FOURTH YEARS (FOR STUDENTS WITH PREVIOUS KNOWLEDGE OF GERMAN)
Third and Fourth years of the program require that students complete

- GERM 332, 337; 334, 335
- One of GERM 320/321; one of 350/351; one of 450/451
- GERM 339 and 439
- Nine additional credits from German courses 301-451 (excluding GERM 433, 434).
- Students may submit a six-credit Honours essay (GERM 449) in place of 339 or any other six credits of senior work, aside from the required courses.
- A course in European history with an emphasis on German-speaking countries. See Honours Advisor.
- One university-level course in a language other than English or German.

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.

CHINESE

See *Asian Studies*, p. 128.

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, and Myth and Literature). For other Bachelor programs, see the listings for Classics (including Greek and Latin) and Religious Studies. For information on graduate programs, see Classical, Near Eastern and Religious Studies 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.

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 must take 12 credits of Classical Studies courses.

THIRD AND FOURTH YEARS

Students must 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, 317 and 318; on history, two or more of CLST 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, RELG 300 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 must take 48 credits of Classical Studies, including CLST 310, 330, 331, and 449.

Latin or Greek courses numbered above 200 may be substituted for six 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 Archaeology and Ancient History: RELG 300, CLST 330 and 331, plus
- 12 credits chosen from CLST 306 (3), 307 (3), 308 (3), 311 (3), 312 (3), 335 (6), 339 (3), 352 (3), 353 (3), 354 (3), 355 (3), 356 (3), 360 (3), 429 (3/6), 430 (3), 431 (3); RELG 306 (3), 314 (6), 315 (6), 340 (3), 341 (6), 407 (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: RELG 300; CLST 330, 331; and the Honours Essay, CLST 449 or RELG 499 (each six 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, 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, 331 and RELG 300.

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 RELG 475 (3) (same as CLST 360), CLST 305 (6), plus
- 18 credits from among: CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 317 (3), 318 (3), 336 (3); RELG 302 (3), 304 (3), 311 (3), 314 (6), 315 (6), 340 (3), 380 (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 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: RELG 475 (6) (same as CLST 360), CLST 305 (6), and either CLST 449 (6) or RELG 499 (6),
- Plus 30 credits from among: CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 317 (3), 318 (3), 336 (3); RELG 302 (3), 304 (3), 311 (3), 314 (6), 315 (6), 340 (3), 380 (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)
- 12–18 credits as required from: CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 317 (3), 318 (3), 336 (3); RELG 302 (3), RELG 304 (3), 311 (3), 314 (6), 315 (6), 340 (3), 380 (3), 403 (3), 407 (3), 414 (3), 415 (3)

CLASSICS

The Department of Classical, Near Eastern and Religious Studies offers programs in Classics leading to the Bachelor of Arts. For information on graduate programs, see *Classical, Near Eastern and Religious Studies*, p. 227 in the Graduate Studies section. For details concern-

ing current courses and programs, consult the departmental website (www.cnrs.ubc.ca).

MAJOR IN CLASSICS

This Major replaces the previous Major in Greek, Major in Latin, and Honours 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.

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.

MAJOR IN NEAR EASTERN STUDIES

42 credits as follows:

FIRST AND SECOND YEARS (6 CREDITS):
RELG 202(6).

THIRD AND FOURTH YEARS (36 CREDITS):

- (A) 18 credits of the following: CLST 339(3), RELG 300(6), RELG 304(3), RELG 305(3), RELG 306(3), RELG 314 (6), RELG 340 (6), RELG 341 (3/6), RELG 385 (3).
- (B) 18 additional credits from the list above, and/or the following: CLST 356(3), RELG 302(3), RELG 309(3), RELG 310(3), RELG 311(3), RELG 403(3), RELG 407(3), RELG 408(3), RELG 414(3), RELG 448(3), RELG 449(3), RELG 475A (3/6)*, RELG 485(3), GREK 125(6), HEBR 305 (6), HEBR 405(6), HEBR 479(3/12), ARAB 300(6), ARAB 400(6).

*Requires approval of department.

HONOURS IN NEAR EASTERN STUDIES

60 credits as follows:

FIRST AND SECOND YEARS (6 CREDITS):
RELG 202(6)

THIRD AND FOURTH YEARS (54 CREDITS):

(A)30 credits of the following: CLST 339(3), RELG 300(6), RELG 304(3), RELG 305(3), RELG 306(3), RELG 314 (6), RELG 340(6), RELG 341 (3/6), RELG 385(3).

(B)24 additional credits from the list above, and/or the following: CLST 356(3), RELG 302(3), RELG 309(3), RELG 310(3), RELG 311(3), RELG 403(3), RELG 407(3), RELG 408(3), RELG 414(3), RELG 448(3), RELG 449(3), RELG 475A (3/6)

*Requires approval of department.

RELG 485(3), GREK 125(6), HEBR 305(6), HEBR 405(6), HEBR 479(3/12), ARAB 300(6), ARAB 400(6).

Honours students are encouraged to take courses in Hebrew, Arabic or New Testament Greek.

Honours students must take RELG 370(6) (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 (6 CREDITS):
RELG 202(6)

THIRD AND FOURTH YEARS (24 CREDITS):

(A)12 credits of the following: CLST 339(3), RELG 300(6), RELG 304(6), RELG 305(3), RELG 306(3), RELG 314(6), RELG 340(6), RELG 341(3/6), RELG 385(3).

(B)12 additional credits from the list above, and/or the following: CLST 309(3), RELG 302(3), RELG 309(3), RELG 310(3), RELG 311(3), RELG 403(3), RELG 407(3), RELG 408(3), RELG 414(3), RELG 448(3), RELG 449(3), RELG 475A (3/6)*, RELG 485(3), GREK 125(6), HEBR 305(6), HEBR 405(6), HEBR 479(3/12), ARAB 300(6), ARAB 400(6)

*Requires approval of department.

COGNITIVE SYSTEMS

The Cognitive Systems (COGS) Major program (B.Sc. or B.A.) provides an opportunity to concentrate on interdisciplinary investigation of mental functioning in humans, other animals, and artificial systems with a specialization in one of the following three streams: Cognition and the Brain (B.Sc. or B.A., supervised by Psychology); Language (B.A. only, supervised by Linguistics); or Computational Intelligence and Design (B.Sc. only, supervised by Computer Science).

Cognitive Systems is 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). 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 systems itself. All students in the program are required to take a team-taught interdisciplinary introductory 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 after completion of 54 credits applicable to the Bachelor of Arts, is dependent on academic performance. Admission requires a minimum GPA of 68% overall, and a minimum grade of 68% in COGS 200, but these minimums do not guarantee acceptance into the program. Once admitted, students must maintain at least 68% yearly average for continuation.

For additional program and admission information about the B.A. streams in Cognitive Sys-

tems see the entries for the Department of Psychology or the Department of Linguistics and the following websites: www.cogsys.ubc.ca and www.linguistics.ubc.ca and www.psych.ubc.ca.

COMPARATIVE LITERATURE

See *Comparative Literature*, p. 228 under Faculty of Graduate Studies 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 or the Coordinating Committee. A detailed description of the program, the approved list of courses, the names of advisors, 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 our website (www2.arts.ubc.ca/sexuality).

FIRST AND SECOND YEARS

Students take twelve credits formally approved by the Coordinating Committee.

THIRD AND FOURTH YEARS

Students take 18 credits of 300- and 400-level courses, including at least three credits of CSIS 300 and electives from the approved list.

- CSIS 300 (3/6)d Introduction to Critical Studies in Sexuality.
- CSIS 450 (3-6)d Topics in Critical Studies in Sexuality.
- CSIS 490 (3/6)d Directed Topics.
- CSIS 500 (3/6)d Critical Studies in Sexuality: Multidisciplinary Approaches.

DRAMA

The Integrated Drama Program (IDP) offers a set of courses that lead 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. Co-requisite 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 (below)
- at least six credits from List B (below)
- at least one credit of either THTR 399 or THTR 499

MINOR IN DRAMA

Co-requisite or prerequisite: DRAM 200 and DRAM 201.

THIRD AND FOURTH YEARS

Students take at least 18 credits of courses from List A and B (below). At least nine 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 414, 426; GREK 402; SCAN 411; THTR 320, 321, 325, 340, 415, 420, 421. (A one-credit practicum/co-op will be required of all students in THTR 400.)

List B: Cross-Media Courses

CRWR 306, 307, 404, 406, 407, 417; FILM 332, 430, 432, 434; FREN 427; LLED 335, 435; MUSC 135, 235, 336

OTHER COURSES

Other courses include courses in the performing arts, such as opera workshops, performance work in the Theatre program (e.g., THTR 399 and 499) by permission or audition.

Students are advised that some of these courses may have prerequisites.

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 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. For details about current offerings and a menu of new courses (not yet in the printed calendar), consult the departmental website (www.econ.ubc.ca).

Numerous substantial curriculum changes are being proposed for Economics as the print Calendar goes to press. For updated details, consult the departmental website (www.econ.ubc.ca) in April 2003, or the UBC web-based Calendar in June 2003.

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 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 student'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 six credits of first-year English, six credits of Principles of Economics, six credits of first-year Calculus, and six credits of second or third year level courses in Economics.

In addition to the prerequisites 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
- at least fifteen additional credits in ECON at the 300 or 400 level so that the total number of credits taken in Economics are 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 selection 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. 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 chosen in consultation with an advisor from the Political Science Department. The 15-credit core consists of POLI 100, 101, 240 and 350 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 three 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 102²
- MATH 104 (or 100 or 102 or 180 or 184 or 120)
- MATH 105 (or 101 or 103 or 121)
- ECON 301 (or 201 or 206 or 304), 302 (or 202 or 207 or 305)
- MATH 200 (or 226), 215, 220, 221

THIRD AND FOURTH YEARS

In addition to Faculty requirements, students take the following courses:

- ECON 306, 325³, 326, 490
- MATH 320
- six additional credits of Economics numbered 300 or higher, of which at least three credits must be at the 400 or 500 level.
- nine additional credits of Mathematics numbered 300 or higher. Suitable electives include MATH 302, 303, 321, 402, 403, 418, 419 and 443.

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, see the listing under the Faculty of Science.

FIRST AND SECOND YEAR

In addition to Faculty requirements, students take the following courses:

| | |
|--|-----------|
| ECON 101, 102 | 6 credits |
| MATH 104 (or one of 100, 102, 120, 180, 184) | 3 |
| MATH 105 (or one of MATH 101, 103, 121) | 3 |
| CPSC 122, 128 or 124, 126 | 6 |
| ECON 304 (201 or 206 or 301), 305 (or 202 or 207 or 305) | 6 |
| ECON 325 or STAT 200 | |
| 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 |
| ECON 326 or STAT 306 | 3 |
| ECON 425 | 3 |
| ECON 490 | 3 |
| Three additional credits of Economics numbered 300 or higher: | |
| MATH 303 or 307 | 3 |
| STAT 305 | 3 |
| STAT 404 | 3 |

Three additional credits of Statistics courses numbered 300 or higher

Three additional credits of Economics numbered 400 or higher

- A student can take ECON 307 and three additional credits of Economics numbers 300 or above instead of ECON 101 & 102.
- 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.
- 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: six credits of first-year English, six credits of first-year Calculus, six credits of Principles of Economics, and six credits of Economics courses at the at 200 (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 (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 twelve credits in Economics courses at the 400 level
- another nine credits in Economics courses at the 300 or 400 level
- ECON 490 or 495 and 499.

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 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 six credits of Principles of Economics as a prerequisite, 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 six 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.

- ¹ **Three credits for students pursuing a Double Major in Economics and another subject, for a total credit requirement in Economics of 30 credits. See Double Major Program above.**
- ² **Students can take ECON 307 and three additional credits of Economics numbered 300 or higher instead of ECON 101 and 102.**
- ³ **STAT 200 can substitute for ECON 325.**

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. 234 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 *English Courses Offered*, which gives detailed information about the courses to be offered in the next academic year, and provides the credit-value of courses listed in Courses (students.ubc.ca/calendar/courses.cfm) with variable credit. Interested students should visit the English website (www.english.ubc.ca), or examine a print copy in the Department.

Six 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 (three credits) and at other times for two terms (six 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 not automatic. Application forms, due May 15 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 220 and are encouraged to take ENGL 229
- at least 72% 'B' average in 6 credits of second-year English.

Spaces are limited. Applicants will be ranked by overall GPA, with the result that some who satisfy the minimum prerequisites may not be admitted. Students will be notified by June 15 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 3 courses from Groups A (ENGL 343-354) and B (ENGL 357-369), with at least one course from each;
- 2 one (only) Majors Seminar (490)(E), preferably in fourth year;
- 3 the remainder of their required 30 credits from Groups A to D;
- 4 one course in Canadian Studies from Group D (ENGL 462-470) or ENGL 202 O or 222 or any other course in which there is a large selection of Canadian literature (with the approval of a Major Advisor);
- 5 the remainder of their required 30 credits from Groups A to F with a maximum of 6 credits from Group F (ENGL 304-340)

Literature Emphasis Course Groups

- A. 343; 344; 346; 347; 348; 349; 354
 B. 357; 358; 359; 362; 364; 369
 C. 402; 405; 406; 407; 408; 409; 412; 417; 418; 419
 D. 462; 464; 466; 468; 470; 472; 474; 476; 478
 E. 490 (Majors Seminar)
 F. 304; 306; 307; 308; 320; 321; 322; 323; 324; 325; 326; 329; 340.

LANGUAGE EMPHASIS PROGRAM

At least 30 credits distributed as follows:

- 1 Six credits of 320 and six credits of 329;

- 2 18 credits from among the following courses, with at least three credits from each of at least three of the areas a to d:

Language Emphasis Program Areas

| Area | Content | Courses |
|------|--------------------------|--|
| A | History of English | ENGL 340, 343, 344, 346 |
| B | Structure of English | ENGL 321, 322, 323, 324, 326 |
| C | Rhetoric and Composition | ENGL 304, 306, 307, 308 |
| D | Linguistics | LING 300, 301, 305, 310, 311, 312, 319, 427, 445 |

Programs including more than six credits from outside the Department of English (area d) require special approval from the chair of the Major program and the convenor of the Language Area Group. Further details are available in English Courses Offered.

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 three other credits from ENGL 221-224. 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 nine credits):
 - (A) Old and Middle English Studies: ENGL 340, 343, 344, 345, 346, 352, 356
 - (B) Sixteenth-Century Studies: ENGL 347, 348, 367
 - (C) Seventeenth-Century Studies: ENGL 349, 354, 376
- 2 Students must take at least one course from two of the following areas (minimum six credits), one of which must be in Canadian Literature unless that requirement has already been met in the second year:
 - (A) Eighteenth-Century Studies: ENGL 357, 358
 - (B) Nineteenth-Century Studies: ENGL 359, 362, 364, 369
 - (C) Twentieth-Century Studies: ENGL 462, 464, 466, 470-478
- 3 Students must take at least three credits of language or rhetoric courses from the following: ENGL 306, 307, 308, 320, 321, 322, 323, 324, 325, 326, 329, 340, 345, 352

In addition, students are required to take six credits of senior seminars in each of their two senior years. One of these seminars must be a section of 491, which will focus on theory. Students are also required to take 499 (Graduating Essay) in their fourth year. Sixty 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 six credits from ENGL 110 to 121, or Arts One, or Foundations.

SECOND YEAR

Students must take six credits from ENGL 210-230; 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 Groups A (ENGL 357-369) and B (ENGL 357-369), and the other 12 from Groups A-D. Courses from Group F cannot be counted toward the Literature Minor.

MINOR IN ENGLISH (LANGUAGE)

FIRST YEAR

Students must take six credits from ENGL 110 to 121, or Arts One, or Foundations.

SECOND YEAR

Students must take six credits from ENGL 210-230; ENGL 229 is recommended.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- ENGL 329;
- Either ENGL 320 (Language emphasis) or ENGL 306 (Rhetoric emphasis); and
- Six additional credits from ENGL 304, 306, 307, 308, 320, 321 to 326, 340-346.

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 ENGL. ENGL 220 is particularly recommended.

THIRD AND FOURTH YEARS

A total of 36 credits 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 (ENGL 343-369)
- 6 credits of twentieth- or twenty-first-century literature (ENGL 462-478)

Students in this program must complete all the normal requirements of an English Major. See also *English Concentration and Major*, p. 187.

SUGGESTED COURSES FOR STUDENTS INTENDING TO GO INTO JOURNALISM OR THE MEDIA

- ENGL 304
- One course in rhetoric ENGL 306-308
- One of ENGL 408, 409, 412
- At least two courses from Group D (ENGL 462-479)

Students in this program must complete all the normal requirements of an English Major.

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 ethnopoliitical 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. 403. The School also offers an Master of Arts program in Family Studies, a Bachelor of Social Work and a Master of Social Work. For information on graduate programs in *Family Studies*, p. 235, see Family Studies in the Graduate Studies section.

MAJOR IN FAMILY STUDIES

FIRST AND SECOND YEARS
Students must take FMST 200 and STAT 203.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- FMST 420 and FMST 422;
- at least one of FMST 320, 322, 324, 326, 436;
- at least one of FMST 310, 312, 314, 316, 414; and
- at least one of FMST 338, 340, 342, 440, 442.

The remaining 21 credits required for the Major may be selected from any Family Studies course and may include a maximum of six credits of the following courses: ANTH/SOCI 214(3/6)d, 413(3/6)d; CNPS 364, HIST 351(3), LAW 359(3), 360 3); PSYC 319(3).

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 and 420 and

- at least one of FMST 320, 322, 324, 326, 436;
- at least one of FMST 310, 312, 314, 316, 414; and
- at least one of FMST 338, 340, 342, 440, 442.

The remaining 15 credits required for the Minor may be selected from any Family Studies course and may include a maximum of six credits of the following courses: ANTH/SOCI 214, 413; CNPS 364, HIST 351; LAW 359, 360; PSYC 319.

FILM

The Department of Theatre, Film and Creative Writing offers an undergraduate program of study that lead to the Bachelor of Arts in Film Studies. The Film Program also offers an undergraduate program of study that leads to the Bachelor of Arts in Film Production. A diploma in Film Production is also offered. The Film Program also collaborates with Asian Studies and Canadian Studies. For details about current offerings, consult the departmental website (www.tfcw.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.

MAJOR IN FILM PRODUCTION

The selection of students for admission to the Film Production Major Program takes place during April. Prospective candidates should contact the Film Program Office concerning admission requirements and the application deadline or consult the website (www.film.ubc.ca).

FIRST AND SECOND YEARS

Students must take FILM 100 and 200. Recommended courses include FILM 233, 210, and 220.

THIRD AND FOURTH YEARS

Students must take FILM 333, 335, 433, 437, or 439 and at least nine credits chosen 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.

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 twenty-six extant First Nations languages in British Columbia, belonging to 8 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 Art's 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 each course is co-taught by a member of the Musqueam community in collaboration with a UBC teacher. 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
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 First Nations cultures. 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 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 co-requisite: FNSP 200.
- FNSP 320 (3) Methods Seminar. Prerequisite or co-requisite: FNSP 200
- FNSP 400 (6) Practicum/Advanced Research Seminar. Prerequisites: FNSP 310 and FNSP 320
- an additional eighteen 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 six further credits from the approved list at any level (100 to 400).

MINOR

Students are required to take FNSP 200 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 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 the Bachelor of Arts. For information on graduate programs, see *French*, p. 236 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. These booklets give the credit value in the next academic year of courses listed in Courses (students.ubc.ca/calendar/courses.cfm) with variable credit. Interested students should contact the Department for a copy of the relevant booklet.

Students wishing to specialize in French will normally choose to concentrate either in literature or in language. Both programs include combinations of general and specialized courses. Other combinations may be approved after discussion of individual needs and interests with departmental advisors.

FREN 223 or its equivalent is prerequisite to all French language courses numbered 350 or above. FREN 220 or its equivalent is prerequisite to all French literature courses numbered 300 and above, except for FREN 400, 402, 403, 421 and 422, which are taught in English. 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.

MAJOR IN FRENCH WITH EMPHASIS ON LANGUAGE

FIRST AND SECOND YEARS

Students must take FREN 122, 123¹, 220, 222, and 223².

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- FREN 353, 355 and 370;
- six credits from FREN 357, 453, 455, 457; and
- 15 credits of 300- and 400-level French courses (excluding 340-346, 400, 402, 403, 421, 422), of which at least nine must be from language courses numbered above 350.

MAJOR IN FRENCH WITH EMPHASIS ON LITERATURE

FIRST AND SECOND YEARS

Students must take FREN 122, 123¹, 220, 222 and 223².

THIRD AND FOURTH YEARS

Students must take FREN 353 and 355 and 24 credits in courses numbered 300 or above (excluding 340-346, 400, 402, 403, 421, 422), of which 18 credits must be from literature courses 300, 320, 321, 330, 407-420, 425-430 (three of these credits must represent literature prior to 1700).

HONOURS IN FRENCH WITH EMPHASIS ON LANGUAGE

FIRST AND SECOND YEARS

Students must take FREN 122, 123¹, 220, 222 and 223.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- FREN 353, 355, 370, 499;
- six credits from FREN 357, 453, 455, 457; and
- 27 credits of 300- or 400-level French courses (excluding 340-346, 400, 402, 403, 421, 422), of which at least 21 must be from language courses numbered above 350.

HONOURS IN FRENCH WITH EMPHASIS ON LITERATURE

FIRST AND SECOND YEARS

Students must take FREN 122, 123¹, 220, 222 and 223.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- FREN 300 (at least three credits), 353, 355, 499;
- six credits from FREN 357, 453, 455, 457; and
- 27 credits of 300- or 400-level French courses (excluding 340-346, 400, 402, 403, 421, 422) of which at least 21 must be from literature courses 300, 320, 321, 330, 407-420, 425-430 (three of these credits must represent literature prior to 1700). Students who wish to take up to six credits of French graduate seminars in their last 30 credits may do so with permission of the advisor.

MINOR IN FRENCH

FIRST AND SECOND YEARS

Students must take FREN 122, 123¹, 220, 222 and 223².

THIRD AND FOURTH YEARS

Students must take FREN 353 and 355, and at least 12 additional credits (and no more than 18) from the following: FREN 300-335, 351-370, 407-420, 425-478.

- 1 Students with high academic standing in Grade 12 French or its equivalent may qualify for advanced placement, exempting them from taking one or both first-year courses. Such students should contact the Department to arrange for a placement test. Students that have graduated from an Immersion Program should consider taking FREN 224 (6), which by itself qualifies students for enrolment in 300-level language courses.**
- 2 These second-year courses may be taken in the third year with permission of the Department.**

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 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 *Geography Third- and Fourth-Year Course Guide* and *Geography Graduate Courses*. Interested students should write to the Department for copies. Details about current offerings can also be found on the departmental website (www.geog.ubc.ca).

MAJOR IN GEOGRAPHY

FIRST AND SECOND YEARS

Students must take at least six credits from GEOG 121, 122, 210, and 290; and at least six 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 six credits of mathematics. Students intending to emphasize economic or urban geography should take six credits of mathematics.

THIRD AND FOURTH YEARS

Thirty credits of Geography courses numbered 300 and above, as follows:

- six credits from methodology and techniques courses: GEOG 345, 370, 371, 372, 373, 374, 375, 379, 470, 472 ;
- three credits from courses on major world regions: GEOG 380, 391, 395;
- nine credits from courses on key themes in Geography¹: GEOG 31x, 32x, 35x, 36x;
- three credits from 400-level seminar courses². Must be taken in the student's fourth year; and
- nine 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:

- nine credits from methodology and techniques courses: GEOG 345, plus six credits from 370, 371, 372, 373, 374, 375, 379, 470, 472 ;

- three credits from courses on major world regions: GEOG 380, 391, 395;
- nine credits from courses on key themes in geography¹: GEOG 31x, 32x, 35x, 36x;
- nine credits from Geography fourth-year seminar courses². Must be taken in the student's fourth year;
- 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;
- six credits from courses on key themes in geography¹: GEOG 31x, 32x, 35x, 36x;
- nine additional credits²

UNDERGRADUATE COURSES

Students choose from the following courses:

- Introductory courses—GEOG 101, 102, 103, 121, 122, 200, 204, 205, 207, 210, 281, 290, URST 200;
- Major and Honours seminars—GEOG 345, 407, 440, 446, 447,448;
- Technique and field courses—GEOG 309, 370-379, 470, 472, 471;
- Regional courses³—GEOG 380, 390, 391, 395, 481, 484, 485, 493, 494, 495, 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, 423, 497, 412;
- Urban courses—GEOG 321,331, 350, 352, 357, 450, 456, 457, 464;
- Courses on Canada—GEOG 290, 327, 328, 426, 428, 497, 499;
- 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, 300, 304, 306, 308, 309, 370, 372, 373, 401-409, 449, 470, 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 Geography 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.

GERMANIC STUDIES

See *Central, Eastern and Northern European Studies*, p. 225

GREEK

See *Classics*, p. 132

HINDI

See *Asian Studies*, p. 222.

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 and Italian Studies*, p. 239 in the Graduate Studies section.

MAJOR IN SPANISH

FIRST AND SECOND YEARS

Students whose studies or exposure to Spanish do not concur with the prerequisites indicated are required to take a placement test to determine their best course options.

All students intending to proceed towards a Major degree in the Department should take the sequence of courses in any one of the columns below:

| A | B | C |
|----------|----------|-----------------------|
| SPAN 100 | SPAN 105 | SPAN 100 |
| SPAN 200 | SPAN 300 | SPAN 200, 205 |
| SPAN 220 | SPAN 220 | SPAN 220 ¹ |

¹ SPAN 220 is a prerequisite to enter the Major program. It may be taken in the third year with permission of the Department, but will not count towards the 30 credits of third- and fourth-year Spanish courses required for the Major program.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- SPAN 300, 356, and 363; and
- 12 credits from SPAN 401-430; 450-490; PORT 307, 392; RMST 420, 478.

MINOR IN SPANISH

FIRST AND SECOND YEARS

Students with previous knowledge of Spanish should consult a departmental advisor for placement.

Depending on their previous knowledge of Spanish, students must take one of the following sequences:

- SPAN 100, 200;
- SPAN 105.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- SPAN 300;
- at least six credits from SPAN 356, 363;
- at least six credits from SPAN 320, 401-430, 450-490, PORT 392.

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. 239 in the Graduate Studies section. The department also collaborates with Anthropology, Archaeology, Art History, 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, Science Studies, 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 in 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 six credits from CLST 311, 312, 331, 353, 354, 355, 356;
- and/or six 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 six 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 three-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.

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
- six credits outside the Department.

FOURTH YEAR

Fourth year of the program requires that students complete:

- HIST 421, 433, and 449;
- six 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 six 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;
- six 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;
- six credits elective; and
- an oral examination on the graduating essay.

UNDERGRADUATE COURSES IN HISTORY

Medieval, Renaissance and Reformation History—HIST 101, 313, 360, 370, 372, 413, 470. See also *Medieval Studies*, p. 145.

Modern European History—HIST 115, 120, 202, 215, 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, 419, 460

Canadian History—HIST 135, 205, 302, 303, 304, 307, 326, 329, 401, 404, 426, 430, 437, 442, 475 For supporting courses, see *Canadian Studies*, p. 130.

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, 482, 486

Latin American History—HIST 250, 351, 352, 353, 354, 432, 450, 452

International and Contemporary History—HIST 125, 150, 402, 403, 442, 448, 475

Theory and Methodology—HIST 304, 490, 495
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 100-499.

¹ For Majors students only.

² For Honours students only.

INDONESIAN

See *Asian Studies*, p. 128.

INTERNATIONAL RELATIONS

The International Relations program offers the Bachelor of Arts only. Students who want 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 pro-

gram students need to have completed their first-year English requirement (6 credits) and one of the lower division required IR courses (ECON 101 and 103, 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 six credits unless otherwise indicated.

FIRST 60 CREDITS

The first 60 credits of the program require that students complete

- ECON 101 and 102;
- 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 455 and ECON 456;
- HIST 432;
- 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 must be from List 1 or 12 must be from List 2. The remaining six credits can be from Lists 1, 2, or 3.

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 354 (3), 355 (3)
- (D) GEOG 310 (3), 316 (3)
- (E) HIST 310, 425, 430, 441 (3), 445 (3), 446 (3), 448 (3), 311 (3), [310 is now 3 credits]
- (F) POLI 360 (3/6), 361 (3/6), 362 (3), 363 (3/6), 364 (3/6), 367 (3/6), 369 (3/6), 370 (3/6), 460 (3/6), 461 (3), 462 (3), 465 (3)
- (G) SOCI 360 (3/6), 461 (3/6)

2 International Economy and Development

- (A) FRE 306(3), 340 (3), 420 (3), 475 (3)
- (B) ECON 312 (3), 313 (3), 317 (3), 319, 334, 336, 339 (3), 341 (3), 342 (3), 343 (3), 351 (3), 371 (3), 387 (3), 437, 440, 444 (3), 455 (3), 487 (3), 441 (3), 442 (3)
- (C) GEOG 352 (3), 361 (3), 362 (3), 468 (3)
- (D) HIST 423
- (E) FNH 355 (3)
- (F) PHIL 335 (3), 435
- (G) POLI 345 (3/6), 364 (3/6), 366 (3), 404 (3/6), 463 (3)
- (H) SOCI 301 (3/6), 462 (3/6)

3 Area Studies

- (A) Asia-ANTH 302 (3/6), 303 (3/6), 315 (3/6), 350 (3/6), 351 (3/6), 402 (3/6), 403 (3/6); ASIA 321, 362, 370, 405, 420; 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), 481 (3), 484 (3), 485 (3); HIST 380, 385, 422, 434, 475, 480, 486 (3); POLI 321 (3/6), 322 (3), 323 (3/6), 324 (3/6), 330 (3), 331 (3), 365 (3/6), 368 (3); SOCI 315 (3/6), 416 (3/6), 460 (3/6)
- (B) Canada and the Americas -ANTH 353 (3); GEOG 395 (3), 495 (3); HIST 332, 338, 351 (3), 352 (3), 353 (3), 354 (3), 437, 450 (3/6), 451 (3), 452 (3); POLI 320 (3/6), 332 (3/6)
- (C) Europe and Eurasia-CLST 353 (3),

CLST 356; ECON 387 (3); GEOG 391 (3), 493 (3), 494 (3); HIST 324, 334, 405, 435, 438; 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 nine credits of the following must be included among the courses taken: ECON 101 and 102 (or ECON 310 and 311), 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 six 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 A, B, and C below) toward the Bachelor of Arts. (Language courses do not count as part of these 60 credits.)

- 1 Arts One does not satisfy this requirement.
- 2 The prerequisite for this course is ECON 101 and 102 or 309.

ITALIAN AND ITALIAN STUDIES

The Department of French, Hispanic and Italian Studies offers undergraduate programs of study in Italian and Italian Studies that lead to the Bachelor of Arts. For information on graduate programs, see *Hispanic and Italian Studies*, p. 239 in the Graduate Studies section.

Admissions to the Minor, Major and Honours programs in Italian have been suspended until further notice.

MAJOR IN ITALIAN

Students with Italian 11 or 12 should consult a departmental advisor for placement in appropriate language courses.

FIRST AND SECOND YEARS

Students must take ITAL 100, 200 or 101, 201 or 105

THIRD AND FOURTH YEARS

Students must take 30 credits in Italian courses numbered 300 or above, excluding ITAL 302 and ITST 421, 431 and 432.

HONOURS IN ITALIAN

FIRST AND SECOND YEARS

Students must take ITAL 100, 200 or 101, 201 or 105. LATN 100 or equivalent is recommended.

THIRD AND FOURTH YEARS

Students must take ITAL 400 and 449 plus 36 additional credits in Italian courses numbered 300 or above, excluding ITAL 302 and ITST 421, 431 and 432.

MINOR IN ITALIAN

FIRST AND SECOND YEARS

Students must take ITAL 100, 200 or 101, 201 or 105.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- ITAL 300;
- at least six credits from ITAL 303 or 304; and
- at least six credits from ITAL 400-420, ITST 310, 432.

MAJOR 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 30 credits of 300-level courses from the lists below. At least 12 must be chosen from List 1 and 12 from List 2.

- 1 ITST 310, 421, 431, 432; ITAL¹ 303, 304, 401, 405, 406, 407, 408, 420
- 2 CLST 331, 352, 353, 354; FINA 331, 335, 435; HIST 313; MUSC 454, 455

¹ These courses require knowledge of Italian.

JAPANESE

See *Asian Studies*, p. 128.

KOREAN

See *Asian Studies*, p. 128.

LATIN

See *Classics*, p. 132.

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 (604) 822-2878; Fine Arts 604-822-2757; French, Hispanic, and Italian Studies 604-822-2879; Geography (604) 822-2663; History (604) 822-2561; or Political Science 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. 122) 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 nine credits from the following courses:

- ANTH 202 (3/6) or 232 (3);
- FINA 261 (3);
- HIST 250 (3/6);
- 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 six 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 three credits must be taken in each of Anthropology, Fine Arts, 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 411, 332 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)
- FINA 363 (6), 365 (6), 463 (3), 465 (3)
- GEOG 395 (3), 495 (3)
- HIST 351 (3), 352 (3), 353 (3), 354 (3), 450 (3/6), 451 (3), 452 (3)
- POLI (contact advisor)
- PORT 307 (6), 392 (3/6)
- SPAN 312 (3), 363 (6), 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 nine credits from the following courses:

- ANTH 202 or 203
- FINA 261
- HIST 250.

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, Fine Arts, 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, Fine Arts, 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. 154. For information on graduate programs, see *Linguistics*, p. 247 in the Graduate Studies section. The Department also collaborates with Canadian Studies, English (Language Emphasis), First Nations Languages and Medieval Studies. For current listings, see the departmental website (www.linguistics.ubc.ca).

MAJOR IN LINGUISTICS

LANGUAGE REQUIREMENT

The Department of Linguistics language requirement for the Major in Linguistics is more stringent than 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, or by meeting the Six-Credit Requirement, may satisfy the Linguistics requirement either by taking an additional six credits in the same language or by taking 12 credits in a different language.

Students meeting the Faculty of Arts requirement by the Twelve-Credit Requirement are considered to have satisfied the Linguistics requirement. Students seeking permission to satisfy the Linguistics language requirement by demonstrating competence in a language other than those listed under the Faculty of Arts Language Requirement should contact the undergraduate advisor in the Department of Linguistics. Six credits of language courses taken toward the Linguistics language requirement may count towards the 42-credit total specifically 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

Nine credits from List B are required.

Nine 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, 301, 311, 312

List B: Secondary Core Courses

LING 305, 310, 316, 317, 319, 415, 427, 431, 432, 451, 452

List C: Senior-Level Courses in Linguistics

LING 320, 337, 430, 433, 434, 435, 445, 447, 448, 449

List D: Senior-Level Courses in Related Areas

ANTH 322, 417; AUDI 400, 402; 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 336, 337; SPAN 403, 407.

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 18 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 six 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 or LING 420 are 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 six credits from List A;
- at least six additional credits from Lists A, B or C; and
- at least six 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 (BA)

First Year

| | |
|---|------|
| ENGL 100-level ¹ | 6 |
| CPSC 111, 121 or CPSC 122, 128 | 8 |
| MATH 100 or 102 or 104 (or 120 or 180 or 184) | 3(4) |
| Psychology 100 (or 101 and 102) | 6 |
| Electives ^{1,2} | 8-9 |
| Total credits | 32 |

Second Year

| | |
|---------------------------------|----|
| COGS 200 | 3 |
| LING 200, 201 ³ | 6 |
| PSYC 217 ⁴ | 3 |
| PHIL 220 | 3 |
| Electives ^{1, 2, 3, 4} | 15 |
| Total Credits | 30 |

Third and Fourth Years^{2,4,5}

| | |
|---|---|
| COGS 400 | 6 |
| PHIL 425, 451 | 6 |
| LING 300 | 3 |
| LING 311 | 3 |
| At least 9 credits from: LING 301, 312, 316, 317, 415, 427, 451, 452 | 9 |
| At least 9 credits from: PSYC ⁴ 302, 304, 315, 336, 337, 365, 367; CPSC 216 ⁵ , 220 ⁵ , 312, 322, 444; EECE 251 ⁵ , 253 ⁵ , 321, 359; PHIL 426; ANTH 417 | 9 |

Third and Fourth Years^{2,4,5} (Cont.)

| | |
|----------------------------|------|
| Electives ^{2,4,5} | 9-24 |
| Total credits | 60 |

- ¹ Students enrolled in the 24-credit Foundations course should take 9 credits of the required 1st-year courses in their 1st year and the remaining 6 credits in their 2nd year. Students enrolled in the 18-credit Arts I should take 12 credits of required courses in the 1st year and the remaining credits in the 2nd year.
- ² In choosing electives and in choosing among the options available for 3rd and 4th year, students should plan carefully to make sure that they will have the prerequisites for the more advanced courses they wish to take. In addition, a Cognitive Systems major must select 9 credits of electives outside their major field, that is, outside of CPSC, LING, PHIL, and PSYC. Consult the Undergraduate Advisor in the Department of Linguistics for advice on course selection.
- ³ ENGL 329 (6) can be substituted for LING 200 (3) and LING 201 (3).
- ⁴ PSYC 218 is a prerequisite for 300 and 400-level courses in Psychology.
- ⁵ At least 30 credits of 300 or above Cognitive Systems courses (CPSC, LING, PHIL, PSYC) and at least 48 total 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.

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.)

THIRD AND FOURTH YEARS

All courses in Lists J, K and L are required. Nine credits from List M are required.

List J: Core Linguistics Courses

LING 300, 310, 311

List K: Field Methods Courses

LING 431, 432

List L: First Nations Linguistics Courses

LING 433, 434

List M: Senior-Level Courses in Linguistics

LING 301, 305, 312, 319, 337, 427, 435, 445

RECOMMENDED COURSES

The following courses in other departments are particularly recommended: ANTH 100, 220, 221, 304, 329, 401, 431; FINA 369; FNLG 300, 448; GEOG 426; HIST 135, 302; MUSC 328; POLI 406.

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 programs, 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 six 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 310 and at least three other credits from List J (LING 300 or 311 or both);
- at least three credits from List K; and
- at least three credits from List L.

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. 159 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 is 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, three credits from List F, three credits from List G and nine additional credits from Lists G or H.

List E: Core Courses

LING 300, 310, 311, 316, 317

List F: Secondary Core Linguistics Courses

LING 301, 312

List G: Secondary Core Speech Science Courses

LING 451, 452

List H: Senior-Level Speech Science Courses

AUDI 400, 402; LING 415; PSYC 302, 304, 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
- six 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 six credits chosen from AUDI 402, LING 310, 451, 452; and
- at least six additional credits chosen from List H.

MATHEMATICS

The Department of Mathematics 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. 353. For information on graduate programs, see *Mathematics*, p. 248 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. (Note: MATH 210 may not be offered every year.)

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, 122, 126, or 128. Other upper-level Computer Science courses useful to mathematics students require completion of CPSC 126 or 128.
- 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 courses which 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.

- 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;
- nine additional credits of Economics numbered 300 or higher, of which at least three credits must be at the 400 or 500 level;
- nine 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. (Note: MATH 210 may not be offered every year.)

THIRD AND FOURTH YEARS

In addition to Faculty of Arts requirements, students complete:

- MATH 300, 320, 321, 322, and one of 412, 422 or 423⁶;
- 15 additional credits⁶ from MATH 400 to 405, 412, 416 to 429, 433 to 440, 443, 449⁷; and
- nine 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 which 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;
- Six 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 department⁸.

- ¹ See *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 23.
- 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 three 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.

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 six credits selected from: HIST 101, MDVL 200, or CLST 100. Other first- and second-year courses applicable to this program are CLST/PHIL 211, 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. 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 six credits unless otherwise indicated.

- ARTH 331 (3), 332 (3), 333 (3), 335 (3), 431(3), 432 (3), 433 (3), 435 (3) CLST 331 (6), 336 (3), 337 (3), 353 (3), 354 (3), 431 (3)
 - CLST 331, 353 (3), 354 (3), 336 (3), 337 (3), 431 (3)
 - ENGL 320 (6), 340 (3/6), 343 (3)¹, 344 (3-12), 346 (3-6), 352 (3)
 - FREN 407 (3/6), 461(3)², 462(3)³, 464(3)³, 465 (3)⁴
 - GERM 360 (3)
 - HIST 313 (6), 370 (6), 372 (6), 384 (6), 387 (3), 470 (6)
 - ITAL 401 (3/6), 405 (3/6)
 - ITST 310 (3/6), 431 (3/6)
 - LATN 305 (3/6)⁵
 - LING 320 (3/6)
 - MDVL 301 (3), 302 (3), 440 (3/6), 449 (6/12)
 - MUSC 324(3/6), 350 (3/6), 352 (3)
 - PHIL 310 (3/4), 311 (3/4), 312 (3/4), 412 (3/4)
 - RELG 315 (6), 321 (3/6), 341 (3/6), 408 (3), 448 (3), 449 (3)
 - SCAN 501 (3/6)
 - SPAN 410 (3), 450 (3)
- ¹ ENGL 340 is prerequisite.
 - ² FREN 351 and 370 are prerequisites.
 - ³ FREN 370 is prerequisite.
 - ⁴ FREN 353 is a prerequisite.
 - ⁵ LATN 200 or 300 is prerequisite.
 - ⁶ MUSC 121 is 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 six 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.

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), 494 (3); PHIL 314 (3/4), 414 (3/6), 416 (3/6), 431 (3/4); POLI 325 (3), 326 (3), 327 (3), 344 (3), 346 (3), 362 (3); RELG 315 (6); 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), 355 (3), 356 (3), 357 (3); RUSS 410 (3/6); SCAN 411 (3); SLAV 105 (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 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 in music scholarship for students interested in graduate work or in 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 details about current offerings, consult the School's website (www.music.ubc.ca).

For the general course requirements of the Bachelor of Arts, see *Faculty Requirements*, p. 121. For information on graduate programs, see *Music*, p. 250 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 level¹.

¹ Any 300- or 400-level Music course, as well as MUSC 107, 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 eight credits of ensemble may be counted toward the Bachelor of Arts.

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 which are 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 *Philoso-*

phy, p. 254 in the Graduate Studies section. The Department also collaborates with Economics, Linguistics, Medieval Studies, Modern European Studies and Science Studies. Brochures giving details of each program, descriptions of courses and other information are available from the Department. Current offerings are also 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

Six 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:

- PHIL 220, 230, 240, 330, 340;
- six credits of 300-level history of Philosophy from PHIL 310, 311, 314, 315; and
- credits from third- and fourth-year Philosophy courses (excluding 400, 401) or GREK 416 or CLST 336 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 six credits of ASIA 371 (3), 372 (3), CLST 336 (3), or GREK 416 (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

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 12 credits of electives at the 300/400-level, at least three credits of which must be at the 400 level. The 18-credit core consists of ECON 101, 102, 201, 202, 325 and 326.

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 six credits of ASIA 371, 372; CLST 336, 337; and GREK 416. The 18-credit core consists of PHIL 220, 230, 240, 330 and 340 plus three credits of history of philosophy from PHIL 310, 311, 314 or 315.

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 and a recommendation from a Philosophy instructor.

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

Six 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

- PHIL 220, 230, 240, 330, 340;
- six credits of 300-level history of Philosophy from PHIL 310, 311, 314, 315;
- at least 12 credits from PHIL 390, 490; and
- credits from third- and fourth-year Philosophy courses (excluding 400, 401) or GREK 416 or CLST 336 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 six credits of ASIA 371 (3), 372 (3), CLST 336 (3), or GREK 416 (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.

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. 147. For information on graduate programs, see *Political Science*, p. 256 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 January 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 six credits of first-year English. Depending upon the number of applicants in a given year, an average of approximately 65% 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 ENGL 100 (or its equivalent).

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 six 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 or 349 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

Admission to the program is subject to the admission restrictions and application processes that pertain currently to the Majors in Economics and Political Science. (Students completing the Foundations Program will be exempted from the requirement of POLI 100.)

ECONOMICS REQUIREMENTS

Students take an 18-credit core plus 12 credits of electives at the 300/400-level, at least three credits of which must be at the 400 level. The 18-credit core consists of ECON 101, 102, 201, 202, 325 and 326.

POLITICAL SCIENCE REQUIREMENTS

Students take a 15-credit core plus 15 credits of electives at the 300/400 level chosen in consultation with an advisor from the Political Science Department. The 15-credit core consists of POLI 100, 101, 240 and 350 plus three credits chosen from POLI 220 or 260.

HONOURS IN POLITICAL SCIENCE

(Including Honours in Political Science with International Relations)

Students with 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, 390, 490/491, plus at least six 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. 147 and *Honours in Political Science*, p. 148. 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 100
- 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 360-370, 460-465, of which at least three must be from 460-464
- 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

The Department issues a pamphlet each May (also available at Political Science website (www.politics.ubc.ca)) to inform students in detail about courses beginning the following September. Students should consult a copy before choosing courses.

- Political Theory—POLI 240, 340, 342, 344, 346, 347, 440, 442, 444, 446, 521, 522, 523
- Public Policy—POLI 302, 350, 351, 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, 460, 461, 462, 463, 464, 465, 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, 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. 139.

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. 353. For information on graduate programs, see *Psychology*, p. 257 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 departmental website (www.psych.ubc.ca).

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 credits, if taken, 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 at least 6 credits from one of the following two lists:

- 1 Biopsychology-304, 306, 360, 361, 363, 364, 460, 461, 466, 467
- 2 Cognition/perception-309, 333, 334, 336, 337, 365, 367, 368, 463

at least 6 credits from each of two of the following four lists:

- 1 Clinical/forensic-300, 314, 350, 401, 430
- 2 Developmental-302, 315, 319, 320, 322, 325, 412, 413, 414
- 3 Foundations/methods-303, 312, 323, 359, 465
- 4 Personality/social-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 (BA)

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 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
- at least six credits from each of four of the six content areas listed below:
- at least 12 credits from:
 - (A) Biopsychology-304, 306, 360, 361, 363, 364, 460, 461, 466, 467
 - (B) Cognition/perception-309, 333, 334, 336, 337, 365, 367, 368, 463
- and at least 12 credits from:
 - (C) Clinical/forensic-300, 314, 350, 401, 430
 - (D) Developmental-302, 315, 319, 320, 322, 325, 412, 413, 414
 - (E) Foundations/methods- 303, 312, 323, 359, 465
 - (F) Personality/social-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 (BA)

For a program description and admission requirements, see Cognitive Systems (Arts).

First Year

| | |
|---------------------------|-----------|
| PSYC 100 (or 101 and 102) | 6 |
| ENGL 100-level | 6 |
| CPSC 111,121 | 8 |
| Math 100 or 102 or 104 | 3 |
| 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 400 | 6 |
| PHIL 441,451 | 6 |
| PSYC 365 | 3 |

At least 12 credits from: PSYC 304¹, 333, 334, 336, 337, 360³, 361, 363, 364, 367, 368, 461, 463, 465; BIOL: 353³, 455, 458; and at least 6 credits from PHIL 340, 440, 452, 461; CPSC 303, 312, 322, 422; LING 300, 316, 319, 427

| | |
|--------------------------|-----------|
| Electives ^{2,3} | 9-27 |
| Total Credits | 60 |

- ¹ Students enrolled in the 24 credit Foundations course should take PSYC 100 in their first year and MATH 100 and CPSC 111,121 in their second year. Students enrolled in the 18-credit Arts I should take PSYC 100 and 6 other credits of the required courses (CPSC 124,126, MATH 100) in their first year and the remaining 3 credits in their second 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.

PUNJABI

See *Major in South Asian Languages*, p. 129 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:

- six credits from RELG 100, 202, 204 or 205; and
- six credits from ASIA 100, 101, 200, 208, 209; 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;
- six 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:

- six credits from RELG 100, 202, 204 or 205; and
- six credits from ASIA 100, 101, 200, 208, 209; 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:

- six credits of RGLA 371, 372 and 471;
- six credits of Religious Studies courses numbered 300 and above; and
- six to nine 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, and Myth and Literature). For other Bachelor programs, see the listings for Classical Studies and Classics (including Greek and Latin). For information on graduate programs, see *Classical, Near Eastern and Religious Studies*, p. 227 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 at www.cnrs.ubc.ca

MAJOR 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 36 credits to be selected from Religious Studies credits numbered 300 or above including both 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.

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 (including Arabic and Hebrew).

Subject to the approval of the Department, a maximum of six 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).

HONOURS IN RELIGIOUS STUDIES

Students require a minimum of six 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). 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)—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.

- Islamic Studies—RELG 202, 340, 341, 420, 448, 449, 480, 485; ARBC 300, 400, 420.

- Judaic Studies—RELG 202, 309, 310, 311, 312, 331, 332, 335, 336, 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 125.

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 Archaeology and Ancient History: RELG 300, CLST 330 and 331, plus
- 12 credits chosen from CLST 306 (3), 307 (3), 308 (3), 311 (3), 312 (3), 335 (6), 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), 341 (3/6), 407 (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: RELG 300; CLST 330, 331; and the Honours Essay, CLST 449 or RELG 499 (each six 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, 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, 331 and RELG 300.

MAJOR IN MYTH AND LITERATURE IN 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, consisting of CLST 100 (6) and RELG 202 (6).

THIRD AND FOURTH YEARS

Students take the following:

- 12 credits of required courses in Myth, chosen from RELG 475 (3) (same as CLST 360), CLST 305 (6), and RELG 304 (3), plus
- 18 credits chosen from CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 317 (3), 318 (3), 336 (3); RELG 302 (3), 311 (3), 314 (6), 315 (6), 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 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 RELG 475 (3) (same as CLST 360), CLST 305 (6), 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), 317 (3), 318 (3), 336 (3); RELG 302 (3), 311 (3), 314 (6), 315 (6), 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

Students take 30 credits as follows:

- CLST 100 (6) and/or RELG 202 (6)
- CLST 305 (6) and RELG 304 (3)
- From 9 to 12 credits as required from among CLST 310 (6), 311 (3), 312 (3), 313 (3), 314 (3), 317 (3), 318 (3), 336 (3); RELG 302 (3), 311 (3), 314 (6), 315 (6), 403 (3), 407 (3), 414 (3), 415 (3).

ROMANCE STUDIES AND LANGUAGES

The Department of French, Hispanic and Italian Studies offers programs of study in Romance Studies and Languages that lead to the Bachelor of Arts. For information on graduate programs, see *Hispanic and Italian Studies*, p. 239 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 LITERATURES

The Department of Central, Eastern and Northern European Studies 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 Fine Arts, 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. 128.

SCANDINAVIAN

See *Central, Eastern and Northern European Studies*, p. 131.

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.

Program advisors are Dr. Alan Richardson, Department of Philosophy, 604-822-3967 and Dr. Judy Segal, Department of English, 604-822-5652.

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.

Recommended lower division courses: CLST/PHIL 211; HIST/PHIL 260; HIST 215, 216; PHIL 125, 220.

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, 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, 464³.

The University provides 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.

- 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. 259 in the Graduate Studies section.

MAJOR IN SOCIOLOGY

FIRST YEAR

Students must take SOCI 100.

SECOND YEAR

Students must take STAT 203¹ and at least three credits from SOCI 201, 210, 213, 214, 215, 240, 250, and 260.

THIRD AND FOURTH YEARS

Students must take at least 30 credits of Sociology, including SOCI 310, at least six credits from 350, 400, and/or 414, at least three credits from SOCI 380, 381, 382, 383, all normally taken in the third year, and additional Sociology courses numbered 300 and above.

MINOR IN SOCIOLOGY

The program requires that students complete

- SOCI 100 or 300;
- three credits from Sociology courses at the 200 level or STAT 203;
- three credits from SOCI 350, 400, and/or 414;
- three credits from SOCI 380, 381, 382, 383; and
- a minimum of 15 additional 300- and 400-level Sociology credits.

HONOURS IN SOCIOLOGY

FIRST YEAR

Students must take SOCI 100.

SECOND YEAR

Students must take STAT 203 and at least three credits from SOCI 201, 210, 213, 214, 215, 240, 250, and 260.

THIRD AND FOURTH YEARS

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.

At least 48 credits in Sociology as follows:

- SOCI 310 and 449

- at least six credits from SOCI 350, 400 and/or 414
- at least one of SOCI 380, 381, 382, 383
- 27 additional credits of third- and fourth-year Sociology courses, of which at least six credits must be from courses numbered 400 and above, in addition to SOCI 449.
- At least six of the additional credits taken in the third and fourth years must be from another discipline.

UNDERGRADUATE COURSES

SOCI 100 or its equivalent SOCI 300 is the prerequisite for all 300- and 400-level Sociology courses, except SOCI 360.

¹ Students pursuing Majors at Okanagan University College may use either MATH 121 or SOCI 371 to satisfy the statistics requirement.

SOUTH ASIAN STUDIES

See *Asian Studies*, p. 128.

SPANISH

See *Hispanic Studies*, p. 139.

SPEECH SCIENCES

See *Linguistics*, p. 142.

THEATRE

The Department of Theatre, Film and Creative Writing offers undergraduate programs of study that lead to the Bachelor of Arts in Theatre and Bachelor of Fine Arts in Acting or Theatre Production and Design. The Department also offers programs leading to 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. 260 in the Faculty of Graduate Studies section.

The Department also collaborates with Canadian Studies; Integrated Drama; Modern European Studies; Religion, Literature and the Arts; and Women's Studies. For details about current offerings, consult the departmental website (www.theatre.ubc.ca).

MAJOR IN THEATRE

FIRST AND SECOND YEARS
THTR 120, 150, 160

THIRD AND FOURTH YEARS
At least 30 credits in Theatre, numbered above 300, including THTR 320, 420 and a minimum of three credits of 399 or 499

HONOURS IN THEATRE

To be admitted to the Honours program in Theatre, students must have 76% in THTR 120 and credit for THTR 150, 160.

THIRD AND FOURTH YEARS
Students must take 36 credits in Theatre numbered above 300, including THTR 449 and a minimum of twelve credits from THTR 320, 321, 325, 420, and 421, and a minimum of three credits in 399 or 499.

MINOR

Students must take 30 to 42 credits in Theatre including:

- a minimum of six credits from THTR 120, 150, 160
- a minimum of six credits from THTR 245, 320, 321, 325, 410, 420, 421
- a minimum of 18 credits in courses numbered 300 or above.

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 (Geography), email ewyly@geog.ubc.ca, telephone 604-822-4653.

URDU

See *Asian Studies*, p. 128.

WOMEN'S STUDIES

Students intending to specialize in Women's Studies may do so by taking an interdisciplinary Major or Minor program in Women's Studies.

Detailed descriptions of the program, courses, and other information are available from the Women's Studies Office (www.wmst.ubc.ca), telephone 604-822-9171.

MAJOR IN WOMEN'S STUDIES

Students majoring in Women's Studies must have their courses approved each year by a Women's Studies advisor. A Double Major is encouraged.

FIRST AND SECOND YEARS

Students must take WMST 100 and six credits from 200-level Women's 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 courses eligible for credit toward a Major: WMST 425¹, 450¹, 480; ANTH/SOCI 312; ASIA 329, 359, 460, 464; CLST 311, 312; ECON 351; FMST 442; GEOG 424; FREN 419 or 422; HIST 335; POLI329, 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 STUDIES

FIRST AND SECOND YEARS

Students must take WMST 100 and six credits of second year Women's Studies courses or ANTH/SOCI 213.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete:

- WMST 322 or 324 (6) and
- an additional 12 credits of third- and fourth-year courses approved for credit toward the Women's Studies Major. WMST 300 may be taken for credit towards the Minor. See list for Major.

Students should consult the Women's Studies office for additional relevant courses in a given year.

¹ May be repeated for credit.

Bachelor of Fine Arts

ADMISSION

See *Admission*, p. 119 as listed under the Bachelor of Arts.

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 120 as listed under the Bachelor of Arts.

FACULTY AND PROGRAM REQUIREMENTS

The Bachelor of Fine Arts is offered in Creative Writing, Visual Art and Theatre (in which there are two distinct programs of study: Acting and Design and Production).

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 *Faculty Requirements*, p. 121.

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-second-

ary program; these are specified in the appropriate departmental entries.

The programs in Visual Arts 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. 123.

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. A B.F.A. with a B.A. Minor can be completed 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.

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

Applicants for CRWR 202 will be admitted if the applicant's submission of 20 to 25 pages of recent work in at least two of the following genres of writing: fiction, drama, or poetry is judged acceptable by the instructor. Applicants for CRWR 301 must submit non-fiction plus one other genre of writing such as fiction, poetry or drama.

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 31st. Applicants will be accepted into the Major or Honours programs on the recommendation of the instructors assigned to evaluate their 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, 406, or 407 may submit fiction or plays. Manuscripts must be submitted to the Creative Writing Secretary before July 31st on the first come basis.

First-year students are not usually 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 202 or 301 and the requirements for the first two years of the B.A. program. CRWR 202 and 301 are not prerequisites for the Major or Honours program and do not assure admission.

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:

- any three of the following workshops: CRWR 306/307, 403, 404, 405, 406, 407, 408 or 409¹, 410, 415, 416
- 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.

- 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 course 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.

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 departmental website (www.theatre.ubc.ca).

The program normally consists of four years of study. In the first year, students take courses applicable to any B.A. program, including the Theatre courses noted below. Application to enter the Bachelor of Fine Arts program proper is made early in April of the student's first year or the week before the beginning of classes in the student's second year. The number of places available in the program is strictly limited, hence entry into the program is by selection based on an audition (Acting Stream) or an interview (Theatre Design and Production Stream). Unsuccessful applicants will be able to continue into the second year of the Bachelor of Arts program. 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 the second or the third year. 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.

Enrolment in the program will be limited, and preference will be given to students with strong evidence of creative ability, either in theatre or in one of the other fine arts. Prospective candidates may obtain details concerning the principles and procedures governing the selection of students from the Department of Theatre, Film and Creative Writing.

VISUAL ART

VISUAL ARTS

The program leading to the Bachelor of Fine Arts in Visual Arts normally consists of four years of study. The first two years are the first two years of the Bachelor of Arts program. Upon completion of 12 credits of second year studio art courses, students may register in the Bachelor of Fine Art in Visual Arts program for the following year, providing they have an average grade of at least 68% in the second year studio art courses.

Students from community colleges intending to enter the Bachelor of Fine Arts in Visual Arts program should normally apply to the University at the end of their first year. However, transfer students may be accepted into the Bachelor of Fine Arts in the third year subject to the submission of transcripts showing the completion of courses equivalent to 12 credits from VISA 281 to 290 with an average grade of at least 68%, an assessment of a portfolio of works and, if possible, an interview. Arrangements for this should be made with the Department by March 31. In all cases, admission will depend upon the spaces available and is at the discretion of the Faculty. Admission to the University of British Columbia is dependent upon the student's meeting the entrance requirements of the University. Students who do not maintain at least a 68% average in the Bachelor of Fine Arts courses may not continue in the program.

FIRST YEAR

Requirements of the first year Bachelor of Arts program, include VISA 181 with a grade of at least 68%. Students must also complete six credits of art history (with a grade of at least

68%) in the first two years prior to entering the Bachelor of Fine Arts program in third year.

SECOND YEAR

Requirements of the second year B.A. program, including 12 credits chosen from VISA 281 to 290 (with at least a 68% overall average in the four courses). Admission to the Major requires an average of at least 68% for the four second-year visual art courses.

THIRD YEAR

At least 48 of the last 60 credits must be in courses numbered 300 or above.

At least 12 credits of the last 60 must be chosen from non-VISA courses.

Third year of the program requires that students complete

- VISA 380;
- 12 credits from VISA 381 to 386; and
- six credits of elective courses.

Students must also complete at least six credits of art history at the 300 level or above in their final two years.

FOURTH YEAR

Fourth year of the program requires that students complete

- VISA 480;
- 12 credits from VISA 481 to 484; and
- 12 elective credits.

BFA HONOURS PROGRAM

FIRST AND SECOND YEARS

As for the B.F.A.

THIRD AND FOURTH YEARS

The same as for the major with the difference that the student will take an additional twelve credits in the following pattern:

- Six credits additional Art History work at the 400 level
- Six credits additional visual work at the 400 level

In order to be admissible to the BFA honours program students must have achieved an average mark of 80% in the second year studio courses. Alternately students may be admitted by written permission of the department.

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).

FIRST YEAR

Requirements of first-year Bachelor of Arts program, including THTR 120, 150, 160; or the Foundations Program and six credits from THTR 120, 150, and 160.

SECOND YEAR

Requirements of second-year Bachelor of Arts program, including THTR 261 and 262.

THIRD AND FOURTH YEARS

- THTR 361, 362, and 370
- THTR 461, 462, and 470

- twelve credits from THTR 320, 321, 325, 420 or 421
- twelve credits of electives.

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 THTR 120, 150, 160; or the Foundations Program and six credits from THTR 120, 150, and 160.

SECOND YEAR

Requirements of second-year Bachelor of Arts program, including THTR 250 and 251.

THIRD YEAR

- THTR 305
- six credits from THTR 320, 321, 325
- twelve credits from THTR 350 to 356
- six credits of electives.

FOURTH YEAR

- THTR 459
- six credits from THTR 325, 420, 421
- twelve credits from THTR 405, 450 to 456
- six credits of electives.

Refer to the Summary of *Program Requirements for Honours*, p. 124 in the Arts Faculty section of this Calendar.

Diploma in Applied Creative Non-Fiction

The Department of Theatre, Film and Creative Writing offers the Diploma in Applied Creative Non-Fiction.

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 requirements 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. Manuscript must be submitted to the creative writing secretary by March 31st.

DIPLOMA REQUIREMENTS

Students must take CRWR 301¹ (or equivalent); CRWR 405²; CRWR 416; CRWR 439 and/or 492. Total: 24.

A completion grade of 85% or higher is required to qualify for continuation in the program.

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*, 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.

¹Comprised of other writing courses or equivalent writing experience.

²CRWR 405 and 416 may be taken concurrently.

Diploma in Linguistics

The Department of Linguistics offers the Diploma in Linguistics. The Diploma provides training in the structural analysis of language, with the option of including undergraduate courses in related applied areas like Language and Literacy Education or Audiology and Speech Sciences. It is suitable as preparation for graduate training in Linguistics, and can also provide courses that are relevant preparation for advanced training or graduate work in speech-language pathology, audiology or second-language teaching (e.g., of English, of First Nations languages or of other languages). Note that this program does not provide practical training in language skills.

ADMISSION

Applicants must have completed a bachelor's degree. They must have completed LING 200 and 201 or 420 (or equivalent).

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 undergraduate advisor. The following thirty credits of course work are required:

- six credits from List A;
- six credits chosen from Lists A or B;
- six credits chosen from Lists A, B or C; and
- 12 credits chosen from Lists A, B, C or D.

LIST A: CORE COURSES
LING 300, 301, 311, 312

LIST B: SECONDARY CORE COURSES
LING 305, 310, 316, 317, 319, 415, 427, 431, 432, 451, 452

LIST C: SENIOR-LEVEL COURSES IN LINGUISTICS
LING 320, 337, 430, 433, 434, 435, 445, 447, 448.

LIST D: SENIOR-LEVEL COURSES IN RELATED AREAS

ANTH 322, 417; AUDI 400, 402; 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 336, 337; SPAN 403, 407.

Note: Depending on the student's program, the Linguistics undergraduate advisor may accept other courses.

Those 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.

Diploma in Art History

The Department of Art History, Visual Art and Theory offers the Diploma in Art History. Applicants to the program shall 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 VISA 300 plus one 400 level seminar is recommended. No more than six credits of cross listed courses offered by other departments, excepting VISA 329, may be counted toward the requirements. Only six 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. Thirty-six 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, and nine 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.

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 which 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 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 résumé or portfolio will be of principal importance.

CERTIFICATE IN THEATRE (TECHNOLOGY)

Students take the following 60 credits:

- 30 required credits THTR 120 (3), 245 (3), 250 (6), 251 (6), 305 (3), 399 (3), 459 (6)
- 24 specialist credits chosen from THTR 350 (3)/450 (3), 351 (3)/451 (3), 352 (3)/452 (3), 353 (3)/453 (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 245 (3), 305 (3), 399 (3), 499 (3), 459 (6)
- 12 Arts credits chosen from FILM 233 (3); FINA 100 (6), 125 (6); THTR 320 (6), 321 (3), 325 (3), 420 (3), 421 (3).
- 24 specialist credits chosen from THTR 350 (3)/450 (3), 351 (3)/451 (3), 352 (3)/452 (3),

353 (3)/453 (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 FINA 387 (6), 389 (6), 390 (6); THTR 305 (3), 405 (3)
- 6 to 12 Arts credits chosen from FILM 330 (6); FINA 225 (3), 226 (3); THTR 320 (6), 321 (3), 325 (3), 400 (6), 420 (3), 421 (3), 550 (6)
- 12 specialist credits chosen from THTR 350 (3)/450 (3), 351 (3)/451 (3), 352 (3)/452 (3), 353 (3)/453 (3), 354 (3)/454 (3).

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5 The School of Audiology and Speech Sciences

A SCHOOL WITHIN THE FACULTY OF MEDICINE

Director's Office
C. E. Johnson, Director
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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. The School emphasizes the importance of basic science to the understanding of communication disorders and the relevance of clinical data to theories of human communication. The School has the following objectives: to educate individuals to become audiologists, speech-language pathologists, and researchers; and to actively engage in research. Students in the School address complex communication problems within an interdisciplinary framework. Graduates are grounded in the basic and applied sciences and have the skills necessary to apply theory to practice in the community.

The School subscribes to the philosophy that 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 especially 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 linguistics, psychology, acoustics, physiology, and related disciplines, and embraces a continuum of endeavour from basic research to clinical practice. The School's commitment to interdisciplinarity provides a unique foundation for both education and research.

Master of Science

The School of Audiology and Speech Sciences offers a graduate program leading to the Master of Science. This program, designed to provide the scientific and clinical education necessary for the professions of Audiology and Speech-Language Pathology, is composed of a core curriculum with options for some specialization. After completing basic level core courses, students elect a Major in either Audiology or Speech-Language Pathology. Graduates of this program will have completed

the academic and practical requirements for professional certification. The Master of Science program will usually require 24 to 36 months to complete, depending on the student's undergraduate preparation. With completion of prerequisite and core curriculum courses open to undergraduates, a student is eligible for the two year program (see *Degree Requirements*, p. 160).

The program provides each student with at least the minimum number of hours of clinical practice required for certification by Canadian professional associations. Prior to this experience students participate in individual and group observations of audiologists and speech-language pathologists. These observations serve to acquaint the student with different settings in which an audiologist or a speech-language pathologist may work. They also introduce the student to a variety of diagnostic and treatment techniques. After completion of basic clinical coursework and laboratories, each student completes a clinical practicum in the minor area of interest and two externships in the major area of interest. After completion of more advanced coursework in the Major, each student completes further externship work in that area. During the externships the student gradually assumes a full caseload under supervision. The clinical education program strives to provide each student with experience in all aspects of the Major as well as a foundation of clinical experience in the Minor.

ACADEMIC ADVISING

Students are assigned to a faculty adviser prior to the beginning of their first term.

ADMISSION

Admission is on a competitive basis. Applicants should have appropriate undergraduate preparation as defined below. 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, are minimum requirements.

A number of courses are considered appropriate preparation for graduate work in Audiology and Speech Sciences. Students accepted into the program normally have a degree in either linguistics or psychology, with good background in the other discipline.

Students intending to apply for admission to the program should have completed a minimum of five of the prerequisite and core curriculum courses listed below and develop an undergraduate Major which will include, in addition to the five courses, as many of the prerequisite, core curriculum and recommended courses listed below as possible. This can be achieved through either a linguistics or a psychology bachelor's degree. However, UBC and University of Victoria undergraduates are encouraged to complete the speech science major offered by the linguistics departments at these universities. Numbers listed below refer to UBC course numbers.

PREREQUISITE AND CORE CURRICULUM COURSES

A minimum of five of the courses listed below must be completed prior to applying for admission to the Master of Science program. The Master of Science can be completed in either two or three years, depending on the number of prerequisite and core courses a student has completed prior to entry into this degree program.

A three-year 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 course scheduling of the UBC department offering the course. To avoid problems related to schedules and prerequisites, all prospective students should complete as many of the courses listed below as is possible prior to entry.

Background coursework in the twelve content areas listed below is considered to be essential preparation for the Master of Science curriculum. Applicants from UBC should have taken the courses listed for these areas; students from other universities should have taken three to six credits for each of the content areas listed. All things equal, applicants who have completed all or most of these courses will have the advantage in admission decisions.

PREREQUISITE AND CORE CURRICULUM COURSES

| Content Area | UBC Courses |
|----------------------------------|-------------------------------|
| Calculus or Precalculus | MATH 111 or 180 or 184 or 012 |
| Studies in Grammar I | LING 300 |
| Phonetics Practicum | LING 310 |
| Introduction to Speech Sciences | LING 316 |
| Instrumental Phonetics | LING 317 |
| Language Acquisition | LING 451 and 452 |
| Phonology | LING 311 |
| Developmental Psychology | PSYC 302, 315 |
| Sensory Systems/ Perception | PSYC 367, 368 |
| Research Methods | PSYC 217 |
| Introduction to Neurolinguistics | AUDI 402 |
| Auditory Mechanisms I | AUDI 514 |

The courses in the above list are required for the Master of Science. Undergraduate students are encouraged to take them as part of their bachelor's program, thus making room for graduate-level electives or making it possible to complete the Master of Science program in two years.

RECOMMENDED COURSES

The following courses provide additional preparation for the Master of Science program: PHYS 100 or 101 or 153 (preferred) or 170; CPSC 124, 126; AUDI 400; LING 301, 312, 405, 427, 431, 432; PSYC 218, 304, 309, 322, 336, 337, 360, 414, 521.

Students with other academic backgrounds who have outstanding academic records and who are interested in applying, should write to the Chair of the School's Admissions Committee with the details of their academic preparation.

For further information concerning course listings at universities other than UBC, contact the Chair of the Admissions Committee, School of Audiology and Speech Sciences.

APPLICATION FOR ADMISSION

Persons interested in applying to the School Masters of Science program may either call or write for application materials, or 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 January 17. 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.

- 1 an application form, including the (yellow) 'Additional Information' form, completed and signed;

- 2 a processing fee of CAD\$90 or US\$56, by cheque, bank draft or money order, should be made payable to UBC, Faculty of Graduate Studies;
- 3 an updated 'List of Prerequisites to the M.Sc. Program';
- 4 a written statement by the applicant of up to 500 words indicating the reason for wishing to study Audiology and/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) who have been observed in the course of their practice;
- 5 the 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.
- 6 three letters of reference, at least two of which should be written by professor who taught the applicant in the last two years of university work. These letters must be mailed directly to the School by the referees, and;
- 7 Test of English as a Foreign Language (TOEFL). Proof of proficiency in the English language is required if English is not the applicant's native language. No offer of admission to the University will be made until we receive a TOEFL result. The minimum acceptable score for this program is 600.
- 8 Applicants who are non-native speakers of English must also provide a five to ten minute audio cassette recording of their speech. This speech sample can be on any topic, as long as it is neither read nor recited.

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.

Students accepting an offer of admission to the Master of Science program in the School of Audiology and Speech Sciences, at the time of acceptance of admission, are required to pay a non-refundable deposit of CAD\$200, to be applied to the student's first-term tuition.

Students with other academic backgrounds who have outstanding academic records and who are interested in applying, should write to the chair of the School's Admissions Committee with the details of their academic preparation.

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, SHHRC or CNIH 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 curriculum is designed to span three years; the following description reflects this design. Students may fulfill some of the curriculum requirements as part of their upper level undergraduate coursework. Those who plan in this way should be able to complete the Master of Science program in two years, at the discretion of the School, and depending on how much of the core curriculum is included in the student's undergraduate education. Completion of the Master of Science requires fulfillment of the core curriculum and completion of a minimum of 30 credits of coursework. In addition to course requirements, all students must complete either a thesis or a major essay. Those students electing the essay option are required to prepare a major library research paper and to present their work in an April Symposium.

BASIC CORE COURSES

The following courses must be completed before declaring a Major in either Audiology or Speech-Language Pathology: AUDI 513, 514, 518, 520, 522, 571.

FOCUSED CORE COURSES

Requirement following selection of a Major (normally at the end of third term in a three-year program or at the end of the first term in a two-year program).

- All students—AUDI 516, 545, 523
- Audiology Major—AUDI 552, 554, 556
- Speech-Language Pathology Major—AUDI 526, 570, 576

COURSES TO BE TAKEN DURING THE SUMMER AFTER COMPLETING THESE COURSES.

The following courses are to be taken during the summer after completing the courses above:

- Audiology Major—AUDI 565, 566, 559
- Speech-Language Pathology Major—AUDI 590, 591, 579
- Audiology Major—AUDI 565, 566, 559
- Speech-Language Pathology Major—AUDI 590, 591, 579

ADVANCED CORE COURSES

Students will concurrently work on thesis (AUDI 549) or essay (AUDI 548). Normally taken in final year of study.

TERM 1

In Term 1, students must take the following courses:

- Audiology Major—AUDI 528, 545, 558, 560, 562 and 564

- Speech-Language Pathology Major–AUDI 545, 572, 575, 581 and 586

TERM 2

In Term 2, students must take the following courses:

- All students–AUDI 550
- Audiology Major–AUDI 569
- Speech-Language Pathology Major–AUDI 592

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 Audiology and Speech Sciences. For more information see the College's section in this chapter, the courses section, or visit their website (www.health-disciplines.ubc.ca).

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 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 in a variety of cultural groups. 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 a further criterion for 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 up such criteria as the likelihood of improved performance and the availability of an appropriate site. Finally, students should also note that one of their externship placements is likely to require temporary relocation outside the Vancouver area, e.g., Kelowna. This may entail some additional expense.

Doctor of Philosophy

The School of Audiology and Speech Sciences offers a Doctor of Philosophy program, 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, aural rehabilitation, auditory neurophysiology, electrophysiologic diagnosis and hearing science. A brochure giving details of this program is available from the School's office.

Academic Staff

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2003-04

6 The Faculty of Commerce and Business Administration

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Commerce and Business Administration Website
(www.commerce.ubc.ca)

The Faculty of Commerce and Business Administration offers undergraduate programs 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. At the graduate level, programs leading to the degrees of Master of Business Administration, Master of Science in Business Administration and Doctor of Philosophy are offered. For information on graduate programs, see *Commerce and Business Administration*, p. 227 in the Faculty of Graduate Studies Section.

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. 165. 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 to 3:30 pm, Mondays through Wednesdays, or by appointment 10:00 am to 12:00 pm, Wednesdays 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, 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

Effective October 2003, the Faculty of Commerce and Business Administration will no longer admit students on the basis of grades alone. The Faculty has implemented a Broader Based Admission policy that incorporates the use of additional criteria in the selection of all students entering first year of the Bachelor of Commerce program. The Faculty is also expecting the approval and implementation of Broader Based Admission for applicants to second and third year of the program in October 2004 and 2005 respectively.

Detailed information on admission requirements for all applicants is available on the Faculty of Commerce and Business Administration website (www.commerce.ubc.ca).

SECONDARY SCHOOL APPLICANTS

Admission of secondary school students into Year 1 of the Bachelor of Commerce program will be based upon academic performance and overall records of leadership and accomplishment. Among the factors considered in the application review are grade 12 (or equivalent) courses required for admission, evidence of additional academic criteria including achievement in standardized tests and results from national or international competitions, short personal statements, letters of reference,

demonstrated leadership skills, and active participation in extra-curricular activities.

BC COLLEGE COMMERCE TRANSFER PROGRAMS

Students who have completed second-year Commerce at a college offering a UBC Commerce transfer program are eligible to be considered for admission to third-year. Students must have completed 54 credits with a minimum grade point average of 2.00 overall. Attainment of the minimum prescribed requirement means only that the applicant is eligible for selection but does not provide assurance of admission.

COLLEGE/UNIVERSITY TRANSFER STUDENTS (INCLUDING UBC STUDENTS TRANSFERRING FACULTIES)

Students who have completed a minimum of 27 transferable credits at an accredited post-secondary institution may apply for admission to second year of the Bachelor of Commerce program. Applicants must have completed the following 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 (or any of MATH 100, 102, 120, 180, 184, followed by any of MATH 101, 103, 121); and 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 they are prerequisites to most second year courses. Students must complete all core courses by the document deadline.

COMMERCE PROGRAMS AT OTHER UNIVERSITIES

Commerce students attending other universities and wishing to transfer to the Faculty of Commerce and Business Administration at UBC will be considered on an individual basis. Students may be admitted with advanced standing as approved by the director of the undergraduate program. 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-pt scale) is required to be considered for admission. Students who have been required to withdraw from another university will not be considered. Students who have been accepted into the Bachelor of Commerce program must be in attendance at UBC and registered in the Faculty for a minimum of two full-time Winter Sessions.

ACADEMIC REGULATIONS

The following regulations regarding Commerce courses apply:

- 1 Students are admitted to the Bachelor of Commerce program, not to particular options and enrolment in required option courses may be limited. Students may select their field of concentration (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 is possible to try to change options at the end of the Term 1 there may not be sufficient room 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 the Term 1 require the approval of the Commerce Undergraduate Program Office.
- 2 Each option program assumes that there is a normal sequence of courses, as listed in the UBC Commerce website. 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 general regulation. Special registration 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 in their third year may elect to register for up to six 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 an average of 80% or better has been achieved in the program of an academic year of at least 27 credits in first year, of at least 30 credits in second year, and 27 credits in 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 and 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 and 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 reminded of the University rule regarding program responsibility. Students are responsible for the completeness and accuracy of registration as it relates to the regulations of the program in which they are enrolled. Any variation from a full load must be approved by the director or associate director of the undergraduate program.

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 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 either of the two required first year English courses 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.

ADVANCEMENT REQUIREMENTS

The UBC 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.

- 1 To earn a promotion from 1st to 2nd year, a student must have completed a minimum of 27 credits including all required English, Math and Economics courses.
- 2 To earn a promotion from 2nd to 3rd 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, 297; no more than one of Commerce 391, 392 and 396 may substitute for one of the second year Commerce courses.
- 3 To earn a promotion from 3rd to 4th year, a student must have completed 84 credits including two option core courses and four of the following seven third year core courses: COMM 391, 392, 394, 396, 397, 393 or 399.

SUMMARY OF CONTINUATION REQUIREMENTS

| Year Level | Winter Session Average | *Core Average | 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 |

* Core average is calculated on all required Economics, English, and Math courses.

MINOR OPTIONS

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

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.

BACHELOR OF COMMERCE

First Year Pre-Commerce

(For students completing first year in another faculty prior to applying for admission to second year Commerce.)

| | |
|---|-------|
| ENGL 112 plus one from ENGL 110/111/120/121 | 6 |
| ECON 101/102 | 6 |
| MATH 104 or 184 ¹ | 3/4 |
| MATH 105 ² | 3 |
| Non-Commerce Electives | 12 |
| Total Credits | 30/31 |

First Year

(For students admitted directly into first year Commerce from secondary school.)

| | |
|---|-------|
| ENGL 112 plus one from ENGL 110/111/120/121 | 6 |
| ECON 101/102 | 6 |
| MATH 104 or 184 ¹ | 3/4 |
| MATH 105 ² | 3 |
| COMM 292 | 4 |
| COMM 293 | 3 |
| Non-Commerce Electives | 6 |
| Total Credits | 31/32 |

Second Year

| | |
|--|-------|
| COMM 290, 291, 292 ³ , 293 ³ , 294, 297, 299 | 22 |
| COMM 295 ⁴ | 3 |
| One of COMM 391 ⁵ , 392 or 396 | 3/4 |
| Six credits of non-Commerce Electives | 6 |
| Total Credits | 34/35 |

Third Year

| | |
|--|-----|
| COMM 394, 397 | 7 |
| Two of COMM 391, 392 or 396 ⁶ | 6/7 |
| One of COMM 393 or 399 (secondary core) ⁷ | 3 |
| Electives, including at least three credits of non-Commerce Electives ⁸ | 9 |

Third Year (Continued)

| | |
|--|-------|
| Option Requirements (as specified below) | 6 |
| Total Credits | 31/32 |

Fourth Year

| | |
|--|----|
| One of COMM 491, 497, or 498 | 3 |
| One additional course from the following list (secondary core) ⁷ : COMM 393 (if not already taken in third year) COMM 399 (if not already taken in third year) COMM 491, 492, 494, 497, or 498 ⁹ | 3 |
| Electives, including at least six credits of non-Commerce electives ⁸ | 15 |
| Option Requirements (as specified below) | 9 |
| Total Credits | 30 |

¹ Acceptable alternatives are MATH 100 or 180 or 102 or 120 or 140.

² Acceptable alternatives are MATH 101 or 103 or 121 or 141.

³ Students admitted directly to the Bachelor of Commerce program from secondary school who complete COMM 292 and COMM 293 in first year will take 6 credits of non-Commerce electives in place of these courses in second year.

⁴ ECON 201 and ECON 303 may be taken instead of COMM 295. Students planning to take fourth year economics courses should be aware that these courses require ECON 201 or ECON 206 or permission of the economics department as a prerequisite. Students planning to pursue the Commerce and Economics Option should enrol in ECON 201 and ECON 303.

⁵ Students intending to take the MIS Option should complete COMM 391 in second year.

⁶ Whichever courses were not taken in second year.

⁷ Students take two courses in the secondary core—generally one in third year and one in fourth year.

⁸ The Bachelor of Commerce requires a minimum of nine 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. 165 for more information.

⁹ Students must take one course from COMM 491, 497 or 498 as part of the core requirements in the fourth year. An additional course may be chosen from COMM 491, 492, 494, 497, or 498 to satisfy one of the two requirements of the secondary core. The 49X series of courses can only be taken in the fourth year.

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, Transportation and Logistics, or Real Estate. Option requirements are listed below.

CO-OPERATIVE EDUCATION PROGRAM

The Commerce Co-operative Education Program 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 Commerce 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. 49). 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 completed the required number of work placements satisfactorily, in addition to the normal academic requirements.

ELECTIVES

Electives are chosen to complement the choice of option as well as to broaden the student's general education. Many senior level courses require junior prerequisites so students should select lower level electives carefully. At least nine credits of 300- or 400-level electives must be taken in a faculty other than Commerce and Business Administration in the third and fourth years combined. At least twelve of the 24 elective credits in the third and fourth years, whether Commerce or non-Commerce, must be at the 300-level or higher. Any exceptions must be approved by the Commerce Undergraduate Program Office. Students should refer to the UBC Commerce website to verify which electives are appropriate.

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 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% 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. 22).

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 the courses section of the UBC Calendar.

Any student not registering for a normal sequence of courses must consult the director or associate director of the undergraduate program. 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, and
- nine credits of electives including three credits of non-Commerce electives.

FOURTH YEAR

Fourth year of this option requires that students complete

- COMM 450;
- six credits from 452, 453, 454, 455, 459; and
- 15 credits of electives including six credits of non-Commerce electives.

COMMERCE AND ECONOMICS

SECOND YEAR

Students should take ECON 201 or 206.

THIRD AND FOURTH YEARS COMBINED

Third and fourth years of this option require that students complete

- ECON 303;
- six credits of 300- or 400-level economics;
- nine credits of 400-level economics;
- six credits of 300- or 400-level Commerce; and
- 15 credits of electives including nine credits of non-Commerce electives.

Students completing a Commerce and Economics Option may not take economics courses as their non-Commerce electives. Students in this option should take ECON 201 and 303 instead of COMM 295. Students planning to take fourth year economics courses should be aware that these courses require ECON 201, ECON 206 or permission of the Economics Department as a prerequisite. ECON 202 is highly recommended as an elective.

FINANCE

THIRD YEAR

Third year of this option requires that students complete

- COMM 371, 374;
- three credits from COMM 307, 376¹, 377, 378, 379; and
- six credits of electives, of which at least three credits must be non-Commerce electives.

FOURTH YEAR

Fourth year of this option requires that students complete

- six credits from COMM 405, 471, 472, 475, 478 and
- 18 credits of electives of which at least six must be non-Commerce electives.

¹ Credit will not be given for both ECON 345 and COMM 376.

GENERAL BUSINESS MANAGEMENT

THIRD YEAR

Third year of this option requires that students complete

- COMM 393, 399¹;
- three credits from: COMM 405, 310, 320, 335, 349, 353, 354, 362, 363, 365, 371, 374, 410, or 411; and
- 9 to 12 credits of electives, including at least three credits of non-Commerce electives.

FOURTH YEAR

Fourth year of this option requires that students complete

- nine credits from COMM 491, 492, 493, 494, 497, or 498, including at least three credits from COMM 497 or 498;
- at least three credits of 400-level course work built on COMM 405, 310, 320, 335, 349, 353, 354, 362, 363, 365, 371, 374, 410, or 411; and
- 15 to 18 credits of electives, including at least six credits of non-Commerce electives².

¹ Students in the General Business Management Option take courses in all three functional areas of the secondary core. Two of these courses count as secondary core requirements, and one as a General Business Management Option requirement. One of COMM 393 or 399 may be taken in fourth year.

² General Business Management students are restricted to taking no more than nine 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 and
- nine credits of electives including three credits of non-Commerce electives.

FOURTH YEAR

Fourth year of this option requires that students complete

- COMM 421, 425, 428
- 15 credits of electives including six credits of non-Commerce electives

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 100-200 level language study (in one language)
- 6 credits of approved internationally related courses
- participation in a Commerce approved international exchange/study abroad program
- COMM 498

MANAGEMENT INFORMATION SYSTEMS

THIRD YEAR

- COMM 335, 436, 437 and
- 12 credits of electives, at least three of which must be non-Commerce.

FOURTH YEAR

- COMM 438, 439 and
- 12 credits of electives including six credits of non-Commerce electives.

Recommended non-Commerce electives include: CPSC 122, 128, 216, 218, 220, 310, and 319. 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 and
- nine credits of electives including three credits of non-Commerce electives.

FOURTH YEAR

Fourth year of this option requires that students complete

- COMM 365¹, 468
- Three credits from COMM 460, 461, 462, 463, 464, 466, 467, 469

- 15 credits of electives including six credits of non-Commerce electives

¹ **COMM 365 may be taken in third year, in which case COMM 362 must be taken in fourth year.**

TRANSPORTATION AND LOGISTICS

THIRD YEAR

Third year of this option requires that students complete

- COMM 349, 394¹, 399² and
- 12 credits of electives including six credits of non-Commerce electives.

FOURTH YEAR

- COMM 441, 449;
- three credits from COMM 442, 444, 445, 447; and
- 15 credits of electives including six credits of non-Commerce electives.

Students are encouraged to take COMM 446.

¹ **Special section of COMM 394 required.**

² **COMM 399 must be taken as one of the student's two choices for secondary core courses, as it is a prerequisite for COMM 441, required in fourth year.**

REAL ESTATE

THIRD YEAR

Third year of this option requires that students complete

- COMM 306, 307
- Nine credits of electives, including at least three credits of non-Commerce electives

FOURTH YEAR

Fourth year of this option requires that students complete

- COMM 405, 408;
- COMM 407 or 409; and
- 15 credits of electives including six credits of non-Commerce electives.

Recommended electives: COMM 434, 471, ECON 447 or PLAN 425; one of COMM 376 or ECON 345.

STUDENTS WHO ENTERED PROGRAM PRIOR TO SEPTEMBER 1993

Students who registered initially in the Bachelor of Commerce program prior to September 1993 should see the Undergraduate Program Office regarding the requirements to complete the degree.

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 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 Open University of BC 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 Urban Land Economics Diploma or equivalent with a grade point average of 2.0 (60%) or greater. Students will also be required to demonstrate proficiency in English skills, such as completion of six credits of university English courses, or other standards as outlined in *English Language Admission Standard*, p. 21. 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. 164 as listed 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 |

General Business Courses (Continued)

| | |
|------------------------------------|-----------|
| 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 |
| 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 470 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

¹ **Required course for the Urban Land Economics Diploma.**

² **Elective course for the Urban Land Economics Diploma.**

³ **under development; expected to be offered January 2004. An approved substitute, normally an additional 'Real Estate Specialty/Elective' course, may be taken in lieu of BUSI 425 until such time as it is available.**

⁴ **Completion of BUSI 121 exempts students from 'Introductory Probability and Statistics,' enabling students to select a further 3 credits of elective courses.**

Diploma in Accounting

The Diploma in Accounting program (DAP) is offered through the Professional Programs Division of the Faculty of Commerce and Business Administration. The DAP 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 DAP 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 Professional Programs Division by telephone at 604-822-8412, or visit the DAP website (www.proprograms.ubc.ca/DAP).

ADMISSION

In order to be granted admission to the program, all applicants must be able to demonstrate proficiency in English skills at the university level by either successful completion of two university-level English courses (six credits), or satisfactory results from a recognized test of English that meets the English Language Admission Standard. See *English Language Admission Standard*, p. 21 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 semester 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 DAP program accepts new students twice a year: May and September. Deadline for admission applications for courses beginning in May: March 31. Deadline for admission applications for courses beginning in September: July 15.

DIPLOMA REQUIREMENTS

The DAP consists of eleven three-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 three-credit course provides for 39 hours of classroom instruction.

The DAP 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 6 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 DAP program can be completed in less than one year.

Diploma in Accounting

| | |
|-----------------------|-----------|
| BUSI 293 | 3 |
| BUSI 294 | 3 |
| BUSI 335 | 3 |
| 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 at UBC 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 the Province of British Columbia. For additional information regarding these programs, please call 604-822-8444.

- 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-bc.org).
- 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 Salesperson's Pre-Licensing

Course. A distance education course meeting the academic requirements for licensing as a real estate salesperson in the Province of British Columbia.

- Property Management Pre-Licensing Course. A distance education course meeting the academic requirements for licensing as a property manager in the Province of British Columbia.
- The Real Estate Agent's Pre-Licensing Course. A distance education course meeting the educational requirements for licensing as a real estate agent 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. A four year distance education program in advanced real estate studies.
- Certificate Program in Real Property Assessment. A two-year correspondence 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.

Professional Masters Degrees

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 professional development. A pre-core provides fundamentals for students who lack adequate academic preparation for the program.

The program is available for either full-time or part-time study. The full-time program normally requires 15 months of continuous study. The part-time program normally requires up to three years of study. In determining the admissibility of a candidate to the Master of Business Administration program, no distinction is made between full-time and part-time students.

For further updates and detailed admission information, please check the Commerce Website (www.commerce.ubc.ca). At the time of

acceptance of an offer of admission to the MBA 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. It 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 and business statistics. Since backgrounds vary the extent of a student's required participation should be determined in consultation with the program director or designate.

CORE (FULL-TIME)

The full-time core consists of the 18 credit required course, BA500. This course is offered between September to December in the first year of studies.

CORE (PART-TIME)

The part-time core will be offered at times suitable for part-time study. The schedule for the upcoming academic year is available from the Commerce Masters' Programs Office. All part-time students 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. Part-time students will normally complete the post-core within a two-year period. Modules will be offered at times suitable for part-time study.

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 may propose an individual program of study for approval. 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 Commerce Masters' Programs Office.

INTERNSHIP/PROJECT

The Internship/Project, BA510 is an integral part of the specialization 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.

PROFESSIONAL DEVELOPMENT

This component, designated as BA520, begins with orientation and runs throughout the program. Its aim is to build professional skills, foster team work, leadership and interpersonal skills. It will also provide 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 participate in this program should enrol in BA530. See the International Programs website (www.commerce.ubc.ca/international/) for further details. Students accepting an offer of admission to the M.B.A. program will be required to pay, at the time of acceptance of the offer, non-refundable deposits which will be applied to tuition.

Students accepting an offer of admission to the M.B.A. program will be required to pay, at the time of acceptance of the offer, non-refundable deposits which will be applied to tuition.

INTERNATIONAL MASTER OF BUSINESS ADMINISTRATION

The International Master of Business Administration (IMBA) is an international delivery of a modified MBA 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.commerce.ubc.ca.

LL.B./M.B.A. COMBINED PROGRAM

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 86 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 | 32 |
| 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) Professional Development Program as per the full-time M.B.A. program | 39 |
| Years 3 and 4 | |
| Law courses | 54 |
| MBA credits | 6 |
| Total Credits | 131 |

SECOND, THIRD AND FOURTH YEARS

Program requirements are as follows:
 1 Commerce requirements. Students will be required to take the full-time core course, BA500, to choose a specialization which requires an in-depth study in a specific area of management 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. Six credits of the upper-year Law courses will count as credit toward the M.B.A. In addition, students are required to complete the Internship/Project BA510 and the Professional Development program BA520.

- 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 total of 54 credits of 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.
 - Law 407 (Taxation I) must be taken. If the student has already received credit for Commerce 355 (Income Taxation) or its equivalent, another three credits of Law courses must be taken in substitution for Law 407. Commerce 355 will be deemed equivalent to Law 407 for prerequisite purposes.
 - 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.
 - The student's program of courses must be approved by the Joint Degrees Committee.

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.

MASTER OF BUSINESS ADMINISTRATION-MASTER OF ARTS, ASIA PACIFIC POLICY STUDIES, COMBINED DEGREE

This program permits students to obtain a combined MBA-MA (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 commerce and Asia Pacific policy studies.

ADMISSION

Students wishing to pursue the combined MBA/MAPPS degree program must be admitted separately to the Faculty of Commerce for the MBA degree and the Institute of Asian Research for the MAPPS 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 MAPPS 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 MBA/MAPPS Combined Degree Program are required to complete all course requirements for graduation in each of the MBA and MAPPS Programs, subject to the following adjustments:

- 1 Students enrolled in the combined degree program who complete the MAPPS core course (IAR 500) required for the MAPPS degree will also receive six credits toward completion of their MBA degree.
- 2 Students enrolled in the combined degree program who complete 6 credits of Commerce Faculty course work acceptable to their respective MBA and MAPPS program supervisors will receive credit for these courses toward both the MBA and the MAPPS 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)

| | |
|--|------------|
| Students require first year curriculum for MBA | 18 credits |
|--|------------|

Year One (January–August)

| | |
|--|------------|
| Students begin completion of elective requirements for MBA | 21 credits |
|--|------------|

Year Two (September–December)

| | |
|---|-----------|
| Students begin MAPPS core course (IAR 500) | |
| Students complete course requirements for MBA | 6 credits |

Year Two (January–August)

| | |
|---|-----------|
| Students complete MAPPS core course (IAR 500) | 6 credits |
| Students complete MAPPS elective requirements | 6 credits |

Year Two (January–August) (Continued)

| | |
|--|------------|
| Students complete thesis or practicum requirements for MAPPS | 12 credits |
|--|------------|

| | |
|----------------------|-------------------------------|
| Total Credits | 75 (MBA 45// MAPPS 30) |
|----------------------|-------------------------------|

CONFERRING OF DEGREES

The MAPPS and MBA 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 MAPPS or the MBA 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

For more information contact Master's Programs in the Faculty of Commerce and Business Administration (masters.programs@commerce.ubc.ca) at 160-2053 Main Mall, Vancouver, BC, V6T 1Z2; telephone 604-822-8422, fax 604-822-9030, or visit the Faculty of Commerce and Business Administration website (www.commerce.ubc.ca).

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 C.G.A. program.

Graduates from the Diploma in Accounting Program may be given advanced standing toward the C.G.A. designation.

Graduates from the Bachelor of Commerce Accounting Option may be granted additional advanced standing toward the C.G.A. designation.

For additional information, visit the CGA-BC website (www.cga-bc.org).

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 not less than 30 months of registered employment and the program of the School of Chartered Accountancy conducted by the Institute in order to obtain the C.A. designation.
- 2 Graduates, other than those mentioned in, above, are required to complete the required 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 C.M.A. designation.

Graduates of the Diploma Accounting Program will be granted exemptions toward the C.M.A. 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).

Executive Education

To Educate and Empower

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 training needs. Programs include:

- **Business Seminars:** two to five-day public enrolment programs for those who wish to expand their managerial skills and add a fresh, contemporary framework to their business experience. Most seminars are held at the UBC Robson Square campus.
- **Intensive Residential Programs:** week-long residential programs allow participants to synthesize ideas and skills at the highest level, and build close relationships with fellow business professionals. Programs are held at the UBC Point Grey campus.
- **In-House Training:** any public-enrolment business seminar may be tailored to meet

the specific needs of an organization, and delivered at a location of choice.

- Corporate Partnerships: organizations may partner with Executive Education to develop customized development programs that align with corporate goals.
- Certificate Programs: part-time, non-credit programs that build a comprehensive body of knowledge on a specific topic. Participants receive a UBC Certificate upon successful completion of program requirements.
- Breakfast Briefings: presented by distinguished faculty and business practitioners, breakfast briefings explore topics of relevant, up-to-the-minute interest.
- Forums and Conferences: ongoing forums, conferences and special events deliver timely information on changing trends and emerging technologies.

For more information, call 604-822-8400 or visit our website. (www.commerce.ubc.ca/exec_ed).

Centre for Urban Economics and Real Estate (CUER)

Tsur Somerville, Director

The UBC Centre for Urban Economics and Real Estate (CUER) is a research centre within the Faculty of Commerce and Business Administration at the University of British Columbia. 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 CUER 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. For more information consult pacific.commerce.ubc.ca/cuer.

W. Maurice Young Entrepreneurship and Venture Capital Research Centre

James Brander, Director

The W. Maurice Young Entrepreneurship and Venture Capital (EVC) Research Centre is housed in the Faculty of Commerce and Business Administration. The Centre serves as a catalyst for innovative ideas in entrepreneur-

ship 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.

UBC Centre for the Study of Government and Business

Thomas W. Ross, Director

The University of British Columbia Centre for the Study of Government and Business 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 establishments 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.

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Jonathan Berkowitz, B.Sc. (Alberta); M.Sc. (Alberta), Ph.D. (Tor.); **David Bond**, B.A. (Dartmouth); M.A., Ph.D. (Yale); **Brian Fisher**, B.A. (Hiram); Ph.D. (U. of Calif., Santa Cruz); **Helen Michelson**, B.A., M.A., Ph.D. (Illinois); **Saggi Nevo**, B.A. (Halifax); M.A. (Northwestern); **Michael Phelps**, B.A., B.Laws (Manitoba); M.Laws (London School of Ec.), D. Laws, hon. (Winnipeg, SFU); **Yaaco (Jacob) Steif**, B.Sc., M.A. (Jerusalem); Ph.D. (London); **Michael W. Trethewey**, B.A., M.A., Ph.D. (Wis.).

DIVISIONS

Division of Accounting: D.A. Simunic, S. Alisharan, J. Begley (Chair), Sandra Chamberlain, J. de Rooy, G. A. Feltham, K. Lo, D. B. Lockwood; **Division of Finance**: M.D. Levi, D. Bond, G. Chemla, G. Donaldson, A. Fisher, R. Freedman, R. M. Giammarino, S. Hamilton (Hamilton), R. L. Heinkel, A. Kraus, K. Li, T. Wang; **Law Group**: E. McIntosh, D. Meredith; **Division of Management Information Systems**: Y. Wand, I. Benbasat, P. Chwelos, R.C. Goldstein, J. Y. Son, C. Woo (Chair); **Division of Marketing**: C. B. Weinberg (Chair), D. Dahl, P. R. Darke, D. F. Gardiner, D. Griffin, D. S. Putler, L. Van Boven; **Division of Operations and Logistics**: S. T. McCormick (Chair), D. R. Atkins, G. Chow, D. Glenn, B. Graham, D. Granot, H. Krishnan, F. Granot, T. Oum, M. L. Puterman, M. Queyranne, I. Vertinsky, A. Zhang, W. T. Ziemba; **Division of Organizational Behaviour and Human Resources**: N. Langton (Chair), B. Bemmels, P. J. Frost, P. D. Jennings, T. Knight, S. Maitlis, S. Robinson, M. Schulz, D. Skarlicki; **Division of Strategy and Business Economics**: J. Ries (Chair), W. Antweiler, A. E. Boardman, J. A. Brander, M. Clements, J. E. de Bettignies, M. Frank, K. Head, R. Helsley, M. Nakamura, P. N. Nemetz, H. Ohashi, T. Ross, T. Somerville, B. Spencer, J. Vercammen, I. Vertinsky.

7 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

Tel: 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 nine hundred 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.

ADMISSION

HOW TO APPLY

There are two methods of applying to the Master's program for September 2004: Online applications can be filled out at www.grad.ubc.ca/application. Paper applications—available at SCARP office.

A complete application for admission includes:

- 1 a completed Faculty of Graduate Studies (FoGS) application form (online or paper);
- 2 application fee (CAD \$90, or US \$560;
- 3 three official confidential letters of reference (sent directly to SCARP by the writer on a FoGS referee form or letterhead);
- 4 two official copies of all post-secondary academic transcripts (sent directly to SCARP from the Institution);
- 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 on-line 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 & Regional Planning accepts applications once a year for programs commencing in September. We have a firm application deadline of January 15 (application and all supporting documentation) to ensure that all applicants' files are reviewed together using a three-step process.

- 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 sorting the applications into the four concentrations (Environmental and Natural Resources Planning, International Development Planning, Community Development Planning and Urban Spatial Planning) based on the applicant's first preference. A committee is formed for each concentration consisting of three-members including a Faculty Chair, a second Faculty member and a Masters student. An application may be transferred to another committee for review based on the applicant's statement of interest and second preference. When the files are reviewed, the Faculty Chair of each committee submits their recommendations to the Director of the School.
- The third step involves the Director reviewing the lists together and deciding who will be admitted in the first round. The acceptance letters are sent by mid-March to late-May. Each year we receive between 140 to 220 Masters applications with only 30 spaces to fill. In order to give as many applicants the best possible chance to be admitted we put approximately 20 people on a wait list. final decisions are usually made by mid-July.

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), given four times annually in most major cities. 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 and is in the process of hiring several new faculty. Check our school's website for the latest information. All documents and the appropriate application fee should be returned to the above address. The deadline for submitting complete applications is January 15.

Contact Information:

Masters 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 programs 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, 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. 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; and in developing countries’ issues, the Institute of Asian Research.

The School’s Centre for Human Settlements (CHS), 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 Eco-Risk Research Unit.

For further information, see *Sustainable Development Research Institute*, p. 267, *Institute for Resources, Environment and Sustainability*, p. 264, *Institute of Asian Research*, p. 265, and *Centre for Human Settlements*, p. 262 in the Graduate Studies section.

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 one thousand 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 January 15.

ADVISORY COMMITTEES

Committees consist of a prospective research supervisor and three other faculty members to advise students and approve their programs of studies. 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 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

Peter Boothroyd, B.A. (Tor.), M.A. (Alta.); **Anthony H. J. Dorsey**, M.A. (Aberd.), M.S. (Wis.); **John Friedmann**, M.A. (Chicago), Ph.D. (Chicago); **Timothy McDaniel**, B.A. (Minn.), M.A. (S.Fraser), Ph.D. (Carnegie-Mellon); **William E. Rees**, B.Sc., Ph.D. (Tor.); **Leonie Sandercock**, B.A. (Adelaide), Ph.D. (Australian National U.), M.F.A. (UCLA); **Hans Schreier**, B.A. (Colorado), M.Sc. (Sheffield), Ph.D. (Brit. Col.).

ASSOCIATE PROFESSORS

Lawrence D. Frank, B.L.A. (Arizona), M.Sc. (Washington), Ph.D. (Washington); **Penelope C. Gurstein**, B.A. (York), B.Arch. (Brit. Col.), M. Arch., Ph.D. (Calif., Berkeley); **Thomas Hutton**, B.A. (Brit. Col.), B. Litt., Ph.D. (Oxon.); **Michael Leaf**, B.Sc. (M.I.T.), M.Arch., M.C.P. (Calif., Berkeley).

ASSISTANT PROFESSOR

Leonora C. Angeles, B.A. (Philippines), Dip. Women and Development Planning (Nott.), M.A. (Philippines), Ph.D. (Queen's); **Michael A. Larice**, B.A., M.A. (Calif. Los Angeles).

ADJUNCT PROFESSORS

Doug Aberley, B.A. (Sonoma), M.A. (Brit. Col.), Ph.D. (Edinburgh); **Larry Beasley**, B.A. (S. Fraser), M.A. (Brit. Col.); **Pat Carney**, B.A., M.A. (Brit. Col.); **Julia Gardner**, B.A. (Trent), M.A. (Waterloo), Ph.D. (Canterbury); **Michael Gordon**, B. of Environmental Studies (Waterloo), M.Sc. (Brit. Col.); **Wayne Greene**, B.Sc. (New Hamp.), M.Sc., Ph.D. (Iowa); **Robin Gregory**, B.A. (Yale), M.A., Ph.D. (Brit. Col.); **Harry Harker**, B.Sc. (Kings Point, New York), M.Sc. (U.Alaska); **Gordon Price**; **Paul Rosenau**, B.A. (Alta.), M.Sc. (Brit. Col.); **Eric Vance**, B.A., M.A. (Brit. Col.); **Jay Wollenberg**, B.A., M.A. (M.I.T.); **Raymond E. Young**, B.A., M.A., L.L.B. (Brit. Col.).

FACULTY ASSOCIATES

Jo-ann Archibald, B.A. (Brit. Col.), M.A.; Ph.D. (SFU), Education.

2003-04

8 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

Tel: 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 *Dentistry*, p. 230 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 Coordinator of Health Sciences.

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 practise 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.

Fulfilment 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 7, 2003 deadline for admission to the following Fall academic session. Applicants must submit a CAD\$200 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 prerequisite to all first-year English courses at UBC. (See *Language Proficiency Index Requirement for First-Year English*, p. 22.)

- 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 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 7, 2003. Information and application forms are available from the Student Development Library, the Dentistry Admissions and Student Affairs 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 Dentistry Admissions and Student Affairs Office.

ACCEPTANCE

Successful applicants must submit a deposit of CAD\$2,000 within two weeks of notification of acceptance by the University. This deposit is non-refundable and will be applied towards the tuition 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 one of the conditions 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.

Disability may result from practising dentistry. Included are exposure to infectious diseases such as HIV, Hepatitis B, Hepatitis C, and the possibility of physical assault. 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 instrument lease and simulation costs, course material costs, and student fees. Further information and on-line application forms are available on the Dentistry website (www.dentistry.ubc.ca).

The Faculty of Dentistry receives many more applications 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 IELTS (www.ielts.org) exam and at least 6 on each component;
- 4 submit a CAD\$400 non-refundable application fee;
- 5 make application by June 9, 2003 for admission in June of the next year;
- 6 submit three confidential letters of reference, which must be sent directly from your referees;
- 7 submit a letter of good standing from the licensing authority, or its equivalent, of the region in which the applicant last practised; and
- 8 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 Admissions and Student Affairs 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 CAD\$1,000 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. Candi-

dates will be competing with other applicants from which the final selection will be made.

DEPOSIT

Successful applicants must submit a deposit of CAD\$5,000 within two weeks of notification of acceptance by the University. This deposit is non-refundable and will be applied towards the tuition of the first term of third year. See *Acceptance*, p. 177; the information on immunizations and disability also apply to this program.

REGISTRATION AND ORIENTATION

Students register through the Student Service Centre (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 Student Affairs 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 Admissions and Student Affairs 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 failure being recorded in 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. 33.)

All final Module/Course grades will be reviewed by the Dentistry Promotions Committee. Release of Module 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 course or must have received satisfactory standing in 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 practise dentistry.

Every candidate for the Doctor of Dental Medicine must make formal application for graduation. Application for graduation must be made not later than March 1. Special forms for this purpose are provided by Enrolment Services.

DEGREE REQUIREMENTS

FIRST YEAR

In first year, students take the following courses:

- 1 two longitudinal courses: Clinical Skills, Doctor/Dentist Patient and Society;
- 2 DENT 410, Dentistry I;
- 3 the following courses:
 - (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 two longitudinal courses: Clinical Skills, Doctor/Dentist Patient and Society;
- 2 DENT 420, Dentistry II;
- 3 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 following courses:

- 1 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/academicprograms/dmd/competencydoc.stm).

INTERPROFESSIONAL ELECTIVES

Under the auspices of the Council, the College of Health Disciplines is responsible for the administration of interprofessional courses (IHHS), which are available as electives to students in Dentistry.

For more information see Courses (students.ubc.ca/calendar/courses.cfm), IHHS, or visit the website (www.health-disciplines.ubc.ca).

INSTRUMENTS AND SUPPLIES

Check with the Dentistry Admissions and Student Affairs Office for information regarding costs for instruments and supplies.

Bachelor of Dental Science in Dental Hygiene

The Faculty of Dentistry offers three admission options to the Bachelor of Dental Science Program in Dental Hygiene.

- 1) Direct Entry
- 2) Dental Hygiene Degree Completion; and
- 3) International Dental Hygiene 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 (BDSc). Graduates of a dental hygiene diploma program from accredited North American programs can complete the Dental Hygiene Degree Completion option (Category A or Category B), either full-time or part-time, leading to the BDSc degree. Graduates from dental hygiene programs outside of North America may access the Program through the International Dental Hygiene Degree Completion option leading to the BDSc 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. 230.

The possession of a Bachelor of Dental Science degree in Dental Hygiene does not automatically confer the right to practise dental hygiene in any province in Canada. Each province has a regulatory authority that grants the privilege to practise dental hygiene. For more information, contact the College of Dental Hygienists of BC (www.cdhibc.com).

1. DIRECT ENTRY OPTION

Students entering the program will complete a full-time, four-year degree program offered 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 first year of the Direct Entry option is taken at UBC and consists of 32 credits of course work. Students in the first year of this option must achieve the minimum grade point average set by the Colleges to advance into second year. 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 |
| BIOL 153 | 7 |
| Chemistry 100-level | 7 |
| Psychology 100 or 200 | 6 |
| Electives ² | 6 |
| Total Credits | 32 |

¹ ENGL 112 (3 credits, plus 3 additional first year English credits)

² STAT 203 recommended.

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
- Microbiology
- Embryology and Histology
- Oral Anatomy and Physiology
- Dental Anatomy
- General Pathology
- Oral Pathology
- Pharmacology
- Radiology
- Periodontics
- Dental Hygiene Theory and Practise
- 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

- Practise 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. Opportunities to maintain clinical competence will be provided. Coursework includes core and elective courses:

| | | |
|--------------------------|--|----|
| DHYG 404 | Advanced Dental Hygiene Care | 6 |
| DHYG 405 | Oral Microbiology and Immunology | 3 |
| DHYG 435 | Oral Pathology | 3 |
| DHYG 462 | Literature Review in Periodontology II | 4 |
| DHYG 401 | Oral Epidemiology | 2 |
| EPSE 482/ HCEP 400 | Statistics | 3 |
| Electives ^{1,2} | | 9 |
| Total Credits | | 30 |

¹ 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.

² Faculty of Dentistry courses subject to sufficient enrolment include: DHYG 400 (6) Current Issues in Oral Health Sciences; DHYG 402 (6) Dental Hygiene Care; DHYG 406 (3) Guided Study in Dental Hygiene; DHYG 433 (3) Assessment & Treatment Planning for Advanced Periodontal Diseases; DENT 407 (6) Oral Health Care in Residential Care Settings.

NOTE: The possibility of registration to practise after third year may be an attractive feature for those students who must earn an income to facilitate further study. The college programs award a Diploma in Dental Hygiene (Dip DH) which is currently one of the requirements for registration to practise dental hygiene in Canada. Entry to dental hygiene practise in BC also requires that graduates pass the National Dental Hygiene Certification Examination (for information see www.ndhcb.ca) and satisfy additional requirements established by the College of Dental Hygienists of BC (for information see www.cdnhbc.com).

ADMISSION FROM SECONDARY SCHOOL
Application for admission for secondary school applicants must be made through Enrolment Services. Procedures, policies and admission requirements to the University of British Columbia (www.welcome.ubc.ca) and the Bachelor of Dental Science are specified in the chapter *Undergraduate Admissions*, p. 21 (Students must present Biology 12 and Chemistry 12 [or the equivalent]).

Early admission may be possible for students with strong academic standing enrolled in the final year of secondary school. Conditional offers of early admission are subject to satisfactory completion of secondary school graduation requirements and maintenance of the current admission average. Offers of

admission will be withdrawn from students who do not satisfy these conditions.

Deadline for application for secondary school applicants is March 31 and is different from the application deadlines for the other admission options. Application can be made online (www.welcome.ubc.ca/apply).

2. DENTAL HYGIENE DEGREE COMPLETION

There are two categories of students in the Dental Hygiene Degree Completion option: Category "A" and Category "B". See Admission to Dental Hygiene Degree Completion (Category A and B) 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 A—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 65% are eligible for admission to third year. Current registration, in good standing, with a regulatory authority where the applicant has practised most recently, and a Canadian National Dental Hygiene Certification Examination Certificate or the American National Board Certificate or equivalent, are required. If an applicant is a recent graduate of a dental hygiene diploma seeking to enter the BSc Program directly and has not yet practised, 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.

| | | |
|--------------------------|--|----|
| ENGL 301 | Technical and Business | 3 |
| DHYG 400 | Current Issues in Oral | 6 |
| DHYG 402 | Dental Hygiene Care | 6 |
| DHYG 433 | Assessment & Treatment | 3 |
| DHYG 461 | Literature Review in Periodontology I | 4 |
| IHHS 401 | Biomedical Ethics or equivalent | 3 |
| DHYG 404 | Advanced Dental Hygiene | 6 |
| DHYG 405 | Oral Microbiology and | 3 |
| DHYG 435 | Oral Pathology | 3 |
| DHYG 462 | Literature Review in Periodontology II | 4 |
| DHYG 401 | Oral Epidemiology | 2 |
| EPSE 482/ HCEP 400 | Statistics or equivalent | 3 |
| Electives ^{1,2} | | 15 |
| Total Credits | | 61 |

- 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.
- Faculty of Dentistry courses subject to sufficient enrolment include: DHYG 406 (3) Guided Study in Dental Hygiene; DENT 407 (6) Oral Health Care in Residential Care Settings

NOTE: Students that are currently enrolled in the final year of an accredited dental hygiene diploma program (without 30 credits of university transfer prerequisites) that wish to transfer directly into the third year of the BDSc 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.

CATEGORY B-STUDENTS WHO HAVE COMPLETED 30 CREDITS OF UNIVERSITY TRANSFER PREREQUISITES. Graduates of dental hygiene diploma programs accredited by CDAC or CODA/ADA with a minimum overall average of 65% are eligible for admission to the fourth year of the program. Current registration, in good standing, with a regulatory authority where the applicant has practised most recently and a Canadian National Dental Hygiene Certification Examination Certificate or the American National Board Certificate or equivalent are required. If an applicant is a recent graduate of a dental hygiene diploma program seeking to enter the BDSc Program directly and has not yet practised, 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 404 | Advanced Dental Hygiene Care | 6 |
| DHYG 405 | Oral Microbiology and Immunology | 3 |
| DHYG 435 | Oral Pathology | 3 |
| DHYG 462 | Literature Review in Periodontology II | 4 |
| DHYG 401 | Oral Epidemiology | 2 |
| EPSE 482/ HCEP 400 | Statistics | 3 |
| Electives ^{1,2} | | 9 |
| Total Credits | | 30 |

- 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.
- Faculty of Dentistry courses subject to sufficient enrolment include: DHYG 400 (6) Current Issues in Oral Health Sciences; DHYG 402 (6) Dental Hygiene Care; DHYG 406 (3) Guided Study in Dental Hygiene; DHYG 433 (3) Assessment & Treatment Planning for Advanced Periodontal Diseases;

DENT 407 (6) Oral Health Care in Residential Care Settings.

NOTE: Students that are currently enrolled in the final year of an accredited dental hygiene diploma program (with 30 credits of university transfer prerequisites) that wish to transfer directly into the fourth year of the BDSc Program immediately following diploma graduation can make application. Applicants may be given a conditional acceptance under the provisions of Category B. 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.

ADMISSION TO DENTAL HYGIENE DEGREE COMPLETION (CATEGORY A AND B) Applicants must meet the general admission requirements of the University as specified in the chapter *Undergraduate Admission*, p. 21 or at students.ubc.ca/welcome/apply. No specific courses at the secondary school level are mandatory.

Applicants seeking to enter Category B must have completed 30 credits of university transfer courses including:

- Six credits of first-year Biology (Anatomy and Physiology)
- Six credits of first-year Chemistry
- Six credits of first-year English
- PSYC 100 or six credits of second-year Psychology
- Six credits of electives

All other applicants are eligible to apply under Category A. Application must be made on-line to the Faculty of Dentistry. Deadlines for application are April 15 for admission the following September and September 15 for admission the following January. Eligible applicants will 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 and all supporting documents must be submitted to the Manager, Admission and Student Affairs, Faculty of Dentistry by the April 15 deadline. The non-refundable application fee is \$200.

3. INTERNATIONAL DENTAL HYGIENE COMPLETION

Graduates of programs that are not accredited by the Commission on Dental Accreditation of Canada but who hold or are eligible to hold the Canadian National Dental Hygiene Certification Examination Certificate or equivalent 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 practised most recently. If the applicant has not practised, 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 practise in BC is not required for admission to the program. However, international applicants who wish to practise 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). The BDSc Program does not offer a foundational clinical dental hygiene education.

Students must complete the following courses to be eligible to apply for graduation. Coursework includes core and elective courses.

| | | |
|--------------------------|---|-----------|
| ENGL 301 | Technical and Business Writing | 3 |
| DHYG 400 | Current Issues in Oral Health | 6 |
| DHYG 402 | Dental Hygiene Care | 6 |
| DHYG 433 | Assessment and Treatment Planning for Advanced Periodontal Diseases | 3 |
| DHYG 461 | Literature and Review in Periodontology I | 4 |
| IHHS 401 | Biomedical Ethics | 3 |
| DHYG 404 | Advanced Dental Hygiene Care | 6 |
| DHYG 405 | Oral Microbiology and Immunology | 3 |
| DHYG 435 | Oral Pathology | 3 |
| DHYG 462 | Literature Review in Periodontology II | 4 |
| DHYG 401 | Oral Epidemiology | 2 |
| EPSE 482/ HCEP 400 | Statistics | 3 |
| Electives ^{1,2} | | 15 |
| Total Credits | | 61 |

¹ 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.

² Available Faculty of Dentistry courses include: DHYG 406 (3) Guided Study in Dental Hygiene; DENT 407 (6) Oral Health Care in Residential Care Settings.

ADMISSION TO INTERNATIONAL DENTAL HYGIENE DEGREE COMPLETION. Application must be made online to the Faculty of Dentistry. The deadlines for application is April 15 for the following September. Eligible applicants will be invited to participate in a structured interview and will 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 and all supporting documents must be submitted to the Manager, Admission and Student Affairs, Faculty of Dentistry by the April 15 deadline. The non-refundable application fee is CAD\$400.

PROGRAM INQUIRIES

All inquiries relating to the Bachelor of Dental Science Program in Dental Hygiene should be addressed to:

Manager, Admission and Student Affairs,
Faculty of Dentistry
The University of British Columbia
278, 2199 Wesbrook Mall
Vancouver, BC, V6T 1Z3
Telephone 604-822-3416
Fax 604-822-8279
Email Faculty of Dentistry Admissions
(fodadms@interchange.ubc.ca)

ACCEPTANCE

1. DIRECT ENTRY APPLICANTS

Selection for admission is based on academic performance as evidenced by scholastic records (transcripts). Applicants who meet minimum admission requirements are not guaranteed acceptance. Enrolment is limited.

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 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 practise as a dental hygienist. Counselling is available to individuals who have, or are carriers, of communicable diseases. Applicants should be aware that dental hygiene practise 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. DENTAL HYGIENE 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 of CAD\$300 within two weeks of notification of acceptance

by the Faculty. 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 DENTAL HYGIENE 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 of CAD\$400 within two weeks of notification of acceptance by the Faculty. 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.

RE-ADMISSION

The Faculty of Dentistry reserves the right to re-admit students and to stipulate conditions attached to re-admission. Re-admission 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. 178). Part-time students will be expected to complete the program within five years of registration.

GRADUATION REQUIREMENTS

Candidates for the Bachelor of Dental Science (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 (Dental Hygiene) to students who have satisfactorily completed the academic requirements.

Candidates for the Bachelor of Dental Science (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 2003/2004 Academic Year. Special forms for this purpose are provided by Enrolment Services.

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 graduate 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 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 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 practise 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

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.); **Hannu S. Larjava**, D.D.S., Ph.D., Dipl.Perio. (Finland); **Barry C. McBride**, B.Sc., M.Sc. (Brit. Col.), Ph.D. (Ill.); **Christopher M. Overall**, B.D.S., B.Sc., M.D.S. (Adelaide), Ph.D. (Tor.); **V. V. Jukka Uitto**, D.D.S., Ph.D., Dip. Perio. (Helsinki).

PROFESSORS EMERITUS

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. (Brit. 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); **Richard Roydhouse**, D.D.S. (Otago); **John D. Spouge**, M.D.S. (Sheffield), 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).

ASSOCIATE PROFESSORS

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9 The Faculty of Education

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Education Website (www.educ.ubc.ca)

The Faculty of Education offers Initial Teacher Education leading to the 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. The options enhance students' abilities to reason, to communicate, and to share their knowledge and enthusiasm.

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.

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. 209.

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 their

middle years or in secondary schools undertake their 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 (www.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. 21), 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

While it is recommended that applicants have a bachelor's degree, applicants are eligible for admission to the Two-Year Option with a minimum of 90 UBC-equivalent credits acceptable to the Faculty of Education, normally in subject fields within arts, fine arts, science, music, and human kinetics (physical education). Attendance on a full-time basis is normally necessary.

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, normally in subject fields within arts, fine arts, science, music, and human kinetics (physical education). The remaining credits

may be in any recognized fields of study, except that they may not include course content prescribed for the teacher education program.

Pre-admission studies for applicants to both the Two-Year and 12-Month Options must include the following:

- 1 six credits of English literature and composition or UBC Arts One (or equivalent);
- 2 at least three (preferably six) credits in each 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), mathematics (not statistics or business math), and history or geography (social studies);
- 3 18 credits at the senior level (normally courses numbered 300 or higher) in one subject area included in the BC elementary school curriculum (art, dance, drama, language arts, mathematics, music, physical education, science, and social studies);
- 4 six credits of courses in the humanities and/or social sciences with significant Canadian content applicable to teaching the elementary curriculum; and
- 5 a minimum average of 65% on the pre-admission studies specified in points 1 to 3 above.

Applicants to the 12-month French Immersion or French as a Second Language program options must have completed, in addition to the above requirements, a minimum of nine credits (or equivalent) of French at the second-year level, including 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.

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, fine arts, science, commerce or business administration, music, and human kinetics (physical education), or in other teaching fields included in the curriculum

designed for students from 10 to 14 years of age.

Pre-admission studies must include the following:

- 1 six credits of English literature and composition or equivalent;
- 2 at least three (preferably six) 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 18 credits at the senior level (normally courses numbered 300 or higher) in one subject area acceptable to middle years option area included in the BC school curriculum. Applicants should see *Secondary Teaching Field Requirements, p 186*;
- 4 six credits of courses in the humanities and/or social sciences with significant Canadian content applicable to teaching the middle years curriculum; and
- 5 a minimum average of 65% on the pre-admission studies specified in points 1 to 3 above.

A French concentration is not available in the Middle Years Option. Students interested in teaching French must choose between the French Elementary and Secondary Teacher Education options.

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 six 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 nine credits (or equivalent) of French at the second-year level, including three 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 |
| Chemistry | C | M |
| Chinese* | C | |
| Computer Science | C | M ¹ |
| Earth and Space 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 3 and 4) 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 art studio areas; 18 credits of third and fourth year art, including a minimum of 12 credits of studio art in at least 2 different areas. 6 of these 12 credits must be in traditional studio art areas such as drawing, painting, sculpture, printmaking, graphic/communication design, ceramics and tiles. 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 areas (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.

Beginning in the year 2001 applicants will be required to provide evidence of the ability to keyboard at a rate of 30 net words per minute. Students are to submit along with their application for the Secondary Business Education Program, proof of keyboarding skills 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.

For further information please refer to the website (www.educ.ubc.ca/teacher_ed).

ENGLISH CONCENTRATION AND MAJOR

For the English Concentration, students must take first- and second-year English; 24 credits of senior English including six 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 six senior credits in linguistics or English linguistics, and 12 senior credits in the study of language and/or the study of culture.

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 textile 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 preferable 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 senior 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 senior mathematics.

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 senior credits in the selected language, at least six 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 senior French.

MUSIC MAJOR

Applicants normally hold a Bachelor of Music with a Major in General Studies (Secondary Education). Students require four credits of instrumental techniques in either brass, woodwinds, or strings taught in a group situation and a minimum of three credits in instrumental or choral ensembles or comparable experience.

PHYSICAL EDUCATION CONCENTRATION AND MAJOR

Applicants will normally have completed the Instruction and Coaching Option within the Bachelor of Human Kinetics program.

For the Physical Education Concentration, students must take six credits of approved foundational physical education courses from each of: exercise science, motor performance and control, leisure studies, and performance analysis; 18 credits of acceptable senior physical education courses in the areas of instruction and coaching. In addition, applicants must present evidence of knowledge and proficiency in aquatics, dance, gymnastics, and at least four other performance areas included within the secondary school curriculum.

For the Physical Education Major, students must take an additional 12 credits of senior physical education electives. 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 six 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 biological sciences and applicants presenting a science other than 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 junior level courses and 18 credits of senior 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 senior credits of courses in the selected science (biological sciences, chemistry, earth science or physics). 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 six credits of introductory or survey courses in each of geography, history, and a social science; a further six credits of junior courses and 18 credits of senior courses in the discipline of emphasis. The total program must

include six 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 senior 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:

- 42 credits of studies covering information technology, power and energy technology, materials and products technology, and systems integration technology, and
- 18 credits of advanced courses in one or two acceptable technical areas.

Please see *Technology Education Program Option*, p. 192.

THEATRE CONCENTRATION

For the Theatre Concentration, students must take a minimum of 12 credits of junior theatre courses and 18 credits at the senior level. The total program must cover acting, directing, theatrical production, and history of theatre.

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.

APPLICATION

For details of application deadlines, see the chapter "2003/2004 Application Deadlines", p. 7. For information regarding tuition and student fees, please see *Fees*, p. 39.

Application forms and additional admission information may be downloaded from the Faculty of Education website (www.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:

1. 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 2 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 and 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. 189). 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. 189 regarding supplemental practica and withdrawal from practica.)

Students will not be permitted to withdraw from and/or to fail any practicum or any combination of practica (including a supplemental practicum) more than twice.

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. 189). 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 BCTF*.

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 those courses in the B.Ed. program listed below will be graded on a Pass/Fail basis (see *Advancement*, p. 189)

- EDST 314, EDST 425, EDST 426, EDST 427, EDST 428, EDST 429, EDST452, EDST 455
- EDUC 310, EDUC 311, EDUC 316, EDUC 420
- EPSE 306, EPSE 313, EPSE 423
- LLED 301, LLED 310, LLED 312, LLED 313, LLED 314, LLED 315, LLED 318, LLED 320, LLED 324, LLED 325
- BUED 376, BUED 314
- BSED 314
- CUST 314, CUST 440

CURRICULUM STUDIES

- ARTE 314, ARTE 320
- BUED 301, BUED 375
- HMED 314, HMED 440, HMED 441, HMED 442
- MAED 314, MAED 320
- MUED 314, MUED 320
- PETE 314, PETE 320
- SCED 312, SCED 313, SCED 314, SCED 315, SCED 316, SCED 317, SCED 320, SCED 440, SCED 441, SCED 442, SCED 443, SCED 444, SSED 314, SSED 317, SSED 320, SSED 440, SSED 441
- TSED 314, TSED 320

SUPPLEMENTAL EXAMINATIONS

In any session a student may be granted the privilege of writing supplemental examinations in not more than six 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 six 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 *Examinations*, p. 32 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 new applications 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 comple-

tion 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. 190 and *Programs for the Improvement and Recertification of Teaching Qualification*, p. 190, 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. 36 and *Senate Appeals on Academic Standing*, p. 36 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. 191 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. 191 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. 192 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 hold currently 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. 190). 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 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;
- 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 418 | 18 |
| 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.

July to August

| | |
|--|----|
| 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 in as 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 |

First Year (Cont.)

| | |
|----------|---|
| 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 |

NATIVE INDIAN TEACHER EDUCATION PROGRAM (NITEP) OPTION

This program option is for persons of First Nations ancestry. It is designed to incorporate First Nations personal and cultural resources and knowledge in preparation for teaching positions in BC elementary schools.

NITEP includes similar requirements for both liberal education and pedagogical preparation to those set for all students for elementary teaching. The course sequence, however, is different. Applicants 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. To satisfy remaining degree requirements, students attend at the UBC campus.

NITEP 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 (all practica and all courses set for first to fifth years unless otherwise noted).

To qualify for the degree, a student must normally complete all requirements within 10 years of initial registration in the program. Although the total program may be completed in five academic years as indicated below, many students find it convenient to take some courses during Summer Sessions; up to 12 credits may normally be completed during a Summer Session.

ELEMENTARY: NITEP OPTION

Academic Component

| | |
|--|------|
| English | 6[2] |
| Mathematics | 3[2] |
| History/Geography | 3 |
| Laboratory Science | 3[3] |
| Canadian Studies | 6 |
| Senior credits in a teachable subject area | 18 |
| First Nations Studies | |
| EDUC 140 | 3 |
| EDUC 141 | 3 |
| EDUC 240 | 3 |
| Academic electives | 42 |

Professional Component Common Core:

| | |
|----------|----|
| EDST 314 | 3 |
| 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 |
| ARTE 320 | 2 |
| LLED 310 | 3 |
| LLED 320 | 4 |
| MAED 320 | 2 |
| MUED 320 | 2 |
| PETE 320 | 2 |
| SSED 320 | 2 |

EDST 4xx¹

NITEP Concentration:

| | |
|---------------|------|
| EDCI 396 | 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 |

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.

- 1 Students should consult with NITEP regarding course planning. All courses must be university level.
- 2 English and Mathematics must be completed in order to advance to third year.
- 3 SCED 190 fulfils this requirement.
- 4 EDUC 345 is a field experience, normally scheduled in May, following Winter Term 2.

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

| | |
|----------|---|
| EDST 314 | 3 |
| EDUC 310 | 4 |
| EDUC 315 | 0 |

Middle Years Degree Requirements (Cont.)

| | |
|--|--------------|
| EDUC 316 | 3 |
| EDUC 323 | 0 |
| EDUC 419 | 18 |
| 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 320 | 6-8 |
| July to August | |
| 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. 192 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.

SUMMER SESSION

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

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.

The liberal studies component includes six credits of English literature and composition and 24 credits of courses from the Faculties of Arts and Science. Courses in physical education (human kinetics) or business (e.g. accounting, management, marketing, etc.) or courses of a professional nature are not normally accepted. All applicants must have completed the minimum 6 credits of English before they can be considered for admission to the UBC Faculty of Education. The Faculty strongly recommends that students have completed the liberal studies component (a total of 30 credits in arts and science) before applying to UBC.

Those students majoring in Technology Education who have completed a degree in another field normally satisfy the liberal studies requirement during their undergraduate programs. If their first degrees satisfy the requirements for a teaching concentration or major in a subject other than technology education, these students

may prepare to teach both technology education and that second subject.

The technical studies component consists of 60 credits of courses described in the *Technology Education Major*, p. 188 under Admission in the Bachelor of Education. It includes 42 credits of studies in information, materials and products, power and energy, and systems integration technologies along with 18 credits of advanced courses in one or two technical areas. Technical studies are normally completed in a two-year Technology Teacher Education diploma program at the British Columbia Institute of Technology. BCIT no longer offers a one-year Technology Teacher Education certificate program and as a consequence, the Accelerated Program Option at UBC has been eliminated.

The pedagogical studies component for Technology Education majors includes the same 60–62 credits that are required of all students in the secondary option. This program is outlined in the section *Degree Requirements for Secondary Teacher Education*, p. 192 under Bachelor of Education.

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 TEACHERS

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 online at www.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: Interprovincial Trades Qualification "Red Seal" (Cook) or equivalent. A minimum of 30 credits of Arts and Science University Transfer courses, including 6 credits of English Composition and Literature, and 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 E.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:

a. Summer 1

| | |
|-----------------------------------|-----------|
| 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 | 18 |
|-------------------------------|----|

(A minimum of 18 such credits must be senior level courses.) 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 need 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 regular 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

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

18 Senior Credits (300–400 level) for a second teachable subject (see 'Secondary Teaching Field Requirements' indicated in path one, above.) 60

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, 405–1385 West 8th Avenue, Vancouver, BC, V6H 3V9, telephone 604-731-8170. Information

will also be 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.

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 contained in The Diploma in Education Handbook, available from the Teacher Education Office, Faculty of Education, or from the relevant departmental offices.

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 188 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, educational studies, education of young children, English education, English as a Second Language, French education, guidance studies, health education, home economics education, infant development and supported child care, language education, law-related education, mathematics education, mathematics and science education, multicultural and minority education, music education, outdoor environmental education, physical education, primary education, reading education, science education, social studies, special education, teacher librarianship, technology

studies education, visual and performing arts in education.

Office of Continuing Professional Education

Elaine Decker, Director

Through its Office of Continuing Professional Education and in conjunction with School Districts and Teachers' Associations, the Faculty of Education makes non-credit as well as credit professional development programs available to practising teachers. For further information, contact the Faculty's Office of Continuing Professional Education. Telephone 604-822-2013 or www.ocpe.educ.ubc.ca.

Graduate Programs

Information on graduate programs in education may 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 (www.educ.ubc.ca/ogpr/graduate_programs/index.html).

For details of the specific requirements for M.A., M.Ed., Ed.D., and Ph.D. see *Education*, p. 231 in the Graduate Studies section.

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 directed at anyone concerned with managing, designing or tutoring 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) (MET).

Students who have completed the certificate may apply for admission to the MET and have their certificate courses count towards completion of the MET degree.

CERTIFICATE REQUIREMENTS

A student must complete 5 courses (15 credits) from the MET program. At least 2 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)

Networked multimedia 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 tutoring 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) (MET).

Students who have completed the certificate may apply for admission to the MET and have their certificate courses count towards completion of the MET degree.

CERTIFICATE REQUIREMENTS

A student must complete 5 courses (15 credits) from the MET program. At least 2 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 MET. For more information, please see the MET website (met.ubc.ca).

OFF-CAMPUS GRADUATE WORK

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 Continuing Professional Education (ocpe.edu@ubc.ca), phone 604-822-2013.

Academic Staff

DEPARTMENT OF EDUCATIONAL AND COUNSELLING PSYCHOLOGY, AND SPECIAL EDUCATION

T.B.A., Head

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DEPARTMENT OF CURRICULUM STUDIES

Rita Irwin, Head

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ASSISTANT PROFESSORS

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DEPARTMENT OF EDUCATIONAL STUDIES

Carolyn M. Shields, Head of Department, Professor

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DEPARTMENT OF LANGUAGE AND LITERACY EDUCATION

Lee Gunderson, Head

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TEACHER EDUCATION

Stan Auerbach, B.A. (Calif., Berkely), M.A. (S. Fraser), Director; **Yvonne Brown**, B.Ed., M.Ed., (Brit. Col.), Program Coordinator; **Sydney Craig**, B.A., M.A., (Alta.), Ed.D. (Brit.Col.), Program Coordinator (Elementary and Middle Years Practica); **Gary Rupert**, B.A., M.Ed., (U.Vic.) Program Coordinator; **Sheila TeHennepe**, B.Ed., M.Ed. (S.Fraser), Program Coordinator; **John Yamamoto**, B.Ed., Program Coordinator (Secondary Practicum).

ADMINISTRATIVE STAFF

Winston J. Hunter, B.A. (Car.), Director of Administration.

CENTRE FOR THE STUDY OF CURRICULUM AND INSTRUCTION

Director, T.B.A. .

CENTRE FOR THE STUDY OF TEACHER EDUCATION

Galen Erickson, Director.

CENTRE FOR POLICY STUDIES IN HIGHER EDUCATION AND TRAINING

Kjell Rubenson, Co-director; **Donald Fisher**, Co-director.

NATIVE INDIAN TEACHER EDUCATION PROGRAM (NITEP)

Jackie Agostinis, B.A. (Vic.B.C.), Dip. Ed. (Brit. Col.), Lecturer; **Deborah Draney**, B.Ed. (Brit. Col.), Lecturer; **Mary Jane Joe**, B.Ed., M.A. Educ. (Brit. Col.), Lecturer; **Felicity Jules**, B.Ed., M.Ed. (Brit. Col.), Lecturer; **Yvonne McLeod**, B.Ed., M.Ed., Ph.D. Candidate (Regina), Lecturer, Director.

10 The Faculty of Forestry

Dean's Office

J.N. Saddler, Dean

J. McLean, Associate Dean, Graduate Studies and Research

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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, Master of Science, Master of Applied Science, and Doctor of Philosophy.

The Faculty of Forestry is favourably situated for education of 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, a specialized research centre. The Forest Engineering Research Institute of Canada, Pulp and Paper Research Institute of Canada 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.

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. See "Special Fees." 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 "Special Fees."

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.

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 and 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, etc. 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 Co-ordinator of Student Services (Helens@interchange.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 (see the chapter *Undergraduate Admission*, p. 21 in this Calendar). Students entering from secondary school must have met the general Univer-

sity entrance requirements (see the chapter *Undergraduate Admission*, p. 21 in this Calendar) including Mathematics 12, and one of Chemistry 12 or Physics 12 and Biology 11 or Biology 12.

Meeting the minimum academic requirements outlined in this chapter and in the chapter *Undergraduate Admission*, p. 21 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 Co-ordinator of Student Services in the Faculty of Forestry.

To be eligible for 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 *Examinations*, p. 32 and *Advancement Regulations*, p. 34 in the chapter "Academic Regulations" in this Calendar. 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.

- Students who have not achieved an 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. 22 under Language Proficiency Index Requirements for First-Year English in the section on Undergraduate Admission.

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.

SUPPLEMENTAL EXAMINATIONS

In addition to University regulations governing supplemental examinations (see *Deferred and Supplemental Examinations*, p. 32 in the chapter "Academic Regulations" in this Calendar), the Faculty of Forestry will apply the following guidelines for the granting of supplemental examinations:

- Supplemental examination privileges will be granted in a course provided:
 - the normal final exam has been written and a grade submitted;
 - the grade attained is at least 40%; and
 - the overall average for the year including the failed courses is at least 60%.
- Notwithstanding eligibility under point 1, supplemental examination will not be granted if:
 - The failure is due to a substandard performance in the laboratory part of a course.
 - In departments outside the Faculty of Forestry, supplementals are not offered.
- 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

This 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 communicative 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 133 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 100 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 101 credits of in-session course work normally taken over a three-year period.

STUDENTS ENTERING FROM SECONDARY SCHOOL

| First Year | |
|---|---|
| ENGL 100-level | 3 |
| BIOL 111, 121, and 140 ¹ | 7 |
| CHEM 111 or 121 or PHYS 100 or 101 ² | 3 |
| ECON 101 and 102 | 6 |
| MATH 100 and 101 or 102 and 103 ³ | 6 |
| FRST 100 | 2 |
| FRST 231 | 3 |

| First Year (Continued) | |
|---|----|
| Electives ⁴ | 3 |
| Total Credits | 33 |
| Second Year | |
| FRST 200 | 7 |
| FRST 201 ⁵ | 7 |
| FRST 232 | 3 |
| FRST 239 | 5 |
| CONS 200 | 3 |
| SOIL 200 | 3 |
| AGRO 244 (or GEOG 204) | 3 |
| Elective ⁴ | 3 |
| Total Credits | 34 |
| Third Year | |
| FRST 305 | 3 |
| FRST 306 | 3 |
| FRST 308 | 2 |
| FRST 309 | 2 |
| FRST 318 | 2 |
| FRST 327 | 2 |
| FRST 339 | 3 |
| FRST 385 | 3 |
| FRST 386 | 3 |
| FRST 395 | 3 |
| CONS 370 | 3 |
| FOPR 361 | 3 |
| FOPR 365 | 2 |
| Total Credits | 34 |
| FRST 351 immediately preceding third year | 2 |
| Fourth Year | |
| FRST 424 | 13 |
| FRST 432 | 3 |
| FRST 465 | 2 |
| FRST 470 | 3 |
| FRST 491 | 2 |
| FRST 492 | 3 |
| FRST 497 | 2 |
| WOOD 474 | 1 |
| Electives ⁶ | 3 |
| Total Credits | 32 |
| FRST 452 immediately following third year | 2 |

¹ Students with Biology 12 should replace BIOL 111 with three credits of electives.

² Select the subject(s) 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 enroll 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 First and Second Year must include 3 credits of social science or a course chosen in consultation with a program advisor.

⁵ FRST 202 and 203, available through Distance Education, may be taken in lieu of FRST 201 with permission of the Faculty.

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 |
| CHEM 111 or 121 or PHYS 100 or 101 ¹ | 3 |
| ECON 101 and 102 | 6 |
| MATH 100 and 101 or MATH 102 and 103 ² | 6 |
| FRST 200 | 7 |
| FRST 201 ³ | 7 |
| SOIL 200 | 3 |
| Total Credits | 35 |

- Select the subject(s) not taken at the Grade 12 level.
- Students who had less than a C+ average in Math 12 must take the non-credit MATH 012 prior to Mathematics courses. Students may enroll in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.
- FRST 202 and 203, available through Distance Education, may be taken in lieu of FRST 201 with permission of the Faculty.

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). Students receive a Bachelor of Science in Forestry (B.S.F.) and may be eligible for registration as professional foresters. The program consists of a minimum of 145 credits of in-session and four credits of extra-session course work. 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 |
| One of BIOL 111, 121, 140 ¹ | 7 |
| ECON 101 and 102 | 6 |
| MATH 100 and 101 or | 6 |
| FRST 100 | 2 |
| FRST 231 | 3 |
| Language ³ | 6 |
| Total Credits | 33 |

Second Year

| | |
|--|----|
| Language ³ | 6 |
| FRST 200 | 7 |
| FRST 201 ⁴ | 7 |
| FRST 232 | 3 |
| FRST 239 | 5 |
| CONS 200 | 3 |
| SOIL 200 | 3 |
| Region-Specific ⁵ Elective ⁶ | 3 |
| Total Credits | 37 |

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 361 | 3 |

Third Year (Continued)

| | |
|--|----|
| FOPR 362 | 3 |
| Region-Specific Area of Concentration ⁶ | 3 |
| Region-Specific ⁵ Elective ⁶ | 3 |
| Total Credits | 39 |
| FRST 351 immediately preceding third year | 2 |

Fourth Year

| | |
|---|----|
| FRST 424 | 13 |
| FRST 432 | 3 |
| FRST 439 | 3 |
| FRST 465 | 2 |
| FRST 491 | 2 |
| FRST 492 | 3 |
| FRST 497 | 2 |
| WOOD 474 | 1 |
| Region-Specific Area of Concentration ⁷ | 6 |
| Region-Specific ⁵ Elective ⁶ | 3 |
| Total Credits | 38 |
| FRST 452 immediately following third year International Experience ⁸ | 2 |

- 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 required to choose 12 additional credits of program electives approved by a program advisor.
- FRST 202 and 203, available through Distance Education, may be taken in lieu of FRST 201 with permission of the Faculty.
- Students may choose Asia Pacific, America 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 the following general areas: Anthropology or Sociology; Economics or Commerce or Law; Geography or History or Political Science.
- Co-operative placement.

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. In addition, the Forest Operations Major 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. Graduates of the Forest Operations Major 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. Graduates are eligible for registration as professional foresters after appropriate work experience and examination.

FOREST OPERATIONS MAJOR

First Year

| | |
|-------------------------------------|----|
| ENGL 100-level | 3 |
| BIOL 111, 121, and 140 ¹ | 7 |
| ECON 101 and 102 | 6 |
| MATH 100 and 101 ² | 6 |
| FRST 100 | 2 |
| FRST 231 | 3 |
| Electives ³ | 6 |
| Total Credits | 33 |

Second Year

| | |
|-----------------------|----|
| FRST 200 | 7 |
| FRST 201 ⁴ | 7 |
| FRST 232 | 3 |
| FRST 239 | 5 |
| FOPR 288 | 3 |
| CONS 200 or CONS 370 | 3 |
| SOIL 200 | 3 |
| PHYS 170 | 3 |
| Total Credits | 34 |

Third Year

| | |
|---|----|
| FRST 305 | 3 |
| FRST 306 | 3 |
| FRST 308 | 2 |
| FRST 309 | 2 |
| FRST 318 | 2 |
| FRST 327 | 2 |
| FRST 339 | 3 |
| CIVL 230 or WOOD 376 | 3 |
| FRST 395 | 3 |
| FOPR 360 | 1 |
| FOPR 361 | 3 |
| FOPR 363 | 3 |
| FOPR 365 | 2 |
| Electives | 3 |
| Total Credits | 35 |
| Plus FRST 351 immediately preceding third year. | 2 |

Fourth Year

| | |
|----------|----|
| FRST 424 | 13 |
| FRST 432 | 3 |
| FRST 465 | 2 |
| FRST 497 | 2 |
| FOPR 359 | 3 |
| FOPR 459 | 3 |
| FOPR 463 | 3 |
| FOPR 464 | 3 |
| WOOD 474 | 1 |

Fourth Year (Continued)

| | |
|---|----|
| Total Credits | 33 |
| Plus FRST 452 immediately following 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 Students who do not have Phys 12 or its equivalent must take PHYS 100 in place of 3 credits of electives. | |
| ⁴ FRST 202 and 203, available through Distance Education, may be taken in lieu of FRST 201 with permission of the Faculty. | |

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 will receive a one-year exemption.

Second Year

| | |
|-------------------------------|----|
| ENGL 100-level | 3 |
| ECON 101 and 102 | 6 |
| PHYS 170 ¹ | 3 |
| MATH 100 and 101 ² | 6 |
| FRST 200 | 7 |
| FRST 201 ³ | 7 |
| FOPR 288 | 3 |
| Total Credits | 35 |

Third Year

| | |
|--|----|
| FRST 305 | 3 |
| FRST 306 | 3 |
| FRST 308 | 2 |
| FRST 309 | 2 |
| FRST 318 | 2 |
| FRST 327 | 2 |
| FRST 339 | 3 |
| FOPR 360 | 1 |
| FOPR 363 | 3 |
| FOPR 365 | 2 |
| FRST 395 | 3 |
| CIVL 230 or WOOD 376 | 3 |
| CONS 370 | 3 |
| Total Credits | 32 |
| Plus FRST 351 immediately preceding third year | 2 |

Fourth Year

| | |
|----------|----|
| FRST 424 | 13 |
| FRST 432 | 3 |
| FRST 465 | 2 |

Fourth Year (Continued)

| | |
|---|----|
| FRST 497 | 2 |
| FOPR 359 | 3 |
| FOPR 459 | 3 |
| FOPR 463 | 3 |
| FOPR 464 | 3 |
| Total Credits | 32 |
| Plus FRST 452 immediately following third year | 2 |
| ¹ Students who do not have Phys 12 or its equivalent must complete PHYS 100 prior to completing PHYS 170. | |
| 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 FRST 202 and 203, available through Distance Education, may be taken in lieu of FRST 201 with permission of the Faculty. | |

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 which 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 which 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 communicative 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 *Undergraduate Admission*, p. 21 in this Calendar) and have completed Mathematics 12 and Chemistry 12 and Biology 11 or Biology 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 Coordinator of Student Services in the Faculty of Forestry.

See also *Broader Based Admission*, p. 198 as listed under "Admission" under Bachelor of Science in Forestry (B.S.F.).

See also *Program Approval and Advising*, p. 197 as listed under Bachelor of Science in Forestry (B.S.F.).

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 198 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 140 ¹ | 7 |
| ECON 101 and 102 | 6 |
| ENGL 100-level | 6 |
| GEOG 101 | 6 |
| MATH 100, 102 or 104 ² | 3 |
| SOIL 200 | 3 |
| CONS 101 | 1 |
| Total Credits | 32 |

Second Year

| | |
|-----------------------|----|
| CONS 200 | 3 |
| FRST 200 | 7 |
| FRST 201 ³ | 7 |
| FRST 231 ⁴ | 3 |
| FRST 232 | 3 |
| SOCI 100 ⁵ | 6 |
| Elective | 3 |
| Total Credits | 32 |

Third Year

| | |
|-----------------------|---|
| CONS 330 | 3 |
| CONS 340 | 3 |
| CONS 481 | 3 |
| FRST 318 ⁶ | 2 |
| FRST 385 | 3 |
| FRST 386 | 3 |
| FRST 395 | 3 |
| FRST 495 | 3 |

Third Year (Continued)

| | |
|---------------|----|
| SOCI 360 | 3 |
| Elective | 3 |
| Total Credits | 29 |

Fourth Year

| | |
|-----------------------------------|----|
| CONS 451 ⁷ | 15 |
| CONS 440 | 3 |
| FRST 443 | 3 |
| CONS 486 | 3 |
| CONS 498 or elective ⁸ | 3 |
| Elective ⁹ | 3 |
| Total Credits | 30 |

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 enroll in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.

³ FRST 202 and 203, available through Distance Education, may be taken in lieu of FRST 201 with permission of the Faculty.

⁴ Could be replaced with BIOL 300.

⁵ 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.

⁶ Could be replaced with ECON 371 or 374 (3 credits).

⁷ 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.

⁸ Elective must be a course numbered 300 or above.

⁹ Elective must be a course numbered 300 or above. To be chosen in consultation with the program advisor.

COURSES TOWARDS 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 Professional Foresters are advised to contact the Co-ordinator of Student Services in the Faculty of Forestry for information on appropriate courses to add to their program.

COURSES TOWARDS 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 Association of Professional Biologists of BC (APBBC) 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 APBBC 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 for students interested in the biology and dynamics of forest ecosystems. The program provides a strong foundation for careers involving the biological and environmental aspects of forestry, forest conservation, research, and teaching. Emphasis is given to education in the basic biological and environmental sciences, particularly with regard to the components and functioning of forest ecosystems.

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 end of the Term 2 of the second 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, or wildlife ecology. Each area of concentration consists of 15 credits of course work. It is expected that the 6 credit thesis be in the area of concentration. 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 undergraduate advisor of the Department of Forest Sciences.

The recommended program of studies is given below. Part-time students or students with advanced credit should consult the undergraduate advisor of the Department of Forest Sciences 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. 197 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 one of BIOL 110 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. 198 under "Admission" as listed under Bachelor of Science in Forestry (B.S.F.).

See also *Program Approval and Advising*, p. 197 as listed under Bachelor of Science in Forestry (B.S.F.).

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 198 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 | 7 |
| CHEM 111 and 113 or 121 and 123 | 6 |
| 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 | 33 |

Second Year

| | |
|------------------------|----|
| BIOL 200 | 3 |
| BIOL 201 | 3 |
| CHEM 233 and 235 | 4 |
| FRST 200 | 7 |
| FRST 201 ⁴ | 7 |
| FRST 231 (or BIOL 300) | 3 |
| Elective ⁵ | 3 |
| Total Credits | 30 |

Third Year⁶

| | |
|--|----|
| FRST 302 or AGSC 213 | 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 |
| Area of concentration ⁷ | 6 |
| Electives | 3 |
| Total Credits | 33 |
| Plus FRST 351 immediately preceding third year | 2 |

Fourth Year

| | |
|------------------------------------|----|
| FRST 311 | 4 |
| FRST 312 | 3 |
| FRST 399 | 4 |
| FRST 495 or BIOL 416 | 3 |
| FRST 498 | 6 |
| Area of concentration ⁷ | 9 |
| Elective | 3 |
| Total Credits | 32 |

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 enroll in MATH 180 (4 credits) instead of MATH 100 or 102 (3 credits), but the credit difference cannot be applied towards program electives.

³ The other to be taken in second year.

⁴ FRST 202 and 203, available through Distance Ed-

ucation, may be taken in lieu of FRST 201 with permission of the Faculty.

⁵ PHYS 100 is suggested for students who do not have credit for Physics 12.

⁶ The first term of third year will have frequent overnight field trips, Thursday/Friday, and a week field school in Williams Lake prior to the term.

⁷ Courses should be selected in consultation with a program advisor.

COURSES TOWARDS REGISTRATION AS A PROFESSIONAL FORESTER IN BRITISH COLUMBIA

Students who wish to work towards membership in the Association of BC Professional Foresters are advised to contact the coordinator of Student Services in the Faculty of Forestry for information on appropriate courses to add to their program.

COURSES TOWARDS REGISTRATION AS A PROFESSIONAL BIOLOGIST IN BRITISH COLUMBIA

Students in the B.Sc. (Forestry) program who wish to work towards membership in the Association of Professional Biologists of BC (APB) 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 BC(APB) 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 131 credits of in-session and seven credits of extra-session 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 | 7 |
| CHEM 111 and 113 or 121 and 123 | 6 |
| MATH 100 and 101 or MATH 102 and 103 ² | 6 |
| FRST 100 | 2 |
| FRST 231 | 3 |
| SOIL 200 | 3 |
| Total Credits | 33 |

Second Year

| | |
|--|----|
| Language ³ | 6 |
| FRST 200 | 7 |
| FRST 201 ⁴ | 7 |
| BIOL 200 and BIOL 201 | 6 |
| CHEM 231 and 232 | 6 |
| Region-Specific Electives ^{5,6} | 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 312 | 3 |
| FRST 399 | 4 |
| FRST 439 | 3 |
| FRST 495 | 3 |
| FRST 498 | 6 |
| Region-Specific Electives ^{5,6} | 3 |
| Region-Specific Area of Concentration ^{5,7} | 9 |
| Total Credits | 35 |

International Experience⁸

- 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 enroll 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.
- FRST 202 and 203, available through Distance Education, may be taken in lieu of FRST 201 with permission of the Faculty.
- 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 adviser. 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 130 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 Building, The

University of British Columbia, Vancouver, BC, Canada, V6T 1Z4; telephone 604-822-1834.

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). Students who have completed ECON 101 and 102 prior to entry into the program may use this course in lieu of ECON 309, but may require additional upper-level credits to satisfy graduation requirements. Upon successful completion of this Minor program, the notation 'Minor in Commerce' will appear on the student's transcript.

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 *Undergraduate Admission*, p. 21 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. 197 as listed under Bachelor of Science in Forestry (B.S.F.).

ACADEMIC REGULATIONS

See *Academic Regulations*, p. 198 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 111 or 121 | 3 |
| CHEM 113 or 123 | 3 |
| WOOD 120 | 3 |
| Electives | 6 |
| Total Credits | 30 |

Second Year

| | |
|---------------|----|
| ECON 101 | 3 |
| WOOD 242 | 3 |
| WOOD 244 | 3 |
| WOOD 271 | 3 |
| WOOD 273 | 3 |
| WOOD 280 | 3 |
| WOOD 282 | 3 |
| WOOD 290 | 3 |
| WOOD 376 | 3 |
| APSC 201 | 3 |
| Total Credits | 30 |

WOOD 305²

| | |
|-----------------------|----|
| WOOD 305 ² | 3 |
| Third Year | |
| WOOD 330 | 4 |
| WOOD 335 | 3 |
| WOOD 386 | 3 |
| WOOD 464 | 2 |
| WOOD 465 | 3 |
| WOOD 485 | 3 |
| WOOD 487 | 3 |
| WOOD 492 | 3 |
| COMM 399 | 3 |
| EECE 265 | 3 |
| MECH 356 | 3 |
| Total Credits | 33 |

Fourth Year

| | |
|------------------------|----|
| WOOD 430 | 3 |
| WOOD 440 | 3 |
| WOOD 461 | 3 |
| WOOD 491 | 3 |
| WOOD 493 | 3 |
| WOOD 494 | 3 |
| COMM 457 | 3 |
| MECH 463 | 3 |
| MECH 492 | 4 |
| Electives ³ | 9 |
| Total Credits | 37 |

- 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 enroll 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.

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*, p. 49.

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 woodworking course. (See *Special Fees*, p. 49.)

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 |
|---------------|----|

| | |
|----------------------------|----|
| Second Year | |
| Same as above | 30 |
| Plus WOOD 300 ¹ | 3 |

| | |
|-----------------------|----|
| Third Year | |
| WOOD 330 | 4 |
| WOOD 335 | 3 |
| WOOD 386 | 3 |
| EECE 265 | 3 |
| MECH 356 | 3 |
| Total Credits | 16 |
| WOOD 311 ¹ | 3 |
| WOOD 312 ¹ | 3 |

| | |
|------------------------|----|
| Fourth Year | |
| WOOD 440 | 3 |
| WOOD 464 | 2 |
| WOOD 465 | 3 |
| WOOD 485 | 3 |
| WOOD 492 | 3 |
| WOOD 494 | 3 |
| COMM 399 | 3 |
| COMM 457 | 3 |
| MECH 463 | 3 |
| MECH 492 | 4 |
| Electives ² | 6 |
| Total Credits | 36 |
| WOOD 411 ¹ | 3 |

| | |
|------------------------|----|
| Fifth Year | |
| WOOD 430 | 3 |
| WOOD 461 | 3 |
| WOOD 487 | 3 |
| WOOD 491 | 3 |
| WOOD 493 | 3 |
| Electives ² | 3 |
| Total Credits | 18 |
| 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 Silviculture and Forest Engineering 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 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 Silviculture and Forestry Engineering 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 a Forester-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.

Exchange Programs

The Faculty of Forestry actively participates in the formal university-wide exchange programs. Undergraduate students who earn 75% in first year or maintain a 70% average in their second year of studies 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. 81 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), Helsinki (Finland); Göttingen (Germany); Hamburg (Germany); Joensuu (Finland); Padova (Italy); Australia National Universities; Lincoln University (New Zealand); Oregon State University (USA); Swedish University of Agricultural Sciences; University of Agricultural Sciences, Vienna (Austria); Gembloux Agricultural University (Belgium); Albert-Ludwig University Freiburg (Germany); Wageningen Agricultural University (Netherlands); the Instituto

Technológico de Costa Rica; and the University of Chile.

Awards and Financial Aid

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 the Awards Office. In the past academic session, approximately 45 students received academic awards totalling nearly \$85,000. 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 are contained in *A Guide to Awards and Financial Aid*. Students who wish to be considered for awards and financial assistance are urged to consult this supplement which is available in the spring from the Awards Office or their website (students.ubc.ca/finance/awards).

H.R. MacMillan Lectureship in Forestry

The generosity of H. R. MacMillan, C.B.E., D.Sc., LL.D., and the H. R. MacMillan Family Fund enables a series of public lectures in forestry and natural resources conservation by outstanding managers, scientists, and politicians working in these fields. These lecturers are available for several days to speak to students, to consult with members of the Faculty, and to address professional and other groups.

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.

Academic Staff

DEPARTMENT OF FOREST RESOURCES MANAGEMENT

George Hoberg, Head

PROFESSORS

R. Jonathan Fannin, B.Sc. (Belfast), Ph.D. (Oxf.), P.Eng. (joint with Civil Engineering); **David Haley**, B.Sc. (Aberd.), M.F., Ph.D. (Brit. Col.), R.P.F.; **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. (Brit. Col.), R.P.F.; **Peter A. Murtha**, B.Sc.F. (Tor.), M.Sc., Ph.D. (C'nell), M.C.A.S.I.

ASSOCIATE PROFESSORS

Valerie LeMay, B.Sc., M.Sc. (Alta.), Ph.D. (Brit. Col.), R.P.F.; **R. Daniel Moore**, B.Sc. (Hons.) (Brit. Col.), Ph.D. (Cant.), P.Geo. (joint with Geography); **John D. Nelson**, B.S.F., M.B.A. (Brit. Col.), Ph.D. (Oregon), R.P.F.; **Stephen Sheppard**, B.A. (Oxon.), M.Sc. (Brit. Col.), M.A. (Oxon.), Ph.D. (Calif., Berkeley), ASLA. (joint with Landscape Architecture).

ASSISTANT PROFESSORS

Younes Alila, B.A.Sc., M.A.Sc., Ph.D. (Ott.), P.Eng.; **Gary Bull**, B.S.F., M.F. (Brit. Col.), Ph.D. (Tor.); **Sumeet Gulati**, B.A. (Mumbai), M.A. (Delhi), M.Sc., Ph.D. (Maryland) (joint with Agricultural Sci.); **Kevin Lyons**, B.S.F., M.S.F. (Brit. Col.), Ph.D. (Oregon State); **Michael Meitner**, B.A., M.A., Ph.D. (Arizona); **David E. N. Tait**, B.Sc., M.Sc., Ph.D. (Brit. Col.); **David Tindall**, B.A., M.A. (Vic.B.C.), Ph.D. (Tor.) (joint with Sociology); **Paul M. Wood**, B.Sc., Ph.D. (Brit. Col.), R.P.F., R.P.Bio.

ADJUNCT PROFESSORS

Philip L. Cottell, B.S.F., M.F. (Brit. Col.), Ph.D. (Yale), R.P.F.; **Dan Hogan**, B.A., M.Sc. (Brit. Col.); **Kimberley Iles**, B.S., M.Sc. (Oregon), Ph.D. (Brit. Col.); **Don Leckie**, B.Sc. (Manit.), Ph.D. (Brit. Col.); **Steen Magnussen**, M.Sc. (Copenhagen), Ph.D. (Göttingen); **Patrick Matakala**, B.Sc., M.Sc. (Lakehead), Ph.D. (Brit. Col.); **Kenneth J. Mitchell**, B.S.F. (Brit. Col.), M.F., Ph.D. (Yale), R.P.F.; **Guillaume Therien**, B.A.Sc. (Laval), Ph.D. (Brit. Col.); **Bill Wilson**, B.A. (Carleton), M.Sc., Ph.D. (Alta.); **Rita Winkler**, B.S.F. (Brit. Col.), M.Sc. (Alta.), Ph.D. (Brit. Col.).

INSTRUCTOR

Dennis Bendickson, B.S.F. (Brit. Col.), R.P.F.

DEPARTMENT OF FOREST SCIENCES

Bart J. van der Kamp, Head

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Ph.D. (Brit. Col.), R.P.Bio; **Robert D. Guy**, B.Sc., Ph.D. (Calg.); **Scott G. Hinch**, B.Sc., M.Sc. (W. Ont.), Ph.D. (Tor.); **Cindy E. Prescott**, B.Sc. (Brock), M.Sc., Ph.D. (Calg.); **Suzanne Simard**, B.S.F. (Brit. Col.), M.S., Ph.D. (Oregon); **John G. Worrall**, B.Sc. (Durham), B.S.F. (Brit. Col.), M.F., M.Phil., Ph.D. (Yale).

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LECTURER

Susan B. Watts, B.Sc. (N. Wales), M.F., Ph.D. (Brit. Col.), R.P.F.

SESSIONAL INSTRUCTOR

Georgie Harrison, B.Sc., B.C. Teacher Cert. (S. Fraser), M.Sc. (UNBC).

ADJUNCT PROFESSORS

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DEPARTMENT OF WOOD SCIENCE

Paul McFarlane, Head

PROFESSORS

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ASSOCIATE PROFESSOR

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ASSISTANT PROFESSORS

Robert Kozak, B.Sc., Ph.D. (Brit. Col.); **Shawn Mansfield**, B.Sc. (Mt. All.), M.Sc. (Dal.), Ph.D. (Brit. Col.); **Gregory Smith**, B.A.Sc. (Brit. Col.), D.Sc.T. (E.P.F.L., Switzerland); **Taraneh Sowlati**, B.Sc. (Sharif U. Tech.), M.A.Sc. (Tarbiat Modares U.), Ph.D. (Tor.).

INSTRUCTORS

Patrick Cramond, B.A.Sc. (Brit. Col.); **Robert Fuerst**, Instructor.

ADJUNCT PROFESSORS

Rodger Beatson, B.Sc. (Exeter), Ph.D. (Ont.); **Suezone Chow**, B.Sc. (National Taiwan Univ.), Ph.D. (Brit. Col.); **Chunping Dai**, B.Sc., M.Sc. (Nanjing Forestry U.), Ph.D. (Brit. Col.); **Christopher Gaston**, B.Sc. (Brit. Col.), M.Sc. (U of Guelph), Ph.D. (Brit. Col.); **Paul Morris**, B.Sc., Ph.D. (Lond.); **Alan Procter**, B.Sc., Ph.D. (Edin.).

STUDENT SERVICES

STUDENT SERVICES

Geoff Anderson, B.Comm. (M.U.N), Co-operative Education Coordinator; **Steven Baumber**, B.S.F. (Brit. Col.), Recruiter; **Barbara Brenner**, B.A. (U. Vic.), Cooperative Education Coordinator; **Sandy McKellar**, B.Sc. (Brit. Col.), Coordinator, Student & Public Relations; **Gordon Prest**, Coordinator, First Nations Programs; **Helen M. Samson**, B.Sc. (Brit. Col.), Coordinator, Student Services; **Sandra Schinnerl**, B.Com. (Brit. Col.), Associate Director, International Programs.

UNIVERSITY RESEARCH FORESTS

UNIVERSITY RESEARCH FOREST

Ken Day, B.Sc.F. (Lake.), M.F. (Brit. Col.), R.P.F., Director and Manager, Alex Fraser Research Forest, Williams Lake; **Paul Lawson**, B.S.F., M.B.A. (Brit. Col.), R.P.F., Manager, Malcolm Knapp Research Forest, Maple Ridge.

2003-04

11 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
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Graduate Studies Website (www.grad.ubc.ca)

The Faculty of Graduate Studies works in conjunction with departments, schools and other faculties to co-ordinate 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; co-ordinating 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 (www.grad.ubc.ca).

In addition to the above functions, the Faculty of Graduate Studies is responsible for the Individual Interdisciplinary 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 co-ordinated 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 Department (www.grad.ubc.ca/prostudents/apply/degree.htm) in which the program is offered or by contacting the Dean's Office (graduate@interchange.ubc.ca), Faculty of Graduate Studies, 180-6321 Crescent Road, Vancouver, BC, Canada, V6T 1Z2. Up-to-date information on admission is available on the Faculty of Graduate Studies website (www.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 (www.grad.ubc.ca) for information on current application fees.

The number of candidates that can be accommodated is limited and Departments will accept the best qualified students as vacancies occur. Most students begin their program of study at the start of the Winter Term (the beginning of 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.

Applicants for the Doctor of Philosophy (Ph.D.), Doctor of Musical Arts (D.M.A.) and Doctor of Education (Ed.D.) must have completed the following requirements prior to admission:

- 1 In the case of the Ph.D. a masters degree (or equivalent) with clear evidence of research ability or potential, or in the case of the D.M.A., a masters degree (or equivalent) with outstanding ability in performance or composition (for D.M.A.).

- 2 In the case of the Ed.D., a Master's Degree in Education (or equivalent degree).

- 3 A bachelor program 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 500-level or above and at least 10 credits must be of first class standing, and clear evidence of research ability or potential (for Ph.D.), or first class standing in Teacher Training or a B.Ed. (Elementary) with first class standing and first class standing in such prerequisite work as may have been required, and five years professional experience (for Ed.D.), or outstanding ability in performance or composition (for D.M.A.). Transfer directly into a doctoral program is not normally permitted beyond 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 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 Department 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 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, to maintain registration as a Doctoral student.

INTERNATIONAL STUDENTS

Applicants for admission to the Faculty of Graduate Studies are welcomed and encouraged from international students who hold a credential deemed comparable to a Canadian masters 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 (www.grad.ubc.ca/prostudents/admission/require.asp). 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);
- 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.

Departments may set higher English Language Proficiency scores than those listed above. See the chart *TOEFL and GRE Requirements*, p. 212.

REQUIRED DOCUMENTATION

The following information is required in support of an application to the Faculty of Graduate Studies:

- Graduate Studies Application Form (paper or electronic version)
- Application fee
- Three confidential reference reports (must contain original signature and be received sealed)
- 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 English Proficiency where applicable (TOEFL, IELTS, or MELAB are all acceptable).
- Supplementary information as may be required by admitting Department (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 department or faculty and approval of the Dean of the Faculty of Graduate Studies.

- 2 **Conditional admission.** Contains condition(s) that must be met before 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.

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 the degree program by writing directly to the Department (www.grad.ubc.ca/prostudents/apply/degree.htm) in which the program is offered or by contacting the Dean's Office (graduate@interchange.ubc.ca), Faculty of Graduate Studies, 180-6321 Crescent Road, Vancouver, BC, Canada, V6T 1Z2. Up-to-date information on admission is available on the Faculty of Graduate Studies website (www.grad.ubc.ca). Students are admitted to study only in fields that are authorized by Senate to offer masters-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 Departments 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 BACHELOR'S DEGREE FROM A CANADIAN OR AMERICAN UNIVERSITY OR COLLEGE

Applicants for a master's degree program must hold a bachelor degree or its academic equivalent with:

- Honours in the field of the proposed masters courses 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
- A minimum overall average in the B+ range (at UBC 76%) in third- and fourth-year courses prescribed by the Department concerned as prerequisite to the master's program.
- Applicants who have a four-year 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 department 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. Departments may have additional admission requirements. Consult the Departmental listings in the Calendar to confirm the admission requirements for specific degree programs.

INTERNATIONAL STUDENTS

Applicants for admission to the Faculty of Graduate Studies are welcomed and encouraged from international students who hold a credential deemed comparable to a Canadian bachelor 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 (www.grad.ubc.ca/prostudents/admiss/require.asp). 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);
- 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.

Departments may set higher English Language Proficiency scores than those listed above. See the chart *TOEFL and GRE Requirements*, p. 212.

REQUIRED DOCUMENTATION

The following information is required in support of an application to the Faculty of Graduate Studies:

- Graduate Studies Application Form (paper or electronic version)
- Application fee
- Three confidential reference reports (must contain original signature and be received sealed)
- Two sets of all official postsecondary 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 English Proficiency where applicable (TOEFL, IELTS, or MELAB are all acceptable).
- Supplementary information as may be required by admitting Department (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 department or faculty and approval of the Dean of the Faculty of Graduate Studies.
- 2 **Conditional admission.** Contains condition(s) that must be met before 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 home Department, a student with a bachelor 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 Department. 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 Department. 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 twelve months.

Applicants for regular visiting student status (other than those applying under the Western Deans Agreement or the Exchange Agreement) must submit the following documentation:

- Graduate Studies Application Form
- 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;
- 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 Department, 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 The University of British Columbia Policy and Procedure Handbook, Policy #45 (www.policy.ubc.ca/policy45.htm).

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 *The University of British Columbia Policy and*

Procedure Handbook, Policy #46 (www.policy.ubc.ca/policy46.htm).

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

| Program | TOEFL (Paper) | TOEFL (Computer) | GRE |
|--|---------------|------------------|------------------|
| Agricultural Economics | 560 | 220 | |
| Anatomy | 600 | 250 | Yes |
| Animal Science | 560 | 220 | |
| Anthropology | 600 | 250 | |
| Architecture (M.A.S.A.) | 600 | 250 | Yes ¹ |
| Architecture (M.Arch.) | 570 | 230 | Yes ¹ |
| Asia Pacific Policy Studies | 550 | 213 | Yes ¹ |
| Asian Studies | 570 | 230 | |
| Atmospheric Science | 600 | 250 | Yes ¹ |
| Audiology and Speech Sciences | 600 | 250 | |
| Biochemistry and Molecular Biology | 625 | 263 | Yes |
| Bio-Resource Engineering | 550 | 213 | |
| Botany | 550 | 213 | |
| Ctr. for the Study of Curriculum and Instruction | 550 | 213 | |
| Chemical Engineering | 550 | 213 | |
| Chemistry | 580 | 237 | Yes |
| Civil Engineering | 570 | 230 | |
| Classics and Classical Archaeology | 600 | 250 | |
| Clinical Dental Science | 570 | 230 | |
| Commerce & Bus. Admin. (M.Sc. (Bus.Admin.), Ph.D.) | 600 | 250 | Yes ² |
| Commerce & Bus. Admin. (M.B.A.) ¹¹ | 600 | 250 | |
| Community and Regional Planning | 600 | 250 | Yes ¹ |
| Comparative Literature | 625 | 260 | |
| Computer Engineering | 600 | 250 | |
| Computer Science | 600 | 250 | Yes |
| Counselling Psychology | 580 | 237 | Yes |
| Creative Writing | 550 | 213 | |
| Curriculum Studies | 580 | 237 | |
| Economics | 550 | 213 | Yes |
| Educational Psychology & Special Education | 590 | 243 | Yes ³ |
| Educational Studies | 600 | 250 | |
| Electrical and Computer Engineering | 600 | 250 | |
| English | 615 | 258 | |
| European Studies | 550 | 213 | |
| Experimental Medicine | 590 | 243 | |
| Family Studies | 575 | 232 | |
| Fine Arts | 580 | 237 | |
| Fire Protection Engineering | 550 | 213 | |
| Food Science | 560 | 220 | |
| Forestry | 550 | 213 | |
| French | 550 | 213 | |
| Genetics | 600 | 250 | |
| Geography | 600 | 250 | |
| Geological Science | 600 | 250 | |
| Geophysics | 600 | 250 | |
| Germanic Studies | 550 | 213 | |
| Health Care and Epidemiology | 600 | 250 | Yes |
| Health Care and Epidemiology (M.H.A.) | 570 | 230 | Yes ² |
| Hispanic and Italian Studies | 550 | 213 | |
| History | 570 | 230 | Yes ⁴ |
| Human Kinetics | 550 | 213 | |
| Human Nutrition | 560 | 220 | |
| Interdisciplinary Studies | 550 | 213 | |

| Program | TOEFL (Paper) | TOEFL (Computer) | GRE |
|--|---------------|------------------|--------------------|
| Journalism | 600 | 250 | |
| Landscape Architecture | 560 | 220 | |
| Language Education | 550 | 213 | |
| Law ⁵ | 600 | 250 | |
| Library, Archival and Information Studies | 600 | 250 | |
| Linguistics | 550 | 213 | |
| Mathematics | 600 | 250 | |
| Mechanical Engineering ⁶ | 580 | 237 | |
| Medical Genetics | 600 | 250 | |
| Medical Genetics (Genetics Counselling) ⁷ | 600 | 250 | |
| M.D./Ph.D. [Combined Program] | 550 | 213 | |
| Metals and Materials Engineering | 550 | 213 | |
| Microbiology and Immunology | 590 | 243 | Yes |
| Mining and Mineral Process Engineering | 550 | 213 | |
| Music | 580 | 237 | |
| Neuroscience | 600 | 250 | Yes ⁸ |
| Nursing | 600 | 250 | |
| Occupational and Environmental Hygiene | 600 | 250 | Yes |
| Oceanography | 600 | 250 | |
| Oral Biology | 550 | 213 | |
| Oral Medical and Surgical Sciences | 570 | 230 | |
| Pathology and Laboratory Medicine | 570 | 230 | Yes ⁸ |
| Pharmaceutical Sciences | 600 | 250 | |
| Pharmacology and Therapeutics | 600 | 250 | |
| Philosophy | 600 | 250 | |
| Physics and Astronomy | 550 | 213 | Yes ^{7,9} |
| Physiology | 600 | 250 | |
| Plant Science | 560 | 220 | |
| Political Science ¹⁰ | 580 | 237 | Yes ⁸ |
| Pulp and Paper Engineering | 550 | 213 | |
| Psychology | 550 | 230 | Yes |
| Rehabilitation Sciences | 580 | 237 | |
| Religious Studies | 600 | 250 | |
| Reproductive & Developmental Science | 550 | 213 | |
| Resource Management & Environmental Studies | 600 | 250 | |
| Social Work | 580 | 237 | |
| Sociology | 590 | 243 | |
| Soil Science | 560 | 220 | |
| Statistics | 550 | 213 | |
| Surgery | 550 | 213 | |
| Theatre and Film (M.F.A.) | 550 | 213 | |
| Theatre and Film (M.A. and Ph.D.) | 600 | 250 | |
| 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: 4.0; TWE: 4.0

⁷ TSE: 5.5; 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 *Fees*, p. 43 in the University Calendar.) Full-time students are eligible for graduate scholarships and fellowships. Normally, Teaching Assistantships (TAs) and Research Assistantships (RAs) are limited to full-time students.

Departments 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 STUDY

Full time students are expected to engage in their studies on a full-time basis. All masters students are considered full-time and are assessed 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.

Departments 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 STUDY

In many Departments, masters students have the option of pursuing the degree through part-time study. Students wishing to pursue their degree through part-time study must make this request, in writing, to the Graduate Advisor in their home department. See *Fees*, p. 43 in the current University Calendar for more information. Part-time students are not eligible for scholarships and fellowships, and normally do not qualify for Teaching Assistantships (TAs) and Research Assistantships (RAs). Students are not normally permitted to switch from part-time status (Schedule B) to full-time status (Schedule A). (See *Fees*, p. 43 in the University Calendar.)

QUALIFYING STUDENT

A student whose academic background entitles them 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 Department 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, which 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 twelve months. Prior approval of the home university, the UBC Department, 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

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 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 (www.grad.ubc.ca/prostudents/apply/p&cpmanual/admiss/visiting) for more information.

OTHER EXCHANGE AGREEMENTS

Departments may have exchange agreements with similar Departments at other institutions. Students should consult their Graduate Advisor or the Exchange Program Office of the University 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 masters or doctoral students is limited to one year. A leave will normally begin on the first day of term, for a period of 4, 8 or 12 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.

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 Department for a minimum leave of four months to a maximum of twelve months. Where possible, students enrolled in course work should co-ordinate their leave to coincide with the beginning of an academic term.

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.

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 candidate is supervised by a committee of not less than three faculty members, which may include faculty members from Departments other than the candidate's home Department. 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 Departments, 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 Advisor in this respect. Changes may be made to the candidate's committee with the approval of the candidate's home Department. Students who are unable to secure a Chair should ask either the Graduate 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 committee to develop a program of study, subject to the approval of the home Department. 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 Departments require competence in languages other than English. The Department 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 candidate'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 candidate's committee and the home Department.

NOTE: courses listed in the Calendar under Departments 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 masters 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 Department concerned.

Some Departments require competence in languages other than English. The Department 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 masters 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 Department. Departments are also free to prescribe work beyond the minimum requirements described below. Students should contact Departments directly for more information on program options.

PROGRAM REQUIREMENTS (THESIS AND NON-THESIS PROGRAM)

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 masters degree. A comprehensive examination in the form of a final written and/or oral examination is at the discretion of the Department.

In specific programs, minimum requirements may be higher than 30 course credits. Students should consult the Departmental listing in the Calendar for more information.

NOTE: courses listed in the Calendar under Departments may not all be offered annually. Students should consult the Departmental listing in the Calendar for more information.

TRANSFER CREDIT

- 1 Students registered in a masters 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. 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 Exchange Programs Office.
- 4 Requests for transfer credit must be accompanied by a letter from the home Department addressed to the Dean of the Faculty of Graduate Studies. The Departmental 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 Department 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 Department 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 Department 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 Department 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 Department 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 Department 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 by their committee 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 for a doctoral program. When repeating a failed required course, a minimum mark of 74% must

be obtained. Higher minimum marks 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.

It is expected that a doctoral student will be admitted to candidacy within two years from the date of initial registration. A student who is not admitted to candidacy 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 masters degree will be reviewed regularly and at least once each year in June by the home Department 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 Department 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 six 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 Department 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 Department 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, Departments 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. 213 under Classification of Students. The period of leave is not counted toward time to completion.

MASTER'S STUDENTS

Students in a masters 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. 213 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 Departmental regulations require it;
- 3 A comprehensive examination normally held after completion of all required course work 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 Depart-

ment concerned. The comprehensive examination is separate and distinct from the evaluation of the thesis prospectus;

- 4 A Department 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 Graduate Advisor for information about the departmental requirements.

All doctoral candidates are required to complete a thesis. A candidate's thesis must be presented according to procedures and in the form described in *Instructions for the Preparation of Graduate Theses* (www.library.ubc.ca/spcoll/thesesin.html), available on the web, from the Faculty of Graduate Studies, or from the candidate's home Department. Students should refer to the current year's Calendar or check the Faculty of Graduate Studies website (www.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 Department 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 (www.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 (www.grad.ubc.ca/currstudents/orals/guide/htm). 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 masters level. Departments 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, Departments 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. Departments may, at their discretion, require additional supporting documentation.

In programs requiring a thesis, the thesis must be presented according to procedures and in the form described in *Instructions for the Preparation of Graduate Theses* (www.library.ubc.ca/spcoll/thesesin.html), available on the web, from the Faculty of Graduate Studies, or from the student's home Department.

WITHDRAWAL, REINSTATEMENT AND READMISSION

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 department 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 Department on the *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 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 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 home Department, 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 Department 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 doesn't 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.

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 (students.ubc.ca/ssc) or in person at the Student Access Stations in 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. 36 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. 37 in the chapter Academic Regulations).

Awards and Financial Aid

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 are administered by the Dean's Office, Faculty of Graduate Studies. Financial need-based awards are administered by the Office of Awards and Financial Aid (students.ubc.ca/finance/awards), University of British Columbia, 1036-1874 East Mall, Vancouver, B.C., Canada, V6T 1Z1; telephone 604-822-5111; email (awards.enquiry@ubc.ca).

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 (CIHR), the Michael Smith Foundation for Health Research, and others.
- International Partial Tuition Scholarships administered by the Faculty of Graduate Studies.
- UBC Teaching and Research Assistantships administered by individual Departments.
- Need-based awards and financial aid 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 home Departments to the Faculty of Graduate Studies. Students must contact their home Departments 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 web (students.ubc.ca/finance/awards) and in the *Awards and Financial Aid Reference Guide* to the UBC Calendar (copies distributed to all graduate Departments). For application procedures students should consult their Departments.

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 in the *Awards and Financial Aid Reference Guide* available in Departments. Awards are normally made on the recommendation of Departments in conjunction with the Faculty of Graduate Studies. 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 and departments to the best and brightest incoming master's and doctoral students for full-time graduate study or research at the University of British Columbia. Inquiries about this scholarship should be addressed to the head of the graduate program or department concerned.

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 reapply 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 Department. The deadline for submission of NSERC scholarship nominations by Departments 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.ca).

SOCIAL SCIENCES AND HUMANITIES RESEARCH COUNCIL (SSHRC)

SSHRC administers a national competition for doctoral students in the social sciences and humanities. The Faculty of Graduate Studies solicits nominations for SSHRC Doctoral Fellowships from Departments in early October. Files are reviewed and ranked by a University-wide committee. In accordance with a quota established by SSHRC, UBC sends a list of the highest-ranking candidates to the Council by January 15. SSHRC competition results are announced in April. For more information visit the SSHRC website (www.sshrc.ca).

CANADIAN INSTITUTES OF HEALTH RESEARCH (CIHR)

CIHR 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. The value of the awards is reviewed annually. For more information visit the CIHR website (www.cihr.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 fall term. Information about all research awards administered by the Faculty of Graduate Studies can be found on the Graduate Studies website (www.grad.ubc.ca).

INTERNATIONAL PARTIAL TUITION SCHOLARSHIPS

International students admitted to research programs assessing tuition fees of \$7,200 are eligible for an International Partial Tuition Scholarship which is applied directly to reducing tuition fees. The amount for this scholarship for the 2003-2004 academic year is currently under review. Once set, the amount will be available on the Faculty of Graduate Studies website (www.grad.ubc.ca). Students are eligible for this award as long as they are not recipients of any external scholarships or funding that covers the cost of their tuition. Some Departments may offer additional money toward the International Partial Tuition Scholarship. Please contact your Department for more information.

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 Departments 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 Departments 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 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 co-ordinated and administered at the departmental 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 the Awards and Financial Aid Office, The University of British Columbia, 1036-1874 East Mall, Vancouver, BC, Canada, V6T 1Z1. For more information, telephone 604-822-5111; email (student.information@ubc.ca) or visit the Awards website (students.ubc.ca/finance/awards).

Degrees Offered

| | |
|---|-----------------|
| Doctor of Education | Ed.D. |
| Doctor of Musical Arts | D.M.A. |
| Doctor of Pharmacy | Pharm.D. |
| 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 Business Administration | M.B.A. |
| Master of Business Administration with Bachelor of Laws | M.B.A./LL.B. |
| Master of Education | M.Ed. |
| Master of Educational Technology | M.E.T. |
| Master of Engineering | M.Eng. |
| Bachelor of Applied Science with Master of Engineering | B.A.Sc./M.Eng. |
| 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 Landscape Architecture | M.L.A. |
| Master of Laws | LL.M. |
| Master of Library and Information Studies | M.L.I.S. |
| Master of Management | M.M. |
| Master of Music | M.Mus. |
| Master of Science | M.Sc. |

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| Master of Science in Business Administration | M.Sc.(Bus. Adm.) |
| 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. |

Programs

AGRICULTURAL ECONOMICS

MASTER OF SCIENCE

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 program can normally be completed in 18 to 20 months. After completing 18 credits of course work, a thesis is written under the guidance of a UBC-wide committee that is chaired by a FRE faculty member.

The Ph.D. program is offered in collaboration with units such as the Institute for Resources & Environment Interdisciplinary Studies. Course work is selected and the student's research is supervised by a FRE faculty member and an across-campus committee.

The course work 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. Barichello has extensive experience with food security issue in Indonesia). Formal educational linkages exist that allow FRE graduate students to study and research abroad.

CONTACT INFORMATION

Address:

Faculty of Agricultural Sciences
#270-2357 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400

Website: www.agsci.ubc.ca/grad

Dr. Jim Thompson, Associate Dean, Research and Graduate Studies

Dr. Timothy Beatty, Graduate Advisor

Ms. Joyce Tom, Graduate Programs Manager

Ms. Carole Wallace, Program Assistant

ANATOMY AND CELL BIOLOGY

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The Department 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 department 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 Department 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, electro-physiological instrumentation, laser diffraction equipment and ultracentrifuges.

Prerequisite: Bachelor of Science in life sciences, chemistry, physics, or equivalent, M.D., D.V.M., or D.D.S. or equivalent.

Detailed information on programs leading to the Master of Science and Doctor of Philosophy and pertinent course offerings are available on request from the Department or from the Anatomy & Cell Biology website (www.anatomy.ubc.ca).

CONTACT INFORMATION

Address:

Department of Anatomy and Cell Biology
2177 Wesbrook Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-2578
Fax: 604-822-2316

Website: www.anatomy.ubc.ca

Dr. Christian C. G. Naus, Department Head
Dr. John Church, Graduate Advisor
Ms. Roseanne McIndoe, Administrator
Ms. Alison Stack, Graduate Secretary

ANIMAL SCIENCE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

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, as well as production-scale research units for poultry, sheep and fish. The UBC Farm provides a unique setting for

urban agriculture research. The UBC Quail Genetic Resource Centre provides unique quail stocks for biomedical and genetics research. Off-campus research facilities available to students include the UBC Dairy Education and Research Centre in Agassiz, the UBC San Rafael Research Aviary in Surrey, and field research facilities for studies in range and wildlife productivity.

CONTACT INFORMATION

Address:

Faculty of Agricultural Sciences
#270-2357 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400

Website: www.agsci.ubc.ca/grad

Dr. Jim Thompson, Associate Dean, Research and Graduate Studies
Dr. Marina von Keyserlingk, Graduate Advisor
Ms. Joyce Tom, Graduate Programs Manager
Ms. Carole Wallace, Program Assistant

ANTHROPOLOGY

Advanced study in Anthropology is offered in the Department of Anthropology and Sociology. Area interests include North America, East Asia, Mesoamerica, South America, Oceania and Europe. The main 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 are strongly represented at both the Ph.D. and M.A. levels (see below). The department 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 departmental interests, as well as a large collection of microform theses, and the Human Relations Area files. The department has a dedicated graduate computer lab with a wide range of software to support quantitative and qualitative research. Inter-disciplinary contacts are encouraged, and links are maintained with such departments and programs as Asian Studies (which has major library collections), Linguistics, History, Comparative Literature, Geography and Sociology.

For Sociology graduate programs, see *Sociology*, p. 259.

DOCTOR OF PHILOSOPHY

The Ph.D. program presents students with the opportunity to structure a course of study towards specific intellectual and practical interests. The program proceeds in two stages. First, a student gains full standing as a doctoral candidate within the Department by completing the following: (a) 24 months residency; (b) 18 credits of course work; (c) an acceptable research proposal; and (d) satisfactory performance in a comprehensive written and oral examination (which must be completed in the first three years of the program). Second, after

attaining candidacy, students may then proceed with research (usually based in part upon ethnographic or archaeological fieldwork) and preparation of a Ph.D. dissertation under the supervision of an Advisory Committee. The candidate completes the degree upon successfully defending their dissertation in Departmental and University examinations. Students are expected to attain their degrees within a maximum of six years.

MASTER OF ARTS (GENERAL PROGRAM)

The M.A. is based upon a combination of course work, research and a thesis. Many 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 twelve to eighteen months of study. Compared to the Ph.D., the M.A. is a structured course of study. Candidates must successfully complete 30 credits: (1) Anthropology 500 (History of Anthropology- 6 credits); (2) an advanced methods course in ethnographic, archaeological or museum studies (3 credits); (3) course work in a specific culture area or region (3 credits); (4) at least 12 credits of elective courses; and (5) after submitting an approved thesis proposal, a 6-credit thesis.

MASTERS OF ARTS (CONCENTRATION IN CRITICAL CURATORIAL STUDIES)

Students wishing to apply for this concentration must apply through the Department of Art History, Visual Art, and Theory. The Anthropology program currently only supports the above-mentioned general program in Anthropology with a specialization in museum studies. Please contact the Anthropology Graduate Advisor for more information.

For more information about Critical Curatorial Studies please call 604-822-0048, or view the website (www.arts.ubc.ca/programs/curatorial).

CONTACT INFORMATION

Information packages are available from the Department of Anthropology's graduate secretary. The packages include information about qualifications for admission, course requirements, examinations, and other details for both the M.A. and Ph.D. programs. For more information please call 604-822-5421. Details of the Anthropology program can also be viewed on the Anthropology and Sociology website: (www.anso.ubc.ca/grad_programs.shtml).

Address:

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

Website: www.anso.ubc.ca

Dr. David L. Pokotylo, Department Head
Dr. Michael Blake, Chair, Anthropology Graduate Studies Committee
Ms. Anna Jubilo, Graduate Secretary

APPLIED ETHICS

Students can pursue graduate study in Applied Ethics through the Interdisciplinary Studies Program or by participating graduate programs such as the Applied Ethics stream in Philosophy.

See also *The W. Maurice Young Centre for Applied Ethics*, p. 267, Faculty of Graduate Studies, Centres and Institutes.

CONTACT INFORMATION

Address:

The W. Maurice Young Centre for Applied Ethics

227-6356 Agricultural Road
Vancouver, BC V6T 1Z2

Tel: 604-822-8625

Fax: 604-822-8627

Website: www.ethics.ubc.ca

Dr. P. Danielson, Director

Mr. P. Lewis, Research Manager

Ms. K. Schobel, Administrative Secretary

APPLIED MATHEMATICS

The Institute of Applied Mathematics designs and oversees interdisciplinary Master of Science and Doctor of Philosophy 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 may be grouped into five areas:

- Applied Analysis. Differential and integral equations, asymptotic and perturbation techniques, similarity methods, numerical analysis, linear and non-linear wave propagation, methods of mathematical physics and theoretical chemistry, theoretical chemistry, applied probability theory.
- Fluid Dynamics. Computational fluid dynamics, turbulence, environmental fluid dynamics, dynamic meteorology, cavitation, aerodynamics, numerical ocean modeling, dynamics of coherent structures, fluid-structure interactions.
- Mathematical Biology. Animal behaviour, ecology, neurobiology, non-linear dynamics and chaos, morphogenesis, pattern formation, immunology, neural networks.
- Optimization. Mathematical programming, combinatorics, graphs, trees, network flows, game theory, decision theory, search techniques, stochastic processes, queuing, dynamic programming, optimal and stochastic control.
- Mathematical Finance. Theory of finance, asset pricing, stochastic processes, regression and time series analysis, numerical methods. (Co-op option available.)
- Mathematical Finance
- Engineering and Industrial Mathematics

Basic requirements in the Master of Science and Ph.D. programs are outlined below. There may

be other requirements depending on the student's academic background and intended area of study.

See also *Institute of Applied Mathematics*, p. 265 under Faculty of Graduate Studies, Centres and Institutes.

MASTER OF SCIENCE

There are three options available to an M.Sc. student:

- 1 18 credits of course work plus a 12-credit M.Sc. thesis.
- 2 24 credits of course work plus a six-credit M.Sc. thesis.
- 3 30 credits of course work plus an M.Sc. essay plus an oral examination.

A maximum of six credits of course work may be 300- or 400-level undergraduate courses, and at least six credits of 500-level mathematics is required. At most 15/18/21 of the 18/24/30 credits can be from any department.

DOCTOR OF PHILOSOPHY

Normally only a student with a Master of Science is considered for admission to a Ph.D. program. Shortly after the student enters the Ph.D. program, the supervisor, in consultation with the student, will decide on three of the six core areas (applied analysis; numerical analysis; optimization and control; combinatorial optimization; probability and statistics; area of application) which will define the student's Ph.D. breadth requirement. One area should be specified as the student's major field.

To complete this phase of the program, the student will submit a written report documenting courses taken and grades, theses, papers, and previous work experience which, taken together, are intended to fulfil the breadth requirement. The student's major area requires the equivalent of at least nine credits of related course work, with at least six credits at the graduate level. The other core areas require at least six credits of related course work, with at least three credits at the graduate level.

Having satisfied the breadth requirements, the student will continue with research and writing a Ph.D. thesis proposal. Subsequently, the student will take an oral qualifying examination administered by the Ph.D. thesis committee; the purpose of this exam is the defence of the student's thesis proposal and examination of the candidate on related material in the major core area. The format of this examination may vary in different departments. The thesis proposal must be presented in written form to the thesis committee at least two weeks prior to the examination. The qualifying examination will normally be taken within two years of entering the Ph.D. program.

ADMISSION

To enter a degree program supervised by the Institute of Applied Mathematics, a student must first be admitted to an academic department which is closely related to the applicant's interests, e.g., Mathematics, Economics, and 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.

CONTACT INFORMATION

To obtain the necessary application forms and detailed information on the activities of the Institute and on financial aid, students should write to the Director of the Institute of Applied Mathematics.

Address:

Institute of Applied Mathematics
6356 Agricultural Road, Room 311

Vancouver, BC V6T 1Z2

Tel: 604-822-4584

Fax: 604-822-0550

Email: iam@iam.ubc.ca

Website: www.iam.ubc.ca

Dr. Bernie Shizgal, Director

Dr. Roman Baranowski, Research/IT Manager

APPLIED MICROELECTRONICS

Applicants for graduate work in the field of applied microelectronics should contact the Director of the Centre for Advanced Technology in Microelectronics or the Head of Computer and Electrical Engineering.

ARCHITECTURE

MASTER OF ARCHITECTURE

The Master of Architecture (M. Arch.) program is a first-professional graduate program designed for those with an undergraduate degree who have an interest in becoming licensed professional architects. While an undergraduate degree in a field related to architecture may be advantageous in shortening the program, it is not a necessary prerequisite as the demonstration of interest and aptitude in the field occurs as part of the application process to the program. The Master of Architecture is a very intensive course that fulfils the education requirements for architectural registration. The course requires three and one-half years of full time study.

For detailed information please refer to the *Master of Architecture*, p. 113 listing under the School of Architecture.

MASTER OF ADVANCED STUDIES IN ARCHITECTURE

The Master of Advanced Studies in Architecture (M.A.S.A.) is a post-professional graduate program primarily designed for those who have a professional degree in architecture or related field and have some experience in the field. It is an intensive course culminating in a thesis for those who wish to expand their knowledge in a particular area. The degree can be completed in sixteen months. Two terms of full-time residency are required. This is a research degree and as such does not fulfil the educational requirements for architectural registration.

For detailed information please refer to *The Master of Advanced Studies in Architecture*, p. 116 listing under the School of Architecture.

CONTACT INFORMATION

Address:

School of Architecture
402-6333 Memorial Road
Vancouver, BC V6T 1Z2
Tel: 604-822-2779
Fax: 604-822-3808

Website: www.architecture.ubc.ca

Prof. Christopher Macdonald, Director

Prof. George Wagner, M.Arch. Program Chair

Dr. Ray Cole, M.Arch Program Standings and Promotions Committee Chair

Dr. Jerzy Wojtowicz, M.A.S.A. Program Chair

Ms. Theresa Juba, Graduate Records

Ms. Trish Poehnell, Graduate Admissions

ARCHIVAL STUDIES

MASTER OF ARCHIVAL STUDIES

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.

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.

JOINT MASTER OF ARCHIVAL STUDIES/MASTER OF LIBRARY AND INFORMATION STUDIES DEGREE PROGRAM

The Joint Degree Program is designed to allow students to earn both an M.A.S. and an M.L.I.S. For further information, see *Joint M.A.S./M.L.I.S.*, p. 290 under the School of Library, Archival and Information Studies, or contact the School of Library, Archival and Information Studies.

DOCTOR OF PHILOSOPHY IN LIBRARY, ARCHIVAL AND INFORMATION STUDIES

The School of Library, Archival and Information Studies offers a Ph.D. program. Students may orient their coursework and dissertation to specialize in archival studies. For details on admission and program requirements, see the section on the doctoral program under the *School of Library, Archival and Information Studies*, p. 291, or contact the School.

CONTACT INFORMATION

Address:

School of Library, Archival and Information Studies
831-1956 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-2404
Fax: 604-822-6006

Email: slais.admissions@ubc.ca

Website: www.slais.ubc.ca

Dr. Terry Eastwood, Acting Director and Graduate Advisor

Ms. Rita Amezcua, Admissions Secretary

ART HISTORY, VISUAL ART, AND THEORY

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 studio work, leading to the Master of Fine Arts (M.F.A.).

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, candidacy exams, and a Ph.D. thesis. Students are normally required to take course work 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.

M.A. IN ART HISTORY WITH CONCENTRATION IN CRITICAL CURATORIAL STUDIES

The Department of Art History, Visual Art, and Theory offers a concentration in Critical Curatorial Studies within the Master's degree in Art History. Students are required to take 15 credits of interdisciplinary core courses offered primarily with the Belkin Art Gallery, and the Museum of Anthropology, plus additional courses suitable to their disciplinary specialization as described below in the program requirements, and a graduating essay, for a total of 30 credits. Students wishing to apply for this concentration must specify Critical Curatorial Studies in a written application to the Department of Art History, Visual Art and Theory.

PROGRAM COURSES:

CCST 500, Seminar in Interdisciplinary Frameworks for Museum and Curatorial Studies (6 credits), or CCST 501, Seminar in Contemporary Contextual Issues for Museums and Curatorial Practice (6 credits) CCST 503, Graduate Practicum in Critical Curatorial Studies (6 credits) CCST 504, Major Essay (3 credits) plus a minimum of 12 credits in Art History at the graduate or fourth year level as approved by the Program Committee.

Elective: CCST 502, Case Studies in Museum and Gallery Exhibitions (3 credits)

MASTER OF FINE ARTS

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. Students in the program may work in any area of contemporary art production including painting, drawing, printmaking, three-dimensional and installation work, photography, digital, multi-media, 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 and, in special circumstances, artists who demonstrate advanced artistic achievement and would benefit from the program.

An assessment of a portfolio of work and of previous course work is basic to the consideration of each application. There must be evidence that the applicant, if admitted, will benefit from the academic components of the M.F.A. program. The evidence may include transcripts of academic work at an advanced level, published writing, or other evidence of achievement.

The M.F.A. program requires two academic years of course work 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) and VISA 582 (12). 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 course work, 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

Brochures giving details of each program, descriptions of courses and other information are available from the Graduate Secretary:
Address:

Department of Art History, Visual Art and Theory

6333 Memorial Road
Vancouver, BC V6T 1Z2
Tel: 604-822-5650
Fax: 604-822-9003

Email: whitneyf@interchange.ubc.ca
Website: www.finearts.ubc.ca

Dr. Rhodri Windsor-Liscombe, Acting Head
Dr. Katherine Hacker, Graduate Advisor, MA/
PhD in Art History

Professor Ken Lum, Graduate Advisor, MFA in
Studio Art

Ms. Whitney Friesen, Secretary to the Head &
Graduate Secretary

Dr. William Wood, Graduate Advisor, Critical
Curatorial Studies

Ms. Marianna Jasper, Graduate Secretary,
Critical Curatorial Studies

ASIA PACIFIC POLICY STUDIES

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]) provides advanced training in research and analysis on policy issues relevant to the Asia and Pacific regions, to graduate students preparing for position in government departments, non-profit organizations, private sector enterprises and as preparation for academic doctoral programs. Options for combined degrees with the Faculties of Law (MAPPS/LLB) and Commerce (MAPPS/MBA) are also possible. More information on these combined degree programs are available on the Institute of Asian Research's website (www.iar.ubc.ca). The program will be administered in accordance with the policies and procedures of the Faculty of Graduate Studies.

ADMISSION

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. Preference will be given to applicants who have received formal training in one or more languages (other than English) of the standard set by the Faculty of Graduate Studies. Admission of the candidate 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.

REQUIREMENTS

The program is administered by the Institute of Asian Research in the Faculty of Graduate Studies. Each student will have a supervisor drawn from the Institute of Asian Research. The selection of supervisors will be administered by the Teaching Program Committee of the Institute, subject to approval by the Director of the Institute. The requirements for the degree are as follows:

- 1 successful completion of the core course, IAR 500 (six credits);
- 2 successful completion of additional 18 credits of coursework selected by the student and the supervisor by reference to the thematic stream chosen by the student from among the selections offered by the Institute of Asian Research. The thematic streams currently offered are:
 - (A) Economic and Social Change
 - (B) Security
 - (C) Women and Development
 - (D) Governance and Human Rights
 - (E) Infrastructure Policy
- 3 successful completion of the Master's thesis, IAR 520 (twelve credits), or successful completion of the practicum, IAR 525 (12 credits).

THESIS AND NON-THESIS OPTIONS

Completion of a Master's thesis (IAR 520) is an option offered as an alternative to the practicum (IAR 525), which requires completion of a major paper. In accordance with the Faculty of Graduate Studies, the Master's thesis or the major paper must be approved and graded by the student's supervisory committee, which is comprised of the faculty supervisor and two faculty members of the Institute of Asian Research.

CONTACT INFORMATION

Address:
Institute of Asian Research
Room 251 C.K. Choi Building
1855 West Mall
Vancouver BC V6T 1Z2
Tel: 604-822-3801
Fax: 604-822-5207
Website: www.iar.ubc.ca

Dr. Pitman B. Potter, Director
Dr. Paul M. Evans, Graduate Advisor
Ms. Marietta Lao, Program Administrator
Ms. Margaret Villacin, Graduate Secretary

See also *Institute of Asian Research*, p. 265 under Faculty of Graduate Studies, Centres and Institutes.

ASIAN STUDIES

There are good facilities for advanced work in various fields of Asian Studies. The purchase in 1959 of the P'u-pan collection gave the University of British Columbia one of the major Chinese libraries in North America. Subsequent purchases have served to consolidate this position. A good foundation for the Japanese collection was laid by the acquisition of books from the libraries of the late E. H. Norman and G. B. Sansom and by the purchase of a Tokugawa map collection. The UBC Library is also a depository for Japanese government publications. The library's holdings now exceed 410,500 volumes in East Asian languages in addition to substantial holdings in Western languages and micro-form. The library also has a growing collection related to South Asia and the founding in 1968 of the Shastri Indo-Canadian Institute, in which the University is a founder-member and major participant, is greatly assisting this development. It is estimated that the present extent of the collection in Indic languages such as Hindi, Urdu, Punjabi, Sanskrit, Prakrit, Bengali, Marathi and Tamil is 51,000 volumes. In addition, there are publications bearing on South Asian studies in micro-form and in Western languages. The library is now building its collection of Indonesian and Korean materials.

DOCTOR OF PHILOSOPHY

The Department of Asian Studies offers the Doctor of Philosophy in Asian Studies, 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, 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 before 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

Programs leading to the Master of Arts are available in the areas stated above for the Doctor of Philosophy.

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 four years of language study. The Department 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

Address:
Department of Asian Studies
1871 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-5728
Fax: 604-822-8937
Email: asiagrad@interchange.ubc.ca
Website: www.arts.ubc.ca/asian
Dr. Joshua Mostow, Acting Department Head
Dr. Sharalyn Orbaugh, Graduate Advisor

ASTRONOMY

Graduate programs in Astronomy are offered by the Department of Physics and Astronomy. For more information, see *Physics and Astronomy*, p. 254.

DOCTOR OF PHILOSOPHY

The Department 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 PhD, 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. course work 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 course work in any Science or Applied Science departments for the Ph.D.

MASTER OF SCIENCE

Master of Science programs are offered 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 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 six 300- or 400-level credits in undergraduate courses are required of all Astronomy M.Sc. students. All astronomy M.Sc. students are required to satisfy the department's quantum physics course requirements and the astronomy journal club requirement.

CONTACT INFORMATION

Address:
Department of Physics and Astronomy
6224 Agricultural Road
Vancouver, BC V6T 1Z1
Tel: 604-822-4245
Fax: 604-822-5324
Website: www.physics.ubc.ca
Dr. Janis McKenna, Graduate Program Chair
Mr. Tony Walters, Graduate Coordinator

ATMOSPHERIC SCIENCE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

Programs leading to the M.Sc. and Ph.D. are offered by the Atmospheric Science program under joint sponsorship of the Department of Geography and the Department of Earth and Ocean Sciences. Biometeorology students in Soil Science also have the option to work toward the Atmospheric Science graduate degrees. Areas of graduate research are

- Atmospheric Science, including meteorology, atmospheric boundary layers, turbulence, mesoscale meteorology, numerical weather prediction, atmospheric physics, urban meteorology, air pollution and environmental meteorology, climatology, and instrumentation;
- Oceanography, including atmospheric aspects such as wind driven currents, atmosphere-ocean interaction, coupled atmosphere-ocean dynamic models, and climate prediction; and
- Biometeorology, including agricultural and forest meteorology, and micrometeorology.

The M.Sc. program consists of 12 credits of thesis with an oral thesis defence, and 18 credits of course work, or 30 credits of course work and an essay. The Ph.D. consists of either GEOG 500, or EOSC 571, 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.

CONTACT INFORMATION

Address:
Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Website: www.eos.ubc.ca
Dr. Paul L. Smith, Department Head
Dr. Kelly Russell, Graduate Advisor
Ms. Alex Allen, Graduate Secretary

AUDIOLOGY AND SPEECH SCIENCES

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, electrophysiologic 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 the Province of 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

See *The School of Audiology and Speech Sciences*, p. 159 for a more detailed description of the School's philosophy, curriculum and application procedures.

Address:
School of Audiology and Speech Sciences
Faculty of Medicine
James Mather Building
5804 Fairview Avenue
Vancouver, BC V6T 1Z3
Tel: 604-822-5591
Fax: 604-822-6569
Email: sue@audiospeech.ubc.ca
Website: www.audiospeech.ubc.ca
Dr. Carolyn E. Johnson, Director
Dr. Judith Johnson, Graduate Advisor
Ms. Sue Bryant, Program Assistant

BIOCHEMISTRY AND MOLECULAR BIOLOGY

Facilities are available for original investigations in many fields of biochemistry and molecular biology. The areas of research

possible within the Department include control of gene expression in eucaryotes and bacteria; structure and function of genes; blood proteins; the mechanism of the action of insulin; membrane and membrane protein structure and function; 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; mechanism of hemoprotein electron transfer; structural analysis of proteins by nuclear magnetic resonance; mechanisms of multi-drug resistance; and cancer.

Major instrumentation in the department includes X-ray diffraction equipment for macromolecular crystallography, computer graphics equipment, a scanning and transmission electron microscope, EPR spectrometer, CD and MCD equipment, a microprocessor-controlled spectro-fluorometer with polarization accessories, double beam/dual wavelength spectrophotometers with stop-flow and low temperature accessories, freeze fracture apparatus, 600, 500- and 200-MHZ NMR spectrometers, phosphorimager, and cell culture facilities.

DOCTOR OF PHILOSOPHY

Candidates 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 department and the candidate's committee.

MASTER OF SCIENCE

Candidates 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 Master of Science program includes a thesis (12 credits) and courses approved by the department in Biochemistry and related fields (18 credits). Biochemistry 303 and 301, or the equivalent, are prerequisites to all graduate courses in Biochemistry and Molecular Biology.

CONTACT INFORMATION

Address:
Department of Biochemistry and Molecular Biology
Faculty of Medicine
2146 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-5925
Fax: 604-822-5227
Website: www.biochem.ubc.ca
Dr. George A. Mackie, Department Head
Dr. Lindsay Eltis, Graduate Admissions Advisor
Dr. Natalie Strynadka, Graduate Awards Advisor
Dr. Lawrence McIntosh, Graduate Student Advisor
Ms. Sharon Krowchuk, Graduate Secretary

BIOMEDICAL ENGINEERING

Research in biomedical engineering is carried out in the Departments of *Chemical and Biological Engineering*, p. 225, *Electrical and Computer Engineering*, p. 233, *Mechanical Engineering*, p. 248 and *Physics*, p. 254 in association with the Faculty of Medicine and the affiliated teaching hospitals.

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 Biotechnology Laboratory offers 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 Biotechnology Laboratory span five faculties and ten departments at UBC. Research activities are organized into three separate areas: human/animal molecular biology, fermentation/process engineering and plant/forest molecular genetics.

Graduate students wishing to work with faculty members in the Biotechnology Laboratory should identify their research interests, associate these with specific faculty members, and phone or write to the faculty member directly. For more information, see *Biotechnology Laboratory*, p. 76 in the chapter Research Units. A brochure describing the process is available upon request from the Biotechnology Laboratory, or information can be accessed on the Biotechnology Laboratory website (www.biotech.ubc.ca).

CONTACT INFORMATION

Address:
Biotechnology Laboratory
6174 University Boulevard
Vancouver, BC V6T 1Z3
Tel: 604-822-4838
Fax: 604-822-2114
Website: www.biotech.ubc.ca
Dr. Philip Hieter, Director
Mrs. Darlene Crowe, Administrator

BOTANY

Research underway in the Department of 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 Biotechnology Laboratory, and the Centre for Biodiversity Research.

Although basic science is our primary mandate, several of our faculty apply their strengths in the basic sciences to applied problems in forestry, agriculture and marine biology.

The Botany Department has most of the major types of equipment used in laboratory and field research in botany. Of particular note are the large number of controlled environment rooms and chambers, the bio-imaging facility (with transmission and scanning electron microscopes, research fluorescent light microscopes with image analysis, and confocal microscopes), ultracentrifuges, spectrophotometers, scintillation counters, and equipment for gas-liquid chromatography, high pressure liquid chromatography, gas chromatography-mass spectrometry, phosphorimaging, and real-time PCR. Facilities for DNA sequencing, DNA microarray analysis, proteomics, atomic absorption spectrometry and nuclear magnetic resonance spectroscopy are available nearby on campus.

The department has a large herbarium with several full-time staff members, housing permanent reference and research collections representing all groups of plants. Over 530,000 specimens are accessioned, including 215,000 specimens of vascular plants, 200,000 specimens of Bryophytes (one of the largest collections in the world), 80,000 specimens of algae, 23,000 specimens of lichens, and 14,000 specimens of fungi. The Canadian Centre for the Culture of Microorganisms, housed in the Department of Botany, is one of the largest in North America and represents a valuable resource for algal physiological and ecological studies. The facility also houses nationally registered collections of fungi and freshwater algae.

The department has an experimental field and full greenhouse facilities. Another important botanical research facility is the Botanical Garden. This includes sections devoted to native, alpine and medicinal plants, and an Asian Garden. Bamfield Marine Station, on the west coast of Vancouver Island, is a unique research facility for marine botany, and also provides courses in many kinds of marine studies.

The broad areas of research possible within the department are cell biology and plant biochemistry; genomics and genetics, plant molecular biology; plant and algal physiology; terrestrial and marine ecology; biosystematics and evolution; and plant development and ultrastructure.

Supervision is available for study of most major groups of plants, fungi and protists. Faculty members supervise students in single and multiple investigator projects funded by NSERC, CIHR, Genome Canada, and other agencies.

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 course work 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 department and the candidate's Ph.D. committee.

MASTER OF SCIENCE

A first class (A) or high second class (B+) Bachelor of Science is prerequisite.

The Master of Science program requires a minimum of 30 credits with the thesis counting for 12 credits. Courses may be selected from the Botany Department and a wide range of related departments on campus, in consultation with the research supervisor and the candidate's committee. An M.Sc. without thesis is also available.

CONTACT INFORMATION

Address:

Department of Botany
6270 University Boulevard
Vancouver, BC V6T 1Z4
Tel: 604-822-2133
Fax: 604-822-6089

Website: www.botany.ubc.ca

Dr. C.J. Douglas, Department Head

Dr. R. Turkington, Graduate Advisor

Ms. Lebyy Balakshin, Graduate Secretary,
Admissions and Awards

Ms. Veronica Oxtoby, Graduate Secretary,
Records

CENTRAL, EASTERN AND NORTHERN EUROPEAN STUDIES

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The Department of Central, Eastern and Northern European Studies offers courses leading to the Doctor of Philosophy and the Master of Arts (with or without thesis). The courses and seminars are normally given either every year or every second year. For details concerning these courses and for information on specific requirements for graduate degrees, application should be made to the graduate advisor of the Department of Central, Eastern and Northern European Studies.

The resources of the UBC Library are adequate for research in all fields of German literature and are particularly strong in the medieval and the nineteenth and twentieth century areas. Funds are available for the acquisition of materials in areas in which graduate students develop specific interest. To complement library resources, the department maintains a reading room for graduate students, in which reference works, editions of standard authors, and some periodicals are kept.

CONTACT INFORMATION

Address:

Department of Central, Eastern and Northern
European Studies
222-1873 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-6403
Fax: 604-822-9344

Website: www.german.ubc.ca

Dr. Peter Stenberg, Department Head

Dr. Thomas Salumets, Graduate Advisor

Ms. Christa Rathje, Graduate Secretary

CHEMICAL AND BIOLOGICAL ENGINEERING

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 the UBC Biotechnology Laboratory 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.

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 candidate'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 course work (18 credits). Normally, the required 18 credits will consist of 12 credits chosen from graduate courses in chemical and biological engineering and six credits of 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 Agricultural Sciences, Forestry and Science. The program requires a thesis (12 credits) and 18 credits of advanced course work, 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.

MASTER OF ENGINEERING

The Department of Chemical and Biological Engineering also offers the non-research Master of Engineering (M.Eng.) in Chemical Engineering. This degree can be completed in one year. It is intended primarily for candidates who have work experience in addition to a bachelor's degree in Chemical Engineering. The degree requires an engineering report and advanced course work equivalent to 30 credits. Part-time students may enrol in the Master of Engineering program.

MASTER OF ENGINEERING IN PULP AND PAPER ENGINEERING

A graduate program leading to the non-research Master of Engineering in Pulp and Paper Engineering (M.Eng. [Pulp and Paper]) is offered in collaboration with Paprican. See *Pulp and Paper Engineering*, p. 257 under Faculty of Graduate Studies.

This Program will not be offered for the academic year 2003-2004.

CONTACT INFORMATION

Additional information on graduate programs may be obtained from the Chemical and Biological Engineering website (www.chml.ubc.ca) and the Pulp and Paper Centre website (www.ppc.ubc.ca).

Address:

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

Website: www.chml.ubc.ca

Professor Kevin J. Smith, Department Head

Professor Savvas Hatzikiriakos, Ph.D.

Graduate Advisor

Professor Peter Englezos, M.A.Sc. Graduate
Advisor

Professor Sie-Tan Chieng, M.Sc. Graduate
Advisor

Professor C. Jim Lim, M.Eng. Graduate
Advisor

Professor Richard Kerekes, M.Eng. Pulp and
Paper Engineering Graduate Advisor

Ms. Helsa Leong, Graduate Secretary

CHEMISTRY

The Department of Chemistry has many modern research instruments available, among which are: analytical and fully-computerized high-resolution mass spectrometers, vacuum ultraviolet, far infrared and Raman spectrographs and spectrometers, stopped-flow spectrophotometer; microwave spectrometers; ORD and circular dichroism apparatus; electron spin and electron double resonance spectrometers; wide-line, spin echo, and high-resolution Fourier transform nuclear magnetic resonance spectrometers; Mössbauer spectrometers; automatic radioactive counters; automatic X-ray diffraction equipment; analytical and preparative gas chromatographs; autoclaves; magnetic balances; high-energy electron accelerator; Q-switched ruby lasers; a helium liquifier; u.v. photoelectron, electron impact and ESCA spectrometers; ion cyclotron resonance spectrometers; preparative ultracentrifuges and cold room facilities; amino acid analyzers. The TRIUMF cyclotron is available. Facilities exist for mycochemistry, phytochemistry, and biogenetic studies. There are excellent computer facilities and mechanical, electronics and glassblowing workshops. A microanalytical service is also provided. Research facilities are available for accommodation of over 300 graduate students, postdoctoral fellows and academic staff.

The department offers a wide variety of research programs leading to the Master of Science and Doctor of Philosophy in the following fields: analytical chemistry, bioinorganic chemistry, bioorganic chemistry, biophysical chemistry, carbohydrate chemistry, chemical applications of the Mössbauer effect, chemical biology, chemical kinetics and reaction mechanisms, chemical physics, chemistry of biologically important substances, chemistry of the solid state, chemistry of steroids, alkaloids and terpenes, combustion and oxidation processes, electron spin resonance spectroscopy, electronic spectroscopy, electron nuclear double resonance spectroscopy, heterocyclic chemistry, homogeneous catalysis, infrared and Raman spectroscopy, inorganic fluorine chemistry, inorganic ring systems, isotope exchange reactions, kinetic spectroscopy, macromolecular chemistry, magneto-chemistry, mass spectrometry, medicinal inorganic chemistry, microwave spectroscopy, molecular beams, molecular spectroscopy and molecular structure, non-aqueous solution chemistry, nuclear chemistry, nuclear magnetic resonance spectroscopy, nuclear magnetic resonance imaging, nuclear quadrupole resonance spectroscopy, organic photochemistry, organometallic chemistry, photochemistry, photoelectron spectroscopy, physical organic chemistry, phytochemistry, radiation chemistry, structural inorganic chemistry, structure, synthesis and biogenesis of fungal metabolites, surface chemistry and surface science including Auger and LEED spectroscopy, synthetic inorganic chemistry, synthetic organic chemistry, theoretical chemistry, X-ray diffraction crystallography.

DOCTOR OF PHILOSOPHY

Candidates 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.

Course work in the Ph.D. program is assigned in accordance with the recommendation of the department and the candidate's Ph.D. committee.

MASTER OF SCIENCE

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 18 credits in graduate or advanced courses in chemistry and/or related subjects.

CONTACT INFORMATION

Address:
Department of Chemistry
2036 Main Mall
Vancouver BC V6T 1Z1
Tel: 604-822-3266
Fax: 604-822-2847
Email: gradsec@chem.ubc.ca
Website: www.chem.ubc.ca
Dr. John Hepburn, Department Head
Dr. Chris Orvig, Graduate Advisor

CHILDREN'S LITERATURE

MASTER OF ARTS

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. candidates. The prospective student should select courses which 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.

CONTACT INFORMATION

For admission and program requirements, see *Master of Arts in Children's Literature*, p. 290 under School of Library, Archival and Information Studies or contact the Admissions Secretary (slais.admissions@ubc.ca).
Address:
School of Library, Archival and Information Studies
831-1956 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-2404
Fax: 604-822-6006
Email: slais.admission@ubc.ca
Website: www.slais.ubc.ca

Dr. Terry Eastwood, Acting Director and Graduate Advisor
Ms. Rita Amezcua, Admissions Secretary

CIVIL ENGINEERING

The Department of Civil Engineering offers three graduate degree programs: Master of Engineering (M.Eng.), 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
- coastal and ocean engineering—see hydrotechnical engineering
- earthquake engineering
- environmental engineering (environmental fluid mechanics, geo-environmental engineering, pollution control and waste management)
- geotechnical engineering and environmental geotechnics
- hydrotechnical engineering
- project and construction management
- structural engineering
- transportation engineering

DOCTOR OF PHILOSOPHY

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 course work beyond a master's degree. A doctoral dissertation takes another two to four years of full-time research work.

MASTER OF ENGINEERING

This is an advanced professional degree which requires a minimum of 30 credits of course work. At least 24 credits in graduate courses are required, of which at least 12 must be in civil engineering subjects. No thesis is required for this program.

Full-time students can complete the course work requirements for the M.Eng. in two terms (Term 1: September to December; Term 2: January to April).

MASTER OF APPLIED SCIENCE

This degree requires a minimum of 30 credits made up of at least 18 credits of course work 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 course work 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 course work requirements. It usually takes 16 to 24 months of full-time study to complete the course work and thesis requirements of the M.A.Sc. program.

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 either the Master of Engineering (M.Eng.) or 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.

Persons interested in taking advanced graduate courses, but who do not wish to undertake a full graduate degree program, may register on an unclassified (i.e., non-degree) basis.

CONTACT INFORMATION

Address:

Department of Civil Engineering

2324 Main Mall

Vancouver, BC V6T 1Z4

Tel: 604-822-2637

Fax: 604-822-6901

Email: info@civil.ubc.ca

Website: www.civil.ubc.ca

Dr. Richard Sexsmith, Acting Department Head

Dr. Sidney Mindess, Graduate Advisor, Records

Dr. Donald Mavinic, Graduate Advisor, Admissions and Awards

Ms. Christine Adams, Graduate Secretary

CLASSICAL, NEAR EASTERN AND RELIGIOUS STUDIES

CLASSICS AND CLASSICAL ARCHAEOLOGY

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The thesis for the M.A. in Classics may be written in one of the following: Greek language and literature, Latin language and literature, Greek history, Roman history, Greek or Roman archaeology, or ancient philosophy.

Major essays may be written in any of these fields by students following the M.A. program with comprehensive examinations. The comprehensive examinations may be weighted toward Greek or Latin studies without concentrating exclusively on either. Satisfactory knowledge of both Latin and Greek is required.

The M.A. in classical archaeology is awarded for successful completion of 30 credits of course work, a major essay, and comprehensive examinations. Brochures describing the M.A. and Ph.D. programs are available from the department.

M.A. IN ANCIENT CULTURE, RELIGION AND ETHNICITY IN THE MEDITERRANEAN AND THE NEAR EAST (ACRE)

Applicants for admission must meet the minimum requirements of the Faculty of

Graduate Studies. This program will involve a broad, multidisciplinary approach to the Ancient Mediterranean and Near Eastern worlds. Cross-cultural perspectives will be encouraged. This program will involve a broad, multidisciplinary approach to the Ancient Mediterranean and Near Eastern worlds. Cross-cultural perspectives will be encouraged.

To be admitted with full standing applicants must hold a bachelor's degree. This will normally be in Classics (Latin and Greek), Classical Studies (non-language program), or Near Eastern/Religious Studies, but could be in a related discipline (e.g. Anthropology, History, Philosophy, Political Science, etc).

Well qualified and highly recommended applicants with the equivalent of a Minor (30 credits) in one of the above areas will be required to complete a further 12 credits during the first year of graduate study. Undergraduate courses taken to complete the Major do not count for credit towards the Master's degree.

Students who do not meet admission requirements may, in exceptional circumstances, and within the limits set down by the Faculty of Graduate Studies, be admitted as qualifying students until they obtain the necessary prerequisites for full admission.

Applicants who have completed at least 6 credits (or equivalent) in one of the classical languages prior to admission (minimum grade: B-/68%): GREK 100 (Introductory classical Greek) or GREK 125 (New Testament Greek) or LATN 100 (Introductory Latin) or HEBR 305 (Introductory Biblical Hebrew) or ARBC 300 (Introductory Classical Arabic). It is strongly recommended that applicants have completed two years of language study before entrance.

RELIGIOUS STUDIES

MASTER OF ARTS

Advanced study in Religious Studies is offered in the Department of Classical, Near Eastern, and Religious Studies. Candidates may choose any one of the following areas of concentration: Biblical studies; Judaic studies; Christian thought and institutions; Islamic studies; history of religion. The candidate may select a program with thesis (30 credits in course work, including 12 credits for thesis) or without thesis (30 credits in course work, in addition to comprehensives and major essay). A competent reading knowledge of the appropriate languages must be acquired before writing the thesis or comprehensives and major essay.

Further information regarding the M.A. is available on application to the department. Brochures describing the program in more detail are also available on request. For information regarding programs in Asian Religions consult the Asian Studies Department.

CONTACT INFORMATION

Address:

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

Website: www.cnrs.ubc.ca

Dr. Lisa Cooper, Graduate Advisor, Classical Archaeology

Dr. Shirley Sullivan, Graduate Advisor, Classics

Dr. Paul Mosca, Graduate Advisor, Religious Studies

Ms. Christine Dawson, Graduate Secretary

COMMERCE AND BUSINESS ADMINISTRATION

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. The Doctor of Philosophy is the highest degree conferred by the University and is a research degree requiring general proficiency and distinctive attainment in a special field as well as an ability for independent investigation, evidenced by a dissertation based upon original research and creative scholarship.

The Faculty of Commerce and Business Administration presently offer eight approved programs of study leading to the Ph.D. These are Accounting, Finance, Management Information Systems, Management Science, Marketing, Organizational Behaviour, Policy Analysis and Strategy and Urban Land Economics.

In addition, a student may pursue a cross-field program in the Faculty of Commerce and Business Administration or apply to the Faculty of Graduate Studies as an Interdisciplinary candidate for the Ph.D. These alternatives allow specialization in such areas as Transportation or International Business, as well as programs of study which cross department or faculty boundaries.

Since each candidate enters the program with a unique academic background and pursues a course of study which reflects the candidate'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 course work. 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 have access to some form of financial support.

The program for each entering Ph.D. student is determined by a faculty advisor drawn from the area of specialization, in consultation with the student. In those divisions with individual Ph.D. programs, an advisor is appointed to supervise the early work of new candidates; this advisor transfers responsibility to a committee more closely representing the special research interests of the candidate for thesis research. Applicants are encouraged to correspond with the Ph.D. advisors in their chosen fields of study (prior to entry), who can give information about the specific requirements of their areas. Such inquiries may be addressed initially to the director of the Ph.D. program, who will forward them to the appropriate faculty advisors.

The major phases of the program are as follows:

- 1 A basic core of suitable courses from the foundation areas of business research, including mathematics, statistics, economics, sociology and psychology, whose concepts and methods may be applied in research and in the process of decision-making.
- 2 A basic core of study of the management decision areas, which are defined to include subjects such as accounting, management information systems, finance, organizational behaviour and marketing.
- 3 A preliminary examination on the above, supervised by a faculty committee, in foundation courses in which the candidate receives less than a 80% mark may be required.
- 4 A study of the chosen field of specialization, including a knowledge and understanding of the literature of the field, the basic concepts, their origins, evolution, and relationship to cognate fields, and the application in the chosen field of advanced methods of research.
- 5 A written comprehensive examination in the field of specialization.
- 6 A formal thesis proposal, presented at an open workshop or seminar, and approved by the appropriate thesis committee.
- 7 A scholarly thesis supervised by the thesis committee.
- 8 An oral examination in defence of the completed thesis.

In the Management Science program, the study defined in (1) and (2) is replaced by an intensive preparation in mathematical and statistical methods, and a preliminary exam taken by all students in this program.

In some areas of specialization the defined special field of study will include a minor field of interest. Please refer to the relevant section for the guidelines used in some of the option areas.

MASTER OF SCIENCE IN BUSINESS ADMINISTRATION

The Master of Science in Business Administration (M.Sc. [Bus. Admin.]) is intended for graduate students who wish to enter a Ph.D.

program and prepare for an academic career in a specialized area of business administration. Please contact the Commerce Ph.D. and M.Sc. Programs Office for an updated list of specialized areas accepting applications for the upcoming academic year.

The program normally requires two years of study. The program for an M.Sc. (Bus. Admin) candidate is determined by an advisor and committee chosen to represent the area of specialization elected by the candidate. The course program will, therefore, differ for each student, will reflect the student's background, and will be developed by the advisor from the resources of the University community so as to best prepare the student for advanced study and research in the chosen area of specialization.

The program requires a thesis (COMM 549) of six credits plus 24 credits in addition to the other course work prescribed for the field. The 24 credits of course work shall consist of at least 18 credits at the 500 level or above, and no more than six credits at the 300 or 400 levels.

At the time of acceptance of an offer of admission to the M.Sc. (Bus. Admin.) program, students will be required to pay a non-refundable deposit, which will be applied to the first-term tuition fees.

Note: For further information on MBA programs please refer to the Calendar section for "The Faculty of Commerce" or the UBC Commerce website (www.commerce.ubc.ca).

CONTACT INFORMATION

Address:
Faculty of Commerce and Business Administration
2053 Main Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-8366
Fax: 604-822-8755
Website: www.commerce.ubc.ca
Dr. Daniel Granot, Ph.D. and M.Sc. Programs Director
Ms. Elaine Cho, Ph.D. and M.Sc. Programs Administrator

COMMUNITY AND REGIONAL PLANNING

DOCTOR OF PHILOSOPHY, MASTER OF ARTS IN PLANNING, MASTER OF SCIENCE IN PLANNING

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. We emphasize an integrated approach to planning through four concentrations or streams: urban spatial planning, community development planning, environmental and natural resources planning, and international development planning. The School's masters 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, 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 Westwater Research in the Institute for Resources, Environment and Sustainability.

CONTACT INFORMATION

Full details on SCARP can be found in *The School of Community and Regional Planning*, p. 173 and on the School of Community and Regional Planning's website (www.scarp.ubc.ca).

Address:
School of Community and Regional Planning
#433-6333 Memorial Road
Lasserre Building
Vancouver, BC V6T 1Z2
Tel: 604-822-3276
Fax: 604-822-3787
Website: www.scarp.ubc.ca
Prof. Anthony H.J. Dorcey, Director
Ms. Rhoda Thow, Administrator
Ms. Wynn Archibald, Ph.D. Admissions
Ms. Patti Toporowski, Master's Admissions

COMPARATIVE LITERATURE

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The Program in Comparative Literature offers opportunities for advanced intercultural/interdisciplinary study leading to the Doctor of Philosophy and Master of Arts. Fields of study include literary theory, Asian literature, and the major literatures of Europe and of the Americas. Undergraduates who are interested in preparing for the degrees should acquire competence in at least two languages other than their native language. In addition, comprehensive knowledge of at least one, and preferably two, literatures should be acquired through study in a double major program or through the honours program of one of the language departments. Thirty credits of course work are required for the non-thesis M.A., 24 for the M.A. with thesis, and 18 for the Ph.D. Normally, in the second year, Ph.D. students will write their candidacy examinations and then proceed to the thesis. Details of seminars to be offered each year are given in the program brochure, *Comparative Literature Courses*.

CONTACT INFORMATION

For detailed requirements concerning the M.A., with or without thesis, and for the Ph.D., a *Handbook for Graduate Students in Comparative Literature* is available from the Program in Comparative Literature. A full description and additional information is available on the Comparative Literature website (complit.arts.ubc.ca).

Address:

Program in Comparative Literature
Buchanan C258, 1866 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-5157
Fax: 604-822-9431

Website: complit.arts.ubc.ca

Dr. Steven Taubeneck, Program Chair and
Graduate Advisor

Mrs. Christine Dawson, Graduate Secretary

COMPUTER ENGINEERING

See *Electrical and Computer Engineering*,
p. 233.

COMPUTER SCIENCE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The Department of 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 and automated reasoning), computer communications, databases, integrated systems design, computer graphics, distributed and parallel systems, integrated systems, scientific computational visualization, theoretical aspect of computer science (computational complexity, computational geometry, and parallel processing), operating systems, and networks, robotics, software engineering, and programming languages, educational technologies, bioinformatics, and social issues in computing.

The Department maintains a collection of hundreds of computers including PCs; Macintoshes; and workstations from a variety of manufacturers such as Sun Microsystems, Silicon Graphics, and Hewlett Packard. The research laboratories contain specialized equipment appropriate to their disciplines.

CONTACT INFORMATION

Address:

Department of Computer Science
2366 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-1202
Fax: 604-822-5485

Email: gradpgm@cs.ubc.ca

Website: www.cs.ubc.ca/prospective/grad

Dr. Robert J. Woodham, Head of the
Department

Dr. Gail Murphy, Associate Head of the
Graduate Program

Ms. Joyce Poon, Graduate Program
Coordinator

CREATIVE WRITING

MASTER OF FINE ARTS

The Creative Writing Program offers a two year course of resident study leading to the Master of Fine Arts (M.F.A.). Candidates may choose to take the M.F.A. in creative writing, or concentrate in playwriting in conjunction with the Theatre Program (CRWR/Theatre). 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 (www.film.ubc.ca).

The deadline for receiving (not postmarked) manuscripts is November 3, 2003 for September 2004 entrance date. Late manuscripts will not be considered.

Candidates for the Creative Writing Program should submit work in two or more of the genres listed in the brochure, specifying which is their major area of interest. Short and long fiction are considered one genre. Candidates 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 department website (www.creativewriting.ubc.ca) or email (patrose@interchange.ubc.ca) for more information.

Admission to the M.F.A. in playwriting is on the basis of a script submission, including some work in another genre, and also relevant course work in theatre at the undergraduate level or equivalent.

Length of the manuscripts accompanying the application depends on choice of genres. Guidelines are available from the Creative Writing Program Office or www.creativewriting.ubc.ca.

A program brochure is available on request to the Creative Writing Program Office.

The Creative Writing Program is part of the Department of Theatre, Film and Creative Writing.

CREATIVE WRITING

The program leading to the M.F.A. in creative writing is based on the premise that capable student authors can benefit from judicious criticism and the requirement to produce work regularly and to meet deadlines. Workshops, conferences, and tutorials are designed to focus attention on the student's poetry, fiction, drama, imaginative non-fiction, the writing of children's literature, and literary translation. Students are expected to read various books and journals for technical improvement in their own writing. For admission requirements, see above.

The Creative Writing Program publishes *PRISM international* and *FUGUE*; graduate students participate in the editing and production of the magazines.

During the two years of the program, a minimum of 36 credits of work must be completed, including a thesis. (A reduction of the second-year residency requirement 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 the second year, students will complete a six-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.

STAGE PLAYWRITING

The Department of Theatre, Film and Creative Writing offers a joint program leading to the M.F.A. in Stage Playwriting. Applicants must be accepted by both Creative Writing and Theatre. For admission requirements, see above.

Students are required to take appropriate course work in the Programs of 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 fulfilment 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

Address:

Creative Writing Program
1866 East Mall, Buchanan E462
Vancouver, BC V6T 1Z1
Tel: 604-822-2042
Fax: 604-822-36169

Website: www.creativewriting.ubc.ca

Prof. Robert Gardiner, Department Head

Prof. Bryan Wade, Graduate Advisor

Ms. Pat Rose, Graduate Secretary

CURRICULUM AND INSTRUCTION

Doctoral and master's programs are offered through the Centre for the Study of Curriculum and Instruction.

DOCTOR OF PHILOSOPHY

Candidates require a master's degree with high standing in a relevant educational discipline, a sample of scholarly work, a letter of intent describing the proposed focus of the program and the support of three academic referees. For students possessing a thesis-based master's degree from other than a relevant curricular 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) 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.

Please refer to *Education*, p. 231 under Faculty of Graduate Studies, Programs, for information on general admission requirements.

CONTACT INFORMATION

For further information, please contact Centre for the Study of Curriculum and Instruction (oliva.dela.cruz-cordero@ubc.ca), Faculty of Education, 2125 Main Mall, Vancouver, BC, V6T 1Z4; telephone 604-822-6502, fax 604-822-8234.

See also *Centre for the Study of Curriculum and Instruction*, p. 263 under Faculty of Graduate Studies, Centres and Institutes.

CURRICULUM STUDIES

DOCTOR OF PHILOSOPHY, MASTER OF ARTS AND MASTER OF EDUCATION

The Department of Curriculum Studies 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 (three credits). The M.A. programs include completion of a thesis (nine 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 experience. 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.

Please refer to *Education*, p. 231 under Faculty of Graduate Studies, Programs, for information on general admission requirements.

POST-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 Post-graduate Certificate in Technology-based Distributed Learning (TBDL) is directed at anyone concerned with managing, designing, or tutoring 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).

Students who have completed the certificate may apply for admission to the MET and have their certificate courses counted towards completion of the MET degree.

CERTIFICATE REQUIREMENTS

A student must complete 5 courses (15 credits) from the MET program. At least 2 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 program must be maintained.

TUITION FEE

There will be a course-based tuition fee. The fee will be the same as for the MET.

POST-GRADUATE CERTIFICATE IN TECHNOLOGY-BASED LEARNING FOR SCHOOLS (TBLS)

Networked multimedia technologies are impacting on both conventional and classroom-based teaching and distance education. The Post-graduate Certificate in Technology-based learning for Schools (TBLS) is directed at anyone concerned with managing, designing, or tutoring technology-based courses for school-age students.

Admission, including language proficiency requirements, will be the same as for the Master of Educational Technology (MET).

Students who have completed the certificate may apply for admission to the MET and have their certificate courses counted towards completion of the MET degree.

CERTIFICATE REQUIREMENTS

A student must complete 5 courses (15 credits) from the MET program. At least 2 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 521, 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 FEE

There will be a course-based tuition fee. The fee will be the same as for the MET.

CONTACT INFORMATION

For further information, please contact the Graduate Secretary (cust.grad@ubc.ca). Address:

Department of Curriculum Studies
Faculty of Education
2125 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-5367
Fax: 604-822-4714
Email: cust.grad@ubc.ca
Website: www.curricstudies.educ.ubc.ca
Dr. Rita Irwin, Department Head
Dr. Linda Peterat, Graduate Advisor
Mr. Henry Desjarlais, Graduate Secretary

DENTISTRY

DOCTOR OF PHILOSOPHY

The Faculty of Dentistry offers the opportunity for advanced study in a number of areas related to oral science. They include 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, microbiological and biochemical assessment of dental caries and periodontal disease, the epidemiology of oral disease, oral health care, and forensic dentistry. Candidates will be accepted under the general regulations of the Faculty of Graduate Studies. 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 recognized fields of dentistry, including those described in the Doctor of Philosophy Program (see above). 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 graduate study and applicants must satisfy the requirements for admission to the Faculty of Graduate Studies. Applicants must hold a dental degree 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 or four-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), Graduate Programs Coordinator.

Address:
Office of Graduate/Postgraduate Studies
Faculty of Dentistry
2199 Wesbrook Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-4486
Fax: 604-822-3562
Website: www.dentistry.ubc.ca

Dr. Alan Hannam, Associate Dean, Graduate Studies

Dr. Douglas Waterfield, Graduate Advisor
Mrs. Vicki Beretanos Koulouris, Graduate Programs Coordinator

GENERAL PRACTICE RESIDENCY AND PEDIATRIC RESIDENCY TRAINING PROGRAMS IN DENTISTRY

Three U.B.C. affiliated teaching hospitals together offer a one- or two-year dental residency program beginning July 1 (or June 15 for the paediatric residency). One resident is appointed specifically to Children's Hospital while the others residents are rotated through the other two teaching hospitals and the Faculty of Dentistry Specialty Clinics.

Candidates must satisfy the requirements of the College of Dental Surgeons of B.C. for registration. Graduates of all Canadian and American Dental schools are eligible to apply. Foreign dentistry, other than U.S. training graduates, must possess a certificate issued by the National Dental Examining Board of Canada and must meet immigration requirements.

CONTACT INFORMATION

For more information and applications to the GPR Residency Training program please contact Ms. Dorothy Stanfield (dstanf@unixg.ubc.ca).

Address:
Faculty of Dentistry
2199 Wesbrook Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-0345
Fax: 604-822-3562
Website: www.dentistry.ubc.ca

Dr. Christopher Zed, Director of Postgraduate and Hospital Programs

Ms. Dorothy Stanfield, Curriculum Program Manager

EARTH AND OCEAN SCIENCES

The Department of Earth and Ocean Sciences offers a wide range of graduate programs in solid earth and environmental earth sciences. Details of the programs of study available are listed under *Atmospheric Science*, p. 223, *Geological Engineering*, p. 237, *Geological Sciences*, p. 238, *Geophysics*, p. 238, and *Oceanography*, p. 252.

CONTACT INFORMATION

Address:
Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Website: www.eos.ubc.ca

Dr. Paul L. Smith, Department Head

Dr. Kelly Russell, Graduate Advisor

Ms. Alex Allen, Graduate Secretary

ECONOMICS

The UBC Department of Economics ranks as one of the top Economics Departments in Canada and graduates of our 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. Our 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.

The M.A. program is a 12 month program designed to prepare students for employment in the private or public sector, 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 our 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 web page (www.econ.ubc.ca/grad.htm).

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 sector. Students take two years of course work: 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 2 to 3 years) in their chosen field. Recent graduates have been offered tenure track positions at leading Departments in Canada, the U.S., the U.K., and Australia, as well as non-academic positions at consulting companies in Canada and the U.S., and in a variety of government departments.

CONTACT INFORMATION

Address:
Department of Economics
997-1873 East Mall
Vancouver BC V6T 1Z1
Tel: 604-822-4616
Fax: 604-822-5915
Email: econgrad@econ.ubc.ca
Website: www.econ.ubc.ca
Dr. Angela Redish, Department Head
Dr. Brian Copeland, Graduate Advisor
Ms. Maureen Chin, Graduate Secretary

EDUCATION

DOCTOR OF EDUCATION, DOCTOR OF PHILOSOPHY, MASTER OF EDUCATION AND MASTER OF ARTS

Graduate programs in education are offered by various units in the Faculty:

- The Department of Curriculum Studies offers graduate programs in art education, business education, home economics education, mathematics education, music education, physical and health education, science education, social studies education, technology studies education, and curriculum studies.
- The Department of Educational and Counselling Psychology, and Special

Education offers graduate programs in counselling psychology; educational psychology; human learning, development and instruction; measurement, evaluation and research methodology; school psychology; and special education.

- The Department of Educational Studies offers graduate programs in adult education, educational administration, higher education, history of education, philosophy of education, sociology of education, educational studies and educational leadership and policy.
- The Department of Language and Literacy Education offers graduate programs in English as a second language literacy education, modern languages education and teacher librarianship.

Where appropriate, joint programs, which involve collaboration among the areas listed above, or which involve an area outside the Faculty of Education, can be arranged.

ADMISSION

For admissions requirements to the Doctor of Education (Ed. D.) and the Doctor of Philosophy (Ph.D.) programs see *Faculty of Graduate Studies, Admissions*, p. 209.

Admission to the Master of Arts (M.A.) in Education and Master of Education (M.Ed.) programs requires that the minimum Faculty of Graduate Studies admission standards be met. See the *Faculty of Graduate Studies, Admissions*, p. 210.

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.

MASTER OF ARTS IN EDUCATION AND MASTER OF EDUCATION.

Students seeking entry to the Master of Arts (M.A.) in Education and the Master of Education (M.Ed.) programs should consult the individual program or unit for information regarding specific admission requirements. These are also outlined in the individual websites listed below:

- Department of Curriculum Studies (www.curricstudies.educ.ubc.ca)
- Dept. of Educational & Counselling Psychology, and Special Education (www.ecps.educ.ubc.ca)
- Counselling Psychology Program (www.ecps.educ.ubc.ca/cnps/)
- Department of Educational Studies (www.edst.educ.ubc.ca)
- Dept. of Language and Literacy Education (www.lled.educ.ubc.ca)
- School of Human Kinetics (www.hkin.educ.ubc.ca)

The Master of Educational Technology (MET) is a Faculty of Education joint degree program offered online in partnership with Tec de Monterrey, a Mexican University that specializes in online education. It provides students with an opportunity to participate with a culturally diverse student population.

The MET degree supports a professional development, course-based program (non-thesis) consisting of a minimum of 30 credits of course work with at least 12 credits of core course work and 18 credits of electives. Fees are on a per course basis. Students are required to meet the general requirements for admission to the Faculty of Graduate Studies at UBC.

Technology Based Distributed Learning (TBDL) Certificate program students at UBC may be eligible to request transfer credit.

OFF-CAMPUS GRADUATE WORK

It may be possible for the Faculty of Education to organize graduate programs at locations throughout BC.

For further information, contact the Office of Continuing Professional Education (ocpe.educ@ubc.ca) or phone at 604-822-2013.

CONTACT INFORMATION

General information on graduate programs in education may be obtained from the Office of Graduate Programs and Research (ogpr@interchange.ubc.ca).

Address:

Faculty of Education
2125 Main Mall, Room 2601
Vancouver, BC V6T 1Z4
Tel: 604-822-5512

Fax: 604-822-8971

Email: ogpr@interchange.ubc.ca

Website: www.educ.ubc.ca/ogpr/graduate_programs

Prospective applicants are encouraged to visit the Education graduate programs website (www.educ.ubc.ca/ogpr/graduate_programs).

EDUCATIONAL AND COUNSELLING PSYCHOLOGY, AND SPECIAL EDUCATION

DOCTOR OF PHILOSOPHY

The Department offers programs of study leading to Ph.D. degrees in the following areas:

- Counselling Psychology
- Human Learning, Development, and Instruction
- Measurement, Evaluation, and Research Methodology
- School Psychology
- Special Education

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 masters degrees in the following areas:

- Counselling Psychology (CNPS): M.A. and M.Ed.
- Educational Psychology (EDPS): M.Ed.
- Human Learning, Development and Instruction (HLDI): 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.

Master's degrees in Counselling Psychology are available in the following programs accredited by the Council for the Accreditation of Counselling and Related Educational Programs: Community Counselling, Counselling in Higher Education, and School Counselling.

Master's degrees in Special Education are available with a specialization in Education of the Deaf/Hard of Hearing and Education of the Blind/Visually Impaired. Studies in high ability and special needs are also available.

A combined Special Education and Educational Administration program is offered and a combined Ts'Kel and Special Education program is also available to First Nations students and other interested in First Nations education.

With the exception of School Psychology, all master's programs in the Department of Educational and Counselling Psychology, and Special Education 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 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.

Please refer to *Education*, p. 231 under Faculty of Graduate Studies, Programs, for information on general admission requirements.

CONTACT INFORMATION

Address:

Department of Educational and Counselling Psychology, and Special Education
Faculty of Education

2125 Main Mall
Vancouver, BC V6T 1Z4

Tel: 604-822-5351

TDD: 604-822-8229

Fax: 604-822-3302

Email: lynda.mcdicken@ubc.ca

Website: www.ecps.educ.ubc.ca

Counselling Psychology: 604-822-6371

Fax Counselling Psychology: 604-822-2328

Email Counselling Psychology:

karen.yan@ubc.ca

Dr. Richard Young, Department Head

Dr. Kim Schonert-Reichl, Graduate Advisor
Ms. Lynda McDicken, Graduate Secretary
ECPS
Ms. Karen Yan, Graduate Secretary, Counseling Psychology

Prospective applicants are encouraged to visit the Educational and Counselling Psychology, and Special Education website (www.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 all other program areas are listed with the EPSE subject code.

EDUCATIONAL STUDIES

MASTER OF ARTS, MASTER OF EDUCATION, DOCTOR OF EDUCATION AND DOCTOR OF PHILOSOPHY

The department is concerned with the study of education in a broad sense. It represents a combination of programs (in adult and higher education and in educational administration) and educational disciplines (sociology, history, philosophy and anthropology). The department is committed both to meeting traditional program needs and to developing innovative and integrated approaches to emerging issues in education. In addition to programs and disciplines, the department offers opportunities for the multi-disciplinary study of childhood, critical thinking, First Nations education, gender, international education, multiculturalism, policy studies in education, and feminist approaches to social justice in education.

The department offers M.Ed. and M.A. programs in all areas of its work, including a specialization in First Nations' education for students of aboriginal ancestry who register in the Ts'Kel program. 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 departments 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 (M.ED.) IN ADULT LEARNING AND GLOBAL CHANGE

An intercontinental, web-based, coursework-only professional master's degree focussing 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.

CONTACT INFORMATION

For further information on graduate programs, please contact the department Graduate Secretary, Ms. Shermila Salgadoe (grad.edst@ubc.ca).

Address:
Department of Educational Studies
Faculty of Education
2125 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-5374 (general)
Tel: 604-822-6647 (graduate secretary)
Fax: 604-822-4244
Email: grad.edst@ubc.ca
Website: www.edst.educ.ubc.ca

Dr. Carolyn M. Shields, Department Head
Dr. Thomas J. Sork, Graduate Advisor
Ms. Shermila Salgadoe, Graduate Secretary

EDUCATIONAL TECHNOLOGY

MASTER OF EDUCATIONAL TECHNOLOGY

The Master of Educational Technology (MET) is a Faculty of Education joint degree program offered online in partnership with Tec de Monterrey, a Mexican University that specializes in online education. It provides students with an opportunity to participate with a culturally diverse student population.

The MET degree supports a professional development, course-based program (non-thesis) consisting of a minimum of 30 credits of course work with at least 12 credits of core course work and 18 credits of electives. Fees are on a per course basis. Students are required to meet the general requirements for admission to the Faculty of Graduate Studies at UBC. Technology Based Distributed Learning (TBDL) Certificate program students at UBC may be eligible to request transfer credits. Further information can be obtained from met.ubc.ca or email (info@met.ubc.ca).

CONTACT INFORMATION

Address:
Office of Continuing Professional Education
1305-2125 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-3622
Website: met.ubc.ca

Dr. Don Krug (don.krug@ubc.ca), Program Coordinator/Advisor

Mr. David Roy (david.roy@ubc.ca), Administrative Contact

ELECTRICAL AND COMPUTER ENGINEERING

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 and optoelectronics; robotics and telerobotics; systems and control.

Collaboration with other departments is facilitated by membership in the Advanced Materials and Process Engineering Laboratories (AMPEL), The Institute for Computing, Information and Cognitive Systems (ICICS) and the Pulp and Paper Centre. For more information, see *Advanced Materials and Process Engineering Laboratory*, p. 75, *Institute for Computing, Information and Cognitive Systems*, p. 76 and *Pulp and Paper Centre*, p. 77 all under the chapter Research Units.

Qualified students are admissible to programs leading to the M.A.Sc. and M.Eng. on a part-time basis.

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 six of the 18 credits will be taken in this department, 12 credits for students with degrees in subjects other than electrical engineering.

MASTER OF ENGINEERING

The Master of Engineering (M.Eng.) is a study program suited to students who wish to pursue their electrical and computer engineering education beyond the undergraduate level, but who do not wish to pursue a thesis research program. Requirements for the M. Eng. are: satisfactory completion of 30 credits of courses, at least 24 of which must be for courses numbered 500 and above, at least 12 of the 24 must be in electrical and computer engineering, and 6 of the 24 may be for a supervised project report. Overall, at least 15 of the 30 credits must be in electrical and computer engineering. A typical completion time for the M. Eng. is 12 to 18 months.

Financial aid is generally not available to M. Eng. students.

The M. Eng. is not recommended as preparation for the Doctor of Philosophy program.

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.

CONTACT INFORMATION

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).

Address:

Department of Electrical and Computer Engineering
2356 Main Mall, MacLeod Bldg. Room 434
Vancouver, BC V6T 1Z4
Tel: 604-822-3368
Fax: 604-822-5949
Website: www.ece.ubc.ca

Dr. Mabō R. Ito, Acting Department Head
Dr. David L. Pulfrey, Associate Head of Graduate Programs
Ms. Doris Metcalf, Graduate Secretary

ENGINEERING PHYSICS

Graduate programs in Engineering Physics are offered by the Department of Physics and

Astronomy. For more information, see *Physics and Astronomy*, p. 254.

DOCTOR OF PHILOSOPHY

The Department of Physics and Astronomy offers Ph.D. programs in Engineering Physics. Students can be admitted to the Ph.D. program after obtaining a Master of Applied Science. A minimum of 12 credits in graduate level courses in any Science or Applied Science departments are required for the PhD, 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 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. course work 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 course work in any Science or Applied Science departments for the PhD.

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 six 300 or 400 level credits in undergraduate courses. All M.A.Sc. students are required to satisfy the department's quantum physics course requirements.

CONTACT INFORMATION

Address:
Department of Physics and Astronomy
6224 Agricultural Road
Vancouver, BC V6T 1Z1
Tel: 604-822-4245
Fax: 604-822-5324
Website: www.physics.ubc.ca
Dr. Janis McKenna, Graduate Program Chair
Mr. Tony Walters, Graduate Coordinator

ENGLISH

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The Department of English offers opportunities for advanced study in British, American, Canadian, and Commonwealth/Postcolonial literature, and in English language including rhetoric. The UBC Library has excellent working collections in most areas and particularly strong collections of periodicals, Malcolm Lowry materials, modern Irish literature, Canadian, and, in the Colbeck Collection, nineteenth- and early twentieth-century English literature. Seminars are offered annually in the major periods, figures, genres and critical approaches. The department's brochure, *English Courses Offered*, provides extensive descriptions of each seminar.

CONTACT INFORMATION

For detailed requirements concerning the Master of Arts, with or without thesis, the doctoral program, and the possibility of part-time study for the master's degree, students should consult the department's graduate handbook. Information is also available from the Department of English website (www.english.ubc.ca).

Address:

Department of English
397-1873 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-3855
Fax: 604-822-6906
Website: www.english.ubc.ca/grad/index.htm

Dr. Gernot Wieland, Department Head
Dr. Janet Giltrow, Chair of the Graduate Program

ETHNIC AND INTERCULTURAL STUDIES

Ethnic and Intercultural Studies refers to the study of ethnic groups and intercultural group relations in Canada and abroad. Work is normally centered 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 ethno-political 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 graduate level will normally be located in a home department where they will pursue a degree program. Such students may consult the Arts Faculty Committee on Ethnic and Intercultural Studies for guidance in planning their coursework. This should be done at the time of applying for admission to the Faculty of Graduate Studies.

EUROPEAN STUDIES

MASTER OF ARTS IN EUROPEAN STUDIES

The program leading to the M.A. (European Studies) addresses the growing needs and demands for Canadians to understand the complexities of Europe—past, present and future. The program is administered by the Institute for European Studies. Drawing on the diversity and strengths of UBC faculty, 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 admission to the MA program, candidates must

- 1 possess a bachelor's degree or the equivalent with an excellent academic record from a recognized university in an area which is regarded as appropriate to the admissions committee for the program;
- 2 satisfy the requirements for admission to the Master of Arts program in the Faculty of Graduate Studies; and
- 3 show promise of success or superior accomplishment as attested by letters of reference.

The M.A. (European Studies) is awarded on the completion of 30 credits of coursework or 24 credits of coursework plus a six-credit thesis. Students must demonstrate oral and written proficiency in a major European language other than English.

CONTACT INFORMATION

Address:
Institute for European Studies
182 C.K. Choi Building
1855 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-1452
Fax: 604-822-3433
Website: www.ies.ubc.ca
Dr. Sima Godfrey, Director
Mr. Rob Stoddard, Administrator

See also *Institute for European Studies*, p. 264 under Faculty of Graduate Studies, Centres and Institutes.

EXPERIMENTAL MEDICINE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

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. 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., while the Ph.D. applicant will have a M.Sc. in life sciences, biology, zoology or biochemistry. Students with equivalent degrees may also apply for admission.

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.

CONTACT INFORMATION

Students should contact the Experimental Medicine Program Office for further information. A brochure is available on request.

Address:
Experimental Medicine Program
Room S-154, University Hospital
(Koerner Pavilion)
2211 Westbrook Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-7215
Fax: 604-822-7897
Email: exptlmed@interchange.ubc.ca
Website: www.medicine.ubc.ca/experimental-medicine/index.shtml
Dr. Norman L.M. Wong, Director
Mr. Patrick Carew, Graduate Secretary

FAMILY STUDIES

MASTER OF ARTS

The Master of Arts Family Studies program is an interdisciplinary program, which 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.

The master's program requires a minimum of 30 credits including 24 credits of course work and six credits for the thesis. At least 18 credits of course work must be at the 500 level and at least 18 credits must be in Family Studies (FMST) including four required courses: FMST 520, 522, 523 and 547, plus one course from among FMST 524, 525 and 538. Elective courses which form a coherent plan of study compose the remainder of the course work. In addition to the formal course work, as evidence of research and scholarly capability, a thesis (six credits) is required.

CONTACT INFORMATION

Address:
The School of Social Work and Family Studies
2080 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-2609, 604-822-4300 (Graduate Advisor)
Fax: 604-822-8656
Website: swfs.ubc.ca
Dr. Phyllis Johnson
(pjohnson@interchange.ubc.ca), Graduate Advisor
Ms. Alina Yuhymets
(yuhymets@interchange.ubc.ca), Student Advisor
Ms. Marjorie Paukner
(mpaukner@interchange.ubc.ca), Admissions Secretary

FILM

MASTER OF ARTS AND MASTER OF FINE ARTS

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 MFA in Film and Creative Writing. The successful applicant must be first accepted into the Film MFA. 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.

CONTACT INFORMATION

Address:
Film Program
Department of Theatre, Film and Creative Writing
Room 2354A, 1874 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-6037
Fax: 604-822-0508
Email: film@interchange.ubc.ca
Website: www.film.ubc.ca
Prof. Robert Gardiner, Department Head
Dr. Brian McIlroy, Graduate Advisor, MA
Prof. Sharon McGowan, Graduate Advisor, MFA
Ms. Gail Oelkers, Graduate Secretary

FOOD SCIENCE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

Food Science 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 & Wine Biotechnology. Graduate training in Food 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.

Coursework selected in consultation with the student's supervisory committee includes graduate courses in food science and from other areas relevant to each student's research.

Research Facilities located in the Food Science Building and in the Food and Nutritional Sciences Building include pilot plant facilities, sensory evaluation facilities, animal care facilities, bio-safety laboratory, a wine library

and well-equipped laboratories for a wide range of research programs in food science. Students may become involved in research projects in collaboration with researchers in other university departments, Agriculture and Agri-Food Canada, Fisheries and Ocean Canada, and various provincial government agencies.

CONTACT INFORMATION

Address:

Faculty of Agricultural Sciences
#270-2357 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400

Website: www.agsci.ubc.ca/grad

Dr. Jim Thompson, Associate Dean, Research and Graduate Studies

Dr. Eunice Li-Chan, Graduate Advisor

Ms. Joyce Tom, Graduate Programs Manager

Ms. Carole Wallace, Program Assistant

FORESTRY

DOCTOR OF PHILOSOPHY

Opportunities are offered for advanced study in fields concerned with the basic scientific, managerial or economic aspects of forestry and wood science. The Faculty of Forestry offers advanced work in major branches of forestry, often in cooperation with other departments. The fields of study include adhesives, biochemistry, biometrics, biotechnology, chemistry, composites, conservation, ecology, economics, engineering, entomology, fire control, genetics, GIS, growth & yield, hydrology, landscape imaging, mensuration, microbiology, modeling, nutrition, operations (harvesting), pathology, photo interpretation, physics, planning, policy, pulp and paper, range management, recreation, remote sensing, silvics, silviculture, sociology, soils, sustainability, tree breeding, tree physiology, visualization, wildlife biology, wood anatomy, wood preservation, wood products marketing.

MASTER OF FORESTRY (30 CREDIT PROGRAM)

In fields as noted above for the Doctor of Philosophy.

A bachelor's degree equivalent to the B.S.F., or B.A.Sc in forest engineering is prerequisite.

The Master of Forestry program includes a thesis, normally counting twelve credits, at least six credits chosen from graduate courses in forestry, including FRST 545, FRST 584 or approved alternate, and other courses appropriate to the field of study. Alternatively, the program may be taken without thesis.

MASTER OF SCIENCE (30 CREDIT PROGRAM)

In fields as noted above for the Doctor of Philosophy.

A bachelor's degree in science, applied science, agricultural science, social science, forestry or equivalent academic background is prerequisite.

The Master of Science in Forestry program includes a thesis, normally counting twelve credits, at least six credits chosen from graduate courses in forestry, including FRST 545, FRST 584, or approved alternate, and other approved courses appropriate to the field of study. Alternatively, the program may be taken without thesis.

MASTER OF APPLIED SCIENCE (30 CREDIT PROGRAM)

In fields as noted above for the Doctor of Philosophy.

A Bachelor of Applied Science (B.A.Sc.) or higher degree in engineering is prerequisite.

The Master of Applied Science in Forestry program includes a thesis, normally counting twelve credits, at least six credits chosen from graduate courses in Forestry including FRST 545, FRST 584 or approved alternate, at least six credits chosen from the 300, 400, or 500 level in a department of Applied Science, and other approved courses appropriate to the field of study. Alternatively, the program may be taken without thesis.

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.

The staff members listed with the graduate courses are responsible for course administration through the Forestry Associate Dean of Graduate Studies. Staff members other than those listed may direct studies in specialized topics for interested students, on recommendation of the Forestry Associate Dean of Graduate Studies.

The Western Laboratory of Forintek Canada Corporation, located on the campus, co-operates in respect to facilities, special equipment and research direction.

CONTACT INFORMATION

Address:

Forestry Graduate Program Office
Faculty of Forestry
2005-2424 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-6177

Fax: 604-822-8645

Email: gradfor@interchange.ubc.ca

website: www.forestry.ubc.ca

Dr. John McLean, Associate Dean, Graduate Studies & Research

Ms. Deb Feduik, Graduate Program Assistant

FRENCH

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The Department of French, Hispanic and Italian Studies offers opportunities for advanced study in the language and literature

of France, French Canada, the Caribbean and French Africa, leading to the Ph.D and the M.A. with or without thesis. The UBC Library and the Departmental Reading Room have extensive holdings in French.

As early as possible, the department makes available a list of courses to be offered, usually in February of the preceding academic year.

CONTACT INFORMATION

Address:

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

Website: www.fhis.ubc.ca

Dr. Derek C. Carr, Acting Department Head

Dr. Réjean Beaudoin, Graduate Advisor

Ms. Carol Schoenfeld, Graduate Secretary

GENETIC COUNSELLING

MASTER OF SCIENCE IN GENETIC COUNSELLING

The Department of Medical Genetics offers a two-year program of advanced study leading to the Master of Science in Genetic Counselling. This is a master's degree program without thesis.

The program provides a strong academic component focusing on the fundamental and applied principles of human genetics and in-depth clinical experience necessary for the genetic counsellor. Required courses include MEDG 530, 550, 560, 565, 570, 575, 548 and CNPS 362. Students must also successfully complete a final comprehensive examination.

To gain acceptance to the program, a student must show evidence of first-class standing in at least 12 credits and at least upper second-class standing in the remaining course work at the third and fourth year level. Students admitted to the program will normally have an undergraduate degree in science, including a strong background in genetics and introductory courses in biochemistry and statistics. Courses in human anatomy, physiology, embryology and psychology are considered an asset. An interview with the program's admission committee is required prior to acceptance.

CONTACT INFORMATION

Address:

4500 Oak Street, Room C234
Vancouver, BC V6H 3N1
Tel: 604-875-3486
Fax: 604-875-3490

Website: www.medgen.ubc.ca/programs/mast-gen.htm

Ms. Anita Dircks, Program Director

Dr. Dessa Sadovnick, Graduate Advisor

Ms. Cheryl Slevin, Graduate Secretary

GENETICS

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

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, 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 course work 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. 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 Masters 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. 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.

CONTACT INFORMATION

Address:
Genetics Graduate Program
Room 308, Library Processing Centre
2206 East Mall
Vancouver, BC V6T 1W5
Tel: 604-822-8764
Fax: 604-822-9865
Website: www.genetics.ubc.ca
Dr. H.W. Brock, Director
Ms. Monica Deutsch, Graduate Secretary

GEOGRAPHY

The Department of Geography offers the Doctor of Philosophy, Master of Arts and Master of Science.

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; 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 (especially 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); 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, social and economic change, with a particular focus on North America and Asia) and intersects with work in environmental geography (environmental sustainability, environmental policy, 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, 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.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program consists of one course (either GEOG 500 or GEOG 520), additional course work 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 course work, which must include GEOG 520 or GEOG 500 (three credits) and a 15-credit thesis.
- 2 Non-thesis Option. This option requires 30 credits of course work, 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 course work of which at least nine credits must be at the graduate level, which must include GEOG 500 (three credits) and a 15-credit thesis.
- 2 Non-thesis Option. This option requires 30 credits of course work, a major essay and a comprehensive examination.

CONTACT INFORMATION

A detailed guide to graduate studies in geography is available from the Department or on the Department's website (www.geog.ubc.ca).

Address:
Department of Geography
1984 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-2663
Fax: 604-822-6150
Email: mluk@geog.ubc.ca
Website: www.geog.ubc.ca

Dr. Michael Bovis, Department Head
Dr. Ian McKendry, Chair of the Graduate Committee

Ms. Mary Luk, Graduate Secretary

GEOLOGICAL ENGINEERING

DOCTOR OF PHILOSOPHY, MASTER OF APPLIED SCIENCE AND MASTER OF ENGINEERING

Opportunities for graduate work in geological engineering are available at UBC in the Geological Engineering program. Most programs are based in the Department of Earth and Ocean Sciences, but they may also be based in the Departments of Civil Engineering or Mining and Mineral Process Engineering. Entrance to a program leading to a graduate engineering degree in the earth sciences is open only to students with an appropriate undergraduate degree in engineering or Applied Science.

Opportunities for graduate studies in geological engineering exist in the fields of 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, mineral prospecting and

valuation, and other similar subjects. The Geological Engineering Program aims to promote interaction between the Department of Earth and Ocean Sciences and Applied Science departments, especially Civil Engineering and Mining and Mineral Process Engineering.

Prospective applicants should consult the descriptions of graduate study in the pertinent departments. Students accepted in any of these departments must satisfy the usual graduate requirements of the department in which they are registered. Interdisciplinary programs that involve courses from two or more of the associated departments (and from other departments) are encouraged and supported. The Board of Study for Geological Engineering (as described in *The Faculty of Applied Science*, p. 97) will act in an advisory capacity for students involved in interdisciplinary studies.

CONTACT INFORMATION

Address:

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088

Website: www.eos.ubc.ca

Dr. Paul L. Smith, Department Head

Dr. Kelly Russell, Graduate Advisor

Ms. Alex Allen, Graduate Secretary

GEOLOGICAL SCIENCES

British Columbia offers 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; in numerous problems of engineering, environmental geology related to water, slope stability, urban development, 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. Faculty members also have active research programs in northern Canada and Alaska, Asia, South America, and Europe.

Co-operation with other departments at UBC (notably the Departments of Geography, Botany, Soil Science, Metals and Materials Engineering, Mining and Mineral Process Engineering, and Civil Engineering) enables students to take advantage of facilities, instruction and advice in neighbouring fields. Co-operation and support is also received from the BC Ministry of Energy Mines and Petroleum Resources, the Geological Survey of Canada, and the mining industry.

The Department of Earth and Ocean Sciences maintains excellent provisions for research and study. Facilities include: an automated VG solid-source mass spectrometer for U, Pb isotopes; CAMECA SX-50 electron microprobe and scanning electron microscope; equipment for x-ray diffraction, including 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 with computer workstations; and a machine shop. Maps, books and periodicals are available in a large reading room. The Mineral Deposit Research Unit conducts industry-sponsored research.

DOCTOR OF PHILOSOPHY

Courses in Geology and related fields will be selected in consultation with the candidate's committee.

MASTER OF SCIENCE (WITH THESIS) AND MASTER OF APPLIED SCIENCE

Courses include 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.

MASTER OF SCIENCE (WITHOUT THESIS)

Courses include 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

Address:

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088

Website: www.eos.ubc.ca

Dr. Paul L. Smith, Department Head

Dr. Kelly Russell, Graduate Advisor

Ms. Alex Allen, Graduate Secretary

GEOPHYSICS

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.

DOCTOR OF PHILOSOPHY, MASTER OF SCIENCE AND MASTER OF APPLIED SCIENCE

Candidates are expected to have the equivalent of an honours 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. The 12-credit M.Sc. thesis is normal in the program.

CONTACT INFORMATION

Address:

Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088

Website: www.eos.ubc.ca

Dr. Paul L. Smith, Department Head

Dr. Kelly Russell, Graduate Advisor

Ms. Alex Allen, Graduate Secretary

GERONTOLOGY

Faculty members in various disciplines and professions on campus have a particular interest in the study of aging and the aged. Gerontological concerns are diverse and multifaceted. Basic and applied age-related research is also conducted in several departments and professional schools.

Although UBC does not offer a graduate degree in gerontology per se, the following schools, departments and faculties may provide educational opportunities at the graduate level in gerontology: Agricultural Sciences, Anthropology and Sociology, Architecture, Counselling Psychology, Dentistry, Economics, Educational Studies, Family Practice, Geriatric Medicine, Health Care and Epidemiology, Law, Librarianship, Nursing, Pharmaceutical Sciences, Psychology, Physical Education and Recreation, Rehabilitation Sciences, Social Work and Family Studies, Sociology. In addition, the Institute of Health Promotion Research co-ordinates activities in this area.

Students will be expected to satisfy the general entrance regulations of the Faculty of Graduate Studies and specific requirements of the appropriate department. Inquiries should be directed to the appropriate department or to the assistant director of the *Institute of Health Promotion Research*, p. 265.

See also *Interdisciplinary Studies*, p. 241.

GREEK

Doctor of Philosophy and Master of Arts. Normally, the Ph.D. thesis will be written on a Greek subject and the degree will be taken in Classics.

See *Classical, Near Eastern and Religious Studies*, p. 227.

HEALTH CARE AND EPIDEMIOLOGY

MASTER OF HEALTH ADMINISTRATION

The Department of Health Care and Epidemiology in collaboration with the Faculty of Commerce and Business Administration offers a professional curriculum leading to a Master of Health Administration (MHA) degree.

The MHA has an executive focus and is taught in modular (1.5 credit) format: Friday afternoon through to Sunday, one weekend per month. The full program will take two years to complete.

The MHA curriculum provides the educational and professional foundations for leadership in the health-care field. It emphasizes analytical thinking and prepares students for a career in health care management.

The overall goal of the program is to provide graduates who are skilled professionals with in-depth applied administrative research tools capable of identifying and solving complex organizational and assessment problems in the health services delivery sector. Graduates of this program have health-care training plus the business skills to creatively manage in an ever-more complicated health care sector. Further details and information on admissions is available at www.healthcare.ubc.ca.

The Faculty of Graduate Studies outlines the minimum requirements for admission to Graduate Programs at UBC. For more information about the role of Graduate Studies and to view the Faculty's policies and procedures manual, visit the Graduate Studies website (www.grad.ubc.ca). Applicants from a university outside Canada in which English is not the primary language of instruction must meet the English Language Proficiency Requirement. Students who are not Canadian citizens or permanent residents should review the section on International Students.

Applications for admission to the MHA 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. In addition to the minimum requirements, applicants are asked to include a cover letter that outlines their motivation for completing the MHA program as well as a resumé. Professional experience and publications may be considered for those who do not meet the 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 Letters of Reference should indicate how the referee has come to know the applicant and why they feel the applicant will succeed in the MHA 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.

For further information, visit www.healthcare.ubc.ca.

MASTER OF HEALTH SCIENCE

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. 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 (healthcare.ubc.ca).

All application materials must be received by March 1st.

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The department offers research-oriented graduate programs 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. 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 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 March 1 for entry in September. For additional information see the Department's website healthcare.ubc.ca.

CONTACT INFORMATION

Address:
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
Website: www.healthcare.ubc.ca
Dr. Martin Schechter, Department Head
Dr. Aslam Anis, Director, Health Administration Program
Dr. Susan Kennedy, Graduate Advisor, Ph.D. and M.Sc. Programs
Dr. Rick Mathias, Graduate Advisor, M.H.Sc. Program

Ms. Laurel Slaney, Graduate Programs Coordinator

HISPANIC AND ITALIAN STUDIES

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

Note: Admissions to the Ph.D. and M.A. programs in Italian have been suspended as of January 20, 1997.

The Department of French, Hispanic and Italian Studies offers graduate programs leading to the Doctor of Philosophy and to the Master of Arts (with or without thesis). The Ph.D. may be taken in Spanish peninsular literature or Spanish-American literature. Admissions to graduate programs in Italian have been suspended.

The UBC Library has extensive holdings in all Hispanic areas, especially in periodicals and Latin-American studies, both Spanish and Portuguese. There is also a Departmental reading room for Graduate Students, containing basic texts, scholarly collections and reference works.

As early as possible, the Department makes available a list of courses to be offered, usually in February of the preceding academic year.

CONTACT INFORMATION

Address:
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
Website: www.fhis.ubc.ca
Dr. Derek C. Carr, Acting Department Head
Dr. Réjean Beaudoin, Graduate Advisor
Ms. Carol Schoenfeld, Graduate Secretary

HISTORY

The Department of History offers M.A. and Ph.D. programs, each requiring a thesis, in the fields of Canadian, First Nations, Asian (especially modern China and Japan), European (early modern and modern), British Imperial and Commonwealth, international relations, American and Latin American history. At the Ph.D. level, the Department stresses Canadian, European and Asian history. The Department especially emphasizes comparative and interdisciplinary approaches to the study of the past. Within these areas the faculty offers graduate reading courses and research seminars in the main varieties of political, diplomatic, economic, social and intellectual history. Research in all these fields is facilitated by large library holdings on microfilm, including government publications, state papers, newspapers and very extensive collections of early modern pamphlets and literature. There are 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, medicine, science and technology

(Woodward Library), and East Asia (especially Modern Chinese and Japanese business history). A detailed brochure describing the Department's Ph.D. and M.A. programs is available upon request.

CONTACT INFORMATION

Address:

Department of History
#1297-1873 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-5110
Fax: 604-822-6658
Email: histgrad@interchange.ubc.ca
Website: www.history.ubc.ca

Dr. David Breen, Acting Department Head
Dr. Joy Dixon, Graduate Advisor
Ms. Gloria Lees, Graduate Secretary

HUMAN KINETICS

DOCTOR OF PHILOSOPHY

The program is governed by the general requirements for the Doctor of Philosophy as described by the Faculty of Graduate Studies. In addition, a thesis-based master's degree in human kinetics, physical education, kinesiology, or other related fields of study, along with appropriate undergraduate and graduate courses are normally required for admission. Applicants with an undergraduate degree in a field other than Human Kinetics will be considered for admission, particularly if they have had a strong relationship to Human Kinetics. The student's thesis committee, in accordance with the policy of the Faculty of Graduate Studies, will recommend a program to provide a strong background, appropriate research skills and a specialization in the chosen field of study, and normally set a two-part comprehensive examination after completion of the 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.

MASTER OF SCIENCE, MASTER OF ARTS AND MASTER OF HUMAN KINETICS

The School of Human Kinetics offers opportunities for original investigations (M.A. and M.Sc.) and advanced study (M.H.K.) in basic and applied research in the biological, behavioural, and socio-managerial areas of Human Kinetics. Excellent research and teaching venues are located on campus with support from provincial and national agencies. Resources located within Human Kinetics include a centralized computer facility and Laboratories in Biomechanics, Human Neurophysiology, Human Postural Control, Motor Control and Behaviour, Perceptual-Motor Dynamics, Physiology of Exercise (Allan McGavin Sport Medicine Clinic and Buchanan Aquatic Centre), Leisure Studies, Performance and Instructional Analysis, and a Centre for Sport Analysis.

Students entering the M.A. program will be expected to have a background in arts or management whereas students entering the M.Sc. program will be expected to have a background

in the sciences. Students entering the M.H.K. program must have a Bachelor of Human Kinetics (B.H.K.) or its equivalent. Admission to all master's programs requires a standing of 80% (or above) in at least 12 credits of third- and fourth-year work relevant to the chosen program, and a standing of 76% (or above) in all third- and fourth-year course work.

To qualify for a master's degree, students must complete 30 credits of study arranged in consultation with an assigned supervisor. M.A. or M.Sc. students are required to complete 12 credits of research on a topic determined in consultation with the supervisor and thesis supervisory committee as part of their 30 credits.

CONTACT INFORMATION

Potential master's or doctoral program candidates may contact the Graduate Secretary (hkin-gradsec@interchange.ubc.ca) in the School of Human Kinetics (www.hkin.educ.ubc.ca) for application forms and an information brochure describing the required supporting documentation (i.e. letters of reference, statement of purpose). For further information and an online application for admission to graduate studies, visit the Graduate Studies website (www.grad.ubc.ca).

Address:

School of Human Kinetics
6081 University Boulevard #210
Vancouver, BC V6T 1Z1
Tel: 604-822-2767
Fax: 604-822-6842
Website: www.hkin.educ.ubc.ca

Dr. Peter Crocker, Director, School of Human Kinetics
Dr. Ian Franks, Associate Director, Graduate Programs
Ms. Rochelle de la Giroday, Graduate Secretary

HUMAN NUTRITION

The Division of Human Nutrition of the Faculty of Agricultural Sciences offers opportunities for advanced study and original investigations in basic and applied human nutrition at both the master's and doctoral levels. The curriculum includes course work 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.

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The Human Nutrition Graduate Program offers opportunities for advanced study and research leading to M.Sc. and Ph.D. degrees in both basic and applied human nutrition research. 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.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program does not require a fixed number of courses but appropriate course work 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.

MASTER OF SCIENCE

The Master of Science program requires completion of a minimum of 33 credits, including a 12-credit research thesis and at least 18 credits of course work. 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 candidate's committee may require more than the minimum credits.

For admission with full standing the candidate must hold a bachelor's degree in nutrition, dietetics or foods, life sciences, agricultural sciences, health sciences or a related field, with an overall average of at least 76%. Students entering the M.Sc. program in Human Nutrition are expected to have successfully completed courses in biochemistry, physiology, and advanced nutrition. Students deficient in one of these areas will be required to take the appropriate courses in the first year of the graduate program. Applicants deficient in more than one area will have to complete these courses as unclassified students before they can be considered for admission to the graduate program. Under special circumstances an applicant who has not met all of the requirements may be admitted as a provisional student.

CONTACT INFORMATION

Address:

Faculty of Agricultural Sciences
#270-2357 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Website: www.agsci.ubc.ca/grad

Dr. Jim Thompson, Associate Dean, Research and Graduate Studies
Dr. Susan Barr, Graduate Advisor
Ms. Joyce Tom, Graduate Programs Manager
Ms. Carole Wallace, Program Assistant

HYDROLOGY

Opportunities are available for graduate work in hydrology in a variety of programs. Individual courses pertaining to hydrology are available in Bio-Resource Engineering, Civil Engineering, Geography, Earth and Ocean Sciences, Soil Science, and Forestry. Supervision of advanced work in various aspects of hydrology can be undertaken within these disciplines.

Students seeking admission to the Ph.D.-level Interdisciplinary Hydrology Program should apply directly to the Dean of Graduate Studies. A committee of faculty members knowledgeable in areas of particular interest to the applicant and representing at least three different disciplines will be convened by the co-ordinator of the Interdisciplinary Hydrology Program. Criteria to be used when considering an applicant for the interdisciplinary program will include the appropriateness of undergraduate course background. Courses from the following areas are suggested:

- 1 mathematics, up to and including differential equations (e.g., UBC equivalent is Mathematics 315);
- 2 inferential statistics, (e.g., Statistics 205);
- 3 physics of fluid flow, (e.g., Civil Engineering 215);
- 4 introduction to meteorology and climatology (e.g., Geography 300, 301, 302, 303, Physics 421 or Soil Science 414);
- 5 introduction to surface water hydrology (e.g., Civil Engineering 418, Forestry 385 or Geography 205); and
- 6 introduction to subsurface hydrology (e.g., Geology 342 or Soil Science 413).

At least six credits from the following list of graduate courses are required as part of the Ph.D. program:

- Bio-Resource Engineering 560, 561, 562
- Civil Engineering 546, 551, 554, 556
- Forestry 585, 589
- Geography 502, 503, 504, 509, 526
- Geological Sciences 561, 562, 564, 565, 566
- Oceanography 518, 526
- Soil Science 501, 513, 514, 524, 533

INDUSTRIAL RELATIONS

Graduate study in various aspects of industrial relations may be undertaken in the Departments of Anthropology and Sociology, Economics, History, and Psychology in the Faculty of Arts, and in the Faculty of Law. Prospective students should contact any of the departments or faculties listed above for further information on programs of study.

INTERDISCIPLINARY ONCOLOGY

DOCTOR OF SCIENCE AND MASTER OF SCIENCE

The Faculty of Graduate Studies 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. This provides graduate students from diverse backgrounds with an education in a number of disciplines relating to oncology and intensive training in specialized aspects of oncology through thesis research. The objective is to combine knowledge from multiple disciplines to enhance progress in this complex field of research.

ADMISSIONS

Students who apply for entrance into the MSc program must have completed a BA, BSc, MD or equivalent degrees from recognized institutions. Students who apply for entrance into the PhD program must have completed a BA, BSc, MA, MSc, MD or equivalent degrees from recognized institutions. Students who apply for entrance into either program must also satisfy the general requirements of the Faculty of Graduate Studies of UBC and be accepted by the Interdisciplinary Oncology Program Advisory Committee and research supervisors. The Advisory Committee ensures that students have appropriate backgrounds for graduate studies in the Program whereas research supervisors ensure that students have background for students' specific research topics and satisfy the minimum requirements of the host departments (the departments in which the supervisors reside).

All students entering the Program will enrol in the three core courses, Oncology 501, Oncology 502 and Oncology 510. Students will also take electives chosen from courses offered by other programs at UBC. The electives to be chosen will be determined by the individual student in consultation with the research supervisor and have to be approved by the student's Supervisory Committee. The combination of core and elective courses is designed to provide students with a broad, interdisciplinary perspective on oncology research, while allowing intensive academic training in a student's chosen field of specialization.

For more information please contact the Interdisciplinary Oncology Program office.

CONTACT INFORMATION:

Address:
Interdisciplinary Oncology Program
BC Cancer Research Centre
601 West 10th Avenue
Vancouver, BC V5Z 1L3
Tel: 604-877-6000 ext 3137
Fax: 604-877-6002

Dr. Ralph E. Durand, Program Director
Mr. Wil Cottingham, Graduate Secretary

INTERDISCIPLINARY STUDIES

DOCTOR OF PHILOSOPHY, MASTER OF ARTS AND MASTER OF SCIENCE

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 learning.

In some cases, an interdisciplinary area has been authorized to offer and administer formal degree programs (Advanced Technology Management, Comparative Literature, Genetics, Neuroscience, Occupational and Environmental Hygiene, Resource Management and Environmental Studies). In other cases, students find that degree programs in existing departments or faculties are either inherently interdisciplinary, or flexible enough to accommodate interdisciplinary research projects. A major function of the various centres and institutes of the Faculty of Graduate Studies is to promote interdisciplinary research; the associated inter-departmental or inter-faculty groupings are usually able to guide students in setting up interdisciplinary 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. Research topics in this program have included, for example,

- Japanese Noh Drama (involving the Departments of Asian Studies, Fine Arts, Theatre, Film and Creative Writing and Anthropology and Sociology)
- Problem-solving Dreams (involving the Departments of Counselling Psychology, Psychology, Anthropology and Sociology and the School of Nursing)
- Hearing Impairment and Deviant Behaviour (involving the Departments of Sociology, Educational and Counselling Psychology, and Special Education and Health Care and Epidemiology)
- Cardiorespiratory Physical Therapy (involving the Departments of Physiology and Pathology and Laboratory Medicine, and the Schools of Rehabilitation Sciences and Human Kinetics)
- Information Technology in Factory Automation (involving the Departments of Computer Science, Chemical Engineering, Geography, Sociology and the Faculty of Commerce and Business Administration)
- Modernity in American Fiction and Painting (involving the Departments of English, Fine Arts and Anthropology and Sociology)
- The Consumer Society and Political Culture (involving the Departments of Political Science, Anthropology and Sociology, the Faculty of Commerce and Business Administration and the School of Human Kinetics).

CONTACT INFORMATION

Application for admission to the Individual Interdisciplinary Studies Graduate Program requires, in addition to the usual transcripts and letters of reference, submission of a ten-page description of research project, and the support of a cross-departmental group of UBC faculty. Full details of the process, including

brochures giving step-by-step procedures, are available from the Graduate Program Assistant.

Address:

Individual Interdisciplinary Studies Graduate Program

6201 Cecil Green Park Road

Vancouver, BC V6T 1Z1

Tel: 604-822-0954

Fax: 604-822-8742

Email: iisgp@interchange.ubc.ca

Website: www.iisgp.ubc.ca

Dr. Rhodri Windsor-Liscombe, Acting Chair

Ms. Janis Hanen, Graduate Program Assistant

ITALIAN

See *Hispanic and Italian Studies*, p. 239.

JOURNALISM

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 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. Emphasis will be 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.

The School is housed in a new building with seminar and work rooms, 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.

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 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. 8 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 8 or 12 months away from regular employment.

CONTACT INFORMATION

For more information, please visit The School of Journalism's website (www.journalism.ubc.ca) and our online magazine *The Thunderbird* (www.journalism.ubc.ca/thunderbird.html).

Address:

School of Journalism

6388 Crescent Road

Vancouver, BC V6T 1Z2

Tel: 604-822-6688

Fax: 604-822-6707

Website: www.journalism.ubc.ca

Prof. Donna Logan, Director

Ms. Sim Lee, Graduate Secretary

Mr. Barry Warne, Department Secretary

LANDSCAPE ARCHITECTURE

MASTER OF LANDSCAPE ARCHITECTURE

Landscape Architecture is concerned with the design, planning and management of the land. It revolves around 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 inter-disciplinary knowledge and co-operation. 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.

The Master of Landscape Architecture (M.L.A.) degree is designed for candidates seeking admission to the profession. It is of three year's duration for students in full-time

attendance during the Winter Session. Students with a UBC-recognized undergraduate degree in Architecture, Environmental Design, or Landscape Architecture may apply for admission to a two-year variant of the professional MLA Program. This variant includes 72 credits of coursework, comprised of the final two years of MLA 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

A candidate 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 in and potential in the broad fields of environment, the creative arts, and landscape architecture.

Students are accepted into the three-year MLA from all disciplines; applicants seeking admission into the two-year MLA variant must be in possession of a four-year undergraduate degree in Architecture, Environmental Design or Landscape Architecture. Certain students may be expected to fulfil additional requirements in order to adequately prepare them for their design and environmental studies. 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 biology, ecology, economics, geography, forestry, fine arts, history, sociology, and soils. It is desirable that students have completed courses in biology, drawing, English literature and composition, plant identification-classification, quantitative and qualitative research methods, and soils.

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. For additional information on the profession and guidance in the preparation for entry to the master's program students are advised to contact the Landscape Architecture Program Office. Prospective students are further encouraged to establish contact with the program during their pre-landscape architectural years by arranging to meet with faculty, by attendance at presentations of student work, and by informal contacts with students, recent graduates, and professionals.

Application for admission must be made to Student Services, Faculty of Agricultural Sciences on appropriate forms. Some applicants who meet UBC admission requirements may not be acceptable to the Landscape Architecture program because of limitations in the

number of available places. Approximately 18 students will be selected each year. All admissions must be approved by the Faculty of Graduate Studies. Students accepted for admission who subsequently find that they are unable to attend must reapply if seeking admission at a later date. Unsuccessful applicants should seek the advice of the program before submitting a new application.

For additional information and application forms candidates should contact Student Services, Faculty of Agricultural Sciences. See *Contact Information*, below.

COURSE OF STUDY

The master's degree is awarded upon the satisfactory completion of 109 credits of course work, including a major design project. Those students who wish to develop a strong specialization may satisfy a significant portion (up to 15 credits) of this requirement through courses in other departments. Detailed information on specific, yearly course requirements are available through the program office. The basic program is as follows:

A grade of 70% will be required as a passing grade in all design studio courses in the Landscape Architecture Program. These courses are LARC 501, 502, 503, 504, 505, 598.

MASTER OF LANDSCAPE ARCHITECTURE

First Year

| | |
|---------------|----|
| LARC 421 | 3 |
| LARC 422 | 3 |
| LARC 501 | 9 |
| LARC 502 | 9 |
| LARC 511 | 1 |
| LARC 531 | 3 |
| LARC 535 | 3 |
| LARC 540 | 3 |
| LARC 316 | 3 |
| Total Credits | 37 |

Second Year

| | |
|---------------|----|
| LARC 503 | 9 |
| LARC 504 | 9 |
| LARC 520 | 3 |
| LARC 532 | 3 |
| LARC 541 | 3 |
| LARC 542 | 3 |
| Electives | 6 |
| Total Credits | 36 |

Third Year

| | |
|---------------|----|
| LARC 505 | 9 |
| LARC 525 | 3 |
| LARC 533 | 3 |
| LARC 551 | 3 |
| LARC 598 | 12 |
| Electives | 6 |
| Total Credits | 36 |

MASTER OF ADVANCED STUDIES IN LANDSCAPE ARCHITECTURE

To fulfil the requirements of the Master of Advanced Studies in Landscape Architecture (M.A.S.L.A.), the student must complete a 31-credit program. Part-time study is allowed with the approval of the Landscape Architecture Graduate Program Committee. Full-time students normally complete this program within two academic years.

The program provides students, in possession of a four-year bachelor's degree in a design discipline, an opportunity to examine and research specific issues relating to landscape, place and environment. Please note that this post-professional program is not intended to fulfil 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

Candidates for admission to the M.A.S.L.A. program must be in possession of a four-year bachelor's degree in a design discipline and also have some experience in a design practice. All candidates must also meet the basic academic requirements of the Faculty of Graduate Studies as outlined in this chapter. In addition to sealed academic transcripts, candidates must submit three letters of reference, a design portfolio, and a statement of research interests and intentions. Foreign students must submit a TOEFL score of at least 560. For additional information and application forms candidates should contact Student Services, Faculty of Agricultural Sciences. See *Contact Information*, below.

COURSE OF STUDY

This program allows the student to investigate an area of knowledge within the broad field of landscape architecture in collaboration with faculty who may be engaged in research or consulting activity in that area. In the research project the student is expected to synthesize existing knowledge in landscape architecture and related fields to produce a new understanding in the field. This synthesis may result in a creative work and/or written report. The course of study is comprised of LARC 500 (1); Landscape Architecture Seminar; LARC 520 (3); Theories of Experience and Place; LARC 541 (3); Landscape Planning and Management; LARC 599 (12); Master's Thesis; 500-level electives (6); and, 300-level and above electives (6). At least one of the elective courses must focus on design-research methodologies.

Entering students will be required to work out a course of study with an advisor for approval by the Graduate Studies Program Committee using the guidelines provided. Make-up courses may be required beyond the total number of units normally prescribed for the degree, particularly for candidates from design disciplines other than landscape architecture. At least one quantitative or qualitative research methods course is a prerequisite for all applicants.

AREA OF STUDY

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.

BACHELOR OF ENVIRONMENTAL DESIGN

The Bachelor of Environmental Design (ENDS) Program is a 4 year, non-professional degree offered jointly by the Landscape Architecture Program in the Faculty of Agricultural Sciences and the School of 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, or for those who wish to have a greater understanding of the role of design in the broad environmental decision-making processes of society.

For detailed Program and Admission information, interested students are encouraged to contact the ENDS Program Office directly at ends@interchange.ubc.ca or telephone 604-822-6916. Information regarding the ENDS Program is available at www.ends.arch.ubc.ca and www.ends.agsci.ubc.ca. For further information see the Faculty of Agricultural Sciences or the School of Architecture in the Faculty of Applied Science.

Contact the Program Office directly at ends@interchange.ubc.ca or telephone 604-822-6916.

As well as making application to the Landscape Architecture program, application for admission must be made simultaneously to the Faculty of Graduate Studies. The deadline for submitting the complete application is February 15. Late applications will be considered as long as spaces remain available in either the M.L.A. or M.A.S.L.A. incoming class.

Those whose native language is not English and whose previous degree was not earned in an English-speaking university accepted by the Faculty of Graduate Studies are required to complete the Test of English as a Foreign Language, given four times annually in most major cities. A minimum score of 560 is required. For further information write: TOEFL, Box 899, Princeton, NJ, 08540.

CONTACT INFORMATION

Address:
Faculty of Agricultural Sciences
#270-2357 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400
Website: www.agsci.ubc.ca/
landscape_architecture

Dr. Jim Thompson, Associate Dean, Research and Graduate Studies

Prof. Susan Herrington, Graduate Advisor, Master of Landscape Architecture Program

Prof. Patrick Mooney, Graduate Advisor, Master of Advanced Studies in Landscape Architecture Program

Ms. Joyce Tom, Graduate Programs Manager
Ms. Carole Wallace, Program Assistant

LANGUAGE AND LITERACY EDUCATION

DOCTOR OF PHILOSOPHY, MASTER OF ARTS AND MASTER OF EDUCATION

The Department of Language and Literacy Education offers programs and courses leading to the Master of Education and Master of Arts under the heading of Language and Literacy Education (LLED), which incorporates those listed previously under English Education (ENED), Teaching English as a Second Language (TESL), Reading Education (READ), Language Education (LANE), and Modern Language Education (MLED). The Department also offers programs of study leading to the Master of Education and Master of Arts under the heading of Teacher Librarianship (LIBE). The Department offers a Ph.D. in Language and Literacy Education with a focus in the Department's areas of specialization.

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:

- English as a Second Language (TESL)—TESL methods, applied linguistics, UBC/Ritsumeikan Joint Academic Exchange Program
- Literacy Education (LITR)—composition, early literacy, developmental reading, clinical methods, content areas, drama, adult literacy, family literacy, literature, oral language, poetry
- Teacher Librarianship (LIBE)—co-operative 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.

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 in the Department's *Handbook On Graduate Admissions, Program Planning and Supervision*, which is available upon request, or on the LLED website (www.lled.educ.ubc.ca). While part-time students are accepted, preference is given to full-time students in M.A. and doctoral programs. 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, and a Language Education Research Centre, in Ponderosa Annex F, with multi media facilities, special book collections, and language and literacy education curriculum materials. Video production facilities are also available for faculty and graduate students.

Please refer to *Education*, p. 231 under Faculty of Graduate Studies, Programs, for information on general admission requirements.

CONTACT INFORMATION

For further information, please contact the Graduate Programs Assistant.

Address:
Department of Language and Literacy Education
2125 Main Mall
Vancouver, BC, V6T 1Z4
Tel: 604-822-5788
Fax: 604-822-3154
Website: www.lled.educ.ubc.ca

Dr. Lee Gunderson, Department Head
Dr. James Anderson, Graduate Academic Advisor
Ms. Anne Eastham, Graduate Programs Assistant

LATIN

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

Normally, the Ph.D. thesis will be written on a Latin subject and the degree will be taken in Classics.

See *Classical, Near Eastern and Religious Studies*, p. 227.

LAW

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.) or equivalent. Through the program, highly accomplished graduate students will be trained to carry out advanced research under supervision by members of the Faculty of Law.

ADMISSION

Admission to the doctoral program requires a first degree in Law as well as an LL.M. 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. In exceptional circumstances, applicants who do not meet these requirements but who, in the opinion of the Faculty of Law Graduate Committee, possess qualifications appropriate for admission to the doctoral program may be considered for provisional acceptance dependent upon successful completion of one or more Law courses prior to formal acceptance. Each applicant must nominate two alternates from the Faculty of Law to serve as supervisor. For information concerning the

research interest of faculty members, contact the Faculty of Law Dean's Office or visit the Faculty of Law website (www.law.ubc.ca).

Each applicant must also submit a preliminary thesis proposal acceptable to the Faculty of Law Graduate Committee and to the supervisor requested by the applicant. The proposal should be not more than five pages in length and should include a preliminary bibliography. Successful proposals will offer a significant prospect of resulting in an original work of research and analysis that makes a scholarly contribution to the study of law.

Three letters of reference and original university academic transcripts are also required. Applicants must arrange for final official transcripts to be sent directly to the graduate program administrator by each university (including UBC) together with certified English translations (also sent by the home university) of documents that are written in neither English nor French. International applicants who are graduates of universities in all countries except Australia, Canada, the Republic of Ireland, Kenya, New Zealand, the United Kingdom, the United States, and the West Indies are required to submit satisfactory Test of English as a Foreign Language (TOEFL) and Test of Written English (TWE) scores before any offer of admission can be made. The minimum TOEFL and TWE scores for admission to the doctoral program are 250 under the computerized tests and 600 and a TWE of 5.5 respectively for the paper tests. The scores must be sent by the TOEFL head office directly to the attention of the graduate program administrator in the Faculty of Law. TOEFL and TWE requirements may be waived if the applicant has already passed the GCE A-level English examination with a minimum 'B' standing or has a degree from an English language university. Admissions will be subject to the same minimum standards as for other Ph.D. programs as set forth in this chapter.

APPLICATION DEADLINES

Application for admission to the LL.M. program can be made by writing to the graduate program administrator or by email (graduates@law.ubc.ca). The deadlines for application are April 30 for Canadian and US applicants and March 31 for international applicants. Applicants who wish to be considered for financial assistance should apply as early as possible. Admissions decisions are made on a rolling basis, and it is in the interest of each applicant to submit his or her materials early.

CURRICULUM

The program consists of a one-year, two-part seminar (four credits), with the balance of each student's time being devoted to preparing a doctoral thesis. Graduation from the program will require completion of the doctoral seminar, successful completion of a three-part comprehensive examination, completion of a doctoral thesis approved by a thesis reading committee and successful completion of a final oral examination. Doctoral students must normally be in full-time residence at the Faculty of Law

for a minimum of two academic years. Students must complete all requirements for the Ph.D. within six years of the date of the first registration in the program. Each student will have a faculty supervisor from the Faculty of Law. The selection of faculty supervisors will be administered by the Faculty of Law Graduate Committee, subject to the approval of the Dean of the Faculty of Law and the Dean of the Faculty of Graduate Studies.

Courses required for the Ph.D. include the following:

- 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, the new legal history and other jurisprudential discourses.
- LAW 611 (2), Doctoral Seminar II: Comparative and Interdisciplinary Perspectives on Legal Theory. This seminar will address issues of legal theory in interdisciplinary and comparative perspective. Discussion will focus on the applicability of legal concepts in different cultures and societies, and the consequences for the form and structure of law. In addition, discussion will address the applicability of concepts drawn from fields outside of law to legal research and scholarship.
- LAW 649, Doctoral Thesis.

COMPREHENSIVE EXAMINATION

Each doctoral student must complete a comprehensive examination set by an examination committee comprised of the student's faculty supervisor and two other examiners selected by the supervisor in consultation with the student. The contents of the examination will be determined by the examination committee subject to the requirements of the Faculty of Law Graduate Committee and the Faculty of Graduate Studies. The comprehensive examination is in addition to any course examinations, and is intended to test the student's understanding of the chosen field of study as a whole and the student's preparation for the thesis research to follow. The comprehensive examination is usually taken upon completion of the student's required course work and prior to submission and approval of the student's final thesis proposal. Subject to the general procedures of the Faculty of Graduate Studies, the Faculty of Law adopts the following policies for Ph.D. comprehensive examinations:

- 1 The comprehensive examination will consist of three parts that will examine the scholarly literature in the following areas respectively:
 - (A) theoretical perspectives on legal studies;
 - (B) a substantive area (or areas) of legal studies within which the doctoral student's research will lie; and
 - (C) a topic selected by the student.
- 2 Each of the three topics will be set by an individual member (the examiner) of the Faculty of Law approved by the Dean of

Law on advice from the Graduate Committee. The three examiners setting the comprehensive examination shall comprise the student's examination committee.

- 3 Prior to sitting for the comprehensive examination, the student shall meet with her or his examination committee to discuss the reading list and general expectations pertaining to the examination.
- 4 The examination will be open-book and each part may follow either a 'take-home' or 'in-class' format as determined by the examiner through consultation with the student. With regard to any part of the examination that is 'take-home', the time period between the student's pick-up of the examination question(s) and submission of the completed response(s) shall not be more than three days. With regard to any part of the examination that is 'in-class', the time period permitted for completing the examination shall reflect the fact that it uses the 'take-home' or 'in-class' format. The responses to each part of the examination must be typed or written. After completion of the written portion of the examination, an oral examination of the student shall be conducted by the examination committee. The oral examination is expected to last approximately two hours, although it may be shorter or longer as circumstances warrant.
- 5 The comprehensive examination, including the oral examination, should ordinarily be completed not more than four weeks after the date the student receives the first examination question.
- 6 Comprehensive examinations shall be graded as follows:
 - (A) Fail. A completed examination which fails to demonstrate a basic knowledge of the core literature relevant to the subject of the examination, as discussed between the student and the examiner in advance shall receive a mark of 'Fail'. At the discretion of the examination committee, a student who receives a mark of 'Fail' may be permitted to re-take the examination.
 - (B) Pass. A completed examination which demonstrates a basic knowledge of the core literature relevant to the subject of the examination, as discussed between the student and the examiner in advance shall receive a mark of 'Pass'.
 - (C) Passed with Distinction. A completed examination which demonstrates, in addition to a basic knowledge of the core literature relevant to the subject of the examination as discussed between the student and the examiner in advance, an analysis of the core literature involving synthesis and critique as well as a marked familiarity with peripheral literature relevant to the subject of the examination shall receive a mark of 'Passed with Distinction'.

DOCTORAL THESIS

Each student in the doctoral program is required to complete a substantial dissertation.

A final thesis proposal must be approved by the student's supervisory committee. The proposal is normally submitted after completion of the comprehensive examination (see *Program of Study*, p. 214 under the Faculty of Graduate Studies, Academic Regulations). The purpose of the proposal is to establish that the planned course of dissertation research can reasonably be expected to lead to a dissertation that is an original work of research and analysis that makes a scholarly contribution to a field of law. This requires a literature review, a discussion of the proposed original contribution to knowledge in the context of the literature review, and a discussion of methodology used. The student's thesis will be subject to reading by a thesis committee comprised of the student's faculty supervisor, not less than two other members from the Faculty of Law and a member of another faculty who is also a holder of a doctoral degree. The selection of the thesis committee shall be decided by the student in conjunction with the faculty supervisor, and subject to the approval of the Faculty of Law Graduate Committee. An external examiner shall read and comment on each doctoral thesis pursuant to the procedures currently in force under the Faculty of Graduate Studies for Ph.D. theses.

FINAL EXAMINATION

The final stage of examination for the Ph.D. consists of an oral defence of the doctoral thesis conducted in accordance with the procedures currently in force for examination of doctoral theses under the Faculty of Graduate Studies.

MASTER OF LAWS

The LL.M. program prepares graduates for opportunities in law teaching, legal research, policy development, public and governmental services and the practice of law. It does not, however, of itself give entry to the Bar of British Columbia or any other certification for practice. The program attracts a large number of candidates with foreign common and civil law training, as well as those with an LL.B. or J.D. from Canada or the United States.

The program is of one year's duration, and combines course work with preparation of a thesis of acceptable quality. Students are required to complete successfully 36 credits of work; 20 credits of which are allocated to the thesis, 12 to course work (usually comprising four one-term courses or seminars), and four to the required master's seminar.

ADMISSION

To be eligible for admission to the LL.M. program, a candidate must have a Bachelor of Laws or its equivalent from an approved university. In addition, all applicants must meet the Faculty of Graduate Studies' minimum academic standards for admission. For example, North American applicants must possess an LL.B. (with honours) with standing in the 'A' range (80% at UBC) in at least 12 credits of course work or a minimum overall average in the 'B+' range (76% at UBC) in all

courses taken during the final two years of the program. For international students, minimum academic standards for admission can be found on the inside page of the application form. External or correspondence degrees are not eligible for consideration.

Applicants must arrange for final official transcripts to be sent directly to the graduate program administrator by each university (including UBC) together with certified English translations (also sent by the home University) of documents that are written in neither English nor French. Applicants who have a bachelor's degree (or equivalent) which does not meet the above requirements but who have had sufficient formal training and relevant professional experience in law to offset such deficiencies, may be granted admission on recommendation of the faculty and approval of the Dean of Graduate Studies. Applicants must also arrange for three referees each to furnish a confidential report on the applicant on the forms provided with the application materials. References must be sent in a sealed envelope with the referee's signature on the seal.

Each candidate for admission should review the list of faculty members in order to select a first and second choice for thesis supervisor. Information about faculty members is available from the Faculty of Law Dean's Office and on the Faculty of Law website (www.law.ubc.ca). The Graduate Admissions Committee places strong emphasis on the assessments of requested supervisors. The committee may, however, assign qualified applicants to the supervision of faculty members other than those named as first or second choice.

Unlike many North American LL.M. programs, the Master of Laws at the University of British Columbia is intense and thesis-driven. Accordingly, the Graduate Admissions Committee gives considerable weight to its review of the applicant's thesis proposal. This carefully developed document should identify a specific research topic, explain its importance and describe briefly the research methods and materials to be used. While thesis proposals often undergo later revision, each applicant to the program should consider the proposed topic carefully and describe it as fully and completely as possible. Thesis proposals should not exceed two pages.

Students must demonstrate clear evidence of competency to pursue studies in the English language. International applicants who are graduates of universities in all countries except Australia, Canada, the Republic of Ireland, Kenya, New Zealand, the United Kingdom, the United States, and the West Indies are required to submit satisfactory Test of English as a Foreign Language (TOEFL) and Test of Written English (TWE) scores before any offer of admission can be made. The minimum TOEFL and TWE scores for admission to the master's program in Law are 250 under the computerized tests and 600 and a TWE of 5.5 respectively for the paper tests. The scores must be sent by the TOEFL head office directly to the graduate program administrator in the Faculty

of Law. The TOEFL and TWE requirement may be waived if the applicant has already passed the GCE A-level English examination with at least a 'B' standing or has a degree from an English language university.

APPLICATION DEADLINES

Application for admission to the LL.M. program can be made by writing to the graduate program administrator or by email (graduates@law.ubc.ca). Deadlines for applications are April 30 for Canadian and US applicants and March 31 for international applicants. Applicants who wish to be considered for financial assistance should apply as soon as possible. Admissions decisions are made on a rolling basis, and it is in the interest of each applicant to submit his or her materials early.

CURRICULUM

Completion of the Master of Laws requires full-time continuous residence at the University for one academic year. Students must complete all requirements for the degree within five years of entry into the program.

A candidate must obtain an overall average of at least 70% on all work, with not more than one mark falling below 70% and no mark below 68%. The curriculum is arranged as follows:

- LAW 500 (4), Master's Seminar: Concepts and Methodology in the Study of Law. This seminar occurs every week during the two winter terms and is related to current legal issues regarding methodology and perspectives. Guest speakers participate during the first term and students are required to deliver class presentations on their thesis topics during the second term.
- Course work (12). Courses operate either on a lecture basis or as seminars for smaller groups. The usual method of assessment in lecture courses is by single examination at the end of the course. Seminars are assessed by means of research papers. All courses are conducted in English. A candidate may be allowed to select courses in other faculties, but the major part of the program must be undertaken in the Faculty of Law.
- LAW 549 (20), Master's Thesis.

MASTER'S THESIS

Students must complete a thesis of satisfactory quality, prepared under the direction of a member of the Faculty of Law. The thesis must be a substantial piece of research, written in English, of publishable quality.

ORAL EXAMINATION

An oral examination may be required at the discretion of the Faculty of Law.

TIME LIMITS

Under general university regulations, a student must complete the masters program within five years of initial registration. The Faculty of Law expects students to complete the LL.M. well before the expiration of this final deadline. Students require permission from the Faculty of Law Graduate Admissions Committee in order to register for a second or subsequent year in the Master of Laws program.

INTERDISCIPLINARY DEGREES

The University offers interdisciplinary master's (M.A.) and doctoral (Ph.D.) programs in the Individual Interdisciplinary Studies graduate program. Further information on this program is available from the Individual Interdisciplinary Studies Graduate Program (iisgp@mercury.ubc.ca), The University of British Columbia, 6201 Cecil Green Park Road, Vancouver, BC, V6T 1Z1; telephone 604-822-0954, fax 604-822-8742. More information can also be obtained on the Graduate Studies website (www.grad.ubc.ca).

LL.B./M.B.A. COMBINED PROGRAM

See *LL.B./M.B.A. Combined Program*, p. 227 under Faculty of Graduate Studies, Commerce and Business Administration.

LLB/M.A. IN ASIA PACIFIC POLICY STUDIES, COMBINED DEGREE

SUMMARY

This degree program permits students to obtain the degrees of LLB and M.A. in Asia Pacific Policy Studies (MAPPS) through combined enrolment in the Faculty of Law and the Institute of Asian Research.

ADMISSION

Students wishing to pursue the combined LLB/MAPPS degree program must be admitted separately to the Faculty of Law for the LLB degree and the Institute of Asian Research for the MAPPS 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 MAPPS 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 is administered by a Program Committee comprised of a representative from the Faculty of Law designated by the Dean of Law and a representative from the Institute of Asian Research 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 LLB and MAPPS programs, subject to the following adjustments:

- 1 Students enrolled in the combined degree program who complete the MAPPS Core Course (IAR 500) required for the MAPPS degree will receive six credits toward completion of their LLB degree, which will be counted as the maximum 6 credits of non-Law courses permitted under the LLB course requirements.

- 2 Students enrolled in the combined degree program who complete 6 credits of Law Faculty course work acceptable to their respective LLB and MAPPS program supervisors will receive credit for these courses toward both the LLB and MAPPS 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

MODEL CURRICULUM SCHEDULE
Normally the curriculum schedule is as follows:

Year One (September–April)

Students complete required first year LLB curriculum 32 credits

Year Two (September–April)

Students complete MAPPS Core Course (IAR 500) 6 credits

Students complete required second year courses for LLB 22 credits

Students begin completion of elective requirements for MAPPS 6 credits

Year Two (April–September)

Students complete Thesis or Practicum requirements for MAPPS 12 credits

Year Three (September–April)

Students complete remaining elective course requirements for LLB (28 credits) and MAPPS (6 credits)

Total Credits 116 (LLB 86// MAPPS 30)

CONFERRING OF DEGREES

The MAPPS and LLB 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 MAPPS or the LLB 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

Address:
Graduate Program, Faculty of Law
1822 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-6449
Fax: 604-822-8108
Website: www.law.ubc.ca
Prof. Robert Paterson, Graduate Advisor
Ms. Darline Beck, Graduate Secretary

LIBRARY AND INFORMATION STUDIES

MASTER OF LIBRARY AND INFORMATION STUDIES

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 but also an enthusiasm

for information and its uses in the wider sense. The program, accredited by the American Library Association, is one of some fifty 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; many are self-employed.

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. Students may begin the program in either September, January, or May. 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.

JOINT MASTER OF ARCHIVAL STUDIES/ MASTER OF LIBRARY AND INFORMATION STUDIES DEGREE PROGRAM

The Joint Degree Program is designed to allow students to earn both an M.A.S. and an M.L.I.S. For further information, see *Joint M.A.S./M.L.I.S.*, p. 290 under the School of Library, Archival and Information Studies, or contact the School of Library, Archival and Information Studies.

DOCTOR OF PHILOSOPHY IN LIBRARY, ARCHIVAL AND INFORMATION STUDIES

The School of Library, Archival and Information Studies offers a Ph.D. program. Students may orient their coursework and dissertation to specialize in library and information studies. For details on admission and program requirements, see the section on the doctoral program under the *School of Library, Archival and Information Studies*, p. 291, or contact the School.

CONTACT INFORMATION

Address:
School of Library, Archival and Information Studies
831-1956 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-2404
Fax: 604-822-6006
Email: slais.admission@ubc.ca
Website: www.slais.ubc.ca
Dr. Terry Eastwood, Acting Director and Graduate Advisor
Ms. Rita Amezcua, Admissions Secretary

LINGUISTICS

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The Department of Linguistics offers opportunities for advanced study in Linguistics leading to the Doctor of Philosophy and Master of Arts. The M.A. in Linguistics may be taken with or without a thesis in accordance with the general regulations. The areas of research in which students may be accepted for the Ph.D. include phonetics, syntax, semantics, historical and comparative linguistics, First Nations languages, African languages, psycholinguistics, and first language acquisition. Course work for all graduate students is planned on the basis of individual requirements and research projects. Appropriate interdisciplinary programs may be arranged.

CONTACT INFORMATION

More detailed information may be obtained from the Department or from the Department of Linguistics website (www.arts.ubc.ca/ling).

Address:

Department of Linguistics
E270, 1866 Main Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-4256
Fax: 604-822-9687
Website: www.arts.ubc.ca/ling
Dr. Joseph Stemberger, Acting Head
Dr. Henry Davis, Graduate Advisor
Ms. Edna Dharmaratne, Graduate Secretary

MATERIALS AND PROCESS ENGINEERING

MASTER OF APPLIED SCIENCE, MASTER OF SCIENCE, DOCTOR OF PHILOSOPHY

Research towards an M.A.Sc., M.Sc. or Ph.D. in materials-related areas as well as in collaboration between different disciplines is promoted and supported by the Advanced Materials and Process Engineering Laboratory (AMPEL). (See *Advanced Materials and Process Engineering Laboratory*, p. 75 in the chapter Research Units.) Although everyone in this facility is also affiliated with one or more departments, AMPEL supports their work with a well-equipped facility that fosters interdisciplinary research in materials science and engineering.

To add a significant interdisciplinary content to their studies, students are encouraged to take about one third of the credits of course work and have a member of the supervisory committee from an appropriate department different from that in which the candidate is enrolled.

Currently, research programs are offered in the following areas: electronic and photonic materials, microfabrication, surface science, composites, Ti and Ni superalloys, materials processing, ceramics, superconductivity and magnetism.

CONTACT INFORMATION

Address:

Advanced Materials and Process
Engineering Laboratory
2355 East Mall

Vancouver, BC V6T 1Z4

Tel: 604-822-4543

Fax: 604 822-4750

Email: ampelsec@physics.ubc.ca

Website: www.science.ubc.ca/~ampel/

Dr. George Sawatzky, Director

Ms. Elizabeth Fitzgerald, Administrator

MATHEMATICS

DOCTOR OF PHILOSOPHY, MASTER OF SCIENCE AND MASTER OF ARTS

The Department of Mathematics offers programs of study in most branches of pure and applied mathematics. Students should see the Mathematics website (www.math.ubc.ca) for descriptions of courses and of programs as well as information on financial aid and application forms. Students particularly interested in applied mathematics and/or statistics should also see *Applied Mathematics*, p. 220 and *Statistics*, p. 259.

CONTACT INFORMATION

Address:

Department of Mathematics
121-1984 Mathematics Road
Vancouver, BC V6T 1Z2

Tel: 604-822-3079

Fax: 604-822-6074

Website: www.math.ubc.ca

Dr. Brian Marcus, Department Head

Dr. Mike Bennett, Graduate Advisor

Ms. Lee Tran, Acting Graduate Secretary (leave replacement)

M.D./PH.D. (COMBINED PROGRAM)

DOCTOR OF MEDICINE COMBINED WITH DOCTOR OF PHILOSOPHY

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.

ADMISSION

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.

REQUIREMENTS

Students must demonstrate proficiency in all required course work 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.

APPLICATION

Applications should be submitted to the M.D./Ph.D. program Office, at the same time that applications are made to the regular four-year medicine program. Shortlisted candidates will be interviewed separately and independently by an M.D./Ph.D. Committee following initial screening by the Faculty of Medicine Admissions Committee.

FINANCIAL ASSISTANCE

Students in the M.D./Ph.D. program are expected to apply to granting agencies and the UBC Graduate Fellowship awards upon admission. In addition, a limited number of CIHR M.D./Ph.D. studentship awards are available each year on a competitive basis.

CONTACT INFORMATION

Address:

UBC MD/PhD Program
D452-Heather Pavilion East
2733 Heather Street

Vancouver, BC V5Z 3J5

Tel: 604-875-5063

Fax: 604-875-4013

Email: ubcmdphd@interchange.ubc.ca

Web: www.med.ubc.ca/mdphd

Dr. Anthony Chow, Program Director

Dr. Lynn Raymond, Program Co-Director

Ms. Jane Lee, Program Co-ordinator

MECHANICAL ENGINEERING

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 and applied statistics; and naval architecture. A brochure describing current projects is available on request. 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

Courses section of the Calendar (students.ubc.ca/calendar/courses.cfm) are offered every year.

DOCTOR OF PHILOSOPHY

The Ph.D. is an advanced graduate-level study degree which 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 ENGINEERING

The Master of Engineering (M.Eng.) is a study program suited to students who wish to pursue their mechanical engineering education beyond the undergraduate level, but who do not wish to pursue a thesis research program.

Requirements for the M.Eng. include satisfactory completion of 30 credits of courses, 24 of which must be for courses numbered 500 and above, a report, and a comprehensive examination. A typical completion time for the M.Eng. program is 12 to 18 months. Financial aid is generally not available to M.Eng. students. The M.Eng. is not recommended as preparation for the Doctor of Philosophy program. 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.

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 course work 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.

COMBINED B.A.SC./M.ENG OR M.A.S.C. IN ELECTRO-MECHANICAL DESIGN ENGINEERING

This is a special interdisciplinary Master of Engineering (M.Eng.) program with core courses selected from the Departments of Mechanical Engineering and Electrical and Computer Engineering. The students are selected from the regular mechanical engineering program in their second year. The

candidates must have high academic standing, design and communication skills. After completing interdisciplinary undergraduate course requirements in the first four years, they have to complete graduate courses, and graduate level electronic and mechanical design projects solicited from industry. The students receive both a Bachelor of Applied Science (B.A.Sc.) and a Master of Engineering (M.Eng.) simultaneously upon the completion of the credit requirements.

It is also possible to switch the Master of Engineering portion to a Master of Applied Science (M.A.Sc.) through an application in fourth year. To satisfy the Master of Applied Science requirements, students must complete a Master's thesis following the regulations outlined above. Normally, a Master's thesis takes two years to complete. The program provides interdisciplinary education in mechanical engineering, machine design, digital and analogue instrumentation, and software engineering fields.

CONTACT INFORMATION

Address:
Department of Mechanical Engineering
2324 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4350
Fax: 604-822-2403
Website: www.mech.ubc.ca

Dr. Nimal Rajapakse, Department Head
Dr. Farrokh Sassani, Graduate Advisor
Ms. Lanna Lok, Graduate Secretary

MEDICAL GENETICS

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The Department of Medical Genetics offers advanced study and research leading to the Doctor of Philosophy and Master of Science degrees 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. Required courses for both PhD and MSc students include MEDG 520 and 530, normally MEDG 540, 545 and 548, and at least three additional credits in approved elective courses. In addition, PhD students must successfully complete a comprehensive examination and MEDG 649 (thesis). MSc students must successfully complete MEDG 549 (thesis).

Students admitted to the program will normally have an undergraduate degree in science, including introductory courses in genetics, biochemistry, and statistics.

CONTACT INFORMATION

Address:
Room 300H-6174 University Boulevard
Vancouver, BC V6T 1Z3
Tel: 604-822-5312
Fax: 604-822-5348
Website: www.medgen.ubc.ca

Dr. Robert McMaster, Department Head
Dr. Carolyn Brown, Graduate Advisor
Ms. Cheryl Bishop, Graduate Secretary

METALS AND MATERIALS ENGINEERING

The Department of Metals and 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.

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 metals and 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.).

MASTER OF ENGINEERING

The Master of Engineering (M.Eng.) is intended primarily for graduates in applied science who may wish to extend their knowledge after a period of engineering practice following graduation. Prerequisites are similar to those for the M.A.Sc. Work experience may be taken into account.

CONTACT INFORMATION

Address:
Metals and Materials Engineering Department
309-6350 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-4878
Fax: 604-822-3619
Website: www.mmat.ubc.ca

Dr. Steve L. Cockcroft (steve@cmpe.ubc.ca),
Department Head
Dr. Tom Troczynski
(troczy@interchange.ubc.ca), Graduate
Advisor
Dr. Mary A. Wells (mary@cmpe.ubc.ca),
Graduate Advisor
Ms. Nancy Oikawa (gradsec@mmat.ubc.ca),
Graduate Secretary

MICROBIOLOGY AND IMMUNOLOGY

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.

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 nine 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

Address:
Department of Microbiology & Immunology
300-6174 University Boulevard
Vancouver, BC V6T 1Z3
Tel: 604-822-3615
Fax: 604-822-6041
Website: www.microbiology.ubc.ca
Dr. Gerry Weeks, Department Head
Dr. Mike Gold, Graduate Advisor

Ms. Shelley Small, Graduate Program
Coordinator

MINING ENGINEERING

The Department of Mining and Mineral Process 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.

DOCTOR OF PHILOSOPHY

The Doctor of Philosophy program combines course work 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 Department and interested applicants should contact the Department 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 course work and requires a total of 30 credits. A research thesis is assigned between six to 12 credits by the head of the Department in consultation with the research supervisor.

MASTER OF ENGINEERING

The Master of Engineering (M.Eng.) program is a course work master's program normally intended for engineers having at least one year of industrial experience who wish to upgrade their skills or develop new expertise in a particular specialized subject area. A total of 30 credits of course work are required, 24 of which must be 500-level graduate courses. Part-time and full-time study options are offered.

CONTACT INFORMATION

Address:
Department of Mining Engineering
Room 517- 6350 Stores Road

Vancouver, BC V6T 1Z4
Tel: 604-822-2540
Fax: 604-822-5599
Website: www.mining.ubc.ca

Dr. Malcolm J. Scoble, Department Head
Dr. Bern Klein, Graduate Advisor
Ms. Maria Lui, Graduate Secretary

MUSIC

DOCTOR OF PHILOSOPHY, DOCTOR OF MUSICAL ARTS, MASTER OF ARTS AND MASTER OF MUSIC

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.) and Doctor of Musical Arts (D.M.A.) are offered in performance and composition; the Master of Arts (M.A.) and the Doctor of Philosophy (Ph.D.) in Music with emphases on theory, historical musicology, and ethnomusicology. Master's degrees are available on a part-time basis.

Performers in the M.Mus. may concentrate in piano, organ, harpsichord, guitar, orchestral instruments, voice, and opera; the areas of concentration within the D.M.A. are piano, voice, and orchestral instruments. In addition to fulfilling recital requirements for their degrees, students of performance have many opportunities to play in large and small ensembles of substantial quality, both for credit and in voluntary support of colleagues. Ensembles specializing in new music, early music, and non-European music are available for credit. The School typically presents one or more fully staged operas each year.

Graduate student composers have occasions to hear their works in regularly scheduled concerts as well as in their degree recitals. The UBC Symphony performs or reads students' orchestra pieces from time to time and the choirs are all active in presenting student works. The computer music studio is of considerable scope and is open to students on a 24-hour basis.

Areas of research emphasis pursued by faculty include Renaissance sacred polyphony; source studies in the music of Bach and other major composers; Italian Baroque opera, especially Handel; nineteenth-century topics (program music, form, harmony); twentieth-century American music, Second Viennese School; issues in rhythmic analysis; theory construction and analytical method; computer-based analysis; aspects of modern and contemporary music and musical life; and music of East Asia (especially China and Bali). The faculty in performance and composition includes many figures well-known throughout Canada and beyond for their work in concert, on radio, and on CDs.

The School occupies a well-equipped building of moderate size, which includes a fine recital hall (300 seats). The Chan Centre for the Performing Arts, containing the 1400-seat Chan Shun Concert Hall, opened in March, 1997. The Music Library is in the Music Building and houses the second largest collection in Canada,

including over 70,000 books and scores. Among its holdings are particularly good microfilm collections of European manuscript sources, of 19th-century music journals, and of materials relating to the music of Brahms. 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.

The School admits highly qualified students who possess a Bachelor of Music (B.Mus.) or a Bachelor of Arts (B.A.) with a strong music major to master's degrees. In addition to standard materials required by the University, applicants in performance must submit a tape of ample scope and good audio quality to the School's graduate secretary, or else appear for an in-person audition. Composers must submit the scores and tapes of about four representative works. Both composers and performers should submit an example of formal writing, either a term paper or statement of goals. Applicants in the scholarly areas should submit at least two term papers or the equivalent. The Graduate Record Examination (GRE) General Test is required for all Ph.D. applicants. Some applicants in ethnomusicology, depending on their background, may request an exemption. The request should be made, in writing, as far in advance of the January 31 application deadline as possible, and include a rationale. Entering students for the M.A., the M.Mus. in composition, the D.M.A. and Ph.D. degrees (ethnomusicologists excepted in most cases) will be asked to take placement tests in music theory and history in late August, and could be required, depending on the results of these tests, to do remedial course work. All entering graduate students are expected to have levels of keyboard proficiency appropriate to successful completion of two years of class piano and will be asked to demonstrate this before beginning their studies. Applicants to ethnomusicology may be asked to demonstrate different proficiencies; please consult the School's graduate advisor.

Credit requirements are as follows:

- For the M.A., 30 to 32 credits, typically including a six-credit thesis, and 14 to 18 credits of required courses. Proficiency in one appropriate language must be demonstrated.
- For the M.Mus., 33 to 39 credits, including a six-credit thesis comprised of one or more required recitals, and 18 to 25 credits of required courses (including private study).
- For the D.M.A. in composition, 33 credits of course work, 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; for the D.M.A. in performance, 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.

- For the Ph.D., 21 credits of course work, comprehensive examinations, and a thesis. For language requirements, see the School of Music brochure, *Graduate Programs*.

CONTACT INFORMATION

Address:

School of Music
6361 Memorial Road
Vancouver, BC V6T 1Z2
Tel: 604-822-5750
Fax: 604-822-4884
Website: www.music.ubc.ca

Prof. Jesse Read, Director

Dr. David Metzger, Graduate Advisor

Ms. Miriam Nechemia, Graduate Secretary

NEUROSCIENCE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

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 candidates 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 formal requirements in this regard, other than those set forth by the Faculty are as follows. The program aims for flexibility so that the individual needs of students with different interests in neuroscience can, as far as possible, be accommodated. Course requirements for the M.Sc. degree are normally taken in the first year of the program, and include the comprehensive core courses in Neuroscience (NRSC 500 and 501), as well as six credits of elective course work. Courses taken at other universities or in the undergraduate program at UBC will be taken into consideration in planning the student's

core course curriculum. Additional advanced course and seminar requirements will vary with the particular interests and needs of the student as determined by the student and his supervisory committee.

CONTACT INFORMATION

Address:

Graduate Program in Neuroscience
2255 Wesbrook Mall, Room 4830
Vancouver, BC V6T 1Z3
Tel: 604-822-7375
Fax: 604-822-7981
Website: www.interchange.ubc.ca/neurosci

Dr. Steve Vincent, Program Director & Graduate Advisor

Ms. Liz Wong, Graduate Secretary

NURSING

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 course work. 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 and hold a master's degree in nursing which includes preparation in nursing theory development and research methods. Canadian students must hold practicing 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 not 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.

CURRICULUM

Required Courses: NURS 501, 502, 503, 504, Statistics

Focus Courses: selected from NURS 520, 530, 540, 550, 551, 560

Supporting Elective courses

Major Essay (3 credits) or Thesis (6 credits)

CONTACT INFORMATION

Address:

School of Nursing
T201-2211 Wesbrook Mall
Vancouver, BC, V6T 2B5
Phone: 604-822-7446
Fax: 604-822-7466
Email: peggy@nursing.ubc.ca
Website: www.nursing.ubc.ca/program/start11.html

Dr. Sally Thorne, Director

Dr. Ann Hilton, Graduate Advisor (MSN)

Dr. Joy Johnson, Graduate Advisor (PhD)

Ms. Peggy Faulkner, Graduate Secretary

OBSTETRICS AND GYNAECOLOGY

See *Reproductive and Developmental Sciences*, p. 258.

OCCUPATIONAL AND ENVIRONMENTAL HYGIENE

Occupational and environmental hygiene is the study of occupational and environmental risks to health and specifically includes recognition, evaluation, and control or management of such exposure risks.

The School of Occupational and Environmental Hygiene offers programs leading to the Doctor of Philosophy and Master of Science. For additional information, see *The School of Occupational and Environmental Hygiene*, p. 337.

DOCTOR OF PHILOSOPHY

The School offers a Doctor of Philosophy program for advanced study and 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 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 Masters degree in occupational and environmental sciences must complete a minimum of 9 credits of courses selected in consultation with the supervisory committee. Students with masters 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 masters 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 on the 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.

ADMISSIONS

Applicants for admission must have a master's degree in occupational and 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 applicants' research interests and objectives; this should be submitted with the application package. An application will be considered complete when an application form, application fee, statement of objectives, curriculum vitae, two official copies of all transcripts, three reference letters, and results of the Graduate Record Examination and the TOEFL, TWE and TSE (if required) have been received. A minimum TOEFL score of 600 paper-based or 250 computer-based is required.

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.

For more information, visit the SOEH website (www.soeh.ubc.ca). All documents and the appropriate application fee should be submitted to the School Office.

Application deadline is February 28th.

MASTER OF SCIENCE

An interdisciplinary program is offered leading to the Master of Science in occupational and environmental hygiene. The program is designed to prepare students for careers in industry, government, or para-government sectors. The student may follow either of two options:

- 1 39 credits of courses and a six-credit project, requiring a minimum of 16 months of full-time study or equivalent amount of time on a part-time basis; or
- 2 33 credits of courses and a 12-credit thesis, generally requiring 20-24 months of full-time equivalent work.

The required courses for the project option include OCCH 501, 502, 503, 504, 506, 507, 511, 512 or 510, 595, 598; plus CHML 506; HCEP 532; HCEP 533 and MECH 505.

Thesis students must complete at least 24 credits from the following courses: OCCH 501, 502, 503, 504, 505, 507, 508, 510, 511, 512; CHML 506; HCEP 530, 531, 532, 533, 534 and MECH 505.

ADMISSION

Prospective applicants should have completed a bachelor's degree in such areas as the physical or health sciences or engineering. There are no specific pre-requisite courses. In exceptional circumstances, candidates with other backgrounds or mature students whose work experience makes up for deficiencies in standing may be admitted with the permission of the Director of the School and the Dean of Graduate Studies. A typical class will have eight to twelve students.

Candidates should obtain application materials and more detailed information from the School of Occupational and Environmental Hygiene. Completed application forms must be received by the School by February 28 for admission in September. Students wishing to be considered for scholarship or fellowship support are encouraged to apply as early as possible in the fall of the year preceding the year to which admission is sought.

CONTACT INFORMATION

For additional information and online applications, please visit the School of Occupational and Environmental Hygiene website (www.soeh.ubc.ca).

Address:
School of Occupational and Environmental Hygiene
3rd Floor-2206 East Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-9595
Fax: 604-822-9588
Website: www.soeh.ubc.ca

Dr. Michael Brauer, Program Director

Dr. Hugh Davies, Graduate Advisor

Ms. Tamarra Johnson, Graduate Secretary

OCEANOGRAPHY

A program in Oceanography was initiated at the University of British Columbia in 1949. Oceanography is concerned with the biology,

chemistry, geology and physics of the sea. Many of the phenomena which occur can be understood only through the simultaneous application of more than one of these disciplines. Thus, oceanographic research often requires cooperative-co-operative multidisciplinary studies by researchers whose training includes relevant aspects of the different scientific disciplines. Programs are offered for the training of oceanographers in research and in the scientific background appropriate to resource surveying and management to meet the needs of the oceanographic community in government, industry and university.

The faculty also engages in fundamental research in oceanography, both independently and in co-operation with federal government laboratories. For such work access is readily available to many different oceanographic regimes occurring along the coast of British Columbia: fjords, the inland sea of the Strait of Georgia, the coastal region of the North Pacific, and the North Pacific Ocean itself. The types of oceanographic problems that can be studied include: estuarine processes, satellite remote sensing, coastal upwelling, ocean circulation including modelling variations due to climate change, marine chemistry and geochemistry, palaeoceanography, natural product chemistry, marine viruses, fisheries oceanography, plankton ecology and physiology, and primary production of the sea. Field studies are also carried out in other regions of the world's oceans.

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

Programs leading to both the Doctor of Philosophy and the Master of Science are offered. Students must satisfy the admission requirements of the Faculty of Graduate Studies and normally should have a bachelor's or 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. The Master of Science program consists of 12 credits of thesis and 18 credits in course work, or 30 credits in course work and an essay.

Students in Oceanography may select courses, depending on their interest, from the following areas of specialization:

- Biological oceanography
- Marine chemistry and geochemistry
- Palaeoceanography
- Physical oceanography and atmospheric sciences

Students are required 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, 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.

CONTACT INFORMATION

Address:
Department of Earth and Ocean Sciences
6339 Stores Road
Vancouver, BC V6T 1Z4
Tel: 604-822-2713
Fax: 604-822-6088
Website: www.eos.ubc.ca
Dr. Paul L. Smith, Department Head
Dr. Kelly Russell, Graduate Advisor
Ms. Alex Allen, Graduate Secretary

PATHOLOGY AND LABORATORY MEDICINE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The Department of Pathology and Laboratory Medicine offers training in a wide range of research areas, from basic investigation of biomedical phenomena at the molecular and single cell level using biochemical, immunological, molecular biological and physicochemical approaches, through studies on human developmental biology and clinical disease. As well as working in laboratories on campus, students in the Department are located in the Terry Fox Laboratories, the BC Cancer Research Centre, the Eye Care Centre, the Research Institute for Child and Family Health at the Children's Hospital and all Faculty of Medicine teaching hospitals in the City of Vancouver. Master of Science and Doctor of Philosophy programs, alone or combined with M.D. or residency training, are available.

Acceptance into the graduate program is possible for students of high academic standing from diverse backgrounds including all the biomedical sciences, medical laboratory science, biology, chemistry and physics. Students wishing to enter either the M.Sc. or the Ph.D. program must possess a Bachelor's degree from a recognized university, preferably first class standing (A average), but with a minimum grade point average near 3.3 or 76% (high B average), or an MD degree. An intermediate course in Biochemistry is the only specific course requirement for entrance, but the necessary background can be obtained while registered in the Department.

REQUIRED CREDITS

All graduate students who do not hold a masters degree must take 18 credits of course work (of which no more than six may be for undergraduate courses) plus a 18 credit thesis are required for completion. Specific course requirements are minimal, however, and are largely determined by the research area within which the student's interests fit. The comprehensive examination, required in all Ph.D. programs at UBC, consists of writing and defending a research proposal in the area but not on the specific topic of the student's research. The research work, of course, forms

the major part of the effort required to obtain the graduate degree sought.

REQUIRED COURSES FOR M.SC. PROGRAM

- Path 500A–2 credits
- Path 547–3 credits
- Path 535–2 credits

The remaining courses which make up 11 credits are chosen by the student and supervisor considering the student's background and the research area of the thesis.

REQUIRED COURSES FOR PH.D. PROGRAM

- Path 500A
- Path 547
- Path 635

For more information, please contact Penny Woo, Program Assistant, in the Dept of Pathology and Laboratory Medicine.

CONTACT INFORMATION

Address:
Pathology and Laboratory Medicine
2211 Wesbrook Mall, GF227
Vancouver, BC V6T 2B5
Tel: 604-822-7109
Fax: 604-822-7635
Website:
Dr. J. Dimmick, Department Head
Dr. D. Walker, Graduate Advisor
Ms. Penny Woo, Program Assistant

PHARMACEUTICAL SCIENCES

DOCTOR OF PHILOSOPHY, MASTER OF SCIENCE AND DOCTOR OF PHARMACY

The Faculty of Pharmaceutical Sciences offers opportunities for advanced study leading to the Master of Science (M.Sc.) and Doctor of Philosophy (Ph.D.) in the fields of biopharmaceutics, clinical pharmacy, pharmaceuticals, pharmaceutical chemistry, pharmacology, toxicology and pharmacy administration.

The program is open to those holding undergraduate or graduate degrees from recognized universities, whether in pharmacy or other related disciplines. A minimum TOEFL score of 600 is required.

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.

A detailed brochure is available from the Faculty of Pharmaceutical Sciences. See also the Pharmaceutical Sciences website (www.ubcpharmacy.org).

DOCTOR OF PHARMACY

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, or the Dean, Faculty of Graduate Studies.

- 2 Admission is competitive and 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;
- 5 hold current registration as a pharmacist in British Columbia, or;
- 6 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.
- 7 Applicants who have a bachelor's degree, or its academic equivalent, which does not meet the requirements of Item 4.a above, but who have had sufficient formal training and relevant professional experience to offset such deficiencies may be granted admission on the recommendation of the Faculty of Pharmaceutical Sciences and approval of the Dean of the Faculty of Graduate Studies.
- 8 A residency in hospital pharmacy practice and/or a minimum of one year's pharmacy experience is preferred.
- 9 Admission to the Pharm.D. program will be in one of the following categories.
- 10 Full standing. Granted to applicants who have met both of the requirements noted in Item 4 above.
- 11 Provisional standing. May be granted to applicants with deficiencies in Item 4.a above.
- 12 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.
- 13 The regulations given above (under Ph.D., D.M.A. and Ed.D.) for low scholarship and supplements also apply to the Pharm.D. program.

DOCTOR OF PHARMACY

First Year

| | |
|-----------------------|----|
| HCEP 400 ¹ | 3 |
| HCEP 506 | 3 |
| PATH 415 | 2 |
| PATH 548 | 6 |
| PHAR 501 | 12 |
| PHAR 502 | 4 |
| PHAR 508 | 4 |

First Year (Continued)

| | |
|----------|---|
| 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

Address:

Faculty of Pharmaceutical Sciences

2146 East Mall

Vancouver, BC V6T 1Z3

Tel: 604-822-2390

Fax: 604-822-3035

Website: www.ubcpharmacy.org

Dr. Gail D. Bellward, Associate Dean of

Graduate Studies and Research

Dr. Mary H.H. Ensom, Director, Pharm.D.

Programs

Ms. Shirley Wong, Graduate Secretary

PHARMACOLOGY AND THERAPEUTICS

DOCTOR OF PHILOSOPHY

Facilities are available for original investigations in Cellular, Biochemical, Viral, Autonomic, Cardiovascular, Clinical, and Neuropharmacology.

MASTER OF SCIENCE

Acceptance to the Master of Science degree program requires a Bachelor of Science degree in Pharmacology (or a related subject), or a Doctor of Medicine (M.D. or equivalent) degree. Students are required to register in all Departmental graduate level courses in pharmacology and thesis-related subjects (18 credits) plus a 12-credit thesis.

CONTACT INFORMATION

Address:

Department of Pharmacology and Therapeutics

2176 Health Sciences Mall

Vancouver, BC V6T 1Z3

Tel: 604-822-2575

Fax: 604-822-6012

Email: wynnel@interchange.ubc.ca

Website: www.pharmacology.ubc.ca

Dr. David V. Godin, Department Head

Dr. Ernest Puil, Graduate Advisor, Admissions

Dr. Ismail Laher, Graduate Advisor, Records

Mrs. Wynne Leung, Graduate Secretary, Admissions

Ms. Janelle Stewart, Graduate Secretary, Records

PHILOSOPHY

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The Philosophy Department 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 language, logic, philosophy of science, philosophy of mathematics and history of philosophy.

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. See the Graduate Handbook (located at our website (www.philosophy.ubc.ca/graduate/index.html)) 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 course work (6 credits at the 300 level or above and 12 credits at the 500 level or above) and a 12-credit thesis.
- 2 Non-thesis Option. This option requires 30 credits of course work. 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

Address:

Department of Philosophy

1866 Main Mall, Buchanan E370

Vancouver, BC V6T 1Z1

Tel: 604-822-3292

Fax: 604-822-8782

Website: www.philosophy.ubc.ca

Dr. Mohan Matthen, Department Head

Dr. Paul Bartha, Graduate Advisor

Mrs. Carola Ellis, Graduate Secretary

PHYSICS AND ASTRONOMY

The Department of Physics and Astronomy is a broadly based department comprised of over 45 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 a variety of 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 Meson Facility, the Advanced Materials and Process Engineering Laboratory (AMPEL), and the BC Cancer Agency, UBC and Vancouver General Hospitals as well as involvement in national and international facilities such as the Canada-France-Hawaii Telescope (CFHT), the James Clerk Maxwell telescope (JCMT), the Sudbury Neutrino Observatory (SNO), the Stanford Linear Accelerator (SLAC), the European Laboratory

for Particle Physics (CERN), and Brookhaven National Lab (BNL). Although there is a great deal of collaboration and overlap of interests among the various groups, the research topics presently available to incoming graduate students can be roughly grouped into the following areas:

- Applied Physics. Opportunities for research in applied physics cut across all of the research topics in the Department and are supported by collaboration with local hospitals, the TRIUMF meson facility, government research agencies and industrial partners. Current projects range from advanced magnetic resonance imaging techniques, to the use of cyclotrons in medicine and isotope production. In optics alone applications include projects as diverse as the use of structured surfaces for light-guides, thin film deposition for optical coatings, and the development of rotating liquid mirrors for telescopes.
- Astronomy and Astrophysics. 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 all the way 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 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.
- Condensed Matter Physics. Condensed matter physics at UBC spans a wide range of theoretical and experimental research on materials of current interest, with considerable effort also devoted to applications and the development of new materials and processes. Topics of current interest include critical phenomena, novel magnetic materials, low dimensional materials such as the organic conductors and quasi-one and two-

dimensional magnetic systems, high temperature superconductivity, cryocrystals, heavy fermions, and research on semiconductors that includes work such as the development of new diagnostic techniques for monitoring film growth in MBE, and the study of nanostructures. A wide range of equipment is available for sample preparation in the AMPEL building, including a solid state chemistry lab, MBE and laser ablation systems for film growth, and a newly outfitted clean room for device fabrication. Research tools and techniques include far infrared and Raman spectrometers, microwave measurements, NMR, uSR, scanning microscopes (SEM, AFM, STM), magnetometers, perturbed angular correlation, ultrafast time-resolved spectroscopies, transport measurements, and a number of new techniques such as B-NMR at the new ISAC facility being built at TRIUMF.

- **Laser and Plasma Physics.** A variety of research topics rely on the use of the wide range of lasers and related apparatus available in the Department, such as tunable dye lasers, IR diode lasers, picosecond IR lasers and femtosecond tunable visible lasers for pump-probe experiments, picosecond streak cameras, and a nanosecond Nd-glass laser. The techniques made possible by this equipment are used to study a wide range of physics, including strongly coupled plasmas, laser-generated shock waves, non-linear semiconductor spectroscopy, surface physics, high resolution spectroscopy of molecules and ions, and the properties of semiconductor nanostructures.
- **Medical and Biophysics.** Research in medical and biophysics is carried out within the Department, with strong collaborations with Immunology, the BC Cancer Agency, and local hospitals. Physicists working in these areas are engaged in research that ranges all the way from fundamental problems such as the nature of the cellular membrane and modelling the immune system, to more applied problems such as modelling doses in radiotherapy, development of novel optical diagnostic techniques, and development of new techniques for DNA sequencing. Researchers in this diverse field make use of a wide range of research tools including NMR and MRI apparatus, equipment for studying the physical structure and mechanical properties of membranes, proton and pion beams at TRIUMF, PET and SPECT and a wide array of treatment and diagnostic facilities at the BC Cancer Agency.
- **Subatomic Physics.** Research in subatomic physics is carried out locally at the TRIUMF facility and at national and international facilities such as the Sudbury Neutrino Observatory, SLAC, CERN, BNL and KEK. Many possibilities for graduate research are made possible by UBC researchers' involvement in these major facilities. The wide range of research projects underway include pion, hyperon, and dibaryon physics, rare K decays, neutrino astrophysics at SNO, the

OPAL experiment on electroweak physics at CERN, the BaBar experiment on CP violation and heavy quark physics at SLAC, the ATLAS experiment at the new LHC facility, the TWIST experiment at TRIUMF, SLAC and experiments in T-violation at KEK. Projects in accelerator and beam physics are also underway at TRIUMF and CERN as well as accelerator instrumentation and feedback-control systems here at UBC.

- **Theoretical Physics.** In theoretical subatomic physics, the Department is active in areas including string theory matrix models, topological field theories, conformal field theories, relativistic scattering, chiral symmetry breaking, supersymmetry and electroweak interactions, quantum chromodynamics, the quark model, and neutrino oscillations. Condensed matter theorists work on quantum many body problems involving strongly correlated electrons, quantum magnetism, mesoscopic systems, quantum impurities, and high temperature superconductors. Work in statistical mechanics and numerical modelling includes topics such as ruptures in elastic media (related to earthquakes), non-equilibrium phase transitions, and neural network models of the ocean-atmosphere climate system. Research in gravity and quantum mechanics focuses on topological fluctuations in numerical quantum gravity, chaos in general relativity, black hole evaporation, quantum computing, and the meaning of time. Research in cosmology and astrophysics addresses problems ranging from the nature of the early universe and the cosmic microwave background, to the structure and dynamics of stellar atmospheres.

A brochure describing the research facilities in more detail is available on request from the Department of Physics and Astronomy. See also *Advanced Materials and Process Engineering Laboratory*, p. 75. Up-to-date information is also available on the Department of Physics and Astronomy website (www.physics.ubc.ca).

DOCTOR OF PHILOSOPHY

The Department offers Ph.D. programs in Astronomy, Physics, and 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 PhD, 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. or 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.Sc. or M.A.Sc. course work 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 course work in any Science or Applied Science departments (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 six 300- or 400-level credits in undergraduate courses. All M.Sc. and M.A.Sc. students are required to satisfy the department's quantum mechanics course requirements. Astronomy graduate students must also participate in the astronomy journal club.

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 physics and astronomy, or any Science or Applied Science departments and may include up to six 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

Address:

Department of Physics and Astronomy

6224 Agricultural Road

Vancouver, BC V6T 1Z1

Tel: 604-822-4245

Fax: 604-822-5324

Website: www.physics.ubc.ca

Dr. Janis McKenna, Graduate Program Chair

Mr. Tony Walters, Graduate Coordinator

For more information about AMPEL, see *Advanced Materials and Process Engineering Laboratory*, p. 75.

PHYSIOLOGY

DOCTOR OF PHILOSOPHY

The Department of Physiology offers opportunities for advanced study and research in many branches of vertebrate physiology, and is particularly strong in the areas of neurophysiology, gastroenterology, endocrinology and cardiovascular physiology.

One of the following is prerequisite: a Master of Science in Physiology or closely related field; a Bachelor of Science with first class honours in physiology; or an M.D., D.M.D. or D.V.M. with adequate standing and approval by the head of the Department.

MASTER OF SCIENCE

Opportunities for research training as above.

One of the following is prerequisite: a Bachelor of Science with standing in physiology or a related subject defined by the Faculty of Graduate Studies or an M.D., D.M.D. or D.V.M.

Courses include Physiology 422, 423, 424, 426 and 430 or their equivalents if not already taken; plus a minimum of 12 credits at the 500 level, and thesis (12 credits).

CONTACT INFORMATION

Address:

Department of Physiology
2146 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-9235
Fax: 604-822-6048

Website: www.physiology.ubc.ca

Dr. K.G. Baimbridge, Department Head

Dr. R.A. Pederson, Graduate Advisor

Ms. Zaira Khan, Graduate Secretary

PLANNING

See *Community and Regional Planning*, p. 173.

PLANT SCIENCE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

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 & 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.
- 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 Agricultural Sciences 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.

CONTACT INFORMATION

Address:

Faculty of Agricultural Sciences
#270-2357 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-4593
Fax: 604-822-4400

Website: www.agsci.ubc.ca/grad

Dr. Jim Thompson, Associate Dean, Research and Graduate Studies

Dr. Murray Isman, Graduate Advisor

Ms. Joyce Tom, Graduate Programs Manager

Ms. Carole Wallace, Program Assistant

POLAR AND ALPINE RESEARCH

There are a number of individuals at the University of British Columbia involved in research in polar and alpine areas. The Committee on Polar and Alpine Research co-ordinates the activity, funding and mutual interests of this group. At present the University's efforts involve anthropology, biology, botany, ecology, geography, geology, glaciology, history, literature, planning, and psychology, in both alpine and polar (Antarctic and Arctic) environments. Current areas of special interest to the committee are the Western Arctic including Yukon Territory, parts of the Northwest Territories including the High Arctic, Antarctica, and high altitude work in British Columbia. The committee sponsors lectures, provides a unified group to approach granting bodies, and a means whereby interested faculty and graduate students may exchange polar and alpine information.

POLITICAL SCIENCE

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 long tradition of research in international relations and in international security studies. Several faculty members are associated with UBC's interdisciplinary Institute of International Relations (whose current Director is a member of the Department of Political Science). The Institute 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 U.N., Canadian and BC Government publications, and many U.S. 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.

DOCTOR OF PHILOSOPHY

The basic requirements are six three-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 between five and eight new 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 which is orally defended upon completion. As a general rule, successful applicants will have an average of no less than a 'B+' standing in their final two undergraduate years and will have demonstrated an ability to do A level work in senior undergraduate classes.

The TOEFL requirement is 580.

CONTACT INFORMATION

Address:

Department of Political Science

C472-1866 Main Mall

Vancouver, BC V6T 1Z1

Tel: 604-822-2717

Fax: 604-822-5540

Email: poligrad@interchange.ubc.ca

Website: www.politics.ubc.ca

Dr. Richard Johnston, Department Head

Dr. Kathryn Harrison, Graduate Advisor

Ms. Josephine Calazan, Graduate Secretary

PSYCHOLOGY

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

The Department of Psychology offers opportunities for advanced study in the following areas of specialization: biopsychology, clinical psychology, developmental psychology, forensic psychology, perception, cognitive science, personality and social psychology, environmental psychology, and psychometrics.

The graduate program in psychology provides exposure to ongoing research projects in each of its areas of specialization. The Doctor of Philosophy and Master of Arts are awarded only to those students who acquire a detailed knowledge of the current research findings in their area of specialization, a knowledge of the concepts and issues in other selected areas of psychology and the ability to conduct original research of high quality. In addition to the above requirements, clinical students (the program is fully accredited by both A.P.A. and C.P.A.) must develop an acceptable level of clinical skill, and must serve a one-year internship in an approved applied setting as part of their Ph.D.

A brochure describing the psychology graduate program in more detail is available from the Department. The brochure provides detailed information concerning each of the areas of specialization. For a copy of the brochure, please contact the graduate program secretary (gradsec@cortex.psych.ubc.ca).

CONTACT INFORMATION

Address:

Department of Psychology

2136 West Mall

Vancouver, BC V6T 1Z4

Tel: 604-822-3144

Fax: 604-822-6923

Website: www.psych.ubc.ca/graduate.htm

Dr. Richard Tees, Department Head

Dr. Larry Walker, Graduate Advisor

Ms. Rose Tam, Graduate Secretary

PULP AND PAPER ENGINEERING

MASTER OF ENGINEERING

A program in pulp and paper engineering leading to a Master of Engineering (M.Eng.) is offered to qualified graduates seeking post-graduate training for work in the pulp and paper industry.

Graduation from an accredited engineering program is the normal prerequisite to enter the

Pulp and Paper M.Eng. program. Graduates from related disciplines may be admitted under special circumstances. (Graduation from the Pulp and Paper Master of Engineering Program does not entitle students without an accredited undergraduate engineering degree to register as licensed professional engineers.) Prior experience or education in the pulp and paper field is desirable, but not essential for entrance to the program.

Requirements of the program are as follows:

- Twenty-one credits of designated graduate courses in pulp and paper engineering, including a laboratory and a project
- Twelve credits of approved electives selected from a range of technical and non-technical subject areas and including at least six credits of technical electives

A limited number of fellowships are available to qualified candidates.

The program is offered in collaboration with the Pulp and Paper Research Institute of Canada.

This Program will not be offered in the academic year 2003-2004.

CONTACT INFORMATION

Address:

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

Website: www.chml.ubc.ca

Professor Kevin J. Smith, Department Head

Professor Richard Kerekes, M.Eng. Pulp and Paper Engineering Graduate Advisor

Ms. Helsa Leong, Graduate Secretary

REHABILITATION SCIENCES

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. Three major fields of study reflect the focus of research among faculty members: disability, rehabilitation and society, exercise sciences and rehabilitation, and neurorehabilitation and motor control.

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 twelve 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 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 (rhsc.det.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 an introductory course in research methods and statistics (equivalent to RHSC 402). 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.

CONTACT INFORMATION

Address:

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

Website: www.rehab.ubc.ca

Prof. Lesley Bainbridge, Interim Director

Dr. Elizabeth Dean, Graduate Advisor

Ms. Laura Selander, Graduate Secretary

RELIGIOUS STUDIES

See *Classical, Near Eastern and Religious Studies*, p. 227.

REPRODUCTIVE AND DEVELOPMENTAL SCIENCES

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The Department of Obstetrics and Gynaecology offers Master of Science and Ph.D. programs in Reproductive and Developmental Sciences. Areas of study are reproductive science, perinatal and/or developmental biology and gynaecologic oncology. The areas of research include: reproductive and placental endocrinology, cellular and molecular biology, immunology or reproduction, fertilization and embryonic development, perinatal metabolism, fetal and neonatal physiology. Prerequisites are BIOC 300; PHYL 301 or BIOL 353/363 or ANSC 320.

CONTACT INFORMATION

Address:

Department of Obstetrics and Gynaecology
Room 2H30, 4500 Oak Street
Vancouver, BC V6H 3N1
Tel: 604-875-3108
Fax: 604-875-2725

Website: www.obstgyn.ca

Dr. Robert Liston, Department Head

Dr. Peter C.K. Leung, Graduate Advisor

Ms. Roshni Nair, Graduate Secretary

RESOURCE MANAGEMENT AND ENVIRONMENTAL STUDIES

Aspects of resource management are available in a number of disciplinary units at the University of British Columbia. The breadth and synthesis of knowledge required to deal with issues that confront resource managers, scientists and decision-makers is unprecedented in the history and practices of environmental resource use. These realities lead to the development of the interdisciplinary program in Resource Management and Environmental Studies. Recognizing the need to integrate the social and the natural (engineering) sciences, the program offers a Ph.D., M.A. and M.Sc. The Resource Management and Environmental Studies graduate program's objective is to aid students to develop a holistic understanding of the ecological, social and economic dimensions of natural resource use and environmental interactions. The program advises students of options in resource management and environmental studies and provides a forum to facilitate life-long learning skills. The Resource Management and Environmental Studies program co-ordinates and supervises these student-tailored programs. All faculty members within the Faculty of Graduate Studies are potential supervisors and serve on graduate student supervisory committees.

Students entering come from diverse backgrounds. Individual and flexible programs of study are designed to take previous training and interest into account. Students are required to take core Resource Management and Environmental Studies courses, as well as courses to be approved by the supervisory committee and chair.

Acceptance into the program is dependent upon meeting the admission requirements of the Faculty of Graduate Studies, submission by the student of a thesis proposal acceptable to the Resource Management and Environmental Studies Committee, and acceptance by a faculty member willing to act as the student's supervisor.

The program serves as a mechanism of graduate education and training in interdisciplinary research units at the University, including the Fisheries Centre, Sustainable Development Research and Westwater Research (within the Institute for Resources, Environment and Sustainability) as well as individually designed graduate programs.

ADMISSION

In addition to the usual requirements stated by the Faculty of Graduate Studies, each applicant is required to submit a thesis prospectus or statement outlining the issue to be addressed, the relevance of the issue, the objectives of the research, and proposed methods.

The completed application will be considered by an admissions committee (chaired by the program chair). This committee will make recommendations to the Dean of the Faculty of Graduate Studies. Foci for applicants include human ecology, ecological policy analysis, aquatic resources, land management, riparian and coastal environments, natural resource dynamics, alternate energy resources, wilderness conservation and management, anthropogenic effects on environment and resource use, risk assessment, governance, and sustaining the human enterprise.

DOCTOR OF PHILOSOPHY

For the Doctor of Philosophy, all candidates must complete Resource Management and Environmental Studies 500, 501, 502 (or equivalent). The remainder of the academic program is determined by the candidate and the supervisory committee.

MASTER OF ARTS AND MASTER OF SCIENCE

For the master's degree, the following 36 credits are the minimum requirement for graduation: 12 credits of required courses (including RMES 502), 12 credits of electives, and a 12-credit research thesis. The student's previous academic background, the choice of electives, and the focus of the research thesis determine whether the M.A. or M.Sc. program is followed. Part-time study is not encouraged, and program without thesis is not permitted. All students must complete Resource Management and Environmental Studies 501 and 502 (or equivalent).

CONTACT INFORMATION

Address:

Institute for Resources, Environment and Sustainability
#464-2206 East Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-9249
Fax: 604-822-9250

Website: www.ires.ubc.ca

Dr. Les M. Lavkulich, Director and Graduate Advisor

Ms. Leslie K. Stephenson, Graduate Administrator

Ms. Jennifer Shaw, Graduate Program Coordinator

SOCIAL WORK

MASTER OF SOCIAL WORK

The School of Social Work and Family Studies offers advanced studies in social work. The Master of Social Work (M.S.W.) program involves a minimum of 33 credits of which six credits are required in each of the following areas: theoretical foundations/policy, social work practice, research, and elective course work. In addition, graduating essay students complete a six-credit practicum and a three-credit essay while thesis students complete a three-credit practicum and a six-credit thesis. Specialized areas of study include child, youth and family services, services for women, culturally specific services, and social and community development. Students may also take courses outside the School to a maximum of 12 credits to meet their learning objectives.

General admission requirements include a Bachelor of Social Work (B.S.W.) degree or equivalent and at least 3 credits of courses work in statistics. Other factors considered are: competitive academic standing (GPA), Study Plan, professional social work experience, and letters of reference.

Completion of the program normally requires a minimum of twelve months of full-time studies, beginning in September. Part-time study consisting of a minimum of three years is available. The School, in collaboration with the University Colleges of the Cariboo and Okanagan, offers an off-campus Master of Social Work. This program is available to students in Interior BC and is based on a three-year cycle.

The School also participates in a doctoral program of Individual Interdisciplinary Studies which is offered by the Faculty of Graduate Studies. Acceptance is contingent upon excellent academic performance and the development of an interdisciplinary research proposal acceptable to the Faculty of Graduate Studies. Students holding a Master of Social Work typically require undergraduate and advanced courses in other disciplines in order to prepare such a proposal.

CONTACT INFORMATION

Address:

The School of Social Work and Family Studies
2080 West Mall
Vancouver, BC V6T 1Z2

Tel: 604-822-2609, 604-822-4300 (Graduate Advisor)

Fax: 604-822-8656

Website: swfs.ubc.ca

Dr. Graham Riches, Director of the School

Dr. Mary Russell

(mrussell@interchange.ubc.ca), Graduate Advisor

Ms. Alina Yuhymets

(yuhymets@interchange.ubc.ca), Student Advisor

Ms. Marjorie Paukner

(mpaukner@interchange.ubc.ca), Admissions Secretary

SOCIOLOGY

DOCTOR OF PHILOSOPHY AND MASTER OF ARTS

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.

The M.A. program, which is available to both full-time and part-time students, requires courses which 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. The prerequisite for the Ph.D. program normally is a Master's degree in Sociology, which includes preparation in sociological theory and in research methods. The Ph.D. program includes courses, comprehensive examinations, and a dissertation.

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. 219.

CONTACT INFORMATION

Address:

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

Website: www.anso.ubc.ca

Dr. David L. Pokotylo, Department Head

Dr. Thomas Kemple, Chair, Sociology
Graduate Studies Committee

Ms. Anna Jubilo, Graduate Secretary

SOFTWARE SYSTEMS

MASTER OF SOFTWARE SYSTEMS

The program leading to the Master of Software Systems (M.S.S.) is designed to prepare students with degrees in science or engineering for the specialized area of computer software systems. The duration of the program is 16 months, composed of 30 credits taken in three semesters, as well as a four-month industry internship. The 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. For more information, see *Institute for Computing, Information and Cognitive Systems*, p. 76 in the chapter Research Units.

Successful applicants will hold a bachelor's degree and must also have computer program design and data structures knowledge equivalent to that offered in CPSC 216 or CPSC 252. 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.

CONTACT INFORMATION

Detailed information on program requirements, courses, and financial assistance is available from the program office on request.

Address:

Master of Software Systems
2366 Main Mall
Vancouver, BC V6T 1Z4

Tel: 604-822-8807

Fax: 604-822-9013

Website: www.icics.ubc.ca/mss

Dr. Panos Nasiopoulos, Director

SOIL SCIENCE

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

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.

CONTACT INFORMATION

Address:

Faculty of Agricultural Sciences
#270-2357 Main Mall
Vancouver, BC V6T 1Z4

Tel: 604-822-4593

Fax: 604-822-4400

Website: www.agsci.ubc.ca/grad

Dr. Jim Thompson, Associate Dean, Research and Graduate Studies

Dr. Chris Chanway, Graduate Advisor

Ms. Joyce Tom, Graduate Programs Manager

Ms. Carole Wallace, Program Assistant

SPANISH

Doctor of Philosophy and Master of Arts, see the graduate program for *Hispanic and Italian Studies*, p. 239.

STATISTICS

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

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 medical statistics and clinical trials, mathematical modelling of biological systems, theory of statistical inference, asymptotics, multivariate analysis, robustness, nonparametrics, design of experiments, smoothing, Bayesian methods, computational molecular biology, gene expression, microarrays, time series, and mixtures of distributions.

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 résumé 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 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).

CONTACT INFORMATION

Address:
Student Services, Department of Statistics
333-6356 Agricultural Road
Vancouver, BC V6T 1Z2
Tel: 604-822-4821
Fax: 604-822-6960
Website: www.stat.ubc.ca
Ms. Christine Graham, Graduate Secretary

SURGERY

MASTER OF SCIENCE

The Department of Surgery offers opportunities and facilities for full-time study leading to the Master of Science in surgery. 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. A candidate's program will be determined by the program director in consultation with the candidate'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 course work to give a total of 30 credits. Twelve credits of course work 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.

CONTACT INFORMATION

Address:
Department of Surgery
910 W. 10th Avenue, 3rd Floor
Vancouver, BC V5Z 4E3
Tel: 604-875-5355
Fax: 604-875-4036
Website: www.surgery.ubc.ca
Dr. Garth Warnock, Department Head
Dr. York Hsiang, Program Director & Graduate Advisor
Ms. Joanne Clifton, Research Associate

THEATRE

DOCTOR OF PHILOSOPHY, MASTER OF FINE ARTS, AND MASTER OF ARTS

The program offers opportunities for advanced studies leading to the Doctor of Philosophy (Ph.D.) and 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 co-operation with the Creative Writing Program, Theatre offers an M.F.A. in playwriting for the stage. (For details of this joint program see *Creative Writing*, p. 229.)

The program has diversified offerings in both practical theatre and the academic study of dramatic literature, history and criticism. Regular productions, directed and designed by faculty and graduate students, are presented in the Frederic Wood Theatre and the Telus Studio flexible courtyard 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 program's graduate handbook.

See also graduate programs in *Creative Writing*, p. 229 and *Film*, p. 235.

CONTACT INFORMATION

Address:
Theatre Program
6354 Crescent Road
Vancouver, BC V6T 1Z2
Tel: 604-822-3880 ext 0
Fax: 604-822-5985
Email: fwtheatr@interchange.ubc.ca
Website: www.theatre.ubc.ca
Prof. Robert Gardiner, Head, Department of Theatre, Film and Creative Writing
Dr. Errol Durbach, Graduate Advisor
Ms. Karen Tong, Graduate Secretary

TRANSPORTATION STUDIES

Opportunities are available for graduate work in transportation in a variety of programs. Courses on transportation are available in the Department of Civil Engineering, the Division of Transportation and Logistics in the Faculty of Commerce and Business Administration, the Department of Geography, and the School of Community and Regional Planning.

Supervision of graduate work in transportation can be undertaken within these disciplines. Students may take partially or fully interdisciplinary programs. Students are advised to discuss the structure of their programs with a faculty member in the department which most closely fits their interests.

Master's and doctoral programs are available in each of the programs. The doctoral programs are commonly interdisciplinary.

URBAN STUDIES

Although there is no Department of Urban Studies and no formal program leading to a degree in this field at UBC, Urban studies are the concern of many university departments and professional schools. These include Architecture, Community and Regional Planning, Civil Engineering (Transportation), Commerce and Business Administration (Land Economics), Geography, History, Political Science, and Sociology, but this list is not exhaustive.

Students who wish to concentrate on Urban Studies at the graduate level should enrol in any one of these departments, and make arrangements for courses and faculty representation on their research committee from other University departments. These arrangements are made through the department in which the student is enrolled.

Alternatively, they may choose to pursue an interdisciplinary program through the *Individual Interdisciplinary Studies Graduate Program*, p. 241. This requires the commitment of a faculty member to chair the student's committee. That faculty member will then assist the student in forming a suitable committee of faculty from other departments.

VOCATIONAL REHABILITATION COUNSELLING

MASTER OF ARTS

A program leading to the Master of Arts in vocational rehabilitation counselling is available. Students may follow either of two options:

- 1 56 credits in courses and practical work including a graduating project, or
- 2 53 credits in courses and practical work, and a 6- to 12-credit thesis.

Both programs have been designed to permit full-time students to complete course work in 16 months. Thesis completion may extend this time period. Part-time studies are also available. 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. A full description of the program is available from the Department of Educational and Counselling Psychology and Special Education.

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. Prospective students are encouraged to contact the program coordinator to discuss their individual situations.

CONTACT INFORMATION

Address:

Department of Educational and Counselling Psychology, and Special Education
2nd Floor, Library Block
2125 Main Mall
Vancouver, BC V6T 1Z4
Tel: 604-822-5259
Fax: 604-822-2328
Email: karen.yan@ubc.ca

Website: www.ecps.educ.ubc.ca

Dr. Richard Young, Head

Dr. Izabela Schultz, Program Coordinator

Ms. Karen Yan, Graduate Secretary

WOMEN'S STUDIES AND GENDER RELATIONS

MASTER OF ARTS IN WOMEN'S STUDIES AND GENDER RELATIONS

Administered by the Centre for Research in Women's Studies and Gender Relations, the Master of Arts in Women's Studies and Gender Relations (M.A. (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. Candidates are selected by an advisory committee representing a range of relevant research areas, which assesses the availability of appropriate courses and faculty members to provide supervision. The 30-credit Master of Arts 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.

To be eligible to be considered for admission, students must

- 1 hold a B.A. or equivalent degree from a recognized university in an area deemed relevant to Women's Studies by the advisory committee;
- 2 have obtained at least a 'B+' (or equivalent) average in the last two years of undergraduate study with first-class standing in a minimum of 12 credits of relevant coursework;

- 3 demonstrate adequate preparation in feminist theory and methodology, or be willing to take extra courses, as required, to gain such preparation;
- 4 submit a writing sample (e.g., an essay) and a statement explaining why s/he wishes to do graduate 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, in order to ascertain the likelihood of an appropriate research supervisor being available if the thesis option is preferred;
- 5 arrange to have three letters of reference commenting on the student's suitability sent directly to the Director of the program; and
- 6 fulfil all general requirements for admission to the Faculty of Graduate Studies.

About 50 faculty members from many departments and faculties are associates of the Centre for Research in Women's Studies and Gender Relations. 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.

PH.D. IN WOMEN'S STUDIES AND GENDER RELATIONS

Administered by the Centre for Research in Women's Studies and Gender Relations (Faculty of Graduate Studies), the Ph.D. allows qualified students to undertake doctoral work in the field of Women's Studies and Gender Relations. Students who did not do their MA at the Centre complete WMST 500 in year one, and 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. Candidates 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.

ADMISSION REQUIREMENTS

Applicants must fulfil all the general requirements for admission to the Faculty of Graduate Studies (e.g. TOEFL score). To be eligible for consideration they must also:

- 1 Hold an M.A. or equivalent degree from a recognized university, in an area deemed relevant to Women's Studies and Gender Relations by the Advisory Committee, with excellent academic standing.
- 2 Demonstrate adequate preparation in feminist theory and methodology, or be willing to take extra courses, as required, to gain such preparation.
- 3 Submit a writing sample (such as an essay) demonstrating excellent research potential,

and a statement explaining why s/he wishes to undertake doctoral 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.

- 4 Arrange to have three letters of reference sent directly to us, with the FoGS forms, commenting on the student's suitability for the Ph.D. program.

CONTACT INFORMATION

Address:

Centre for Research in Women's Studies and Gender Relations
1896 East Mall
Vancouver, BC V6T 1Z1
Tel: 604-822-9171
Fax: 604-822-9169
Website: www.wmst.ubc.ca

Dr. Sneja Gunew, Director

Dr. Geraldine Pratt, Graduate Advisor

Ms. Kaela Jubas, Administrator

See also *Centre for Research in Women's Studies and Gender Relations*, p. 262.

ZOOLOGY

DOCTOR OF PHILOSOPHY AND MASTER OF SCIENCE

The Department of Zoology encompasses over 50 principal investigators. Research interests of Department members can be divided into several broad categories with substantial overlap of interest and collaboration among these arbitrary groups. The Department 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. The following is a brief summary of the departmental research programs.

CELL AND DEVELOPMENTAL BIOLOGY

Molecular and genetic bases of development and cellular function are emphasized. Research programs include morphological and molecular approaches to phylogenetic analysis of parasitic nematodes (Adamson); molecular mechanisms of glial-neuronal interactions during development (Auld); regulation of cell cycle and meiosis in ciliates (Berger); genetics and molecular biology of chromatin proteins in *Drosophila* (Brock); chromatin, mitotic and meiotic memory of developmental switches (Brock and Grigliatti); molecular genetic analysis of salmonid growth, immunity and sex determination (Devlin); spider silk genes and chimeric fibers (Gosline and Grigliatti); genetic and molecular studies on gene expression during development, chromatin assembly and modification, as well as chromatin control of gene expression (Grigliatti); transposable element structure, function and evolution (Grigliatti and Moerman); engineering protein expression systems and transposable element

based expression cassettes in insects (Grigliatti and Theilmann); molecular immunology, antigen processing, Alzheimer's Disease and metal transport (Jefferies); sperm nuclear basic proteins in vertebrates and invertebrates (Kasinsky); intracellular transport and targeting of membrane proteins, B cell antigen receptor, assembly and oligomerization; cell signalling (Matsuuchi); genetics and molecular biology of sarcomere assembly and muscle development (Moerman); molecular regulation and evolutionary function of genetic exchange mechanisms of microorganisms (Redfield); molecular and physiological studies of ion channels and neurotransmitter receptors (Snutch); and molecular biology of baculoviruses (Theilmann).

COMMUNITY AND POPULATION BIOLOGY
Ecological systems and problems are studied both experimentally and quantitatively in a variety of aquatic and terrestrial species. Research programs include multilevel selection in social and life history evolution (Aviles); aquaculture biotechnology (Donaldson); marine mammal communication and ecology (Barrett-Lennard); metapopulation dynamics (Doebeli); avian cognition and hummingbird foraging behaviours (Gass); population ecology of Pacific salmon (Healey); fish bioenergetics and ecology (Hinch); insect population biology, plant population dynamics (Myers); freshwater community ecology, conservation biology of amphibians (Neill); mathematical modelling in biology and population genetics (Otto); marine ecosystems and global fisheries impact (Pauly); fisheries management (Pitcher); microbial population genetics (Redfield); ecology of streams and riparian areas (Richardson); vertebrate community ecology (Schluter); community ecology species diversity and trophic interactions especially in fresh water systems (Shurin); mammalian and avian population ecology, relationships between resources and population dynamics (Sinclair); population ecology and conservation of vertebrates (Smith); Community ecology and invertebrate species richness (Srivastava); population ecology of fish, conservation biology and genetics (Taylor); population ecology of marine mammals and interactions with fisheries (Trites); modelling of aquatic ecosystems, management of exploited animal populations (Walters); and population structures and population genetics (Whitlock).

CENTRE FOR BIODIVERSITY RESEARCH
The Centre for Biodiversity Research (a unit in the Faculty of Science) is concerned with all aspects of biodiversity research. Faculty members and their students from the Departments of Botany, Earth and Ocean Sciences, Microbiology and Zoology are cooperating to investigate the measurement of biological diversity, the role of biodiversity in ecosystem function, the origin and evolution of patterns of biodiversity, factors endangering biodiversity, uses of biological diversity and the many aspects of biological conservation. There is close association with the Centre for Applied Conservation Biology in the Faculty of Forestry

and the Fisheries Centre in the Faculty of Graduate Studies.

For more information contact the Centre by email (biodiversity.centre@ubc.ca) or see the Centre for Biodiversity Research website (www.zoology.ubc.ca/biodiversity).

COMPARATIVE PHYSIOLOGY AND BIOCHEMISTRY

Many aspects of animal physiology are studied from a comparative perspective, particularly mechanisms underlying adaptive responses to environmental constraints. Research programs include kinematics and energetics of swimming and flight (Blake); environmental adaptation in relation to gas exchange, acid-base balance and ion regulation (Brauner); comparative nutrition of marine invertebrates (Carefoot); transgenic manipulation of endocrine systems in salmon (Devlin); endocrine aspects of sex differentiation, ovulation, growth and stress in fish (Donaldson); physical properties of biological materials (elastin, spider silk), and mechanics of animal locomotion (Gosline); hormonal control of regulation salt and water in marine birds (Hughes); behavioural and metabolic physiology of diving mammals, birds and reptiles (Jones); neural control of respiratory and cardiovascular responses to environmental changes and activity levels in vertebrates (Milsom); Environmental regulation of gene expression (Schulte).

CORD (COLLABORATION ON REPAIR DISCOVERIES)

Aspects of central nervous system (CNS) and peripheral nervous system (PNS) development and repair are the focus using multi-disciplinary approaches from molecular to behavioural levels of organization. Research programs include molecular mechanisms of cell signalling and cell-cell interaction, especially the role of glial cells in neural development (Auld); cytoskeletal dynamics of developing neurons and molecules that alter neurite outgrowth (O'Connor); Anatomical, physiological and behavioural studies of sensory systems and regeneration following peripheral nerve or spinal cord injury (Ramer); promotion of axonal regeneration by adult CNS and PNS neurons through the use of peripheral nerve grafts and application of neurotrophic factors (Roskams and Zwiempfer); molecular and cellular repair mechanisms after adult spinal cord injuries (Steeves); vertebrate CNS development (Steeves and Tetzlaff); and factors that promote regeneration-associated gene expression after adult PNS or CNS injury (Tetzlaff).

EVOLUTIONARY BIOLOGY

Evolution is studied from a variety of perspectives, ranging from molecular to population level, while utilizing laboratory, field and theoretical approaches. Research programs include systematics and evolution of parasitic nematodes (Adamson); molecular evolution of salmonids (Devlin); Theoretical and experimental evolution of speciation and cooperation (Doebeli); molecular evolution (Grigliatti); origins and diversity of sperm nuclear basic proteins (Kasinsky); evolution of life cycles and mating systems, mathematical modelling

(Otto); the evolutionary origins of sexual reproduction (Redfield); evolutionary ecology of vertebrates (Schluter); Evolution of gene regulation (Schulte); molecular approaches to vertebrate evolution (Taylor); evolutionary ecology of vertebrates (Smith); and population structure and population genetics (Whitlock).

SPECIAL PROGRAMS

The Department of Zoology is actively involved in several interdisciplinary programs of instruction and research. Further details may be obtained by writing to the director or chair of the program as indicated below:

- Institute of Applied Mathematics
- Cancer Research: Director, BC Cancer Research Centre
- Oceanography: Head of the Department
- Fisheries Centre (www.fisheries.ubc.ca)
- Centre for Biodiversity Research (www.zoology.ubc.ca/biodiversity), Dr. Dolph Schluter, Director
- Genetics Program

CONTACT INFORMATION

Address:
Department of Zoology
Biological Sciences Building
6270 University Boulevard
Vancouver, BC V6T 1Z4
Tel: 604-822-5807
Fax: 604-822-2416
Website: www.zoology.ubc.ca

Dr. W. K. Milsom, Head
Dr. T. H. Carefoot, Graduate Advisor
Ms. Allison Barnes, Graduate Secretary

Centres and Institutes

CENTRE FOR HUMAN SETTLEMENTS

Anthony H.J. Dorcey, Chair

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. 173.

CENTRE FOR RESEARCH IN WOMEN'S STUDIES AND GENDER RELATIONS

S. Gunew, Director

The Centre for Research in Women's Studies and Gender Relations 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 traditional 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, both within UBC, with other institutions of higher learning, and 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 and graduate level courses. Students interested in pursuing Women's Studies and Gender Relations at the graduate level should contact the Director for further information or visit the Women's Studies website (www.wmst.ubc.ca).

MASTER OF ARTS IN WOMEN'S STUDIES AND GENDER RELATIONS

Administered by the Centre for Research in Women's Studies and Gender Relations, the Master of Arts and Ph.D. in Women's Studies and Gender Relations (M.A. [Women's Studies and Gender Relations]) allow qualified students to undertake graduate work in the field. For a program description, see *Women's Studies and Gender Relations*, p. 261.

CENTRE FOR SOUTHEAST ASIA RESEARCH

M. Leaf, Director

See *Institute of Asian Research*, p. 265.

CENTRE FOR THE STUDY OF CURRICULUM AND INSTRUCTION

Established by the Faculty of Education in 1976, the Centre for the Study of Curriculum and Instruction combines the features of both a research and program unit.

CENTRE OF INTERNATIONAL RELATIONS

B. L. Job, Director

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 from a wide 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 that have overlapping interests in international issues, especially the Institute of Asian Research and the Institute for European

Studies. The CIR has developed links with institutions in Canada and abroad.

The major research projects within the Centre at present focus on the transformation of the international system in the post-Cold War era; on Canada's role in the international order; on the formation of international regimes to manage global issues, including the environment; on South/North relations; and on international security, especially Asia-Pacific security.

The Centre sponsors projects, conferences, and lecture series; it publishes a Working Paper series. It does not offer courses or degree programs.

CONTACT INFORMATION

More information is on the Centre's website (www.cir.ubc.ca). Inquiries concerning graduate studies in international relations should be directed to the Department of Political Studies and the Faculty of Graduate Studies.

FISHERIES CENTRE

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, and the Fisheries Centre trains a very 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, engineering, mathematics, sociology, planning and policy 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 the co-management of shared fishery resources, and the conservation of endangered 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 appropriate for the next century.

The Fisheries Centre organizes grant and contract-based research, courses, seminars, workshops, professional training courses and publications that aim to promote a deeper understanding of management and development of fisheries resources around the globe. The Fisheries Centre forms a base for a research community of faculty, research associates, postdoctoral 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, four further research units are based within the Fisheries Centre. The BC Government Fisheries Research Section works on freshwater management, mitigation and recreational fisheries in the province. The Marine Mammal Research Unit (Director, Dr. Andrew Trites) is concerned with the interactions between mammal and fish resources in the North Pacific and in harbour seals. Project Seahorse (Director, Dr. Amanda Vincent) joined the Fisheries Centre in Summer 2002. A fourth unit, the Fisheries Economics Research Unit, was established at the same time.

The Director is directly responsible to the Dean of the Faculty of Graduate Studies. Although housed in the Centre, graduate students within the Fisheries Centre are currently attached to the Institute for Resources, Environment and Sustainability (RMES interdisciplinary program), or to Zoology, Economics, Animal Science or other disciplinary 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.

CONTACT INFORMATION

For more information contact the Fisheries Centre (office@fisheries.ubc.ca), 2204 Main Mall, The University of British Columbia, Vancouver, BC, Canada V6T 1Z4; telephone 604-822-2731, fax 604-822-8934, or visit the Fisheries Centre website (www.fisheries.ubc.ca).

GREEN COLLEGE

R. V. Ericson (Anthropology and Sociology, Law), 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 interdisciplinary groups, the Cecil and Ida Green Visiting Professorships series, a members' speakers series, a faculty speakers series, special seminars and workshops, research projects and a performing arts group. 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 and to dine with members. 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 82 graduate students and 16 post-doctoral researchers and visiting scholars on a unique site at the north end of the UBC campus, looking out towards English Bay and the mountains beyond. 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 which reflects the general graduate student population. They are permitted to live in Green College for a maximum term of three years. All residents are

required to participate in College dining. Non-resident members are also selected from the graduate student, post-doctoral researcher and faculty populations. The criteria for selection are the same as that for resident members. The visitor suites within the College are available for academic visitors, who are expected to interact with the College community during their periods of residence.

In addition to living accommodation, the College has meeting rooms, recreation facilities, dining and social facilities, a reading room, and administrative offices. The focal point of the College is Graham House, which has been restored to its original (1915) form and which contains the dining hall, reading room and social activities.

HUMAN EARLY LEARNING PARTNERSHIP (HELP)

Clyde Hertzman, Director
Hillel Goelman, Associate Director

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 British Columbia's four major universities. Drawn from disciplines such as neurology, biology, psychology, sociology, epidemiology and education, 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 British Columbia Ministry of Children and Family Development and the British Columbia 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 will trace the neurodevelopment, cognitive, socio-economic, familial, peer, biological, cognitive, community and cultural factors in child development. HELP is also mobilizing the B.C. Linked Health Database and the B.C. Educational Data Centre (Edudata) to create longitudinal trajectories of health and development for defined populations of B.C. children.

HELP is poised to make a significant contribution to the understanding of, and approaches to, early childhood development, education and intervention in British Columbia, so that all children have the means to reach their full potential.

CONTACT INFORMATION

For further information contact the Managing Director, Jacqueline Smit Alex (smitalex@chspr.ubc.ca), The University of British Columbia, Library Processing Centre,

320-2206 East Mall, Vancouver, BC, V6T 1Z3, telephone 604-822-2604, fax 604-822-0640.

INSTITUTE FOR EUROPEAN 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 programme 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.

MASTER OF ARTS IN EUROPEAN STUDIES

The program leading to the M.A. (European Studies) 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 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. 234 under Faculty of Graduate Studies, Programs.

CONTACT INFORMATION

For more information, contact the Institute for European Studies (ies@interchange.ubc.ca), The University of British Columbia, C. K. Choi Building Room 182, 1855 West Mall, Vancouver, BC, V6T 1Z2; telephone 604-822-1452, fax 604-822-3433, or visit the Institute of European Studies website (www.ies.ubc.ca).

INSTITUTE FOR RESOURCES, ENVIRONMENT AND SUSTAINABILITY

L. M. Lavkulich, Director and Chair of Resource Management and Environmental Studies

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.ire.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. 258 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 co-ordination 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.

CONTACT INFORMATION

For more information contact the Institute for Resources, Environment and Sustainability (rmesgrad@interchange.ubc.ca). The University of British Columbia, Vancouver, BC, V6T 1Z3, telephone 604-822-9249, fax 604-822-9250, or visit the Institute for Resources, Environment and Sustainability (and Resource Management and Environmental Studies) website (www.ire.ubc.ca).

INSTITUTE OF APPLIED MATHEMATICS

Bernie Shizgal, Director

The Institute of Applied Mathematics (IAM) promotes interdisciplinary research activities involving applied mathematics. To this end, the Institute organizes colloquia, and special seminars; has 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.

MASTER OF SCIENCE AND DOCTOR OF PHILOSOPHY

For information regarding programs available in Applied Mathematics, see *Applied*

Mathematics, p. 220 under Faculty of Graduate Studies, Programs.

INSTITUTE OF ASIAN RESEARCH

P. Potter, Director

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. To this end the Institute and its constituent centres organize seminars, lectures, workshops, conferences, art exhibits, and cultural performances. A series of working papers and monographs, as well as the *Asia Pacific Report*, a bi-annual newsletter focusing on current activities relating to Asia on campus and in the community, are also published.

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 is in the process of hiring endowed research chairs 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. In 1997 the Centre for Australian Studies was added to the Institute's public policy program as a special APEC legacy project following a bilateral agreement between the prime ministers of Canada and Australia.

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. 222 under Faculty of Graduate Studies, Programs for a description of the program.

CONTACT INFORMATION

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 (iar@interchange.ubc.ca) is located in the C. K. Choi Building for the Institute of Asian Research, 1855 West Mall, The University of British Columbia, Vancouver, BC, V6T 1Z2, Canada; telephone 604-822-4688, fax 604-822-5207. See also the Institute's website (www.iar.ubc.ca).

CENTRE FOR AUSTRALIAN STUDIES

See *Institute of Asian Research*, p. 265.

CENTRE FOR CHINESE RESEARCH

D. Lary, Director

See *Institute of Asian Research*, p. 265.

CENTRE FOR INDIA AND SOUTH ASIA RESEARCH

M. Bose, Director

See *Institute of Asian Research*, p. 265.

CENTRE FOR JAPANESE RESEARCH

D. Edgington, Director

See *Institute of Asian Research*, p. 265.

CENTRE FOR KOREAN RESEARCH

D. Baker, Director

See *Institute of Asian Research*, p. 265.

INSTITUTE OF HEALTH PROMOTION RESEARCH

Annalee Yassi, Director

C. J. Frankish, Associate Director

Established within the Faculty of Graduate Studies in 1990, the institute provides a UBC focus for interdisciplinary collaboration on research, education and community partnerships in health promotion.

The institute's faculty, staff, graduate students, postdoctoral fellows and visiting scholars approach health as a resource for societies, communities and individuals. Health promotion is a process that encourages personal control and public responsibility in health matters. The IHPR seeks to bridge the university's research and educational programs across the behavioural, biomedical, educational, environmental and social sciences disciplines and to bring them into closer working relationships with community groups and agencies pursuing this vision of health.

The IHPR's program of research and education supports the development of international, national and provincial and local efforts that will enable people and their communities to gain greater control over the determinants of their health. The research examines the social, behavioural and environmental determinants of health and the factors that predispose, enable and reinforce individual and collective actions in relation to these determinants. Research projects include policy analyses, epidemiologi-

cal study of social or behavioural determinants of health and disease or injury, design and evaluation 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. This innovative work requires creation of interdisciplinary teams of researchers and active participation by community groups.

Building on the strengths at UBC in the health, social and environmental sciences, the Institute's research teaching, and development of health promotion methods involve both fundamental and applied research. Some of this work is carried out in collaboration with colleagues at other Universities; and the IHPR is an active participant in the Canadian Consortium for Health Promotion Research. The Institute currently houses two CIHR-funded Community Alliance for Health Research grants, a CIHR-MSFHR funded, Research Training Program and a large number of research grants in workplace health, international health, the health of vulnerable populations, community capacity building, health services and other areas.

Students may enrol for both doctoral and masters programs through the Individual Interdisciplinary Studies route by establishing individual programs under the guidance of a multi-departmental faculty committee. The IHPR may also house students from departmental programs associated with the institute's mission.

CONTACT INFORMATION

For more information contact Annalee Yassi, Director, IHPR, 2206 East Mall, Library Processing Centre Bldg. 4th floor, The University of British Columbia, Vancouver, BC, V6T 1Z3; telephone 604-822-2258, fax 604-822-9210; website: www.ihpr.ubc.ca.

INSTITUTE OF HEARING ACCESSIBILITY RESEARCH

M. K. Pichora-Fuller, Director

The Institute of Hearing Accessibility Research (IHEAR) was established in 1994 with the mission to develop research, training, education, and service in the field of hearing accessibility. In pursuing this mission, the Institute co-ordinates the activities of scientists, professionals, manufacturers, and consumers to examine the problems facing 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 the hard of hearing—people with hearing loss (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.

The areas of activity include hearing accessibility issues in the home, in the educational setting, at the work place, in the health care setting, and in 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.

CONTACT INFORMATION

For further information contact the Director, Dr. M. Kathleen Pichora-Fuller (kpff@audiospeech.ubc.ca), IHEAR, The University of British Columbia, 5804 Fairview Avenue, Vancouver, BC, V6T 1Z3; telephone 604-822-9474, fax 604-822-6569.

LIU INSTITUTE FOR THE STUDY OF GLOBAL ISSUES

L. Axworthy, Director

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 international justice issues.

CONTACT INFORMATION

The Liu Institute (liuctre@interchange.ubc.ca) is located at 6476 North West Marine Drive and can be reached by telephone at 604-822-1558, fax 604-822-6966. For more information, visit the Liu Institute website (www.ligi.ubc.ca).

MEDIA AND GRAPHICS INTERDISCIPLINARY CENTRE

S. Fels, Director

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 modelling, interactive web-based applications, hypermedia, computer music and computer-based tools for collaboration in education, medicine and entertainment. The Centre highlights UBC's commitment 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.

PACIFIC AFFAIRS

See *Publications*, p. 79, in the Calendar or visit (www.pacificaffairs.ubc.ca).

PETER WALL INSTITUTE FOR ADVANCED STUDIES

Dianne Newell, Director (Acting)

The Peter Wall Institute for Advanced Studies was established to support fundamental, interdisciplinary research and creative activities which 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 taking place 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.
- **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.

RESIDENTIAL PROGRAMS:

- **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** are outstanding researchers at the early stages of their careers who are nominated by a UBC department to spend a month in residence at the Institute. The scholars will be from a wide variety of disciplines and will interact with peers in very different areas. Nominees for this program can have no previous UBC connections. The Institute provides participants with a room in the Institute's residence, scheduled meals and a generous expense allowance.

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.

CONTACT INFORMATION

For further information contact the Institute:
Email: info@pwias.ubc.ca;
telephone 604-822-4782, fax 604-822-4222;
The University Centre, 6331 Crescent Road,
Vancouver, BC, V6T 1Z2
Visit the Institute's website at
(www.pwias.ubc.ca).

ST. JOHN'S COLLEGE

R. Grant Ingram, Principal

St. John's College is a 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.

Residential facilities include 136 studio residence units, 8 accessible units, 11 one-bedroom units for couples, 4 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, extra-curricular 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.

SUSTAINABLE DEVELOPMENT RESEARCH INSTITUTE

See *Institute for Resources, Environment and Sustainability*, p. 264.

THE W. MAURICE YOUNG CENTRE FOR APPLIED ETHICS

P. Danielson, Mary & Maurice Young Professor of Applied Ethics and Director

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, and ethics technology, ethics and genetics/genomics, and research ethics. The Centre has four endowed chairs and professorships, three faculty members with clinical ethics appointments, faculty associates from many disciplines, research associate, adjunct professor, and post-doctoral fellows. As well, the two NSERC Industrial Chairs in Animal Welfare are associated with the Centre. In addition, the Centre sponsors a weekly 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.

WESTWATER RESEARCH UNIT

See *Institute for Resources, Environment and Sustainability*, p. 264.

Registration 2002/2003

| Program | Degree | Total |
|---|---------------|-------|
| Agricultural Economics | M.Sc. | 10 |
| Agricultural Extension | M.Sc. | 0 |
| Anatomy | M.Sc. | 7 |
| | Ph.D. | 6 |
| Animal Science | M.Sc. | 24 |
| | Ph.D. | 22 |
| Anthropology | M.A. | 25 |
| | Ph.D. | 15 |
| Architecture | M.Arch. | 152 |
| | M.A.S.A. | 18 |
| Archival Studies | M.A.S. | 29 |
| Archival Studies & Library Info Studies | M.A.S.L.I.S | 20 |
| Asia Pacific Policy Studies | M.A.A.P.S. | 41 |
| | M.A.L.L.B. | 3 |
| Asian Studies | M.A. | 17 |
| | Ph.D. | 41 |
| Astronomy | M.Sc. | 6 |
| | Ph.D. | 5 |
| Atmospheric Science | M.Sc. | 10 |
| | Ph.D. | 12 |
| Audiology and Speech Sciences | M.Sc. | 55 |
| | Ph.D. | 4 |
| Biochemistry and Molecular Biology | M.Sc. | 24 |
| | Ph.D. | 32 |
| Bio-Resource Engineering | M.A.Sc. | 1 |
| | M.Sc. | 4 |
| Botany | M.Sc. | 15 |
| | Ph.D. | 38 |
| Chemical and Biological Engineering | M.A.Sc. | 36 |
| | M.Eng. | 5 |
| | Ph.D. | 38 |
| Chemistry | M.Sc. | 41 |
| | Ph.D. | 115 |
| Children's Literature | M.A. | 20 |
| Civil Engineering | M.A.Sc. | 89 |
| | M.Eng. | 80 |
| | Ph.D. | 69 |
| Classical Archaeology | M.A. | 13 |
| Classics | M.A. | 5 |
| | Ph.D. | 10 |
| Commerce | M.B.A. | 253 |
| | I.M.B.A. | 48 |
| | M.Sc.B. | 85 |
| | Ph.D. | 69 |
| | L.L.B./M.B.A. | 2 |
| Community and Regional Planning | M.A.P. | 83 |
| | M.Sc.P. | 32 |
| | Ph.D. | 8 |
| Comparative Literature | M.A. | 7 |
| | Ph.D. | 11 |
| Computer Science | M.Sc. | 110 |
| | Ph.D. | 52 |
| Counselling Psychology | M.A. | 164 |

| Program | Degree | Total |
|-------------------------------------|-----------|-------|
| | M.Ed. | 144 |
| | Ph.D. | 92 |
| Creative Writing | M.A. | 39 |
| | M.F.A. | 0 |
| Creative Writing/Film | M.F.A. | 0 |
| Creative Writing/Theatre | M.F.A. | 0 |
| Curriculum and Instruction | M.A. | 15 |
| | M.Ed. | 120 |
| | Ph.D. | 61 |
| Curriculum Studies | M.A. | 40 |
| | M.Ed. | 138 |
| | Ph.D. | 46 |
| Dentistry | M.Sc. | 18 |
| | M.Sc./PDT | 10 |
| | Ph.D. | 8 |
| Economics | M.A. | 55 |
| | Ph.D. | 58 |
| Educational Studies | Ed.D. | 39 |
| | M.A. | 62 |
| | M.Ed. | 202 |
| | Ph.D. | 77 |
| Educational Technology | M.E.T. | 52 |
| Electrical and Computer Engineering | M.A.Sc. | 172 |
| | M.Eng. | 40 |
| | Ph.D. | 83 |
| Engineering Physics | M.A.Sc. | 3 |
| English | M.A. | 51 |
| | Ph.D. | 44 |
| European Studies | M.A. | 12 |
| Experimental Medicine | M.Sc. | 47 |
| | Ph.D. | 42 |
| Family Studies | M.A. | 15 |
| Film | M.A. | 2 |
| | M.F.A. | 6 |
| Fine Arts | M.A. | 23 |
| | M.F.A. | 17 |
| | Ph.D. | 13 |
| Fire Protection Engineering | M.Eng. | 1 |
| Food Science | M.Sc. | 12 |
| | Ph.D. | 14 |
| Forestry | M.F. | 7 |
| | M.A.Sc. | 6 |
| | M.Sc. | 99 |
| | Ph.D. | 76 |
| French | M.A. | 17 |
| | Ph.D. | 10 |
| Genetics | M.Sc. | 30 |
| | Ph.D. | 32 |
| Genetic Counselling | M.Sc. | 12 |
| Geography | M.A. | 17 |
| | M.Sc. | 18 |
| | Ph.D. | 51 |
| Geological Engineering | M.Eng. | 3 |
| | M.A.Sc. | 1 |
| | Ph.D. | 3 |

| Program | Degree | Total |
|----------------------------------|----------------|-------|
| Geological Science | M.Sc. | 36 |
| | Ph.D. | 15 |
| Geophysics | M.Sc. | 11 |
| | Ph.D. | 9 |
| Germanic Studies | M.A. | 10 |
| | Ph.D. | 15 |
| Health Care and Epidemiology | M.H.A. | 57 |
| | M.H.Sc. | 38 |
| | M.Sc. | 15 |
| | Ph.D. | 37 |
| Hispanic Studies | M.A. | 10 |
| | Ph.D. | 9 |
| History | M.A. | 34 |
| | Ph.D. | 19 |
| Human Kinetics | M.A. | 17 |
| | M.H.K. | 18 |
| | M.Sc. | 24 |
| | Ph.D. | 24 |
| Human Nutrition | M.Sc. | 29 |
| | Ph.D. | 5 |
| Interdisciplinary | M.A. | 7 |
| | M.Sc. | 5 |
| | Ph.D. | 68 |
| Journalism | M.J. | 41 |
| Landscape Architecture | M.A.S.L.A. | 3 |
| | M.L.A. | 62 |
| Language Education | M.A. | 41 |
| | M.Ed. | 110 |
| | Ph.D. | 43 |
| Law | LL.M. | 55 |
| | Ph.D. | 14 |
| Library Science | M.L.I.S. | 160 |
| Linguistics | M.A. | 15 |
| | Ph.D. | 22 |
| Mathematics | M.A. | 0 |
| | M.Sc. | 32 |
| | Ph.D. | 38 |
| Mechanical Engineering | M.A.Sc. | 74 |
| | M.Eng. | 10 |
| | B.A.Sc./M.Eng. | 7 |
| | Ph.D. | 40 |
| Medical Genetics | M.Sc. | 16 |
| | Ph.D. | 22 |
| M.D./Ph.D. [Combined Program] | M.D./Ph.D. | 11 |
| Metals and Materials Engineering | M.A.Sc. | 42 |
| | M.Eng. | 1 |
| | M.Sc. | 3 |
| | Ph.D. | 29 |
| Microbiology and Immunology | M.Sc. | 32 |
| | Ph.D. | 42 |
| Mining and Mineral Process Eng. | M.Eng. | 2 |
| | M.A.Sc. | 32 |
| | Ph.D. | 17 |
| Music | M.A. | 9 |

| Program | Degree | Total |
|---|----------|-------|
| | M.Mus. | 54 |
| | Ph.D. | 11 |
| | D.M.A. | 29 |
| Neuroscience | M.Sc. | 37 |
| | Ph.D. | 38 |
| Nursing | M.S.N. | 195 |
| | Ph.D. | 35 |
| Occupational and Environmental Hygiene | M.Sc. | 19 |
| | Ph.D. | 3 |
| Oceanography | M.Sc. | 9 |
| | Ph.D. | 15 |
| Pathology & Laboratory Medicine | M.Sc. | 38 |
| | Ph.D. | 39 |
| Pharmaceutical Sciences | M.Sc. | 21 |
| | Pharm.D. | 12 |
| | Ph.D. | 19 |
| Pharmacology and Therapeutics | M.Sc. | 11 |
| | Ph.D. | 16 |
| Philosophy | M.A. | 7 |
| | Ph.D. | 15 |
| Physics | M.Sc. | 51 |
| | Ph.D. | 55 |
| Physiology | M.Sc. | 8 |
| | Ph.D. | 16 |
| Plant Science | M.Sc. | 6 |
| | Ph.D. | 18 |
| Political Science | M.A. | 46 |
| | Ph.D. | 21 |
| Psychology | M.A. | 34 |
| | Ph.D. | 66 |
| Pulp and Paper Engineering | M.Eng. | 0 |
| Rehabilitation Sciences | M.Sc. | 16 |
| Resource Management and Environmental Studies | M.A. | 7 |
| | M.Sc. | 40 |
| | Ph.D. | 49 |
| Reproductive & Developmental Sci. | M.Sc. | 8 |
| | Ph.D. | 9 |
| Religious Studies | M.A. | 15 |
| Social Work | M.S.W. | 128 |
| Sociology | M.A. | 21 |
| | Ph.D. | 24 |
| Software Systems | M.S.S. | 46 |
| Soil Science | M.Sc. | 9 |
| | Ph.D. | 5 |
| Statistics | M.Sc. | 14 |
| | Ph.D. | 8 |
| Surgery | M.Sc. | 15 |
| Theatre | M.A. | 3 |
| | M.F.A. | 10 |
| | Ph.D. | 3 |
| Theatre & Film | M.F.A. | 1 |
| Women's Studies and Gender Relations | M.A. | 14 |
| | Ph.D. | 7 |

| Program | Degree | Total |
|---------------------------------------|--------|--------------|
| Zoology | M.Sc. | 60 |
| | Ph.D. | 59 |
| Total (as of February 3, 2003) | | 7,387 |

Academic Staff

DEAN'S OFFICE

Frieda Granot, B.Sc., M.Sc. (Technion Israel), Ph.D. (Texas); **Lynn Alden**, B.Sc. (Iowa), Ph.D. (Ill. Champaign), Professor of Psychology and Associate Dean; **Kersti Krug**, B.A. (Brit. Col.), MBA (Brit. Col.), Ph.D. (Brit. Col.), Assistant Dean; **Ann Rose**, B.A. (Saskatchewan), Ph.D. (Simon Fraser), Professor of Genetics and Associate Dean.

MEMBERS

Membership in the Faculty of Graduate Studies includes all full-time tenured or tenure-track faculty members in the University of Assistant Professor level or higher.

2003-04

12 College of Health Disciplines

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 affiliating Faculties are Agricultural Sciences, Applied Science, Arts, Dentistry, Education, 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 clinical/fieldwork experiences, the goal of common policy approaches in UBC’s relations with government, and the contribution of the Colleges, 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 that could not be engaged in by any one Faculty 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-professional and professional 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 fieldwork education of students; 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, and Heads of associated departments. 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: Educational Support and Development, the Media Group, Interprofessional Education, and Health Care 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, and sponsors the Health Sciences Student’s Association and the Global Outreach Students Association.

Principal’s Office
Dr. John H.V. Gilbert, Principal
400–2194 Health Sciences Mall
Vancouver, B.C. V6T 1Z1
Tel: 604-822-5571
Fax: 604-822-2495
www.health-disciplines.ubc.ca

Health Sciences Students’ Association

The Health Sciences Students’ Association (HSSA) is an organization that promotes the interaction of the College’s Affiliating 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.

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 abroad in Guatemala.

The Media Group

The Media Group is a media support service 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.

The Media Group
Tony Voon, Dipl. T., Director
Room B32, Woodward Instructional Resources Centre
2194 Health Sciences Mall
Vancouver, B.C. V6T 1Z3
Tel: 604-822-5561
Fax: 604-822-2004
www.mediagroup.ubc.ca

Division of Educational Support and Development

The Division of Educational Support and Development provides educational consultation to the health sciences faculties and

schools. It continues to address this mandate, with a special focus on the College's goal of fostering interprofessional education.

The Division is involved in provincial, national and international research and development programs on the evaluation of the clinical competence of students and practicing health professionals, and on the improvement of educational programs and the effectiveness of teaching in the health sciences.

DIVISION OF EDUCATION SUPPORT & DEVELOPMENT
Gordon G. Page, Ed.D., Director
Marc Broudo, M.A., Associate Director

400-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-5083
Fax: 604-822-2495

www.health-disciplines.ubc.ca

Division of Health Care Communication

The aim of the Division is to improve client involvement in health care decision-making through collaborative research & program development. Research is conducted with patients/clients and health professionals in the community and 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.

DIVISION OF HEALTH CARE COMMUNICATION
William Godolphin, Ph.D. Co-Director
Angela Towle, Ph.D., Co-Director

400-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-8002
Fax: 604-822-2495
www.health-disciplines.ubc.ca

Centre for Health Services and Policy Research

The Centre for Health Services and Policy Research was established in 1990 on the premise that the University should be a key partner in bringing research evidence to the process of health care policy and planning. Its overall mission is to stimulate scientific enquiry into issues of health in population groups, and ways in which health services can best be organized, funded and delivered. The Centre also plays a major role in the development and maintenance of state of the art databases to support population-based research.

The research program at the Centre is multidisciplinary in nature and involves health services researchers, health economists, health policy analysts, medical sociologists, medical anthropologists, clinical epidemiologists and researchers from other disciplinary backgrounds who are based in a number of faculties at UBC.

Research activities are funded by competitive external grants from international, national and provincial funding agencies and by ongoing support from the BC Ministries of Health. Faculty members are involved in collaborative projects at UBC and with researchers at other Canadian and international institutions.

A publication series of reports and papers that have been developed by faculty and affiliates is available. The Centre communicates results of faculty and staff research activities by sponsoring public seminars, workshops and conferences and by circulating discussion papers, research reports and reprints.

While the Centre itself does not offer courses, several faculty members teach courses at the undergraduate and graduate level that are relevant to the understanding of population health and health services research. The Centre hosts and mentors a number of graduate students and postdoctoral fellows. In addition, the Centre provides an environment and resources to support student thesis work, and serves as a potential site for research placements, residency training, and summer employment.

CENTRE FOR HEALTH SERVICES & POLICY RESEARCH
Charlyn Black, M.D., Sc.D., Director

429-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-4810
Fax: 604-822-5690

www.chspr.ubc.ca

Institute for Aboriginal Health

The Institute for Aboriginal Health assists UBC health and human service faculties, schools and departments and other post-secondary institutions with program development concerning First Nations health issues. The Institute for Aboriginal Health aims to develop capacity with Aboriginal communities and further assist health education, training, Aboriginal health research, while respecting traditional knowledge.

INSTITUTE FOR ABORIGINAL HEALTH
Eduardo Jovel, Ph.D., Director

403-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-7615
Fax: 604-822-2495

www.health-disciplines.ubc.ca/iah

DIVISION OF FIRST NATIONS HEALTH CAREERS

The goal of the Division of First Nations Health Careers within the Institute for Aboriginal Health is to increase the number of First Nations health care professionals. This includes improving First Nations access to health and human service programs at UBC; providing support to First Nations students enrolled in health and human service programs; assisting in identifying health care issues; assisting in developing programs relevant to First Nations health care needs; and encouraging interest in

health and human service careers at the secondary school level.

DIVISION OF FIRST NATIONS HEALTH CAREERS
Rosalyn Ing, Ph.D., Coordinator

First Nations Long House
1985 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-2115
Fax: 604-822-8944

www.health-disciplines.ubc.ca/iah/

DIVISION OF COMMUNITY LIAISON

The Division of Community Liaison is focused on rural and urban Aboriginal communities, including Aboriginal secondary and post-secondary institutions. The goal of the division is to strengthen and enhance relationships between Aboriginal communities and the University; to promote UBC health and human service programs in consultation with Aboriginal communities; and to increase the capacity of health professionals.

DIVISION OF COMMUNITY LIAISON

INSTITUTE FOR ABORIGINAL HEALTH
Heidi Verburg, M.S.W., Coordinator

408-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-5677
Fax: 604-822-2495

www.health-disciplines.ubc.ca/iah

Centre for International Health

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 Student Organization (GOSA), which interested students are strongly encouraged to join.

CENTRE FOR INTERNATIONAL HEALTH
Jerry Spiegel, Ph.D., Director

400-2194 Health Sciences Mall
Vancouver, BC V6T 1Z3
Tel: 604-822-1398
Fax: 604-822-2495

www.health-disciplines.ubc.ca

Division of Interprofessional Education

Lesley Bainbridge, M.Ed., BSR(PT), Chair

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.

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 & Speech Sciences; Counselling Psychology; Dentistry & Dental Hygiene; Food, Nutrition & Health; Human Kinetics; Medicine; Nursing; Occupational Therapy; Pharmaceutical Sciences; Physical Therapy; and Social Work & Family Studies.

Courses

- | | | |
|-----|----------|--|
| 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 |

Affiliated Faculties

COUNCIL OF THE COLLEGE OF HEALTH DISCIPLINES:

| | |
|--|---|
| Faculty of Applied Science School of Nursing | Dr. Sally Thorne, Director |
| Faculty of Agricultural Sciences Food Nutrition and Health | Dr. Tim Durance |
| Faculty of Arts School of Social Work and Family Studies | Professor Graham Riches, Director |
| Clinical Psychology | Dr. Patricia Conrod |
| Faculty of Dentistry Dental Hygiene | Ms. Bonnie Craig, Director |
| Faculty of Education School of Human Kinetics | Dr. Peter Crocker, Director |
| Counselling Psychology | Dr. Richard Young, Acting Deputy Head |
| Faculty of Medicine | Dr. Joanna Bates, Sr. Associate Dean, Undergraduate Programs |

| | |
|---|---|
| Midwifery Program | Prof. Elaine Carty, Director |
| School of Audiology & Speech Sciences | Dr. Carolyn Johnson, Director |
| School of Rehabilitation Sciences, PT | Ms. Lesley Bain- bridge, Head |
| School of Rehabilitation Sciences, OT | Ms. Sue Murphy, Head |
| Faculty of Pharmaceutical Sciences | Dean Robert Sindelar |
| Academic Programs | Dr. Neil Guppy, Associate Vice President |
| Interprofessional Activities Committee | Dr. James McCormack (Pharmacy) |
| Interprofessional Education Committee | Ms. Lesley Bainbridge (Rehabilitation Sciences) |
| Committee on Information Technology | Dr. Kathryn Hornby (Woodward Library) |
| Fieldwork Committee | Dr. Grant Charles (Social Work) |
| Health Sciences Students' Association | Ms. Audrey Haboosheh, President |
| Senate Student Representative | Mr. Omar Alasaly |
| Senate Student Representative | Ms. Gina Tsai |
| UBC Library | Ms. Lea Starr |

ACADEMIC STAFF FROM AFFILIATED FACULTIES

Christine Carpenter, Dip. (P.T.), England, B.A., M.A. (Brit.Col.), Ph.D. (Brit.Col.); **Marcia Choi**, B.A., M.Sc. (Brit. Col.); **Charles James Frankish**, M.A., Ph.D. (Brit. Col.); **Romayne Gallagher**, B.Sc., M.D. (Brit. Col.); **Irene Goldstone**, B.N. (McG.), M.Sc. (Brit.Col.), R.N., **Peter Granger**, M.D. (Tor.); **Diana Johansen**, B.Sc. (Brit. Col.); **Eduardo Jovel**, B.Sc. (Calif. State Polytechnic), M.Sc. (Brit.Col.), Ph.D. (Brit.Col.); **Ryna Levy Milne**, B.Sc. (Tor.), M.Sc., Ph.D. (Nfld.); **Michael MacEntee**, L.D.S. (R.C.S.I.), Dipl.Prosth. (S. Carolina), Ph.D. (Dublin), F.R.C.P.(C), **Sharon McKinnon**, B.Sc., M.Sc. (Brit. Col.), M.A. (S. Fraser), Ph.D. (Brit. Col.); **Deborah O'Connor**, B.S.W. (Windsor), M.S.W. (Tor.), D.S.W. (Wilfred Laurier); **Brian O'Neil**, M.S.W. (Car.), D.S.W. (Wilfred Laurier); **Aleck Ostry**, B., B.Sc., M.Sc. (Brit. Col.); **Barbara Patterson**, M.Ed., (Man.), Ph.D., (Man.); **Barbara Purves**, B.A. (S. Fraser), M.Sc. (Brit. Col.); **Michael Seear**, B.Sc. (Lond.), M.B., Ch.B. (Rhodesia), FRCPC; **T. Richard Sullivan**, B.A. (Windsor), M.A. (Calg.), Ph.D. (Calif.-Berkeley); **David Wensley**, M.B., B.S. (Lond.), FRCPC, M.R.C.P. (UK).

INTERPROFESSIONAL ACTIVITIES

Dr. Marla Arvay, Faculty of Education, ECPS, **Dr. Susan Barr**, Faculty of Agricultural Sciences **Ms. Cindy Bruce**, School of Audiology & Speech Sciences, **Dr. Carole Christensen**, School of Social Work & Family Studies, **Ms. Maureen Dunn**, College of Health Disciplines, **Dr. Isabel Dyck**, School of Rehabilitation Sciences (OT), **Ms. Audrey Haboosheh**, Health Sciences Students Assn., **Dr. Ryna Levy Milne**, Faculty of Agricultural Sciences, **Dr. James McCormack** (Chair), Faculty of Agricultural Sciences, **Dr. Dan Rurak**, Faculty of Medicine, **Dr. Ravi Shah**, Faculty of Dentistry, **Ms. Elsie Tan**, School of Nursing

INTERPROFESSIONAL EDUCATION

Ms. Lesley Bainbridge, (Chair) School of Rehabilitation Sciences (PT), **Dr. Gwen Chapman**, Faculty of Agricultural Sciences, **Ms. Bonnie Craig**, Faculty of Dentistry, Dental Hygiene, **Dr. David Fielding**, Faculty of Pharmaceutical Sciences, **Dr. Peter Granger**, Faculty of Medicine, Family Practice, **Ms. Audrey Haboosheh**, Health Sciences Students' Assn., **Dr. Susan James**, Faculty of Education, ECPS, **Dr. Barbara Paterson**, School of Nursing, **Mr. Ajay Puri**, Faculty of Science, **Ms. Barbara Purves**, School of Audiology & Speech Sciences, **Ms. Leslie Soon**, College of Health Disciplines, **Ms. Sue Stanton**, School of Rehabilitation Sciences (OT), **Dr. Darren Warburton**, School of Human Kinetics, **Dr. Margaret Wright**, School of Social Work & Family Studies

INFORMATION TECHNOLOGY

Dr. Kendall Ho, Faculty of Medicine, **Dr. Kathryn Hornby** (Chair), Woodward Biomedical Library, **Ms. Cathryn Jackson**, School of Nursing, **Dr. Arminee Kazanjian**, Faculty of Medicine, **Dr. Maureen Kent**, Faculty of Agricultural Sciences, **Dr. Michelle Lambertson**, Office of Technology Learning, **Mr. Cyprien Lomas**, Faculty of Science, **Ms. Christine Marton**, School of Library, Archival and Information Studies, **Dr. James McCormack**, Faculty of Pharmaceutical Sciences, **Ms. Cathy Rayment**, UBC Library, **Dr. Robert Sparks**, School of Human Kinetics **Ms. Sophie Spiridonoff**, Faculty of Dentistry, **Ms. Sally Taylor**, Woodward Biomedical Library, **Dr. Jim Tom**, IT Services, **Mr. Tony Voon**, Media Group, College of Health Disciplines, **Ms. Charlene Walsh**, College of Health Disciplines, **Ms. Tracy Wells**, College of Health Disciplines

FIELD WORK

Dr. Elaine Carty, Faculty of Medicine, Midwifery, **Dr. Grant Charles** (Chair), School of Social Work & Family Studies, **Ms. Bonnie Craig**, Faculty of Dentistry, Dental Hygiene, **Dr. Judith Daniluk**, Faculty of Education, ECPS, **Ms. Donna Drynan**, School of Rehabilitation Sciences (OT), **Dr. Wendy Frisby**, School of Human Kinetics, **Dr. Rosemin Kassam**, Faculty of Pharmaceutical Sciences, **Ms. Dyane Lynch**, College of Health Disciplines, **Dr. Ryna Levy Milne**, Faculty of Agricultural Sciences, **Ms. Pat Lieblich**, School of Rehabilitation Sciences (PT), **Ms. Elizabeth MacLeod**, School of Audiology & Speech Sciences, School of Nursing

2003-04

13 The School of Human Kinetics

A SCHOOL WITHIN THE FACULTY OF EDUCATION

Director's Office

Peter R. E. Crocker, Director

Robert Sparks, Associate Director,

Undergraduate Affairs

Ian Franks, Associate Director, Graduate Affairs and Research

War Memorial Gymnasium

6081 University Boulevard

Vancouver, BC V6T 1Z1

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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. 268 in the 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 exercise science, health and fitness, leisure and sport management and physical education.

ACADEMIC ADVISING

Students are responsible for the completeness and accuracy of their registration as it relates to the regulations of their program. All students are required to choose a program of study in order to register. Students should choose elective credits appropriate to their selected program of study and must obtain program approval in writing prior to entering the third year of their program.

All Human Kinetics students who are accepted on transfer from other universities must consult the Undergraduate Advising Centre and obtain approval in writing for their program prior to registering in courses.

Academic advising is available throughout the summer by drop-in or email. Contact the Undergraduate Advising Centre (hkin-advising@interchange.ubc.ca) in the War Memorial Gym, Room 202, 6081 University Boulevard, Vancouver, BC, V6T 1Z1; telephone 604-822-4512.

ADMISSION

Due to limited resources, the School has been authorized to restrict enrolment. Achievement of the minimum requirements for admission does not guarantee acceptance. See *Undergraduate Admission*, p. 21 for new requirements effective May 1997. Students applying to enter the School must make formal application to Enrolment Services no later than March 31 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).

All Human Kinetics students who are accepted on transfer from other institutions must consult the School's Undergraduate Advising Centre and obtain approval in writing for their selected program of studies prior to registering in courses.

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 permission 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 All students are required to choose a program of study in order to register through the Student Information System (SIS).
- 2 Students should choose non-Human Kinetics elective credits appropriate to their selected program of study and must obtain program approval for these credits, in writing, prior to entering the third year of their program.
- 3 Students should make all course changes through the online Student Service Centre (SSC) (students.ubc.ca/ssc) whenever possible. To be considered for admission into a "full" Human Kinetics course while registration on the Student Service Centre (SSC) (students.ubc.ca/ssc) is open, students must register into the appropriate waiting list section on the SSC.
- 4 See *Change of Registration*, p. 34 for regulations regarding adding and dropping courses.
- 5 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.
- 6 Students are required to register in a minimum of nine Human Kinetics credits during each Winter Session.
- 7 Students who wish to change their program or who wish to meet any revised degree requirements which have been approved by the Senate must receive approval in writing from the School's Undergraduate Advising Centre.
- 8 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. 31, in *Academic Regulations*.

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 program requirements by completing studies whether at UBC or elsewhere;
- 2 satisfy at least 50% of the credits 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.

1 Courses taken while studying at another institution on a Senate-approved exchange program satisfy this requirement.

and successfully complete the following 120 credits:

- ENGL 112 (3) and three additional credits of first-year English (3)
- Human Kinetics Core: HKIN 161 (3), 163 (3), 164 (3)
- Plus at least one of: HKIN 103 (3), 110 (3) or 120 (3)
- Program courses (see notes 1 to 7 below) (93)
- Human Kinetics Electives (9)

Students must select one of four programs: Exercise Science, Health and Fitness, Leisure and Sport Management, Physical Education. The following notes apply to the four programs of study:

- 1 All Bachelor of Human Kinetics students must take ENGL 112 plus three additional credits of first-year English.
- 2 A total of 42 to 60 credits of non-HKIN courses is required, including six credits of first-year English.
- 3 Students must select a minimum of 12 non-HKIN credits of 300- or 400-level courses **from within one subject area** that complement and relate to their chosen Human Kinetics program of study. Written approval for these courses must be obtained from the School's Undergraduate Advising Centre prior to the third year of study.
- 4 The following terms apply to all programs of study:
 - (A) Program Requirement (HKIN)—specific courses required by a program of study.
 - (B) Human Kinetics Program Elective—HKIN courses that complement a program of study and are usually chosen in consultation with the School's Undergraduate Advising Centre.
 - (C) Human Kinetics Elective—a course of the student's choice from appropriate HKIN courses. See the School's Undergraduate Advising Centre for appropriate program 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. Each program of study requiring HKIN 355/455 has a specific prerequisite requirement. Students must take the prerequisite section relevant to their program of study. Prerequisites may not be taken concurrently.

- 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. 185.
- 7 Students intending to enter Graduate Studies in Human Kinetics should take HKIN 371 or an approved equivalent.

ENGLISH REQUIREMENT

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. 22). All Bachelor of Human Kinetics students must take ENGL 112 plus three additional first-year credits of English.

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 programs 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

Electives are selected to complement the chosen program of study as well as to broaden the student's general education. Many 300/400-level courses require 100/200-level prerequisites, therefore all electives should be selected carefully. All non-HKIN electives in the third and fourth years must be at the 300-level or higher. (See Note 3 above.)

INTERPROFESSIONAL ELECTIVES

Under the auspices of the Council, the *College of Health Disciplines*, p. 271 is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Human Kinetics. For more information see Courses (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.

EXERCISE SCIENCE

For students interested in the biomechanics, movement control, and physiological aspects of human movement.

EXERCISE SCIENCE

First Year

| | |
|----------------------------------|----|
| ENGL 100-level ¹ | 6 |
| First Year Sciences ² | 12 |
| HKIN 103 | 3 |
| HKIN 161 | 3 |
| HKIN 163 | 3 |
| HKIN 164 | 3 |
| Total Credits | 30 |

Second Year

| | |
|-------------------------------------|----|
| Non-HKIN Electives ³ | 12 |
| First Year Sciences ² | 6 |
| HKIN 290 | 3 |
| HKIN 291 | 3 |
| HKIN Program Electives ⁴ | 6 |
| Total Credits | 30 |

Third Year

| | |
|---------------------------------------|----|
| Non-HKIN Electives ^{3,5,6} | 12 |
| HKIN 363 | 3 |
| HKIN 370 | 3 |
| HKIN 371 | 3 |
| HKIN Program Electives ^{4,5} | 6 |
| HKIN Elective ⁵ | 3 |
| Total Credits | 30 |

Fourth Year

| | |
|--------------------------------------|----|
| HKIN Program Elective ^{4,5} | 3 |
| Non-HKIN Electives ^{3,5,6} | 12 |
| HKIN 463 | 3 |
| HKIN 468 | 3 |
| HKIN Electives ⁵ | 9 |
| Total Credits | 30 |

¹ All Bachelor of Human Kinetics students must take ENGL 112 plus three additional credits of first-year English.

² Exercise Science students are required to obtain an overall of 18 first year Science credits in at least three of the following four areas: Biology, Chemistry, Physics and Math.

³ See the School's Undergraduate Advising Centre or the School's Program Planning Guide for a list of appropriate electives.

⁴ Program Electives (HKIN). Suggested electives for second year: HKIN 252, 284. Electives for third and fourth years: HKIN 361, 368, 389, 461, 462, 464, 469, 471, 473, 489.

⁵ These electives must be at the 300/400-level.

⁶ Students must select a minimum of 12 Non-HKIN credits of 300- or 400-level courses from within one subject area that complement and relate to their chosen Human Kinetics program of study. Please consult the School's Undergraduate Advising Centre or the School's Program Planning Guide for clarification.

HEALTH AND FITNESS

For students who are interested in the broad domain of health and fitness promotion.

HEALTH AND FITNESS

First Year

| | |
|---------------------------------|----|
| ENGL 100-level ¹ | 6 |
| Non-HKIN Electives ² | 6 |
| BIOL 100-level | 6 |
| HKIN 103 | 3 |
| HKIN 161 | 3 |
| HKIN 163 | 3 |
| HKIN 164 | 3 |
| Total Credits | 30 |

Second Year

| | |
|---------------------------------|----|
| Non-HKIN Electives ² | 12 |
| HKIN 252 | 3 |
| HKIN 261 | 3 |
| HKIN 284 | 3 |
| HKIN 290 | 3 |
| HKIN 291 | 3 |
| HKIN 292 | 3 |
| Total Credits | 30 |

Third Year

| | |
|-------------------------------------|----|
| Non-HKIN Electives ^{2,3,4} | 9 |
| HKIN 303 | 3 |
| HKIN 353 | 3 |
| HKIN 361 | 3 |
| HKIN 371 | 3 |
| HKIN Electives ^{3,5} | 9 |
| Total Credits | 30 |

Fourth Year

| | |
|-------------------------------------|----|
| Non-HKIN Elective ^{3,4} | 3 |
| HKIN 463 | 3 |
| HKIN 464 | 3 |
| HKIN 469 | 3 |
| HKIN 455 or equivalent ⁶ | 15 |
| HKIN Elective ^{3,5} | 3 |
| Total Credits | 30 |

¹ All Bachelor of Human Kinetics students must take ENGL 112 plus three additional credits of first-year English.

² See the School's Undergraduate Advising Centre or the School's Program Planning Guide for a list of appropriate electives.

³ These electives must be at the 300/400-level.

⁴ Students must select a minimum of 12 Non-HKIN credits of 300- or 400-level courses from within one subject area that complement and relate to their chosen Human Kinetics program of study. Please consult the School's Undergraduate Advising Centre or the School's Program Planning

Guide for clarification.

⁵ Recommended HKIN Electives: HKIN 355A, 355B, 362, 363, 364, 366, 367, 368, 370, 372, 392, 400, 461, 462, 471, 481, 489, 492.

⁶ HKIN 455 students will not be permitted to register in other courses in the same term. Students not admitted into HKIN 455 in the Health and Fitness program must complete HKIN 355B (3), two HKIN Program Electives (6), one HKIN Elective (3) and one Non-HKIN Elective (3). All courses must be at the 300/400-level.

LEISURE AND SPORT MANAGEMENT

For students interested in social and managerial aspects of leisure, sport and physical activity.

LEISURE AND SPORT MANAGEMENT

First Year

| | |
|---------------------------------|----|
| ENGL 100-level ¹ | 6 |
| ECON 100-level | 6 |
| Non-HKIN Electives ² | 6 |
| HKIN 103, 110 or 120 | 3 |
| HKIN 161 | 3 |
| HKIN 163 | 3 |
| HKIN 164 | 3 |
| Total Credits | 30 |

Second Year

| | |
|---------------------------------|----|
| Non-HKIN Electives ² | 15 |
| HKIN 261 | 3 |
| HKIN 292 | 3 |
| HKIN 280 | 3 |
| HKIN 281 | 3 |
| HKIN Elective | 3 |
| Total Credits | 30 |

Third Year

| | |
|-------------------------------------|----|
| COMM 457 | 3 |
| HKIN 392 | 3 |
| Electives ^{2,3,4} | 6 |
| HKIN 372 | 3 |
| HKIN Program Electives ⁵ | 12 |
| HKIN Elective ³ | 3 |
| Total Credits | 30 |

Fourth Year

| | |
|-------------------------------------|----|
| COMM 465 ⁶ | 3 |
| Electives ^{2,3,4} | 6 |
| HKIN Program Elective ⁷ | 3 |
| HKIN 455 or equivalent ⁷ | 15 |
| HKIN Elective ³ | 3 |
| Total Credits | 30 |

¹ All Bachelor of Human Kinetics students must take ENGL 112 plus three additional credits of first-year English.

² See the School's Undergraduate Advising Centre or the School's Program Planning Guide for a list of appropriate electives.

³ These electives must be at the 300/400-level.

⁴ Non-HKIN or HKIN courses may be selected.

- 5 Program Electives (HKIN): HKIN 340, 355D, 360, 367, 382, 383, 392, 456, 481, 492. Select 12 credits from this list in third year and three credits in fourth year.
- 6 Students in the Minor in Commerce program can take COMM 465 in third or fourth year.
- 7 HKIN 455 students will not be permitted to register in other courses in the same term. Students not admitted into HKIN 455 in the Leisure and Sport Management program must complete two HKIN Program Electives (6), one HKIN Elective (3) and two Non-HKIN Electives (6). All courses must be at the 300/400-level.

PHYSICAL EDUCATION

For students interested in instruction in leisure, sport and exercise environments within public and private agencies.

PHYSICAL EDUCATION

First Year

| | |
|-----------------------------------|----|
| ENGL 100-level ¹ | 6 |
| Non-HKIN Electives ^{2,3} | 6 |
| HKIN 103 | 3 |
| HKIN 110 | 3 |
| HKIN 120 | 3 |
| HKIN 161 | 3 |
| HKIN 163 | 3 |
| HKIN 164 | 3 |
| Total Credits | 30 |

Second Year

| | |
|-----------------------------------|----|
| Non-HKIN Electives ^{2,3} | 12 |
| HKIN 210/220 ³ | 6 |
| HKIN 284 | 3 |
| HKIN 290 | 3 |
| HKIN 291 | 3 |
| Elective ^{2,3,4} | 3 |
| Total Credits | 30 |

Third Year

| | |
|---------------------------------------|----|
| Non-HKIN Electives ^{2,3,5,6} | 9 |
| HKIN 364 | 3 |
| HKIN 368 | 3 |
| HKIN 369 | 3 |
| HKIN Program Electives ⁷ | 6 |
| HKIN Elective ⁵ | 3 |
| Elective ^{2,3,4,5,6} | 3 |
| Total Credits | 30 |

Fourth Year

| | |
|---------------------------------------|----|
| Non-HKIN Electives ^{2,3,5,6} | 9 |
| HKIN Program Electives ⁷ | 12 |
| HKIN Electives ⁵ | 6 |
| Elective ^{2,3,4,5,6} | 3 |
| Total Credits | 30 |

- 1 All Bachelor of Human Kinetics students must take ENGL 112 plus three additional credits of first-year English.
- 2 See the School's Undergraduate Advising Centre or the School's Program Planning Guide for a list of appropriate electives.
- 3 Students planning to enter the Faculty of Education should see *The Faculty of Education*, p. 185.
- 4 Non-HKIN or HKIN courses may be selected.
- 5 These electives must be at the 300/400-level.
- 6 Students must select a minimum of 12 Non-HKIN credits of 300- or 400-level courses from within one subject area that complement and relate to their chosen Human Kinetics program of study. Please consult the School's Undergraduate Advising Centre or the School's Program Planning Guide for clarification.
- 7 Program Electives (HKIN): HKIN 355C, 361, 362, 363, 365, 366, 370, 400, 420. HKIN 355 may be taken in fourth year only.

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 three 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 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.

Note: Students who pursue a Minor in Arts should be aware of the prerequisites for many of the senior 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.

Upon successful completion of the Minor program, the notation, "Minor in Arts" will be denoted on the student's transcript.

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 second 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 for many of the senior 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.

Upon successful completion of the Minor program, the notation, "Minor in Science" will be denoted on the student's transcript.

MINOR IN COMMERCE

Students desiring a stronger 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. Priority will be given to students in the Leisure and Sport Management Program. 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 ECON 101, 102; COMM 329, 457, 465; and one of COMM 473, 458 or 493.

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.); **Donald C. McKenzie**, B.Sc. (Guelph), M.P.E., M.D. (Brit. Col.), Ph.D. (Ohio); **Edward C. Rhodes**, B.Ed. (Alta.), M.Sc., Ph.D. (Oregon); **Jack E. Taunton**, B.Sc., M.Sc. (S.Fraser), M.D. (Brit. Col.).

ASSOCIATE PROFESSORS

F. Alex Carre, B.P.E., M.A. (P.E.) (Alta.), Ph.D. (Oregon); **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.); **J. Timothy Inglis**, B.Sc. (Wat.), B.Sc.P.T. (W. Ont.), M.Sc. (Wat.), Ph.D. (Queen's); **Richard E. Mosher**, B.P.E. (Brit. Col.), M.P.E. (Oregon), Ph.D. (Michigan State); **David J. Sanderson**, B.Sc., M.Sc. (S.Fraser), Ph.D. (Penn.); **Robert E. C. Sparks**, B.A. (Wesleyan), M.S. (Mass.), Ph.D. (Mass.); **Lucie Thibault**, B.P.E. (Ott.), M.A., Ph.D. (Alta.).

ASSISTANT PROFESSORS

Karim Khan, M.B.B.S. (U. of Melbourne), B.Med.Sc., Ph.D. (U. of Melbourne); **Nestor N. Korchinsky**, B.P.E., M.A. (Alta.), Ph.D. (Oregon); **A. William Sheel**, B.P.E. (U.N.B.), M.Sc., Ph.D. (Brit. Col.); **Darren E. R. Warburton**, B.A. (York), M.Sc (York), PhD (Alta.); **Brian Wilson**, B.P.E. (McM.), M.A. (Brit.Col.), Ph.D.(McM.).

SENIOR INSTRUCTORS

Barry Legh, B.Ed. (Brit. Col.), M.P.E. (Wash.); **Gail E. Wilson**, B.P.H.E. (Tor.), M.P.E. (Brit. Col.).

14 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
School of 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.).

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. Emphasis will be 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.

ADMISSION

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 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., 8 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 8 or 12 months away from regular employment.

For more information, please contact The University of British Columbia, School of Journalism, Sing Tao Bldg., 6388 Crescent Road, Vancouver, BC, V6T 1Z2, telephone 604-822-6688, fax 604-822-6707, email (journal@interchange.ubc.ca), or visit The School of Journalism's website (www.journalism.ubc.ca) and our online magazine *The Thunderbird* (www.journalism.ubc.ca/thunderbird.html).

DEGREE REQUIREMENTS

The program is designed for persons with extensive journalistic experience and for those who do not have such experience but who demonstrate superior writing and research ability on a 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 comprise a thesis project (JRNL 549) and courses from each of the five core areas:

- Newsroom Practice (JRNL 503C, 505C, JRNL 510);
- Media Studies (JRNL 523, JRNL 525, JRNL 533D JRNL 535);
- Directed Studies (JRNL 539D, JRNL 539F, JRNL 539G, JRNL 539I and JRNL 539J);
- Research and Writing (JRNL 503F, JRNL 505A);
- Thesis Project (JRNL 549A);
- 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. 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

PROFESSOR
Donna Logan

ASSOCIATE PROFESSOR
Stephen J. Ward

ASSISTANT PROFESSOR
Mary Lynn Young

ADJUNCT PROFESSOR
Peter C. Newman

LECTURERS
Shelley Fralic; Patricia Graham.

2003-04

15 The Faculty of Law

Dean's Office

J. Blom, Dean*

E. R. Edinger, Associate Dean

R. Paterson, Associate Dean

R. S. Reid, Assistant Dean, Admissions and Career Placement

1822 East Mall

Vancouver, BC V6T 1Z1

Tel.: 604-822-3151

Fax: 604-822-8108

Law Website (www.law.ubc.ca)

***Note: A new Dean will be appointed July 1, 2003.**

The Faculty of Law offers programs of study leading to the degrees of Bachelor of Laws, Master of Laws. For information concerning the Master of Laws and Doctor of Philosophy, see Law in the Graduate Studies section. For information on the combined Bachelor of Laws and Master of Business Administration, see *LL.B/M.B.A. Combined Program, p. 169, in Faculty of Commerce*.

The Faculty of Law was established in 1945 in temporary accommodation. A permanent structure, opened in 1951, has been incorporated in an enlarged, remodelled George F. Curtis Building which was completed in 1975. It contains a library of approximately 280,000 volumes, one of the finest law libraries in Canada. The library consists of substantially all the Canadian and English materials, the major United States reports, wide holdings of Commonwealth, United States and other foreign texts and periodicals, and a substantial collection of International Law materials. The International Centre for Criminal Law Reform and Criminal Justice Policy at the Faculty is a repository for United Nations publications.

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 196 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 an approved university; or
- 2 successfully completed the first three years (minimum 90 credits) or more of an undergraduate degree at the University of British Columbia or completed the equivalent at an approved university; or
- 3 successfully completed the first two years of an approved course of studies leading to an undergraduate degree at the University of British Columbia, or obtained the equivalent at an approved college or 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 an approved 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% in the approved course of studies.

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 2002/2003 had an academic average of approximately 80% with an LSAT score of 162 (85th 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 counted in computing the academic average. Graduate degrees are not taken into account, except within the discretionary category discussed below.

Regular applicants may request that special circumstances be considered in determining their academic average or LSAT score. 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 discretion to respond to this type of situation. It may take account of physical disabilities, learning disabilities, economically deprived backgrounds, minority or ethnic status, mature status (generally thirty years or older), or 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 should generally be residents of British Columbia.

Normal policy is to require discretionary applicants to have completed the first two years of an approved course of studies leading to an undergraduate degree at an approved college or 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 as discretionary applicants in the First Nations category. Such applicants are advised to contact the First Nations Advisor, at 604-822-2177 as early as possible to discuss their applications. First Nations applicants are required to write the LSAT and they must submit an application form, and a biographical essay reviewing their academic, work and/or community experience. Letters of reference are strongly recommended. Applicants are required to establish their First Nations ancestry. The Faculty considers the applicant's involvement in, association with, and commitment to First Nations communities and organizations and desire to use his or her legal training to advance First Nations issues, concerns and interests. Some First Nations applicants may be advised to attend the two month pre-law program for First Nations students offered by the University of Saskatchewan College of Law in the summer months. For further information on this program applicants should write to the Director, Native Law Centre, University of Saskatchewan, Saskatoon, Saskatchewan, S7N 0W0. Decisions in this category are usually made in April.

OTHER CATEGORIES FOR ADMISSION (OTHER THAN TO FIRST YEAR)

Admission in the following four categories is solely within the discretion of the Admissions Committee. Each year there are many requests; however, only a few applicants can be accommodated. Such requests cannot be considered until July when the number of available positions is known.

DEGREE CATEGORIES

These two categories require the successful completion of two years of legal studies at the Faculty of Law and result in the applicant receiving a degree from the University of British Columbia. Letters of reference are recommended for both categories.

- 1 **Transfer.** Students at other Canadian

common law schools who have completed their first year of legal studies may apply to transfer to the Faculty of Law. The Admissions Committee may give preference to applicants who:

- (A) would have been admitted to the first year of legal studies at this Faculty at the time of being admitted to their present institution
 - (B) have achieved a satisfactory academic performance in their legal studies at their present institution; and
 - (C) have compelling reasons for transferring to the University of British Columbia (these reasons usually being compassionate grounds in which the applicant has no control over the circumstances).
- 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 undergraduate legal studies at the Faculty and obtain a Bachelor of Laws from the University of British Columbia. Advanced Standing applicants must submit an LSAT score with their academic transcripts and should submit a biographical resume. A writing of the LSAT is required.

NON-DEGREE CATEGORIES

Applicants admitted in either of the following categories are not eligible to receive a Bachelor of Laws from the Faculty of Law at the University of British Columbia.

- **Visiting (Letter of Permission).** Students at other approved law schools may request permission to attend one year of either the second or third year program at the Faculty of Law on a letter of permission basis from their present institution which will grant their Bachelor of Laws. Criteria for selection are the same as for transfer requests (see above). Visiting status will be granted for a maximum of one year only.
- **Unclassified.** Applicants who have law degrees or their equivalents from foreign jurisdictions and who wish to undertake legal studies at this Faculty in order to satisfy the certification requirements of the National Committee on Accreditation may apply for Unclassified status. A Bachelor of Laws will not be granted on completion of studies. An applicant seeking the Bachelor of Laws must apply in a degree category. An applicant requesting Unclassified status must submit an LSAT score and should submit a resume. 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. Or email Fran Russo, Administrator, at frusso@uottawa.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 the Faculty of 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 Faculty. However, they may request visiting (letter of permission) status at the Faculty if acceptable to their present institution. 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 and application fee must be submitted on or before February 1. Forms must be postmarked on or before February 1. Documentation, including current transcripts, (see below) must be submitted on or before February 28. 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 June 30.

APPLICATION FORMS

Application forms are available from the Admissions Office of the Faculty of Law 604-822-6303 or online (www.law.ubc.ca). 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 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 the Faculty of Law or at the Student Development Library in Brock Hall at UBC. It may also be obtained by writing directly to Law Services, Box 2000, Newtown, PA, USA 18940. For a small fee Counselling Services, 604-822-3811, will mail out the book. 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.lsat.org) online.

APPLICATION FEES

The application form must be accompanied by an application processing fee. The fee for applicants whose transcripts are exclusively from BC post-secondary institutions is CAD\$45.00. Applicants, any or all of whose transcripts are from institutions outside BC, must submit an application processing fee of CAD\$75.00.

OTHER DOCUMENTS

Other documents means material such as autobiographical statements, letters of reference, medical certificates, special circumstances letters or National Committee on Accreditation letters, where relevant. Letters of reference are not required for any category of applicant but are strongly recommended in some categories.

Interviews are not part of the admissions procedure but the admissions officer (borthwick@law.ubc.ca) is available to answer any questions in person, by letter, telephone 604-822-6303, fax 604-822-8108. Applicants wishing to meet with the admissions officer are advised to 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

Processing of applications begins in October as soon as all the material is received and offers are made to Regular applicants as early as December. Consideration by the Admissions Committee of applications in all the other categories commences in late April. Offers to First Nations applicants are usually made in May, to Discretionary applicants in June, and to all other categories of applicants in July.

Applicants who accept the offer of a place in the Faculty must, at the time of acceptance, make a deposit of CAD\$300 towards their tuition. The deposit will be refunded in full to any applicant who notifies the Faculty in writing (by post or by fax) on or before May 15 of intention to withdraw his or her acceptance. Applicants, on acceptance, must also submit two recent passport photographs of themselves approximately 1.25"x1.75" in size.

APPEALS

The Admissions Committee will reconsider a decision only if new information is made available by the applicant. Appeals on the grounds that the decision breaches Senate policy may be made to the Senate Admissions Committee.

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%. The ranking of students in the top 10% of the class will be printed on the transcript.

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.

EXAMINATION RESULTS

Results of the session examinations are mailed to students in the graduating classes about the time of Convocation, and to students in the lower years by approximately June 15. Any student who must meet an application date for another institution prior to June 15 should inform the transcript clerk in Enrolment Services in order that arrangements may be made to meet the deadline.

DEGREE REQUIREMENTS

REGULAR PROGRAM

The Bachelor of Laws program requires a student to acquire a total of 92 credits in three Winter Sessions in the Faculty of Law. First year consists of compulsory courses totalling 32 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. The following upper-year courses are compulsory: either LAW 344 (Constitutional Law) or LAW 345 (Canadian Federalism); LAW 346 (Canadian Charter of Rights and Freedoms); and LAW 470 (Evidence).

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 Dean, 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).

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 Curriculum Committee, which will base its judgement on its view of 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

PART-TIME LL.B. PROGRAM

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 16 to 26 credits instead of the 32-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 for the LL.B. program. 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 for the LL.B. program.

COMBINED BACHELOR OF LAWS AND MASTER OF BUSINESS ADMINISTRATION

For details of this program, see *Law*, p. 244 in the Graduate Studies section.

COMBINED BACHELOR OF LAWS AND MASTER OF ASIA PACIFIC POLICY STUDIES

For details on this program see the *Faculty of Commerce*, p. 169 section in this chapter.

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 aid. 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 participates in the Group of Ten Student Exchange Program for student exchanges within Canada. 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. 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 Aid

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 can be found in *A Guide to Awards and Student Financial Assistance*, published by the Office of Awards and Student Financial Assistance (students.ubc.ca/finance/ awards). Application must be made to the Office of Awards and Student Financial Assistance by May 15 for loans and bursaries for the academic year commencing in September. 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, 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* 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.

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ADJUNCT PROFESSORS

M. T. Ainslie, B.A. (Tor.), LL.B. (Brit. Col.), Criminal Law; **A. Albright**, B.A. (W. Ont.), LL.B. (Osgoode), MBA (Brit. Col.); **J. R. Aldridge**, B.A. (Brock), LL.B. (Osgoode), LL.M. (Brit. Col.), Immigration Law; **E. Allard**, B.A., LL.B. (Brit. Col.), Civil Litigation; **H. C. Alvarez**, B.A. (Brit. Col.), LL.B. (Ott.), International Commercial Disputes; **R. Anderson**, B.A. (Tor.), LL.B. (Queen's); **T. Bailey**, B.Sc., LL.B. (Brit. Col.), Industrial and Intellectual Property; **K. Bayne**, LL.B. (Brit. Col.), LL.M. (NYU), Labour Law; **G. Belsler**, B.A. (S. Fraser), LL.B. (Osgoode), Corporate Transactions; **D. R. Bennett**, B. Comm., LL.B. (Brit. Col.), Civil Litigation; **K. Boyle**, LL.B. (Brit. Col.); **D. Brindle**, B.A. (Brit. Col.), LL.B. (Brit. Col.); **G. Brodsky**, LL.B. (Vic. B.C.), LL.M. (Harvard), D.Jur. (Osgoode); **B. Burke**, B.A. (Hons.) (Providence Col.), J.D. (Harv.), Sports Law; **A. Cameron**, B.A. (Mt. All.), LL.B. (Dalhousie); **E. Chiasson**, Q.C., B.A., LL.B. (Brit. Col.), Alternative Dispute Resolution; **J. Christian**, B.A. (UBC), LL.B. (Dalhousie); **A. Close**, B.A. (Alta.), LL.B. (Brit. Col.); **D. Connolly**, LL.B. (Vic., B.C.), Ph.D. (Vic. B.C.); **T. Dion**, B.A. (Exchange) (University of N.S.W.-Australia), B.A. (U. Alta.), LL.B. (Exchange)- (Arizona State University), LL.B. (UBC); **M. Donner**, B.A. (S. Fraser), LL.B. (Brit. Col.); **C. Elliott**, B.A., M.A. (Oxon.), LL.B. (Vic. B.C.), Topics in Real Property; **J. Festinger**, LL.B. (McGill), B.C.L. (McGill); **D. Finlay**, B.A. (Calg.), LL.B. (Calg.); **T. Fogarassy**, B.Sc. (Hons.), M.Sc., LL.B. (Brit. Col.), Topics in Comparative Law; **S. D. Frankel**, Q.C., B.Sc., LL.B. (Brit. Col.), Advanced Criminal Procedure; **R. Freedman**, B.A. (U. of South Florida), M.P.A. (Queen's), LL.B. (Queen's), LL.M. (University of Virginia); **I. Gamble**, B.A. (McGill), LL.B. (Brit. Col.); **B. M. Green**, B.Sc. (Princ.), M.A. (W. Ont.), LL.B. (Osgoode), Industrial and Intellectual Property;

S. Gudmundseth, B.A. (Vic.B.C.), LL.B. (Brit. Col.), Civil Litigation; **A. Gunn**, B.A. (Brit. Col.), LL.B. (Tor.), LL.M. (Camb.); **D. Hanna**, B.A. (S. Fraser), LL.B. (Brit. Col.); **T. Hawkins**, B.A. (Simon Fraser), LL.B. (Sask.), Maritime Law; **I. Hayward**, B.A. (Hons.), (Queen's, St. Andrew's), LL.B. (Queen's), Trial Advocacy; **V. Hlus**, B.Comm. (Alta.), LL.B. (Brit. Col.); **R. Holloway**, B.A., LL.B. (Brit. Col.), Trial Advocacy; **A. Hudson**, B.A., LL.B. (Brit. Col.), Trial Advocacy; **H. Jones**, B.A. (Alta.), LL.B. (Dal.), Corporate/Commercial Litigation; **D. Jordan**, Q.C., B.A., LL.M. (Man.), LL.M. (Brit. Col.), Topics in Administrative Law; **W. Kaplan**, B.A., LL.B. (Brit. Col.), LL.M. (Harvard), Negotiations Workshop; **B. Kasting**, B.A. (Yale), Dip. (McGill); **J. Kleefeld**, B.A. (Wat.), LL.B. (Brit. Col.), LL.M. (Osgoode); **P. Knight**, LL.B. (Manit.), Topics in Private Law; **M. J. Korenberg**, B.A. (Car.), LL.B. (York), Topics in Corporate and Tax Law; **E. Kroft**, LL.B. (York), LL.M. (Brit. Col.), Taxation I; **V. Kumar**, B.A. (Queen's), M.A. (Alta.), LL.B. (Queen's), LL.M. (Osgoode); **T. Laliberte**, Q.C., B.A., LL.B. (Brit. Col.), Trial Advocacy; **G. Lang**, B.A. (S. Fraser), LL.B. (Brit. Col.); **D. Little**, B.Comm. (Brit. Col.), LL.B. (Tor.); **T. Lo**, B.Sc. (Hons.), LL.B. (Brit. Col.), Intellectual Property; **E. Lyall**, B.A. (S. Fraser), LL.B. (Windsor), Civil Litigation; **J. MacIntyre**, B.Comm. (Brit. Col.), LL.B. (Brit. Col.); **G. Mancell**, B.S.F. (Brit. Col.), LL.B. (Vic.B.C.), Forest Law; **G. Manning**, B.Sc. (Hons.) (S. Fraser), M.Sc., LL.B. (Brit. Col.), Topics in Intellectual Property; **R. Margolis**, B.A. Hons., LL.B. (Brit. Col.), M.A. (W. Ont.), B.C.L. (Oxon.), LL.M. (Lond.); **S. Martin**, M.A., LL.M. (Cantab.), M.A., LL.B. (Brit. Col.), Advanced Criminal Law; **B. McClean**, B.A. (Queen's- Belfast), LL. B. (Queen's- Belfast); **D.I. McDougall**, LL.B. (Melb.), J.D. (Chic.); **His Honour Judge H. J. McGivern**, LL.B. (Brit. Col.), Trial Advocacy and Clinical Criminal Law; **P. McGivern**, B.Com., LL.B. (Brit. Col.), Trial Advocacy; **D. McGruder**, B.A., B.Sc. (Conc.), LL.B. (Tor.), Intellectual Property; **K. McLean**, B.A. (Acadia), LL.B. (Brit. Col.); **J. Merrick**, B.A., LL.B. (Tor.), Real Estate Transactions; **H. Mickelson**, B.A. (Hons.) (Hawaii), LL.B. (Brit. Col.), Civil Litigation; **D. Mossop**, B.A. (Tor.), LL.B. (Brit. Col.); **M. Munro**, B.Sc. (Alta.), LL.B. (McGill), LL.M. (Camb.); **C. D. Mutala**, LL.B. (Man.), LL.M. (New York), Industrial and Intellectual Property; **J. Nitikman**, B.Sc. (Brit. Col.), LL.B. (Manit.), LL.M. (N.Y.); **T. Northcott**, LL.B. (Brit. Col.), Certificate Program in Conflict Resolution (Justice Institute); **D. Parker**, B.B.A. (Acadia), LL.B. (Dalhousie), LL.M. (Brit. Col.); **L. Peters**, B.A. (Brit. Col.), LL.B. (Brit. Col.), Certificate (Civil Law/Comparative Law-Sherbrooke); **F. R. Pletcher**, B.A. (Harv.), LL.B. (Tor.), LL.M. (Col.), Close Corporations; **D. Prefontaine**, B.A. (Rockhurst), LL.B. (Sask.), LL.M. (Missouri); **J. Read**, B.A. (Queen's), LL.B. (Queen's); **B. Rebane**, B.A. (Brit. Col.), LL.B. (Alta.), Creditors Remedies; **D. W. Roberts**, Q.C., B.A., LL.B. (Brit. Col.), LL.M. (Harv.), Evidence; **C. Robinson**, B.Sc., M.Sc., LL.B. (Calg.), Intangible Capital Business Issues; **D. Rosenberg**, LL.B. (Brit. Col.); **R. Samtani**, B.A. (S. Fraser), LL.B. (Brit. Col.); **A. Saroka**, B.A. (Columbia), LL.B. (Virg.), M.L.S. (Col.); **T. Saunders**, B.A. (Trinity Coll. Tor.), LL.B. (Tor.); **D. Searle**, Q.C., B.A., LL.B. (Alta.), Environmental Law; **J. Singleton**, B.A. LL.B. (Alta.), LL.M. (Lond.), Topics in Commercial Law: Construction; **R. Stephen**, A.B. (Berkeley), J.D. (Berkeley); **D. Stewart**, LL.B. (Queen's); **S. Sutherland**, B.A. (Brit. Col.), M.A. (Lond.), LL.B. (Brit. Col.), LL.M. (Osgoode); **R. Tunnicliffe**, B.Sc., LL.B. (Brit. Col.), LL.M. (Col.), International Tax; **G. Umbach**, B.A. (Wat.), LL.B. (Brit. Col.); **J. B. Waatainen**, B.A. (Hons.), M.A., LL.B. (Brit. Col.), Forest Law; **C. Weafer**, B.A. (S. Fraser), LL.B. (Brit. Col.), Media and Communications Law; **J. Webster**, LL.B. (Brit. Col.), Trial Advocacy; **W. Westeringhe**, B.A., LL.B. (Brit. Col.), Civil Litigation; **M. Worfolk**, B.A., LL.B. (Brit.

Col.), B.C.L. (Oxon.), Trial Advocacy; **M Yang**, B.Sc. (Queen's), LL.B. (McGill); **R. E. Young**, B.A., M.A., LL.B. (Brit. Col.), Real Estate Development; **D. W. Yule**, B.A. (Brit. Col.), LL.B. (Queen's), Insurance; **J. Ziskrout**, B.A., LL.B. (Brit. Col.), Professional Responsibility and Trial Advocacy; **A. Zwack**, B.A. (Hons.) (Calg.), LL.B. (Hons.) (Brit. Col.), LL.M. (Harv.), Topics in Labour Law.

LIBRARIANS

S. Wilkins, B.A., M.L.S., LL.B. (Alta.).

2003-04

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
Terry Eastwood, Acting Director
831-1956 Main Mall
Vancouver, BC V6T 1Z1
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 was 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 approximately 150 students (FTE). 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 positions assumed 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 the 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. The deadline for applications is February 1 for the term beginning the following September; May 1 for the term beginning in January; and December 1 for the term beginning in May. Continuation of the May intake is currently under review.

The School accepts only students whose personal and academic qualifications appear to fit them for successful practice in library, archival and information professions.

Preference is given to applicants who have been actively engaged within recent years in library or other information-related work, teaching, academic studies, or some similar intellectual pursuit.

The Master of Library and Information Studies 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 Master of Library and Information Studies 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 a personal written statement.

A candidate who already has a formal qualification as a professional librarian (for example, a B.L.S. degree from a program which was at the time accredited by the American Library Association) and who wishes to enrol in the Master of Library and Information Studies program is considered on the same basis as above. It is expected that letters of reference will demonstrate a history of successful professional practice and career development. A candidate who has recently successfully completed part of a graduate program accredited by the A.L.A. at another school will also be considered for admission to complete the program at this School.

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 Admissions 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 which 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.

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 recommended as preparation for either program. Basic courses in statistics and computer science are also recommended. Efficient use of computers is essential in the information professions today; it is therefore expected that a student comes into the School with facility in using computer software including Microsoft Windows.

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 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 Library and Information Studies program if an overall average of 70% is obtained in the courses of the Core, 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 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.
- 3 A student must maintain an overall average of 70% throughout either the M.L.I.S. or M.A.S. program. A student who fails to meet this requirement will be required to withdraw from the program.
- 4 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.
- 5 If a student fails a non-Core course in the M.L.I.S. program or a course outside the required courses of the first term of the M.A.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.
- 6 Field trips are integral parts of both programs; satisfactory participation in them is required of all students.
- 7 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.
- 8 Written work may be refused a passing mark if it is, in the opinion of the faculty, deficient in English.
- 9 The School reserves the right to require a student to withdraw from the M.A.S. or the M.L.I.S. 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 within 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. Enquiries for part-time work at the university should be directed to Career Services 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 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, (known collectively as the Core) and, 570, 590, and 597. 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 co-requisites. Students electing a thesis are not required to take LIBR 597. Two 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*. "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.

The deadline for applications is February 1 for the term beginning the following September; May 1 for the term beginning in January; and December 1 for the term beginning in May.

Continuation of the May intake is currently under review." on page 287 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 M.L.I.S. 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 Admissions and Adjudication Committee 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

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, 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 should elect to write a thesis. Consultation on this with the faculty 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 which 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 six 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 is February 1 for the session beginning the following September.

The School accepts only students whose personal and academic qualifications appear to fit them for successful practice in the library and archival professions.

Preference is given to applicants who have been actively engaged within recent years in library or archival work, teaching, academic studies, or some similar intellectual pursuit.

The Master of Archival Studies 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 Master of Archival Studies 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 a personal written statement.

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 Admissions 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 which take a 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 as preparation for either program. Basic courses in statistics and computer science are also recommended. Efficient use of computers is essential in the information professions today; it is therefore expected that a student comes into either program with facility in using computer software including Microsoft Windows.

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- 2 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.
- 3 A student must maintain an overall average of 70% throughout either the M.L.I.S. or M.A.S. program. A student who fails to meet this requirement will be required to withdraw from the program.
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- 9 The School reserves the right to require a student to withdraw from the M.A.S. or the M.L.I.S. 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.

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Field trips are arranged within 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 responsi-

ble for most expenses incurred in conjunction with such field trips and with off-campus activities in the practicum/internship/professional experience courses.

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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.

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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. Enquiries for part-time work at the University should be directed to Career Services 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 six-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 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

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, 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 should elect to write a thesis. Consultation on this with the faculty 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 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, 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 or *Master of Archival Studies degree programs*, p. 289.

LANGUAGE REQUIREMENT

See information under *Master of Library and Information Studies*, p. 287 or *Master of Archival Studies*, p. 289 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 at least 36 credits in each of the MAS and MLIS programs
- 2 the Core plus other required courses for the MLIS (total 18 credits), with the exception that a student who has taken ARST 593B

may substitute an elective in the MLIS for the required LIBR 500 subject to approval.

- 3 the required courses for the MAS (total 24 credits), with the exception that a student who has taken LIBR 500 may substitute an elective in the MAS for the required ARST 593B subject to approval.
- 4 for the student who elects to write a thesis: in one program, a 6-credit thesis plus five elective courses; in the other program, four elective courses (total 33 credits) for the student who elects not to write a thesis: LIBR 597 and five elective courses in each program (33 credits).
- 5 three elective courses (including those cross-listed) in either program.

Students in the two degrees should not take courses outside those offered in the MAS and MLIS 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 October, 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 of Library, Archival and Information Studies, 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 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. candidates. The prospective student should select courses which 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 but has had sufficient formal training or relevant professional experience to offset such deficiencies, may be granted provisional admission on the recommendation of the Director of the School and the approval of the Dean of Graduate Studies.

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 six-credit thesis. The course work will be selected in consultation with the supervisory committee to support the multi-disciplinary nature of the program. Six 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, nine are required including at least six at the 500 level:

- three credits (Historical Overview) from the following: LIBR 522A, LIBR 522B, ENGL 468, LLED 441
- three credits (Contemporary Children's/ Young Adult Literature) from the following:

LLED 442, LLED 449 LIBR 522A, LIBR 522B, LIBR 524, LLED 540, LLED 541

- three 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, non-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:

- May 1 for September admission;
- September 1 for January admission; and
- January 1 for May or July admission.

THESIS

The supervisory committee will advise on, monitor, and evaluate the six-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 a M.A.S., a 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, and 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 will build on the successful interdisciplinarity established at the

master's level. There will be one Ph.D. degree program, but students will be able to 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.
- 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 his or her 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 therefore expected that a student comes 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 which 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 which 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.

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).

Awards and Financial Aid

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 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 administers the competition. In 2002–2003, Full, Non-renewable and one-year fellowships were valued at \$16,000 per year and partial fellowships at \$8,000.

Academic Staff

PROFESSORS

Luciana Duranti, Dott. Lett., M.A.S., M.A. (Rome), Chair, Archival Studies Program; **Ken Haycock**, B.A., Dip.Ed. (W.Ont.), M.Ed. (Ott.), A.M.L.S. (Mich.), Ed.D. (Brigham Young), F.C.C.T.; **Edie M. Rasmussen**, B.Sc. (Brit. Col.), M.Sc. (McMaster), M.L.S. (W.Ont.), Ph.D. (Sheffield).

ASSOCIATE PROFESSORS

Ann Curry, B.A., B.L.S. (Alta.), M.L.S. (Brit. Col.), Ph.D. (Sheffield), Chair, Library and Information Studies Program; **Terence M. Eastwood**, B.A., M.A. (Alta.), Dip.Ed. (Vic. B.C.); **Judith M. Saltman**, B.A., B.L.S. (Brit. Col.), M.A. (Simmons), Chair, Children's Literature Program.

ASSISTANT PROFESSORS

Martin Dowling, B.A. (Trent), M.L.S. (Tor.), M.A. (York), Ph.D. (Tor.); **Richard L. Hopkins**, B.Ed., B.L.S., M.L.S., M.A. (Brit. Col.), Ph.D. (Tor.), Coordinator of Admissions and Placement; **Richard Kopak**, B.A. (Alta), M.L.S., Ph.D. (Tor.); **Heather MacNeil**, B.A. (Guelph), M.A. (S.Fraser), M.A.S., Ph.D. (Brit. Col.).

SENIOR INSTRUCTORS

Mary Sue Stephenson, B.A. (Texas), M.L.S., Ph.D. (North Texas), Coordinator, Information Technology Services.

INSTRUCTOR II

Christine Marton, B.Sc. (M.I.S. (Tor.), B.Ed. (McGill), M.Sc. (York).

SESSIONAL LECTURERS

Sue Bigelow, B.Sc., M.A.C. (Queen's); **Jean-Françoise Blanchette**, B.Sc., M.Sc. (Montreal), Ph.D. (Rensselaer Polytechnic Institute, Troy, NY); **Alexandra Bradley**, B.Ed. (Brit. Col.), B.L.S. (Alta.); **Catherine Collins**, B.A. (Boston), M.L.I.S. (Simmons); **Beth Davie**, LL.B. (Leicester), M.L.I.S. (Brit. Col.); **Janice Douglas**, B.A., B.L.S. (Brit. Col.); **Gail Edwards**, M.A. (Dominican), B.A., M.L.S., Ph.D. (Brit. Col.); **Carol Elder**, B.A., M.L.S. (Alta.); **Adele Fasich**, B.A. (Cornell), M.A., M.S.L.S. (Columbia), Ph.D. (Case Western Reserve Univ., Ohio); **Ian Forsyth**, B.A. (McGill), M.A. (Wilfred Laurier); **Peter Van Garderen**, B.A. (S. Fraser), M.A.S. (Brit. Col.); **Dean Giustini**, B.A., M.L.S. (Brit. Col.); **Teresa Gleave**, B.A. (Alta.), M.L.I.S. (Dal.); **Allison Haupt**, B.A. (Leth.), M.L.S. (Brit. Col.); **Diane Helmer**, B.F.A. (Concordia), M.L.I.S. (Brit. Col.); **Susan Henderson**, B.A., M.L.S. (Brit. Col.); **Mark Jordan**, B.A. (P.E.I.), M.A. (McMaster), M.L.I.S. (Brit. Col.); **Shirley Lew**, B.A., M.L.I.S. (Brit. Col.); **Lynne Lighthall**, B.A. (Queen's), M.L.S. (Brit. Col.); **Trevor Livelton**, B.A., M.A.S. (Brit. Col.); **Nicolas Mafté**, M.A.Sc. (Paris), Dipl. Eng. (Ecole Supérieure d'Electricité, Paris); **Simon Neame**, B.A. (Victoria), M.L.I.S. (Brit. Col.); **Thomas Quigley**, B.Mus., M.L.S. (Brit. Col.); **Janet Turner**, B.A.A.

(Ryerson), M.A.S. (Brit. Col.); **Jane Watkins**, B.A. (W.Ont.), M.L.S. (Tor.); **Paul Whitney**, B.A. (Sask.), M.L.S. (Brit. Col.); **Lisa Zebroff**, B.A. (Trin. W.), M.L.I.S. (Brit. Col.).

17 The Faculty of Medicine

Dean's Office

J. A. Cairns, Dean

J. M. Bates, Senior Associate Dean,
M.D. Undergraduate Program

B. Fleming, Associate Dean, Student Affairs

K. Ho, Associate Dean and Director of Continuing
Medical Education

D. Shaw, Associate Dean, Equity

W. E. Schreiber, Associate Dean, M.D.
Undergraduate Program

J. L. Wright, Associate Dean, Postgraduate Education

V. Frinton, Associate Dean, Admissions

A. Buchan, Associate Dean, Research

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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.

The School of Rehabilitation Sciences is a component of the Faculty of Medicine which 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. 159 and *The School of Rehabilitation Sciences*, p. 347 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 PREMEDICAL STUDIES

Students planning to apply for admission to the Doctor of Medicine program should select courses which 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 premedical academic backgrounds are 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 application is made.

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.

- 1 English, six credits. (Any two of ENGL 110, 111, 112, 120, 121. ENGL 112 is recommended.)
- 2 Biology
- 3 **if taken since September 2000:** BIOL 111 (exempt for those with Biology 12), 121 and [130 or 140].
- 4 **if taken prior to September 2000:** BIOL 110 and 120 or 115 and 120 (or BIOL 120 alone for UBC students with at least 80% in Biology 12 and exemption from BIOL 110 or 115).
- 5 Chemistry, six credits. CHEM 111 and 112 or 121 and 122.

6 Organic Chemistry, six credits. CHEM 203 and 204 or 205, 233 and 235.

7 Biochemistry, six credits. BIOC 300 or 303 or (BIOL 201 and BIOC 302).

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 for all applicants.

MEDICAL COLLEGE ADMISSION TEST

All candidates are required to take the Medical College Admission Test (MCAT) before filing an application for admission. The Faculty does not require a minimum score for eligibility but recommends performance at a defined level. Please consult the webpage (www.med.ubc.ca) for this information. Results are normally valid for five years, and must be valid at the time of application.

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, 2004, have achieved the recommended minimum MCAT scores, and who have attained a minimum overall academic average of 70% (G.P.A. of 2.8) based on all university-level courses attempted.

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 OF CANDIDATES FOR ADMISSION

At present, the entering class is limited to 128 full-time students. The number of qualified applicants significantly exceeds the number of available positions. Not every qualified applicant will be offered admission. Admission is based on a selection process which strives to enrol the most highly qualified applicants. 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 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.
- 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) three confidential letters of reference;
 - (B) a non-academic autobiographical essay submitted by the applicant;
 - (C) a list of extra-curricular activities prepared by the applicant; and
 - (D) personal interviews with members of the selection committee.
- 3 MCAT scores

The interview is a **critical** component of the admission process. Applicants selected for an interview will be contacted by the admissions office prior to the end of March.

The selection of candidates is made by consensus of the admissions committee. At present, admission is limited to Canadian citizens and permanent residents of Canada. Preference is given to residents of British Columbia. Currently a maximum of five (5) positions may be made available to out-of-province applicants offered a place in the medical program each year. This policy is under

review. (Check with the Faculty (www.med.ubc.ca) for residency requirements.)

Applicants are able to request special consideration of their application. They should be aware that special consideration is granted only in exceptional circumstances.

Students are reminded that the general policies of the University of British Columbia as to admission and academic regulations will be followed.

PLANS FOR EXPANSION: POTENTIAL CHANGES TO ADMISSIONS PROCESS

The UBC Faculty of Medicine is planning an expansion to the MD undergraduate program in collaboration with the University of Northern British Columbia in Prince George and the University of Victoria to create a distributed program. The anticipated expansion in 2004 is to an entry class size of 200, with 24 students each in the Northern Medical Program and the Island Medical Program and an additional 24 students in the Vancouver/Mainland Medical Program. Because of this planned expansion, the current admissions process is undergoing change. There will be no change in the prerequisite and academic requirements. Nonacademic qualities will be evaluated in the application through the usual processes. The interview process is likely to be changed to a panel interview with three members, including a clinician, an academic and a community member. The admissions process is likely to incorporate a new evaluation process to determine the degree to which an applicant will "fit" into a rural context of medical education. For further information, continue to check for updates at the website (www.med.ubc.ca)

APPLICATION PROCEDURE

Application forms will be available from June 15 until September 30. All inquiries should be addressed to Admissions, Faculty of Medicine, Dean's Office. Application forms and all supporting documentation except MCAT scores must be received by the Admissions office no later than 4:30 pm PST on November 1. MCAT scores must be received by November 1. Final post-secondary transcripts for students currently enrolled in a program of studies must be received by June 15, 2004.

All residents of British Columbia are required to pay an application fee of CAD\$105; out-of-province applicants are required to pay CAD\$155. An additional evaluation fee of CAD\$30 is required if transcripts are from an institution outside of BC. Applications received with incomplete documentation or without the correct fee will be returned. Fees are non-refundable and are not applicable to tuition.

Notification to successful applicants will generally be issued the end of May.

Upon receipt of an official letter of offer, each successful applicant must send a deposit of CAD\$300 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 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) to Student Health Services.

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 Student Health. 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 Colleges of Physicians and Surgeons. The Faculty of Medicine cannot guarantee that a modified course of training which will lead to the granting of an MD degree will be accepted or recognized by this or any other licensing body.

Counseling resources are available to any undergraduate medical student identified as Hepatitis B positive.

Applicants who wish their file to be reviewed in any way differently from the usual processes can apply, at the time of application, for special consideration in the review of the application.

The UBC Faculty of Medicine welcomes applications from qualified **Aboriginal applicants**, p. 21. 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 MD Undergraduate Program. Aboriginal applicants can apply both 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. The Aboriginal admission process may require further information and an interview by members of the Aboriginal Admission Selection Committee. Please contact the Aboriginal Programs Coordinator in the Faculty of Medicine at 604-225-2554 for further information.

Applicants with disabilities will be accommodated in accordance with the University's policy on Academic Accommodation for Students with Disabilities. Applicants seeking academic accommodation due to disability have the responsibility to:

- 1 provide the necessary documentation to the Disability Resource Centre. The University does not provide or assume the cost of diagnostic services.
- 2 bring the request for accommodations or for changes in the accommodation needs to the attention of the appropriate personnel in a timely manner in order to allow for arrangement of accommodations.

All applicants to the Faculty of Medicine are required to meet certain technical standards. Applicants who are unsure of whether they are able to meet these standards are encouraged to contact the Faculty to arrange for an evaluation. If the Faculty has a concern about the ability of a particular applicant to meet these standards, the Faculty may require an evaluation. The Faculty reserves the right to deny any applicant admission if the student is unable to meet these standards. For further information, contact the Disability Resource Centre or the Faculty of Medicine Admissions Office.

All offers of admission are conditional upon the applicant being granted an Educational License from the College of Physicians and Surgeons of British Columbia. Persons convicted of a criminal offence including a conviction for an offence which resulted in a conditional or absolute discharge, and who are considering a career in medicine, should write to the registrar of the College for clarification of their ability to obtain an Educational License prior to applying to the program.

REAPPLICATIONS

Unsuccessful applicants may reapply in subsequent years without prejudice. Candidates who are repeatedly unsuccessful are encouraged to explore other career options.

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.

VISITING STUDENTS

Applications may be accepted from prospective visiting medical students in fourth year if vacancies exist in that class. Applicants must have a letter of permission from the medical school they attend. The application deadline is January 31.

Visiting students must complete the entire year of the UBC program as presented. Students who successfully complete the requirements will receive their degree from their home university.

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 the admission to the Faculty of Medicine.

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 should 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.

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, as is the grade they achieve on their supplemental work, which must be 65% or better. 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 the Enrolment Services.

DEGREE REQUIREMENTS

The medical course extends through four academic sessions. The current curriculum was implemented in September 1997.

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 departments of the medical school and the components of the new 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 provides an integrated view of each program. Clinical Skills I allows students to acquire effective communication skills and to learn how to conduct an interview of a patient. 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.

The second half of the first year consists of a series of courses within the Foundations of

Medicine component where student will focus on the basic science mechanisms responsible for clinical manifestations of disease. The courses in this segment are Host Defences and Infection, Cardiovascular, Pulmonary and Fluids, Electrolytes, Renal and GU. Clinical Skills I, which continues through this segment, consists of an introduction to examination of the normal individual and history taking, and then focuses on appropriate system-based history and physical examination within each of the modules.

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 of the undergraduate medical course.

The first year of the course is given mainly on the campus but starting in the second year instruction is transferred to the affiliated teaching hospitals (Vancouver Hospital and Health Sciences Centre, Oak Street and UBC Sites; St. Paul's Hospital; BC Women's Hospital and Health Sciences Centre; Children's Hospital; BC Cancer Agency). In addition, the facilities of the Lions Gate Hospital, Royal Columbian Hospital, the Provincial Mental Hospital, G. F. Strong Rehabilitation Centre, Canadian Arthritis and Rheumatism Society Centre are used for various aspects of clinical teaching, as well as other community resources, including BC community hospitals.

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 furnished 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 \$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 (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:

- Phase I (Orientation)
- Phase II, Part I (Principles of Human Biology)
- Phase II, Part II (Host Defences and Infection; Cardiovascular; Pulmonary; Fluids, Electrolytes, Renal and GU)

SECOND YEAR, PHASE II, PART II

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, PHASE III

Rural Family Practice.

THIRD YEAR, PHASE IV (CLINICAL CLERKSHIP)

Medicine; Obstetrics and Gynaecology; Ophthalmology; Pediatrics; Psychiatry; Surgery (including sub-specialties); Anaesthesia; Emergency Medicine; Dermatology; Orthopaedics.

FOURTH YEAR, PHASE V

Sixteen weeks of advanced electives and selectives in clinical subjects.

FOURTH YEAR, PHASE VI

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 is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Medicine. For more information see Courses (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. 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 452D, Heather Pavilion
Vancouver Hospital Campus
2733 Heather Street
Vancouver, BC
Canada 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 pre-requisites 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 Academic Pathology, 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 *Undergraduate Admission*, p. 21. 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 or Arts elective (six credits)).

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 (UBC CHEM 121 and 123 or 111 and 113)

Biology (UBC 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 (UBC BIOL 200)

Biochemistry (UBC BIOL 201)

Physical Chemistry (UBC CHEM 205 or 201)

Analytical Chemistry (UBC CHEM 211)

Organic Chemistry (UBC CHEM 123, 233 and 235 or 231 and 232 or 203 and 204)

Medical Microbiology and Immunology (UBC 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. 21 and must have a Grade Point Average of 3.0. Students should note that application fees and tuition fees for International students are approximately 2.5 times 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 (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 student 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 | 3 |
| PATH 301 | 4 |
| PATH 303 | 4 |
| PATH 304 | 4 |
| PATH 305 | 4 |
| PATH 306 | 2 |
| PATH 327 | 6 |
| PATH 375 | 2 |
| Total Credits | 36 (35) |
| Fourth Year ³ | |
| 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 R.T. 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.

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 six credits of first-year English and 6 additional credits in Arts courses.

Bachelor of Midwifery

Director's Office

Elaine Carty, Director

Bette Mattheys, Program Assistant

B54, 2194 Health Sciences Mall
Woodward Instructional Resources Centre
Vancouver, BC V6T 1Z3

Tel: 604-822-0352

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

Academic advising is recommended. Advising sessions are offered to students entering first year before their registration access date. Students with advanced credit are expected to seek advising through the Midwifery Program office.

ADMISSION

All inquiries relating to admission to first year of the Midwifery Program should be addressed to Enrolment Services. Inquiries relating to admission with advanced standing should be directed to the Midwifery Program.

The last day of submission of applications for admission from secondary school to the Bachelor of Midwifery program for the Winter Session beginning the following September is March 31, with supplementary documents (see *Other Requirements*, below) to be at the Midwifery Program office by March 31. Official transcripts are to be in Enrolment Services by 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 program will be offered to those students who not only demonstrate academic potential but also demonstrate the qualities and potential for competencies to practise as a midwife in BC and a strong motivations. Candidates may be invited for an interview at the discretion of the Admissions Committee.

Applicants should review the *English Language Admission Standard*, p. 21 as outlined in the University Calendar.

Application for admission must be made through Enrolment Services. Procedures, policies and admission requirements to the University of British Columbia are specified in Part II, *Undergraduate Admission*, p. 21. 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.

On occasion, as space permits, candidates may be admitted to the second year of the program with an overall average of 65% (2.50 on a 4-point scale) in the courses listed below or their equivalents at an approved college or university.

- Biology 153 (6) or equivalent
- English (3-6) or equivalent (English 112 recommended)

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.

Applicants who have completed college and/or university courses should consult an advisor in the midwifery program. The University will consider granting transfer credit for all post secondary courses completed.

OTHER REQUIREMENTS

Applicants for admission must submit the following additional supplemental admission requirements to the Midwifery Program by March 31:

- 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)
- Interim transcripts
- 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. Applications will not be processed unless the fee is received.

Incomplete applications and late applications will not be considered.

RE-ADMISSION

The Faculty reserves the right to re-admit students and to stipulate conditions attached to re-admission. Application for re-admission 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.

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 request.

COLLEGE OF MIDWIVES OF BRITISH COLUMBIA

Students who successfully complete the Bachelor of Midwifery program 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.

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 pre-requisite to all first-year English courses at UBC. (See *Language Proficiency Index Requirement for First Year English*, p. 22.)

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 |

| | |
|---|------------|
| Year 1 (Continued) | |
| FDNS 103 (Approaches to Social Understanding) | 8 |
| Midwifery and mentorship non-credit program | |
| Total Credits Year 1 | 31 |
| Year 2 | |
| DPAS (Ethics Module) | 1 |
| Critical Appraisal, Health and Society (under development) | 3 |
| MIDW 200 (Birth and its Meaning) | 3 |
| MICB 153 | 3 |
| Elective | 3 |
| PHAR 240 | |
| MIDW 205 (Midwifery Care 1) | 12 |
| Elective | 3 |
| Total Credits Year 2 | 31 |
| Year 3 | |
| Term 1 | |
| MIDW 300 (Midwifery Care 2) | 15 |
| Terms 2 and 3 | |
| Students will be in one of two streams, either taking MIDW 305/310 followed by MIDW 315, or vice versa. | |
| or MIDW 315 (Midwifery Care 3) | |
| Total Credits Year 3 | 45 |
| Year 4 | |
| Term 1 | |
| MIDW 400 (Midwifery Care 4) | 15 |
| MIDW 410 (Graduating Essay) | 3 |
| Term 2 | |
| MIDW 405 (Clerkship) | 12 |
| Total Credits Year 4 | 30 |
| Total Program Credits | 137 |

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 PGY1 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, 151 Slater Street, Suite 802, Ottawa, Ontario, K1P 5H3.

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 (resident) students 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 54 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 Post-Graduate 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 (Resident) students 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. 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

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 (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 fulfilment 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), Prince George Rural, St. Paul's and Victoria. A two year program in First Nation's 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 anaesthesia 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 (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*, p. 249). Core clinical experience includes Pediatrics (neonatology, endocrinology, biochemical disease), Internal Medicine (acute care, cardiology, neurology), 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 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.

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 and offers opportunities for interactions in the subdisciplines and specialties within anatomic, general, and neuro-pathology, 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

The department offers practical experience in examination, investigation and management of patients in the neuro-ophthalmology, retina, cornea, glaucoma, refraction and contact lens, ocular plastic, 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 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, and the Royal Columbian Hospitals.

PEDIATRICS

Education in Pediatrics is a graduated experience utilizing 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 subspecialty 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.

PATHOLOGY

Approved training is available in all subspecialties 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.

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 inpatient wards, at outpatient 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

One year of approved basic clinical training. The purpose of this period 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. The first year of an approved family medicine program is acceptable in fulfillment of this requirement. This year would precede subsequent specific training in radiation oncology.

PGY-2

One year, which includes six months of approved resident training in internal medicine and six months of approved clinical training or research training relevant to the objectives of the specialty and acceptable to the director of the residency program and to the Royal College, at a hospital in Canada or abroad.

PGY-3, 4 AND 5

Three years of radiation oncology (36 months): BC Cancer Agency, Vancouver Cancer Centre

- site specific rotations 10 to 12 weeks long: head and neck, gynecological oncology, lymphoma, breast, etc.
- weekly academic half day: instruction in radiobiology pathology, physics, principles and practice of oncology.
- annual formal practice radiotherapy planning examinations.
- annual attendance at Northwestern Radiobiology Course (Seattle, Edmonton, Vancouver).
- mid-rotation constructive criticism sessions and end of rotation oral assessments.

RESEARCH

For interested residents, six months of basic science or research can be incorporated: can attend weekly seminars at the BC Cancer

Research Centre; annual departmental resident research project presentations.

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 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 PGY1 positions is governed by the Canadian Resident Matching Service (CaRMS) Program. Detailed descriptions for PGY1 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. T.J. Zwimpfer, Neurosurgery; Dr. R.A. Irvine,

Otorhinolaryngology; Dr. P. Clugston, Plastic Surgery; Dr. G. Blair, Pediatric General Surgery; Dr. M. Keyes, Radiation Oncology; Dr. K.G. Evans, Thoracic Surgery; Dr. A. MacNeilly, 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. J. K. MacFarlane (until June 30, 2003) 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 practise 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 practise medicine within their jurisdictions. The possession of the Licentiate of the Medical Council of Canada (L.M.C.C.) (www.mcc.ca/cred_new.html) 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 practise.

Medical Council of Canada Qualifying Examination

Application forms and information kits are available through the Dean's Office at the Vancouver Hospital and Health Sciences Centre.

Students planning to practice in British Columbia should make application to the

Registrar, College of Physicians and Surgeons of British Columbia. Application should be made no later than March 1 in the final year of the medical course. Forms will be made available in the Dean's Office, Vancouver Hospital and Health Sciences Centre. The credentials will be processed directly by the College of Physicians and Surgeons.

A student planning to practice medicine outside this province should comply with the regulations of the appropriate licensing body, including the requirements of other colleges of physicians and surgeons.

A student who has registered in another province should ordinarily obtain the application form and information kit from that province.

Academic Staff

DIVISION OF CONTINUING MEDICAL EDUCATION

Kendall Ho, Associate Dean and Director

DIVISION OF HISTORY OF MEDICINE

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Robert Todd, B.A. (Lond.), A.M., Ph.D. (Prin.);
William A. Webber, M.D. (Brit. Col.), FRCPC.

DEPARTMENT OF ANESTHESIA

C.B. Warriner, Head

PROFESSORS

C.B. Warriner, M.D. (Brit. Col.), FRCPC.

ASSOCIATE PROFESSOR

B. A. MacLeod, B.Sc., M.D. (Brit. Col.), FRCPC.

HONORARY PROFESSOR

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Division of Cardiovascular Surgery: S. V. Lichtenstein (Head), J. G. Abel, K. Ashe, L. H. Burr, G. Fradet, V. Gudas, R. Hayden, W. R. E. Jamieson, M. T. Janusz, S. Karim, J. LeBlanc, H. Ling, R. T. Miyagishima, A. I. Munro, K. Yamami, S. Sett, D. Thompson, A.W. Cheung, T. Latham; **Division of Emergency Medicine:** R. A. Pursell, (Head), R. Abu-Laban, T. Brubacher, M. Carter, J. M. Christenson, B. Chung, J. Coleman, M. S. Dettman, K. Edmonds, C. Fernandes, L. Filiatrault, B. Fleming, A. Gareau, S. Glazer, E. J. Grafstein, L. E. Graham, A. Grunfeld, J. G. Haegert, D. W. Harrison, M. Hein, K. Ho, A. Holmes, G. D. Innes, D. Kassen, L. Kokan, W. J. Lang, T. F. S. Lee, C. Leung, L. Mackag, J. Macnab, J. McEwen, C. McIntyre, R. D. McKnight, R. R. Mercier, B. J. Miller, A. B. Morrison, M. Moser, R. F. Noseworthy, B. Oldring, L. Opper, C. Rumball, A. Scholtz, H. Schubert, C. Stitt, R. M. Street, S. Stromberg, L. Vertesi, K. Wanger, V. Wood, K. Zahn, I. Mitchell, P. Huang, K. Mackay, J. McNab, G. Erhardt, R. MacKay; **Division of General Surgery:** S. W. Chung (Head), D. B. Allardyce, J. P. Appleby, N.P. Blair, D. Brosseau, R. Brown, S. P. Bugis, N. Causton, G. Chang, R. Cheifetz, I. G. M. Cleator, N. L. Davis, C. Dinee, A. Dowell, E. Frew, R. Granger, C. Helgason, J. Hunter, A. Kamitakamara, T. Keiffer, G. Kingston, A. Kirkpatrick, U. Kuusk, E. R. Letwin, M. Levings, A. Lomax, J. K. MacFarlane, G. I. McGregor, M. Meloch, F. Mui, A. G. Nagy, O. N. Pantan, P. T. Phang, B. Rudston-Brown, B. Sawyer, N. Schmidt, C. H. Scudamore, A. M. Seal, R. Simons, W. T. Simpson, M. Sutter, R. Taylor, L. J. Turner, J. A. Vestrup, J. Dueck, A. Mui, C. Ong, B.Sullivan, G.L. Warnock, G. Chang, R. Janzen, B.Schopf, G. Wankling; **Division of Neurosurgery:** G. J. Redekop (Head), **M. C. Boyd**, S. Cameron, D. D. Cochrane, D. J. Fairholm, D. E. Griesdale, C. Honey, W.-J. Jia, A. Lee, P. Steinbok, B. D. Toyota, W. B. Woodhurst, T. J. Zwimpfer, A. Price, C. Dong, R. Akagami, C. Dong, A. Price; **Division of Otorhinolaryngology:** N. Longridge (Acting Head), **M. D. Morrison**, D. W. Anderson, J. A. Bartlett, G. E. Bryce, A. Blokmanis, T. Bojanowski, F. G. Braig, R. I. Dickson, J. R. Dmytryshyn, K. R. Dubeta, S. Durham, D. A. Gillanders, R. A. Irvine, A. Javer, D. J. Kibblewhite, F. K. Kozak, J. Ludemann, F. C. Malby, S. S. C. Man, M. Miller, D. R. Mintz, P. Moxham, F. Noel, K. H. Riding, Imran Samad, D. W. F. Schwarz, G. W. Smith, J. M. Smith, H. Stevens, H. Strecker, N. C. Thong, D. Vargas, B. Westerberg, J. Woodham, R. Younger, A. Denton, M. Harriman, A. Maloney, I. Pathak; **Section of Pediatric General Surgery:** G. Blair (Head), J. Murphy, E. Webber, E.D. Skarsgard; **Division of Plastic Surgery:** R. J. Warren (Head), J. Boyle, K. Bush, N. J. Carr, P. Clugston, D. J. Courtemanche, D. G. Fitzpatrick, B. Foley, D. A. Kester, P. Lennox, P. A. MacKay, Q. R. Son-Hing, R. P. Thompson, N. Y. Van Laeken, C. Verchere, Neil Wells, A. Pusic, E. Brown, B. Gelfant, B. Peterson, S. Valnicsek, S. Williamson, D. Williamson; **Division of Radiation Oncology:** T. J. Keane (Head), A. Agranovich, C. Aquino-Parsons, S. Balkwill, E. Berthelot, P. Blood, G. Duncan, R. N. Fairrey, P. K. J. Goddard, C.A. Grafton, J. H. Hay, B. Haylock, D. Hoegler, S. M. Jackson, H. Joe, M. Keyes, C. Kim-Sing, E. C. Kostashuk, W. Kwan, S. Larsson, H. Lau, C. Leong, J. T. W. Lim, P. Lim, C. M. Ludgate, R. Ma, M. McKenzie, W. McMillan, W. J. Morris, I. A. Olivotto, T. Pickles, M. Po, M. Reed, F. Sheehan, N. J. S. Voss,

L. Weir, D. Wilson, F. L.-W. Wong, J. Wu, E. Wai., F. Tyldesley, I. Mohamed, D. Kim, H. Pai; **Division of Thoracic Surgery:** R. J. Finley (Head), M. L. Brumwell, K. G. Evans, G. Fradet, B. Nelems, K. Qayumi; **Urology:** S.L. Goldenberg(Head), M. Carter, G. U. Coleman, M. Cox, H. N. Fenster, M. Gleave, W. Gourlay, E. Guns, C. B. Jamieson, T. Kinahan, P. Kozlowski, C. Krahn, A. D. C. Manson, J. Masterson, M. McLoughlin, A. J. Moore, C. Nelson, M. Nigro, K. Prestage, P. Skepasts, L. Stothers, W. N. Taylor, J. E. Wright, V.D.W.Chow, A.E. MacNeily, J. Teichman, J. Davison; **Division of Vascular Surgery:** D. C. Taylor (Head), L. Doyle, P. D. Fry, G. Houston, Y. Hsiang, S. Macdonald, J. Reid, A. J. Salvian, T. Kalla.

2003-04

18 The School of Music

A SCHOOL WITHIN THE FACULTY OF ARTS

Director's Office
J. Read, Director
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Vancouver, BC V6T 1Z2
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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* in the Faculty of Arts section. For graduate degrees, see *Music* 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

The entering class may be limited for first-year music studies, and likewise for adequately qualified second- and third-year transfers. Therefore, it is essential for each prospective applicant to write a letter as soon as possible to

the undergraduate admissions officer in the School of Music indicating interest in being considered for admission. As soon as possible after February 1 the student should write for detailed information regarding pre-admission procedures and examination dates. The School will send forms which should be filled out and returned, one to Enrolment Services and another to the School's undergraduate admissions officer, with a copy of the applicant's (partial) transcript appended to each. These forms are also available on The School's Website (www.music.ubc.ca). Applicants should 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.

All applicants for admission to the Bachelor of Music programs must meet the pre-admission requirements of the School of Music, which generally include an entrance examination in music theory and aptitude and a performing audition, as well as the academic requirements for admission to the University. The School's examinations and auditions must be taken at the scheduled times in the spring. Acceptance for admission is based on the total evaluation of the skills and preparation of each applicant. Only those students who fulfil both the University and School requirements for admission and meet the University deadline for submitting formal applications for admission will be considered for admission to the Winter Session Bachelor of Music major program.

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

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. 145 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. Enrollment must also be approved by the senior Undergraduate advisor in the School of Music.

Descriptions of the major programs within the Bachelor of Music follow this section, beginning with *Composition*, p. 322.

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 expected to demonstrate, normally by taking piano as a secondary instrument, the following achievement levels at the ends of the first and second years:

END OF FIRST YEAR

By the end of first year, students will be expected to demonstrate

- independently-prepared repertoire at the approximate difficulty of Toronto or Western Board Grade IV;
- sight-reading at the approximate difficulty of Toronto or Western Board Grade III;
- transposition of pieces at the above sight-reading level to most other keys;
- improvisation of accompaniments using common-practice harmonies and/or contemporary techniques (melody and accompaniment; accompaniment alone); and
- any scale or mode with a tetrachord in each hand; major, minor, Phrygian, Lydian and

Locrian pentachords from any note (both hands); cadences in all keys.

END OF SECOND YEAR

By the end of second year, students will be expected to demonstrate

- independently-prepared repertoire at the approximate difficulty of Toronto or Western Board Grade VII;
- sight-reading at the approximate difficulty of Toronto or Western Board Grade V;
- transposition of pieces at the above sight-reading level to most other keys;
- improvisation of accompaniments utilizing more extensive harmonic and contrapuntal vocabulary (melody and accompaniment; accompaniment alone);
- complete scales in any mode (including major and minor), two octaves, hands together; and
- keyboard sequences, including scale harmonization, seventh chords in the key, and circles of dominant sevenths (any key).

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 Faculties of Arts (other than Music courses) and Science;
- all courses designated FMSC (Family Science);
- up to 18 credits in courses outside Arts, Science and Family Science.

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. 22) and first-year English requirements as stipulated by the Faculty of Arts (see *English Requirement*, p. 122 under Faculty of Arts, Faculty 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 the student with 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 |
| Ensemble ³ | 2 |
| Non-Music Electives | 6 |
| Total Credits | 36 |

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 |
| Ensemble ³ | 3 |
| Literature Requirement | 6 |
| Total Credits | 35 |

Third Year

| | |
|--------------------------------|-----------|
| MUSC 300 | 3 |
| MUSC 301 | 3 |
| MUSC 307 | 6 |
| Music Performance ² | 2 |
| Ensemble ³ | 2 |
| Music Electives ⁴ | 6 |
| Non-Music Electives | 12 |
| Total Credits | 34 |

| Fourth Year | |
|--------------------------------|-----------|
| Theory Electives ⁵ | 6 |
| MUSC 407 | 6 |
| Music Performance ² | 2 |
| MUSC 311 | 2 |
| Music 312 or 313 | 2 |
| Music Electives | 6 |
| Non-Music Elective(s) | 6 |
| Total Credits | 30 |

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 four composition courses.

² At least two credits of piano is required each year. Students may study either at the concentration level (182, 282, 381, 481) or at the secondary level (172, 272, 371, 471). If concentration is elected they will be expected to meet jury requirements.

³ The ensemble requirement for the four years is defined as three credits of large ensemble, two credits of small ensemble, and two credits of either.

⁴ MUSC 328 (at least three credits) is recommended as a third-year music elective.

⁵ 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. 323 or *General Studies: Secondary Education Stream*, p. 324 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 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 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 |
| 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 Elective(s) 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 The secondary instrument is normally piano in the first two years unless the concentration is a keyboard instrument. Students with minimal keyboard experience will be placed initially in MUSC 141 and will in the second year take MUSC 241 or MUSC 271 (private), as determined by the level of achievement in MUSC 141. Students with some previous piano experience may be excused from all or part of the piano requirement by showing satisfactory proficiency in all of the second-year secondary piano requirements: technique, repertoire, keyboard harmony, score reading, sight reading, and transposition. For details, consult the faculty coordinator, keyboard performance division.

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 advisor, 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 six credits of small ensemble (usually Collegium Musicum, starting in the second year) and six 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 six 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 two credits and a maximum of six credits of small ensemble. The two-credit small ensemble minimum may be waived if inappropriate to the concentration instrument or to the needs of the student, or 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 elective.

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) ⁵ | 6 |
| MUSC 482 | 4 |
| Large Ensemble ⁶ | 3 |
| MUSC 131 ⁷ | 2 |
| Class Instrument (MUSC 102, 112 or 122) | 2 |
| Non-Music Elective(s) ⁸ | 12 |
| Music Education Electives ⁹ | 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 two 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 Of the 12 required Music elective credits, at least six must be in history, theory, ethnomusicology, orchestration, or composition. At most two credits of small ensemble may be elected.
- 6 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).
- 7 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.
- 8 The Non-Music Electives should be chosen to satisfy the admissions requirements of the Elementary Teaching Program of the Faculty of Education.
- 9 Students should consult with Music Education faculty to determine which courses are most suitable as electives.

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 of the Faculty of Education, with music as the major teaching field.

The curriculum is based on that of the major in General Studies (see p. 323), with the following differences:

- 1 Second Year—Students must take MUSC 122 (2).
- 2 All Years
 - (A) 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.
 - (B) 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 |
| Music 312 | 2 |
| Music 313 | 2 |
| MUSC 382 | 4 |
| MUSC 371 | 2 |
| Large Ensemble | 3 |
| Small Ensemble | 2 |

Third Year (Continued)

| | |
|------------------------------------|----|
| 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 Elective(s) ² | 12 |
| Music Electives | 5 |
| Total Credits | 34 |

- 1 Two 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 six 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 171 ¹ | 2 |
| Large Ensemble ² | 3 |
| MUSC 160 ³ | 2 |
| Non-Music Elective(s) | 3 |
| Total Credits | 34 |

Second Year

| | |
|-----------------------------|----|
| MUSC 200 | 3 |
| MUSC 201 | 3 |
| MUSC 220 | 3 |
| MUSC 221 | 3 |
| MUSC 293 | 6 |
| MUSC 271 ¹ | 2 |
| Large Ensemble ² | 3 |
| MUSC 160 ³ | 2 |
| Literature Requirement | 6 |
| Non-Music Elective(s) | 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 Elective(s) | 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 The secondary instrument will be piano except where a student elects another instrument after having met in full the Minimum Achievements in Piano for second year. Secondary piano students will be auditioned. Those judged to have insufficient background to require private study will be placed initially in MUSC 141 (class) and will, in second year, take either MUSC 241 (class) or MUSC 271 (private) as determined by the level of achievement in 141.

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 the first and second years, and that they either continue with the ensemble or elect one of the following courses in each of the 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:

- 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.
- End of Second Year. J.S. Bach: Toccata; L. Couperin: Suite; Gibbons: Fantasia; Frescobaldi or Froberger: Toccata; Haydn: early Sonata; continuo work (from figured basses) in small ensembles.
- End of Third Year. J.S. Bach: English Suite or Partita; Rameau: Suite; Rossi or Picchi: Toccata; 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.
- 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 | 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.

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, three-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 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 271 | 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

The secondary instrument will be piano except where a student elects another instrument after having met in full the Minimum Achievements in Piano for second year. Secondary piano students will be auditioned. Those judged to have insufficient background to require private study will be placed initially in MUSC 141 (class) and will, in second year, take either MUSC 241 (class) or MUSC 271 (private) as determined by the level of achievement in 141.

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 the student who plans to become a professional performer or a teacher 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 171 ¹ | 2 |
| MUSC 150 | 4 |
| Small Ensemble ² | 2 |
| Total Credits | 32 |

Second Year

| | |
|----------|---|
| MUSC 200 | 3 |
| MUSC 201 | 3 |
| MUSC 220 | 3 |

Second Year (Continued)

| | |
|------------------------------|----|
| MUSC 221 | 3 |
| MUSC 293 | 6 |
| MUSC 271 ¹ | 2 |
| MUSC 150 | 4 |
| Small Ensembles ² | 4 |
| Literature Requirement | 6 |
| Total Credits | 34 |

Third Year

| | |
|------------------------------|----|
| MUSC 300 | 3 |
| MUSC 301 | 3 |
| MUSC 394 | 8 |
| MUSC 150 | 4 |
| Small Ensembles ² | 4 |
| Non-Music Elective(s) | 12 |
| Total Credits | 34 |

Fourth Year

| | |
|------------------------------|----|
| MUSC 494 | 8 |
| MUSC 150 | 4 |
| Small Ensembles ² | 4 |
| Music Elective ³ | 6 |
| Non-Music Elective(s) | 6 |
| Total Credits | 26 |

1

The secondary instrument will be piano except where a student elects another instrument after having met in full the Minimum Achievements in Piano for second year described above. Secondary piano students will be auditioned. Those judged to have insufficient background to require private study will be placed initially in MUSC 141 (class) and will, in second year, take either MUSC 241 (class) or MUSC 271 (private) as determined by the level of achievement in 141.

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 two credits of MUSC 305, at least four credits of MUSC 162, and at least two credits of MUSC 157, 163, 164, or 165. String students must take eight credits of MUSC 160 or 159, two credits of MUSC 157 or MUSC 163, and two credits of any small ensemble.

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 enroll 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 |
| Large Ensemble ¹ | 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 |
| Large Ensemble | 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 ² | 6 |
| Total Credits | 32 |

Fourth Year

| | |
|-------------------------------|----|
| MUSC 333 | 2 |
| MUSC 494 | 8 |
| Music History Elective | 6 |
| Theory Electives ³ | 6 |
| Non-Music Elective(s) | 6 |
| Total Credits | 28 |

¹ Students will enrol in either MUSC 153 or MUSC 154 with the permission of the School.

² 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.

³ 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 of 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 and quick study 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 193 | 6 |
| MUSC 149 | 2 |
| Large Ensemble ¹ | 3 |
| Total Credits | 35 |

Second Year

| | |
|-------------------------------|----|
| MUSC 200 | 3 |
| MUSC 201 | 3 |
| MUSC 220 | 3 |
| MUSC 221 | 3 |
| MUSC 236 | 4 |
| MUSC 293 | 6 |
| MUSC 249 | 2 |
| MUSC 167 ¹ | 2 |
| Literature Requirement (Arts) | 6 |
| Non-Music Elective(s) | 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 Electives 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 |

¹ Students may elect MUSC 169 for their collaborative work with singers, supervised by their assigned chamber music instructor.

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 171 ¹ | 2 |
| Large Ensemble ² | 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 271 | 2 |
| Large Ensemble | 3 |
| Literature Requirement | 6 |
| Italian ³ | 6 |
| Total Credits | 35 |

Third Year

| | |
|----------|---|
| MUSC 300 | 3 |
| MUSC 301 | 3 |
| MUSC 394 | 8 |
| MUSC 365 | 2 |

Third Year (Continued)

| | |
|-----------------------|----|
| Large Ensemble | 3 |
| German ³ | 6 |
| Non-Music Elective(s) | 6 |
| Total Credits | 31 |

Fourth Year

| | |
|-----------------------------|----|
| MUSC 494 | 8 |
| MUSC 465 | 2 |
| MUSC 442 | 4 |
| Large Ensemble | 3 |
| Small Ensemble ⁴ | 2 |
| Music Elective ⁵ | 6 |
| French ³ | 6 |
| Total Credits | 31 |

- ¹ The secondary instrument will be piano except where a student elects another instrument after having met in full the Minimum Achievements in Piano for second year. Secondary piano students will be auditioned. Those judged to have insufficient background to require private study will be placed initially in MUSC 141 (class) and will, in second year, take either MUSC 241 (class) or MUSC 271 (private) as determined by the level of achievement in 141.
- ² Students will enrol in either MUSC 153 or MUSC 154.
- ³ 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.
- ⁴ Students will elect either MUSC 156 or MUSC 157.
- ⁵ 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. 146 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, 358, 427, 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 enroll 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 of 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 a program 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. (Princ.); **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); **Andrew A. Dawes**, Diploma (Conservatoire de Genève); **Keith Hamel**, B.Mus. (Queen's), A.M., Ph.D. (Harv.); **Nancy Hermiston**, B.Mus. (Tor.); **J. Evan Kreider**, B.A. (Goshen), M.Mus., Ph.D. (Indiana); **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); **Alan Thrasher**, A.A. (Valley Forge), B.S. (Mansfield State), M.M. (Ithaca), Ph.D. (Wesleyan).

ASSOCIATE PROFESSORS

Richard Kurth, B.Sc. (Tor.), M.Mus. (Hartford), Ph.D. (Harv.); **David Metzger**, B.A. (Dickinson College), M.Phil. Ph.D. (Yale); **Vera Micznik**, Diploma (Bucharrest Conservatory), M.A. (Virginia), Ph.D. (S.U.N.Y., Stony Brook); **Bruce Pullan**, B.A., M.A. (Cambridge); **Gary Relyea**, B.Mus. (Tor.); **Eric J. Wilson**, B.Mus., M.Mus. (Juilliard).

ASSISTANT PROFESSORS

Alexander J. Fisher, B.M. (Northwestern), M.A. (Indiana), M.A., Ph.D. (Harv.); **David Harding**, B.M. (Juilliard).

SENIOR LECTURERS

Gordon Cherry, B.Mus. (Eastman), Trombone; **Camille Churchfield**, B.A. (Redlands), Flute; **Roger Cole**, B. Mus. (Juilliard), Oboe; **J. Wesley Foster**, Clarinet; **Kenneth J. Friedman**, B.Mus. (S.Calif.), M.S. (Juilliard), Double Bass; **Kum Sing Lee**, Diploma (Hochschule für Musik, Berlin), M.Mus. (Rosary College, Villa Schifanoia, Florence), L.R.S.M., L.Mus. A. (Australia), Piano; **Julia Nolan**, B.Mus. (Brit. Col.), M.Mus. (Indiana), Saxophone; **Douglas Sparkes**, B.Mus. (Tor.), Trombone; **Frederick Stride**, B.Mus. (Brit. Col.), Jazz Ensemble, Jazz Theory and Arranging; **Michael Strutt**, Guitar.

INSTRUCTORS

Terence Dawson, B.Mus. (Mt. Allison), M.Mus., D.M.A. (Brit. Col.), Piano; **Robert Pritchard**, D.M.A. (Brit. Col.), Theory.

LECTURERS

Ellis Wean, Tuba; **Peter Barcza**, Diploma (Tor.), Voice; **Denis Bédard**, Organ; **Sonja Boon**, M.Mus. (Indiana), Performance Practice and Early Music; **Melinda Boyd**, Ph.D. (Brit. Col.), Music History; **Kenneth Broadway**, Piano Chamber Music; **Michael Bushnell**, Ph.D. (N.Y., Stony Brook), Film Music; **Susan Chai**, M.Mus. (Michigan), Class Piano; **Rita Costanzi**, B.Mus., Performers Certificate (Eastman), Harp; **Gregory Cox**, B.Mus. (Eastman), Trombone; **Marc Destrubé**, Artist Diploma (Tor.); **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; **Brenda Fedoruk**, B.Mus. (Brit. Col.), Flute; **Salvador Ferreras**, B.Mus. (Windsor), Percussion; **Paul Fester**, M.Mus. (Arizona State), Tuba, Euphonium; **Marisa Gaetanne**, M.Mus. (Brit. Col.), Voice; **Peter Gal**, B.Sc. (McG.), Class Woodwinds; **Vernon Griffiths**, M.Mus. (Manhattan), Percussion; **Peter Hannan**, B.Mus. (Brit. Col.), Recorder; **Sarah Jackson**, B.Mus. (Brit. Col.), Flute; **Tom Keenlyside**, B.Mus. (Brit. Col.), Film Music Composition; **Paul Kling**, Diploma (Prague), Violin; **Larry Knopp**, M.Mus. (Northwestern), Trumpet; **Brandon Konoval**, D.M.A. (Brit. Col.), Music Appreciation; **Helen Lee**, Voice; **James Littleford**, B.Mus. (Brit. Col.), Class Brass; **Ramona Luengen**, M.Mus. (Brit. Col.), Theory; **Giorgio Magnanensi**, Diploma (S. Cecilia), Composition; **Alan Matheson**, B.Mus. (Northwestern), Trumpet; **David McCoy**, B.Mus.,

M.Mus. (Brit. Col.), Piano; **Lorna McGhee**, Diploma (Royal Acad. Music), Flute; **Christopher Millard**, Bassoon; **Richard Mingus**, M.Mus. (Ohio), French Horn; **Kenneth Morrison**, Ph.D. (Washington), Music Theory; **Nancy Di Novo**, M.Mus. (Tor.), Violin; **Doreen A. Oke**, B.Mus. (Brit. Col.), Harpsichord; **Beth Orson**, B.Mus. (Oberlin), Oboe; **Gene Ramsbottom**, Clarinet; **Alan Rinehart**, Associate in Arts (Southwestern Michigan), Guitar; **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. (Brit. Col.), Choral Coach/Accompanist; **Heather Thomson-Price**, Voice; **Dale Throness**, B.A. (Wpg.), M.Mus. (Brit. Col.), Voice; **Leslie Uyeda**, M.A. (S.F.U.), Opera Coaching; **Ellis Wean**, Tuba; **Ellis Wean**, Tuba; **Miranda Wilkins Wong**, A.R.C.T., B.Mus. (Vic.B.C.), M.Mus. (Johns H.), Piano.

2003-04

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
Tel: 604-822-7417
Fax: 604-822-7466

Nursing Website (www.nursing.ubc.ca)

The School of Nursing offers baccalaureate, master's and doctoral programs. In the baccalaureate program, secondary school graduates can follow a four-year program leading to the degree of Bachelor of Science in Nursing. Students with advanced standing can complete the baccalaureate program in five terms of 300- and 400-level upper-division courses. Registered nurses can take a program leading to the degree of Bachelor of Science in Nursing. Baccalaureate graduates are offered a program leading to the degree of Master of Science in Nursing. For master's graduates, the School of Nursing offers a program leading to the degree of Doctor of Philosophy in Nursing. For details of these graduate programs, see *Nursing*, p. 251 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 is a multiple-entry option program offering courses in the theory and practice of nursing. Students entering the program from secondary school complete two years of study in the arts and sciences prior to commencing courses in nursing. Linkage with the School during this time period is facilitated through academic advisors and the Nursing Undergraduate Society. Students with significant progress toward a degree in another field or with a previous bachelor's degree, may 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. Advising sessions are offered to students entering first year prior to their registration access date. 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 admission to first year in the School of Nursing should be addressed to Enrolment Services. Inquiries related to either admission with advanced standing or admission for Registered Nurses should be directed to the School of Nursing.

The last day for submission of applications from secondary school to the Bachelor of Science in Nursing program for the Winter Session beginning the following September is March 31, with necessary documents and official transcripts to be in Enrolment Services by June 30 for the four-year program. For applicants with advanced standing, applications must be submitted by February 28, with necessary documents and official transcripts to be received in Enrolment Services by June 30. For Registered Nurses, application and documentation which is submitted to the Undergraduate Program Records Office in the School of Nursing by June 1 will be processed for September admission and by August 15 for 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. 21 in the Undergraduate Admission section of the Calendar.

ADMISSION FROM SECONDARY SCHOOL

Procedures, policies and admission requirements to the University of British Columbia and School of Nursing are specified in *Undergraduate Admissions*, p. 28. Because of enrolment limitations, the academic standing required for admission is higher than the published minimum and not every qualified applicant will be offered admission.

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 also most aptly display a motivation to study nursing and demonstrate 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 3rd and 4th 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

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 June 30:

- 1 Two letters of reference (structured form provided in the application package). It is

recommended that one referee be a teacher, instructor, employer or supervisor.

- 2 A current resume (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. BC applicants applying as registered nurses for on-campus or distance study must hold current practicing nurse registration in BC. Out-of-province applicants wishing to complete the program by distance education must hold current practicing 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 R.N. examination and RNABC registration or eligibility to register.

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 or August 15 depending on the proposed start date. Along with the supplemental application form, two confidential assessment forms, a resume, 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 credits of university or college credit 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.school.nursing.ubc.ca/program/meo/Post-Basic.html).

RE-ADMISSION

The School reserves the right to readmit students and to stipulate conditions attached to re-admission. Application for re-admission 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 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 considered 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. 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 meet all requirements within a maximum of seven years from initial enrolment. Post-R.N. students must normally meet all requirements within a minimum of twelve 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 three credits in English. Students entering the program from secondary school (or those with advanced standing) must have completed the three 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. 22.) Post-R.N. students are encouraged to complete the required three credits of English prior to entry into the nursing program. Students who wish to complete the program in 12 months must have completed three credits of English prior to admission.

FIRST AND SECOND YEAR REQUIREMENTS

Students in the first two years of the program must complete the following requirements prior to progressing to 300-level Nursing courses. A minimum of 48 credits is required.

- English (3) (ENGL 112 is recommended.)
- BIOL 153 (6)
- MICB 153 (3)
- Psychology courses at the 100- or 200-level (3-6)
- Electives chosen in consultation with a faculty adviser 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 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.

UPPER-DIVISION 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 |

INTERPROFESSIONAL ELECTIVES

Under the auspices of the Council, the *College of Health Disciplines*, p. 271 is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Nursing. For more information see Courses (students.ubc.ca/calendar/courses.cfm), IHHS, or visit the website at www.health-disciplines.ubc.ca.

POST-R.N. PROGRAM

Registered Nurse students are required to complete a program of 45 credits, which consists 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.

Required Nursing Courses

| | |
|------------------------------|-------------------|
| NURS 450 | 3 |
| NURS 453 | 3 |
| Clinical Nursing Courses | 6 credits minimum |
| Non-Clinical Nursing Courses | 15-24 credits |

Required Nursing Courses

| | |
|--------------------|--------------|
| Electives | 9-18 credits |
| English First year | 3 |
| Total credits | 45 |

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 Registered Nurses Association of British Columbia 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 Registered Nurses Association 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 Aid

The publication, *A Guide to Awards and Student Financial Assistance*, contains a list of current academic awards (scholarships and prizes) and financial assistance (grants, bursaries and loans). Students are encouraged to refer to the supplement 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 the Office of Awards and Financial Aid, The University of British Columbia, 1036-1874 East Mall, Vancouver, BC, V6T 1Z1. Tel: 604-822-5111.

The following awards are not administered by the Office of Awards and Student Financial Assistance:

- 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 RNABC Districts and Chapters. Many Chapters 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 Registered Nurses Association 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

PROFESSORS

Sonia Acorn, B.N. (McG.), M.Sc.(A) (Boston), Ph.D. (Utah), R.N.; **Joan M. Anderson**, B.N. (McG.), M.S.N., Ph.D. (Brit. Col.), R.N.; **Joan L. Bottorff**, B.Sc. (Alta.), B.Ed., M.Ed. (Sask.), M.N., Ph.D. (Alta.), R.N.; **Elaine A. Carty**, B.N. (New Br.), M.S.N. (Yale), R.N.; **Barbara Ann Hilton**, B.S.N. (Brit. Col.), M.Sc.N. (Tor.), Ph.D. (Texas), R.N.; **Joy L. Johnson**, B.S.N. (Brit. Col.), M.N., Ph.D. (Alta.), R.N.; **Barbara L. Paterson**, B.N., M.Ed., Ph.D. (Manit.), R.N.; **Sally E. Thorne**, B.S.N., M.S.N. (Brit. Col.), Ph.D. (Union), R.N.

ASSOCIATE PROFESSORS

Clarissa P. Green, B.S.N. (Florida), M.S.N. (Calif., Los Angeles), R.N.; **Wendy Hall**, B.N. (Manit.), M.S.N. (Brit. Col.), Ph.D. (Manc.), R.N.; **Angela Henderson**, B.S.N., M.S.N. (Brit. Col.), Ph.D.(C.) (Manc.), R.N.; **Carol Jillings**, B.S. (San Francisco), M.S.N. (Brit. Col.), Ph.D. (Union), R.N.; **Gloria Joachim**, B.S.N. (Maryland), M.S.N. (Brit. Col.), R.N.; **Linda G. Leonard**, B.S.N., M.S.N. (Brit. Col.), R.N.; **M. Judith Lynam**, B.Sc.(N) (McG.), M.S.N. (Brit. Col.), R.N.; **Pamela A. Ratner**, B.Sc., M.N., Ph.D. (Alta.), R.N.

ASSISTANT PROFESSORS

Lynda G. Balneaves, B.S., B.N., M.N. (Manit.), Ph.D. (Brit. Col.); **Annette Browne**, B.N. (Manit.), B.S.N. (Rhode Is.), Ph.D.(c) (Brit. Col.); **Connie Canam**, B.N. (Dal.), M.S.N. (Brit. Col.), R.N.; **Lyren Chiu**, B.S.N. (National, Taiwan), M.S.N. (Calif., San Francisco), Ph.D. (Texas, Austin); **V. Susan Dahinten**, B.A. (S. Fraser), M.B.A. (Brit. Col.), M.S.N. (Gonzaga), Ph.D. (Brit. Col.), R.N.; **Anne Dewar**, B.A., B.Sc.N. (Sask.), M.H.P. (New South Wales), Ph.D. (Queensland Tech.), R.N.; **Roberta J. Hewat**, B.S.N., M.S.N. (Brit. Col.), Ph.D. (Alta.), R.N.; **Jo Ann Perry**, B.S. (Adelphi, N.Y.), M.S.N. (Brit. Col.), Ph.D. (Wash.); **Alison Phinney**, B.A. (McGill), M.Sc. (Applied) (McGill), Ph.D. (Calif., San Francisco), R.N.; **Jane Alison Rice**, B.S.N. (Brit. Col.), M.S. (Calif., San Francisco), R.N.; **Fay Warnock**, B.Sc. (Alta.), M.S.N. (Alta.), Ph.D. (Alta.), R.N.

SENIOR INSTRUCTOR

Joanne Ricci, B.S.N., M.S.N. (Brit. Col.), R.N.

INSTRUCTORS

Marion Clauson, B.S.N., M.S.N. (Brit. Col.), R.N.; **John Oliffe**, M.Ed., (Vic. AU), Ph.D.(c), (Deakin), R.N.; **Elsie Tan**, B.S.N., M.S.N. (Brit. Col.), R.N.; **Paula Tognazzini**, B.S.N., M.S.N. (Brit. Col.), R.N.

LECTURERS

David Birnbaum, B.A. (U.C. Berkeley), M.P.H. (Minnesota), Ph.D. (Brit. Col.); **Cathy Ebbehøj**, B.S.N., M.S.N. (Brit. Col.), R.N.; **Lynne Esson**, B.S.N. (Vic. B.C.), R.N.; **Cathryn Jackson**, B.S.N., M.S.N. (Brit. Col.), R.N.; **Heather McAlpine**, B.S.N. (Brit. Col.), M.Sc.(N) (Edin.), Ph.D. (Murdoch), R.N.; **Katharine O'Flynn-Magee**, B.S.N., M.S.N. (Brit. Col.), R.N.; **Margaret Osborne**, B.N. (McG.), M.Ed. (Calgary), Ph.D. (Texas), R.N.; **Bev Valkenier**, B.S.N. (Tor.), M.S.N. (Brit. Col.), R.N.

CLINICAL ASSOCIATES

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CLINICAL ASSISTANTS

Frances Affleck, B.S.N. (Vic. BC), R.N.; **Laurie Bird**, B.S.N. (Brit. Col.), R.N.; **Dawna Claxton**, R.N.; **Margaret Cunningham**, B.S.N. (Brit. Col.), R.N.; **Brenda Hoyle**, M.S. (Alberta), B.S.N. (Brit. Col.), R.N.; **Linda Leung**, B.S.N., B.Sc. (Brit. Col.), R.N.; **Sharon Lowe**, B.S.N. (Brit. Col.), R.N.; **Jan Scott**, B.S.N. (Brit. Col.), R.N.; **Sharon Williams**, B.S.N. (Brit. Col.), R.N.

ADJUNCT PROFESSORS

Romilda Ang, B.S. (Brit. Col.), MSc(A) (McG.), R.N., Clinical Practice Leader, Rehabilitation, VHHSC.; **Rhea Arcand**, B.Sc., M.Sc. (Alta.), R.N., Vice President, Patient Services, V.P., Administration, Fraser Valley Cancer Centre; **Lynne Bailie**, B.Ed., M.Ed., Ph.D. (Sask.), BC Cancer Agency; **Carol Bassingthwaite**, B.S.N., M.S.N. (Brit. Col.), R.N. (Vic. B.C.) Pediatric Clinical Nurse Specialist, Vancouver/Richmond Health Board; **Fiona Bees**, B.S.N. (Brit. Col.), Intensive Care Nursing Cert., (Brit. Col.), M.S.N. (McG.), R.N., Regional System Therapy Process Leader, BCCA; **Lynette Best**, B.S.N., M.S.N. (Brit. Col.), Director, Nursing Practise, St. Paul's Hospital; **Margaret Borozny**, B.S.N., M.S.N. (Brit. Col.), R.N., DNS, Clinical Nurse Specialist, Neurosciences, VHHSC.; **France Bouthillette**, B.S. (Montr.), M.S.N. (Indiana), R.N., DNS, BC Cancer Agency; **Jenise Brouse**, B.S.N., M.S.N. (Brit. Col.), R.N., Patient Care Leader, Rehabilitation Providence Health Care, Family Hospital.; **Bernice Budz**, B.N. (Leth.), M.N. (Brit. Col.), R.N., Clinical Nurse Specialist, Cardiac, St. Paul's Hospital; **Mollie Butler**, B.S.N., M.P.A. (Vic. B.C.), R.N., Health Consultant and Researcher; **Gail Butt**, M.H.S. (Clin. Practice), (McMaster), R.N., Director of Resident Care, Louis Brier Home and Hospital; **Alice Chan**, B.Ed., B.S.N. (Brit. Col.), M.S.N. (Mass.), R.N., R.P.N., Clinical Nurse Specialist, Mental Health, VHHSC.; **Heather F. Clarke**, B.H.Sc. (Queen's), M.N., Ph.D. (Wash.), R.N.; **Marilyn J. Crawford**, B.N., M.N. (Calg.), R.N., Partner, Axmith Pacific; **Dianne Doyle**, B.S.N., M.S.N. (Brit. Col.), R.N., V.P., St. Paul's Hospital; **Marci Ekland**, B.S.N., M.S.N., (Brit. Col.), R.N., Certified Reg., Rehab. Nurse (Illinois), Sexual Health Clinician, VHHSC; **Christine Emery**, B.S.N., M.S.N., (Brit. Col.), R.N., Clinical Nurse Specialist, Hospice/Palliative Care, Fraser Health Authority; **Hilary Espezel**, B.S.N., M.S.N. (Brit. Col.), RN, Research Nurse, BC C&W; **Mary Ferguson-Pare**, B.Sc. (Tor.), M.P.H. (Minn), Ph.D. (Field), R.N., VP and Chief Nursing Officer, University Health Network, Toronto; **Barbara Fitzgerald**, B.S.N. (McMaster), M.N. (Pennsylvania), R.N., Nursing Consultant, Vancouver; **Barbara Fitzsimmons**, B.S.N., M.S.N. (Brit. Col.), R.N., Patient Services Director, Oncology/Hematology/BMT, BCCH; **JoAnn Ford**, B.A. (W. Ont.), M.S.N. (Brit.

Col.), R.N., Clinical Nurse Specialist, Transplantation and Gastroenterology, VHHSC; **Sharon Galloway**, B.N. (Manit.), M.S.N. (Brit. Col.), R.N., Clinical Nurse Specialist, VHHSC.; **Irene L. Goldstone**, B.N. (McG.), M.Sc. (Brit. Col.), R.N., Director, Professional Education and Care Evaluation, BC Centre for Excellence in HIV/AIDS.; **Deb Gue**, B.N., M.S.N. (Brit. Col.), R.N., Clinical Nurse Specialist, VHHSC.; **Doreen Hatton**, B.S.N., M.S.N. (Brit. Col.), R.N., Formerly Clinical Nurse Specialist, BC C&W; **Phyllis Hunt**, B.N. (Dal.), M.S.N. (Brit. Col.), R.N., Geriatric Clinical Specialist, Peace Arch Hospital; **Carolyn Iker**, B.S.N., M.S.N. (Brit. Col.), R.N., Perinatal Clinical Nurse Specialist, Children's and Women's Health Centre of BC.; **Rosella Jefferson**, B.S.N. (W.Ont.), M.S.N. (Brit. Col.), R.N., Clinical Nurse Specialist, Children's and Women's Health Centre of BC.; **Kay Johnson**, B.A. (Royal Roads), B.H.S. (OLU), R.N., Director, Griefworks BC; **Holly Kennedy-Symonds**, B.Sc. (Brandon), M.H.Sc. (Health Care Practice) (McM.), R.N., Clinical Nurse Specialist, Vancouver-General Hospital; **Kori Kingsbury**, B.S.N., M.S.N., (Brit. Col.), R.N., Clinical Nurse Specialist, Cardiology; **Karen Kline**, B.Sc.N., M.Sc.N. (Tor.), R.N., Nursing Consultant; **Vita Kolodny**, B.S., M.S. (McG.), Health Care Consultant, Vancouver; **Sheila Lamb**, B.S.N. (Vic.B.C.), M.S.N. (Brit. Col.), R.N., Clinical Nurse Specialist, VHHSC.; **Rachel Lawson**, B.S.N., M.S.N. (Brit. Col.), R.N., Clinical Resource Nurse, Sunny Hill Health Centre for Children; **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., IBCLC, Nursing Administration, Royal Columbian Hospital; **Valerie MacDonald**, Clinical Nurse Specialist, Vancouver General Hospital.; **Martha Mackay**, B.S.N., M.S.N. (Brit. Col.), CNCC(C), R.N., Clinical Nurse Specialist, St. Paul's Hospital; **Heather Mass**, B.N., M.Sc. (Calg.), R.N., Chief of Nursing, CWHCBC.; **Marsha McCall**, B.Sc. (Alberta), M.Sc. (Brit. Col.), Vancouver Richmond Health Board; **Betty McCracken**, B.N. (Calg.), M.Sc. (Mich.), Vice President, Patient Care, Clinical Services, St. Mary's Hospital; **Mary McCullum**, B.S.N., M.S.N. (Brit. Col.), R.N., Nurse Educator, Hereditary Cancer Program, BCCA.; **Heather McDonald**, B.S.N. (Brit. Col.), M.S.N. (Tor.), Clinical Nurse Specialist, G.F. Strong Rehabilitation Centre, VHHSC.; **Katherine I. McIndoe**, B.S.N., M.S.N. (Brit. Col.), R.N., Northwest Community College, Smithers; **Claire Miller**, B.S.N. (Dalhousie), M.S.N. (Brit. Col.), R.N., Clinical Nurse Specialist, Cardiac Surgery Program, St. Paul's Hospital; **Diane Miller**, B.S.N., M.S.N. (Brit. Col.), R.N., Manager, Community, New West Minister-Mental Health Care; **Carol M. B. Mitchell**, B.N. (Manit.), M.S.N. (Brit. Col.), R.N., Director, Maternal Child, Surrey Memorial Hospital; **Janice Muir**, B.S.N. (Vic.B.C.), M.S.N. (Oregon), R.N., Clinical Nurse Specialist, St. Paul's Hospital; **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., Clinical Nurse Specialist and Coordinator, Mental Health, Burnaby Hospital; **Margaret Neylan**, B.S.N. (McG.), M.A. (Brit. Col.), R.N. Health Specialist, Education & Health; **Mary Paone**, B.S.N., M.S.N. (Brit. Col.), R.N., Clinical Nurse Specialist, Youth Health, Children's and Women's Health Centre; **Sarah Payne**, M.A. Midwifery, (Thames Valley), R.N., Clinical Nurse Specialist, Socially Complex Admissions, BC's Women Hospital and Health Centre; **Frances Picherak**, B.S.N., M.Ed. (Lakehead), R.N., President, Petrine Consulting, Inc.; **Karen Pielak**, B.S.N., M.S.N. (Brit. Col.), R.N., Nurse Epidemiologist, BC Centre for Disease Control; **Marilyn Porter**, B.N. (Dal.), M.S.N. (Brit. Col.), R.N., Regional Professional Practive/Academic Leader, BCCA.; **Patricia Porterfield**, B.Sc. (Alta.), M.S.N. (Brit. Col.), R.N., Clinical Nurse Specialist, Palliative Care, VHHSC.; **Alice Purdey**, B.S.N. (Brit.

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HONORARY PROFESSORS

Verna Splane, B.Sc. (Columbia Univ.), M.P.H. (Michigan), R.N., Consultant, Splane Associates;
Marja Verhoef, B.A., M.A., M.Sc., (Utrecht), Ph.D. (Calg.), Canada Research Chair in Complementary Medicine, University of Calgary; **Beverly Witter Du Gas**, B.A. (Brit. Col.), M.N. (Wash.), Ph.D. (Brit. Col.), LL.D. (Windsor), R.N.

ASSOCIATE MEMBERS

Blaine Beemer, B.Sc. (Trent), R.N., Team Coordinator, Centre for Sexuality, Gender Identity and Reproductive Health, VHHSC; **Joyce Davison**, B.N., M.N., Ph.D. (Manit.), R.N., Nurse Scientist, The Prostate Centre, VHHSC; **Diane Janes**, B.A., M. Ed. (Memorial), Ph.D(c), (Brit. Col.), Distance Education & Technology; **Patricia Janssen**, B.S.N. (Brit. Col.), M.P.H., Ph.D. (Wash), R.N., Assistant Professor, Dept. of Health Care and Epidemiology, UBC.

CLINICAL STAFF IN ASSOCIATED AGENCIES

British Columbia Cancer Agency, British Columbia's Children's & Women's Hospital & Health Centre, Burnaby General Hospital, Lions Gate Hospital, Peace Arch Hospital, Provincial Services Health Authority, Richmond General Hospital, St Paul's Hospital, St Vincent's Hospital, Vancouver Coastal Health Authority, Vancouver Hospital and Health Sciences Centre. British Columbia Cancer Agency, British Columbia's Children's & Women's Hospital & Health Centre, Burnaby General Hospital, Lions Gate Hospital, Peace Arch Hospital, Provincial Services Health Authority, Richmond General Hospital, St Paul's Hospital, St Vincent's Hospital, Vancouver Coastal Health Authority, Vancouver Hospital and Health Sciences Centre.

2003-04

2003-04

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
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Telephone: 604-822-9595
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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 which 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.

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 16 to 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 8 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.

Faculty members within the School have established world-renowned research programs involving diverse interactions with regional, national, and international communities. The research falls into four broad thematic areas: acoustics, noise and vibration; 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.

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.

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.

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 February 28th. 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;
- 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 (www.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 score is 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. 31 in this Calendar and *Academic Regulations*, p. 214 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 in 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 training workshops presented by UBC Health Safety and Environment.

APPLIED OPTION

The Applied Option includes 39 credits of courses (30 credits of core courses and nine credits of approved electives) and a six-credit project (OCCH 598), generally requiring 16–20

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.

Required core courses are as follows: OCCH 501, 502, 503, 504, 506, 507, 511, 512 or 510; CHBE 506; HCEP 532, 533; and MECH 505.

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 of courses (24 credits of core courses and nine credits of approved electives) and a 12-credit thesis (OCCH 599), generally requiring 20 to 24 months of full-time study or the equivalent on a part-time basis. Students must successfully defend their Master's thesis in order to graduate.

Twenty-four credits of core courses must be chosen from the following: OCCH 501, 502, 503, 504, 505, 507, 508, 510, 511, 512; CHBE 506; HCEP 530, 531, 532, 533, 534; MECH 505; and PLAN 599a.

Doctor of Philosophy

ADMISSION

Applicants for admission must have a master's degree in occupational and 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. An application will be considered complete when an application form, application fee, statement of objectives, curriculum vitae, two official copies of all transcripts, three reference letters, and results of the Graduate Record Examination and the TOEFL (if required) have been received. A minimum TOEFL score of 600 paper-based or 250 computer-based is required.

The application deadline is February 28.

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.

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 Aid

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.) (Queen's), M.Sc., Ph.D. (Southampton), C. Eng.; **Susan M. Kennedy**, B.A., Ph.D. (Brit. 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 PROFESSORS

Paul Demers, B.S. (William James College, Michigan), M.S., Ph.D. (Wash.).

ASSISTANT PROFESSORS

Karen Bartlett, B.A. (Vic. B.C.), M.Sc., Ph.D. (Brit. Col.); **Hugh Davies**, (As of July 2003) B.Sc. (Alberta), M.Sc., Ph.D. (Brit. Col.).

LECTURER

Lydia Ma, M.Sc., Ph.D. (Brit. Col.).

ASSOCIATE MEMBERS

Gordon S. Bates, Chemistry; **Joel L. Bert**, Chemical and Biological Engineering; **Ray Copes**, Health Care and Epidemiology; **Mieke Koehoorn**, Health Care and Epidemiology; **Tim McDaniels**, Community and Regional Planning; **Mark Thompson**, Commerce and Business Administration; **Christiaan van Netten**, Health Care and Epidemiology; **Helen Dimich Ward**, 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.; **Anya Keefe**, B.A.Sc., M.Sc. (Brit. Col.); **Judy Village**, B.Sc. (Wat.), M.Sc. (S. Fraser).

AFFILIATES

Jingnan Guo, B.Sc. (Nanjing U.), Ph.D. (Western Australia); **Dick Heederik**, M.Sc., Ph.D. (Wageningen); **P. J. E. Quintana**, M.P.H. (San Diego), Ph.D. (Calif., Berkeley).

21 The Faculty of Pharmaceutical Sciences

Dean's Office

Robert D. Sindelar, Dean

Gail D. Bellward, Associate Dean of Graduate Studies and Research

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Pharmaceutical Sciences Website
(www.ubcparmacy.org)

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. 253 under the Faculty of Graduate Studies, 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 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.

Students may be admitted to part-time study programs toward the Bachelor of Science in Pharmacy. A program of studies will be arranged with each individual by the Dean's Office. Courses must be scheduled on the basis of the current timetable at the time of registration. Courses of the fourth year constituting the required courses must be taken concurrently. Total time allowed for the completion of the degree is eight years.

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 604-822-2390 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 also most aptly display a motivation to study pharmaceutical sciences and 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 ¹ , plus BIOL 121 and BIOL 140 |
| Chemistry | CHEM 111 & 113 ¹ or CHEM 121 & 123 ¹ |
| 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. |

¹ Students who have completed 30 credits of course work and who have not completed, but are currently registered in, BIOL 112 and/or CHEM 113 or 123 at the time of application will be considered for admission.

Also acceptable is the UBC Science One program or the Coordinated Science Program (General Science Option) and BIOL 112 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 1st year university Physics equivalent to UBC Physics 101, with a lab,

plus electives are required to fulfill 30 credit minimum.

If admitted, these applicants may need to register in BIOL 112 and CHEM 113 or 123 if they have insufficient background for second year Microbiology and Organic Chemistry. Students who have any doubts about their preparedness for the first-year Pharmacy program should consult an advisor at pharask@interchange.ubc.ca or telephone 604-822-2390.

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 March 31.

PHARMACY COLLEGE ADMISSION TEST (PCAT)

The PCAT is a multiple choice general aptitude test that measures five content areas: Verbal Ability, Reading Comprehension, Quantitative Ability, Biology, and Chemistry.

The deadline to apply for the PCAT is approximately five weeks prior to the test date. Test dates are usually in October, January or April. Application for the test is made directly to The Psychological Corporation, 555 Academic Court, San Antonio, TX 78204-2498; telephone 1-800-622-3231. Information available at: www.tpcweb.com/pse.

The PCAT must be written within the year for which the application is made and the score

reported directly to the Faculty of Pharmaceutical Sciences by June 15.

OTHER REQUIREMENTS

Applicants must submit the following:

- Two letters of reference (structured form provided in the Faculty supplemental application package). It is recommended that one referee be a pharmacist and the second referee be a teacher, instructor, employer or supervisor.
- A current resumé (structured form provided in the Faculty supplemental application package).
- Written personal statements from the applicant as instructed in the Supplemental Application materials.
- Supplemental Application Form and Processing Fee. A processing fee of CAD\$100 must accompany the supplemental application admission forms that are returned to the Faculty of Pharmaceutical Sciences. This fee is non-refundable and should be made payable to the University of British Columbia. No applications will be processed unless the fee is received.

APPLICATION

Inquiries and requests for an application package may be addressed to Enrolment Services 604-822-3014 or 604-822-5544, or the Faculty of Pharmaceutical Sciences (pharask@interchange.ubc.ca) at 604-822-2390. The application form and transcripts are to be sent to Enrolment Services with the fee of CAD\$22 (for documents from within BC) or \$54 (for documents from outside BC). The supplemental admission requirements (PCAT scores, reference letters, resume, and personal statements) must be sent directly to the Faculty of Pharmaceutical Sciences with the CAD\$100 Supplemental Application Processing Fee.

Because enrolment in the Faculty is limited and competitive, applicants should be aware that the satisfying of the minimum entrance requirements does not guarantee admission but only that they are eligible 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.

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 which 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 expression, 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 'A-' 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, with the exception of English 301, are used for this computation; thus 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 38 credits except with approval of the Dean.
- A student with standing deficient in more than six 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 which final examinations are not given, 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 shall 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 2002)

First Year

| | |
|-----------------------|----|
| BIOL 112 | 3 |
| CHEM 233 | 3 |
| CHEM 235 | 1 |
| MICB 202 | 3 |
| PHAR 100 | 4 |
| PHAR 211 | 8 |
| ENGL 301 | 3 |
| Elective ¹ | 6 |
| Total Credits | 31 |

Second Year (Academic Year 2003/4)

| | |
|-----------------------|----|
| ANAT 390 | 3 |
| ANAT 391 | 3 |
| BIOC 300 | 6 |
| PHAR 200 | 4 |
| PHAR 311 | 4 |
| PHAR 370 | 4 |
| PHYL 301 | 6 |
| PHYL 302 | 3 |
| Elective ¹ | 3 |
| Total Credits | 36 |

Third Year (Academic Year 2004/5)

| | |
|-----------------------|----|
| PHAR 300 | 4 |
| PHAR 301 | 3 |
| PHAR 315 | 4 |
| PHAR 325 | 4 |
| PHAR 360 | 3 |
| PHAR 380 | 6 |
| PHAR 385 | 6 |
| Elective ¹ | 3 |
| Total Credits | 33 |

Fourth Year (Academic Year 2005/6)

| | |
|------------------------|----|
| PHAR 402 | 6 |
| PHAR 403 | 3 |
| PHAR 469 ² | 3 |
| PHAR 480 | 6 |
| Electives ³ | 16 |
| Total Credits | 34 |

¹ Recommended electives include ECON 100; PSYC 100; Commerce courses; Languages; Humanities; PHIL 100, 120, 125; Science courses.

² Taken in summer immediately prior to entering fourth year.

³ Ten elective credits are to be chosen from offerings within the Faculty and six credits chosen from outside the Faculty. All courses selected to meet these requirements must be approved by the Dean's Office. Interdisciplinary courses that are recommended include IHHS 200, 400, 401, 402, 404. 16 credits is the minimum credit load.

BACHELOR OF SCIENCE IN PHARMACY (FOR STUDENTS ADMITTED FOR SEPTEMBER 2003 AND SUBSEQUENT YEARS)

A series of new courses is under development to replace the current courses in the Pharmacy program. These new courses will enable students to meet the defined educational outcomes for the B.Sc. (Pharm.) degree.

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 (2004/05)

Under development. Subjects will include Biochemistry, Biophysical Pharmacy, Pathophysiology, Pharmaceutical Care, an continuation of Pharmacy Skills, Pharmacokinetics, Pharmacology, Therapeutics and Non-Prescription and Natural Products. A structured practical experience will be scheduled in the summer after Second Year.

THIRD YEAR (2005/06)

Under development. Subjects will include Biomolecular Pharmaceutical Chemistry, Pharmacy Practice Management, and continuations of Pharmacy Skills, Pharmacology, Therapeutics, and Non-Prescription and Natural Products, plus electives. A structured

practical experience will be scheduled in the summer after third year.

FOURTH YEAR (2006/07)

Under development. Subjects include Molecular Medicine and Pediatric and Geriatric Drug Therapy, plus electives. Term 2 of Fourth Year will be devoted to structured practical experience.

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 fulfill the degree requirements.

CLINICAL CLERKSHIPS AND ADDITIONAL EXPENSES

Required clinical clerkships in facilities which 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.

Students will be required to pay the B.Sc. (Pharm.) practice fee. See *Special Fees*, p. 49 under the chapter "Fees". 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 to the Professional Practice Laboratory, and clerkship 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. 22.)

FIRST AID

All pharmacy students are encouraged to obtain credit for a recognized First Aid course, e.g., St. John Ambulance S.O.F.A. First Aid Course, while completing the Bachelor of Science in Pharmacy.

COURSES OFFERED IN PHARMACEUTICAL SCIENCES

The Faculty of Pharmaceutical Sciences offers the following courses:

- Pharmaceutics: PHAR 211, 311, 315, 414, 415.

- Pharmaceutical Chemistry: PHAR 325, 360, 425, 426, 429.
- Pharmacology: PHAR 444, 448.
- Clinical Pharmacy: PHAR 404, 405, 408, 409.
- Integrated: PHAR 370, 380, 385, 480, 490.
- Pharmacy Practice: PHAR 100, 200, 300, 301, 407, 453, 455.
- Structured Clerkships: 402, 403, 469.

INTERPROFESSIONAL ELECTIVES

Under the auspices of the Council, the *College of Health Disciplines*, p. 271 is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Pharmaceutical Sciences. For more information see Courses or visit the website at www.health-disciplines.ubc.ca.

Continuing Education

Continuing Pharmacy Education is sponsored jointly by the Faculty of Pharmaceutical Sciences and the College of Pharmacists of British Columbia.

Mission Statement: To develop and implement educational programs based on identified needs, and to provide lifelong learning for BC pharmacists in order to enhance their ability to practice pharmaceutical care and improve patient health outcomes.

The goals of the Division of Continuing Pharmacy Education include the following:

- 1 To provide a means by which pharmacists can systematically update their knowledge through a planned program of instruction in specific areas of pharmaceutical sciences in an effort to improve the patient care outcomes;
- 2 To provide education and support to the UBC Regional Coordinators for Continuing Pharmacy Education to enable them to assess needs, develop and evaluate continuing education programs for the pharmacists in their communities;
- 3 To encourage pharmacists to become self-directed, life-long learners, and to assist pharmacists in developing plans for their own continuous learning;
- 4 To provide courses giving pharmacists broader and deeper insights into special subject areas and directed to the needs of a particular specialty within the profession;
- 5 To continue to develop innovative and effective ways to provide learning resources to pharmacists to meet their needs regardless of barriers they face due to distance and scheduling constraints; and
- 6 To assess the application of technology in the development and delivery of continuing education programs.

Residency Programs

HOSPITAL PHARMACY RESIDENCY PROGRAM

A one-year postgraduate 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. 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, and Vancouver Hospital and Health Sciences Centre.

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 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.ubcpharmacy.org). Inquiries may also be directed to the residency co-ordinators in the pharmacy departments in any of the hospitals offering a residency program. The closing date for submission of completed applications is usually mid-November for entry into programs the following June. The closing date for applications for February residencies is usually late September 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 assessments, 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 co-operative efforts of representatives from the BC Pharmacy Association, 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 *Fees*, p. 39.

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.ubcpharmacy.org), 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.

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 (www.collpharmbc.org), 200-1765 West 8th Avenue, Vancouver, BC, V6J 1V8; telephone 604-733-2440, or at info@collegepharmacists.bc.ca.

Pharmacy Examining Board of Canada

The Board provides for examinations and issues a certificate to the successful candidate which may be filed with a Canadian provincial licensing body in connection with an applica-

tion 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; telephone 416-979-2431.

Academic Staff

FACULTY ADMINISTRATION

Robert D. Sindelar, Dean
Gail D. Bellward, Associate Dean, Graduate Studies & Research; **David W. Fielding**, Associate Dean, Professional Programs; **Marguerite Yee**, Associate Dean, Undergraduate Programs.

ASSOCIATE MEMBERS

Emma Guns, Ph.D., The Prostate Centre, VGH;
Christopher E.R. Orvig, Ph.D., Chemistry.

DIVISION OF BIOMOLECULAR AND PHARMACEUTICAL CHEMISTRY

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DIVISION OF PHARMACOLOGY AND TOXICOLOGY

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ADJUNCT PROFESSORS

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DIVISION OF CLINICAL PHARMACY

Bruce C. Carleton, Chair

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CLINICAL ASSISTANT PROFESSORS

Robert Balen, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), VHHSC; **Teresa Betts**, B.Sc. (Pharm.) (Brit. Col.), Children's and Women's Health Centre of B.C.; **Glen Brown**, B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (Mass.), FCSHP, St. Paul's Hospital; **Donna Buna**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), Kelowna General Hospital; **Chris Cameron**, B.Sc. (Pharm.) (Brit. Col.), Children's and Women's Health Centre of B.C.; **Jane Delemos**, B.Sc. (Pharm.), B.Pharm. (Hons) (Lond.), Pharm.D. (Brit. Col.), VHHSC; **Ed Dillon**, B.Sc. (Tor.), B.A. (Dal.), B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (N.Y. State, Buffalo), Royal Columbian Hospital; **Patricia Gerber**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.) Children's & Women's Health Centre of

B.C.; **Donald Hamilton**, B.Sc. (Pharm.) (Brit. Col.), Children's and Women's Health Centre of B.C.; **Leela John**, B.Sc., B.Sc. (Pharm.) (Alberta), Pharm.D. (Brit. Col.), B.C. Cancer Agency; **Zahra Kanji**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), Lion's Gate Hospital; **Debra Kent**, B.A., (Calif., Riverside), Pharm.D. (Calif., San Francisco), B.C. Drug and Poison Information Centre; **Tim Lau**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), VHHSC; **Shallen Letwin**, B.Sc. (Pharm.) (Alberta), Pharm.D. (Brit. Col.), MSA General Hospital; **Peter Loewen**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), VHHSC; **Alan Low**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), VHHSC; **Alison MacDonald**, B.Sc. (Pharm.) (Glasgow), Children's and Women's Health Centre of B.C.; **John Macready**, B.Sc. (Pharm.) (Tor.), Pharm.D. (Brit. Col.), Children's and Women's Health Centre of B.C.; **Tania Mysak**, B.S.P. (Sask.), Pharm.D. (Brit. Col.), VHHSC; **Lynne Nakashima**, B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (North Carolina), British Columbia Cancer Agency; **Terry Naumann**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), Lions Gate Hospital; **Anne Nguyen**, B.Sc. (Pharm.) (Tor.), Pharm.D. (Brit. Col.), Lions Gate Hospital; **Nilufar Partovi**, B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (South Carolina), FCSHP, VHHSC; **Ric Procyshyn**, B.Sc. (Pharm.) (Manit.), Ph.D., Pharm.D. (Brit. Col.), Riverview Hospital; **Colette Raymond**, B.Sc. (Pharm.) (Alberta), Pharm.D. (Brit. Col.), VHHSC; **Karen Shalansky**, B.Sc. (Pharm.) (Tor.), Pharm.D. (South Carolina), FCSHP, VHHSC; **Stephen Shalansky**, B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (South Carolina), FCSHP, St. Paul's Hospital; **Richard Slavik**, B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (Wayne State), VHHSC; **Chris Stewart-Patterson**, M.D. (Calg.), Khatsahlano Medical Clinic; **Rubina Sunderji**, B.Sc. (Pharm.), Pharm.D. (Brit. Col.), VHHSC; **Suzanne Taylor**, B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (Brit. Col.), British Columbia Cancer Agency; **Dawn Warkentin**, B.Sc. (Pharm.) (Alta.), Pharm.D. (South Carolina), VHHSC; **Kerry Willbur**, B.Sc. (Pharm.) (Dal.), Pharm.D. (Brit. Col.), VHHSC; **Peter Zed**, B.Sc. (Pharm.) (Dal.), Pharm.D. (Brit. Col.), VHHSC; **Sylvia Zerjav**, B.Sc. (Pharm.) (Dal.), Pharm.D. (South Carolina), Riverview Hospital.

CLINICAL INSTRUCTORS

Adrian Azim, B.Sc. (Pharm.) (Brit. Col.); **Shakeel Bhatti**, B.Pharm. (U.K.), Pharm.D. (Washington); **Marilyn Boyce**, B.Sc. (Pharm.) (Alta.), M.Sc. (Brit. Col.); **Nancy Chan**, B.Sc. (Pharm.) (Brit. Col.); **Peggy Dang**, B.Sc. (Pharm.) (Brit. Col.); **Derek Desrosiers**, B.Sc. (Pharm.) (Brit. Col.); **Greg Fong**, B.Sc. (Pharm.) (Brit. Col.); **Dennis Gerace**, B.Sc. (Pharm.) (Brit. Col.); **Jennifer Hurd**, B.Sc. (Pharm.) (Brit. Col.); **Afshin Jaber**, B.Sc. (Pharm.) (Brit. Col.); **Melanie Johnson**, B.Sc. (Pharm.) (Brit. Col.); **Tamiz Kanji**, B.Sc. (Pharm.) (Brit. Col.); **Beverly Louis**, B.Sc. (Pharm.) (Brit. Col.); **Carol Lyster**, B.Sc. (Pharm.) (Alta.); **Alan MacDonald**, B.Sc. (Pharm.) (Brit. Col.); **Margaret McGregor**, B.Sc. (Pharm.) (Brit. Col.); **Sharon McKinnon**, B.Sc. (Pharm.) (Tor.); **Zahid Merali**, B.Sc. (Pharm.) (Brit. Col.); **Danielle Nicholas**, B.Sc. (Pharm.) (Brit. Col.); **Sue North**, B.Sc. (Pharm.) (Brit. Col.); **Brenda Osmond**, B.Sc. (Pharm.) (Manit.), Pharm.D. (Brit. Col.); **Paul Polachek**, B.Sc. (Pharm.) (Brit. Col.); **Lynn Pollock**, B.Sc. (Pharm.) (Brit. Col.); **Susan Rudolph**, B.Sc. (Guelph), B.Sc. (Pharm.) (Brit. Col.); **Glen Schoepp**, B.S.P. (Pharm.) (Sask.); **Aaron Tejani**, B.Sc. (Pharm.) (Brit. Col.), Pharm.D. (Creighton); **Larry Thorne**, B.Sc. (Pharm.) (Brit. Col.); **Susan Troech**, B.Sc. (Pharm.) (Brit. Col.); **Ron Waller**, B.Sc. (Pharm.), M.Sc. (Brit. Col.).

DIVISION OF PHARMACY PRACTICE

David W. Fielding, Chair

PROFESSOR

David W. Fielding, B.Sc. (Pharm.), M.Sc. (Dal.), Ed.D. (Brit. Col.), Dr. Tong Louie Chair in Pharmacy Administration.

ASSISTANT PROFESSORS

Rosemin Kassam, B.C. (Pharm.) (Alta.), Pharm.D. (Tor.); **Ron McKerrow**, B.Sc. (Pharm.) (Brit. Col.), M.B.A. (S.Fraser), FCHSP (part-time); **Judith A. Soon**, B.Sc. (Pharm.), M.Sc., Ph.D. (Brit. Col.) (part-time).

SENIOR INSTRUCTORS

Marion Pearson, B.Sc. (Pharm.) (Brit. Col.); **Marguerite Yee**, B.Sc. (Pharm.) (Brit. Col.).

LECTURERS

Colleen Brady, B.Sc.(Hons. Biol), B.Sc. (Pharm.) (Alta.); **Janice Moshenko**, B.Sc., M.Sc. (Brit. Col.); **Hilary Watson**, B.Sc. (Pharm.) (Brit. Col.).

LECTURER, PART-TIME

Sheryl Peterson, B.Sc.(Agr), BSc. (Pharm.) (Brit. Col.); **Rola Priatel**, B.Sc. (Pharm.) (Brit. Col.); **Wayne John Rubner**, B.Sc. (Pharm.) (Brit. Col.).

PROFESSORS EMERITI

Finlay A. Morrison, Pharm.D. (Calif.); **Bernard E. Riedel**, C.D., B.Sc., M.Sc. (Alta.), Ph.D. (W.Ont.).

HONORARY PHARMACY PRACTICE INSTRUCTORS

Sharon McKinnon, B.Sc. (Pharm.) (Tor.); **Parkash Ragsdale**, B.Sc., B.Sc. (Pharm.) (Brit. Col.).

ADJUNCT PROFESSORS

Frank Archer, B.S.P. (Brit. Col.); **Robert Kucheran**, B.A., B.Sc. (Lethbridge); **Linda Lytle**, B.Sc. (Phr.) (Texas); **Kenneth McCartney**, B.S.P. (Brit. Col.).

AFFILIATED AGENCIES

Clinical staff in the Pharmacy Departments of the following affiliated agencies provide teaching services to the Faculty; B.C. Cancer Agency (Kelowna Centre), B.C. Cancer Agency (Surrey Centre), B.C. Cancer Agency (Vancouver Centre), B.C. Cancer Agency (Victoria Centre), Bulkley Valley District Hospital, Burnaby Hospital, Campbell River and District General Hospital, Cariboo Memorial Hospital, Castlegar & District Hospital, Children's & Women's Health Centre of BC, Chilliwack General Hospital, Cowichan District Hospital, Cranbrook Regional Hospital, Creston Valley Hospital, Cumberland Health Centre, Dawson Creek & District Hospital, Delta Hospital, Eagle Ridge Hospital, Fernie District Hospital, Fort St. John General Hospital, G.F. Strong Rehabilitation Centre, G.R. Baker Memorial Hospital, George Pearson Centre, Gorge Road Hospital, Holy Family Hospital, Kelowna General Hospital, Kimberley & District Hospital, Kootenay Lake District Hospital, Lady Minto Gulf Islands Hospital, Langley Memorial Hospital, Lions Gate Hospital, Mills Memorial Hospital, Mission Memorial Hospital, Mount Saint Joseph Hospital, MSA General Hospital, Nanaimo Regional General Hospital, Pacific Regional Correctional Services, Peace Arch District Hospital, Penticon Regional Hospital, Powell River General Hospital, Prince George Regional Hospital, Prince Rupert Regional Hospital, Princeton General Hospital, Queens Park Centre, R.W. Large Memorial Hospital, Ridge Meadows Hospital, Riverview Hospital, Royal Columbian Hospital, Royal Inland Hospital, Royal Jubilee Hospital, Saanich Peninsula Hospital, Shuswap Lake General Hospital, South Okanagan General Hospital, Squamish General

Hospital, St. John's Hospital (Vanderhoof), St. Joseph's General Hospital (Comox), St. Mary's Hospital (New Westminster), St. Mary's Hospital (Sechelt), St. Paul's Hospital, St. Vincent's Hospital, Surrey Memorial Hospital, The Richmond Hospital, Trail Regional Hospital, Vancouver Hospital & Health Sciences Centre (UBC Site), Vancouver Hospital & Health Sciences Centre (VGH Site), Vernon Jubilee Hospital, Victoria General Hospital, West Coast General Hospital, Wrinch Memorial Hospital.

AFFILIATED COMMUNITY PHARMACIES

Pharmacy staff in the following community pharmacy sites provide teaching services to the Faculty; Alexander Mackenzie Commemorative Pharmacy (Bella Coola), BC Centre for Disease Control Pharmacy, BC Childrens Hospital Ambulatory Care Pharmacy, Black Mountain I.D.A. Pharmacy, Central Drugs (Bowen), Central Drugs (Brickyard), Central Drugs (Campbell), Central Drugs (Dufferin), Comox Rexall, Costco Pharmacy #155 (Nanaimo), Donex Pharmacy & Department Store, Extra Foods #8566 (Garibaldi Highlands), Glenpark I.D.A. Pharmacy, Hollyburn Pharmacy, Howe Sound Pharmacy, Island Apothecary, Kornak & Hamms Pharmacy, Lake Country Pharmacy & Wellness (Hop), Lakeside Pharmacy, Lancaster Prescriptions #1, Lancaster Prescriptions #2, Lillooet I.D.A. Pharmacy, London Drugs #02 (Vancouver), London Drugs #03 (New Westminster), London Drugs #08 (Surrey), London Drugs #10 (Vancouver), London Drugs #11 (Richmond), London Drugs #12 (Kelowna), London Drugs #16 (Clearbrook), London Drugs #18 (Langley), London Drugs #25 (Coquitlam), London Drugs #28 (Vancouver), London Drugs #35 (Kamloops), London Drugs #37 (Delta), London Drugs #41 (Chilliwack), London Drugs #42 (Surrey), London Drugs #47 (Maple Ridge), London Drugs #51 (Prince George), London Drugs #52 (Richmond), London Drugs #55 (Mission), London Drugs #56 (Burnaby), London Drugs #85 (Coquitlam), Macdonald's Prescriptions #2, Macdonald's Prescriptions #5, Marshall Pharmacy, Medicine Centre #082 (Oliver), Medicine Centre #292 (Delta Pharmacy), Medicine Centre #299 (Dycks Pharmacists), Medicine Centre #303 (Fraser Heights Pharmacy), Medicine Centre #309 (Columbia Pharmacy); Medicine Centre #368 (Enderby Pharmacy); Medicine Centre #398 (Kerrisdale Pharmacy); Medicine Centre #453 (Northern Healthcare), Medicine Centre #597 (Regency Prescription #6), Medicine Centre #629 (Tsawwassen Drugs), Medicine Centre (Cadboro Bay Pharmacy), Medicine Centre (Fruitvale Pharmacy), Medicine Centre (Gladwin Pharmacy), Medicine Shoppe #169 (Comox), Medicine Shoppe (Granville), Medicine Shoppe (New Westminster), Munros Sorrento Prescriptions, Northern Drugs #1 (Terrace), Northern Drugs #2 (Prince Rupert), Northern Drugs (Burns Lake), Northern Drugs (Kitimat), Northern Drugs (Smithers), Overwaitea Foods & Drugs #050 (Nanaimo), Overwaitea Foods & Drugs #088 (Vernon), Overwaitea Foods & Drugs #215 (Cranbrook), Overwaitea Foods & Drugs #232 (Kelowna), Overwaitea Foods & Drugs #262 (Penticton), Overwaitea Foods & Drugs #280 (Kelowna), Paterson Pharmacy, Patterson Pharmacy #1, Peoples Drug Mart #027 (Chase), Peoples Drug Mart #043 (Chetwynd), Peoples Drug Mart #064 (Prince George), Peoples Drug Mart #067 (Victoria), Peoples Drug Mart #068 (Creston), Peoples Drug Mart #093 (Port McNeill), Peoples Drug Mart #099 (Parksville), Peoples Drug Mart #117 (Port Hardy), Peoples Drug Mart #118 (Hope), Peoples Drug Mart #119 (White Rock), Peoples Drug Mart #120 (Lake Cowichan), Peoples Drug Mart #125 (Oliver), Pharmasave #002 (Vancouver), Pharmasave #105 (Smithers), Pharmasave #108 (Castlegar), Pharmasave #110 (Campbell River), Pharmasave #120 (Salt Spring Island), Pharmasave #125 (Nanaimo), Pharmasave

#128 (Chilliwack), Pharmasave #129 (100 Mile House), Pharmasave #134 (Agassiz), Pharmasave #137 (Surrey), Pharmasave #151 (Delta), Pharmasave #155 (Parksville), Pharmasave #158 (Surrey), Pharmasave #159 (Maple Ridge), Pharmasave #163 (Kelowna), Pharmasave #165 (Surrey), Pharmasave #177 (Squamish), Pharmasave #182 (Qualicum), Pharmasave #183 (Duncan), Pharmasave #186 (Whistler), Pharmasave #190 (Port Coquitlam), Pharmasave #200 (Creston), Pharmasave #203 (Burnaby), Pharmasave #205 (Sidney), Pharmasave #206 (Surrey), Pharmasave #207 (Chilliwack), Pharmasave #211 (Langley), Pharmasave #213 (Revelstoke), Pharmasave #214 (West Vancouver), Pharmasave #230 (Kitimat), Pharmasave #235 (Whistler), Pharmasave #238 (Port Alberni), Pharmasave #242 (Kelowna), Pharmasave #243 (Princeton), Pharmasave #244 (Salmon Arm), Pharmasave #247 (Sooke), Pharmasave #248 (Surrey), Pharmasave #249 (Summerland), Pharmasave Health Centre #007 (Fort Langley), Pharmasave Health Centre #010 (Vancouver), Pharmasave Health Centre (Vancouver), Pratt's Pharmacy, Qualicum Prescriptions, Rexall Drugs (Chemainus), Rexall Drugs (Courtenay), Rexall Drugs (Ladysmith), Rexall Drugs (Vancouver), Safeway Pharmacy #014 (Delta), Safeway Pharmacy #024 (Vernon), Safeway Pharmacy #035 (Richmond), Safeway Pharmacy #038 (West Vancouver), Safeway Pharmacy #039 (Port Alberni), Safeway Pharmacy #058 (Kamloops), Safeway Pharmacy #059 (Langley); Safeway Pharmacy #070 (Trail), Safeway Pharmacy #078 (Prince Rupert), Safeway Pharmacy #088 (Abbotsford), Safeway Pharmacy #090 (Vancouver), Safeway Pharmacy #113 (Courtenay), Safeway Pharmacy #114 (Vancouver), Safeway Pharmacy #115 (Vancouver), Safeway Pharmacy #126 (Terrace), Safeway Pharmacy #127 (Vancouver), Safeway Pharmacy #133 (Nelson), Safeway Pharmacy #138 (Richmond), Safeway Pharmacy #182 (Powell River), Safeway Pharmacy #191 (Richmond), Safeway Pharmacy #198 (Maple Ridge), Save on Foods & Drugs #017 (Duncan), Save on Foods & Drugs #904 (Abbotsford), Save on Foods & Drugs #912 (Burnaby), Save on Foods & Drugs #918 (Surrey), Save on Foods & Drugs #957 (Port Coquitlam), Save on Foods & Drugs #971 (Richmond), Save on Foods & Drugs #974 (Richmond), Save on Foods & Drugs #994 (Langley), Save on Foods & Drugs #996 (Burnaby), Save on Foods & Drugs #998 (Coquitlam), Shoppers Drug Mart #202 (Vancouver), Shoppers Drug Mart #205 (Abbotsford), Shoppers Drug Mart #209 (Campbell River), Shoppers Drug Mart #210 (Prince George), Shoppers Drug Mart #211 (Delta), Shoppers Drug Mart #212 (West Vancouver), Shoppers Drug Mart #213 (Quesnel), Shoppers Drug Mart #214 (Burnaby), Shoppers Drug Mart #216 (Dawson Creek), Shoppers Drug Mart #217 (Chilliwack), Shoppers Drug Mart #218 (Burnaby), Shoppers Drug Mart #219 (Squamish), Shoppers Drug Mart #220 (Delta), Shoppers Drug Mart #2200 (North Vancouver), Shoppers Drug Mart #221 (Victoria), Shoppers Drug Mart #227 (Richmond), Shoppers Drug Mart #228 (Richmond), Shoppers Drug Mart #230 (Vernon), Shoppers Drug Mart #231 (Coquitlam), Shoppers Drug Mart #232 (Vancouver), Shoppers Drug Mart #236 (Victoria), Shoppers Drug Mart #237 (Richmond), Shoppers Drug Mart #239 (Courtenay), Shoppers Drug Mart #243 (West Vancouver), Shoppers Drug Mart #244 (Port Alberni), Shoppers Drug Mart #248 (Salmon Arm), Shoppers Drug Mart #251 (Coquitlam), Shoppers Drug Mart #252 (North Vancouver), Shoppers Drug Mart #254 (Duncan), Shoppers Drug Mart #255 (Langley), Shoppers Drug Mart #257 (Victoria), Shoppers Drug Mart #258 (Langley), Shoppers Drug Mart #260 (Abbotsford), Shoppers Drug Mart #261 (Kamloops), Shoppers Drug Mart #262 (Osoyoos), Shoppers Drug Mart #263 (Vancou-

ver), Shoppers Drug Mart #268 (Prince George), Shoppers Drug Mart #269 (Victoria), Shoppers Drug Mart #273 (White Rock), Shoppers Drug Mart #275 (Nelson), Shoppers Drug Mart #276 (Powell River), Shoppers Drug Mart #277 (Kamloops), Shoppers Drug Mart #283/284 (Williams Lake), Shoppers Drug Mart #285 (Victoria), Shoppers Drug Mart #286 (Kamloops), Shoppers Drug Mart #287 (Langley), Shoppers Drug Mart #288 (Vancouver), Shoppers Drug Mart #290 (Cranbrook), Shoppers Drug Mart #291 (North Vancouver), St. Anthony's Clinic Pharmacy, Sukhi Lalli Pharmacist (Victoria), Super Grocer & Pharmacy (Richmond), Walmart Pharmacy #3008 (Burnaby), Walmart Pharmacy #3019 (Abbotsford), Walmart Pharmacy #3025 (Duncan), Walmart Pharmacy #3042 (Kelowna), Walmart Pharmacy #3057 (North Vancouver), Walmart Pharmacy #3060 (Nelson), Walmart Pharmacy #3070 (Penticton), Walmart Pharmacy #3072 (Powell River), Walmart Pharmacy #3098 (Surrey), Walmart Pharmacy #3167 (Chilliwack).

CONTINUING PHARMACY EDUCATION

Janice Moshenko, Director

Sheryl Peterson, Assistant Director

REGIONAL COORDINATORS

Cameron Bonell, B.Sc. (Pharm.) (Brit. Col.), Sam Budhwani, B.Sc.(Pharm) (Brit. Col.), Hanford Cheung, B.Sc.(Pharm) (Brit. Col.), James Chiu, B.Sc. (Pharm.) (Brit. Col.), Basil Cogill, B.Sc. (Pharm.) (Alta.), Jennifer Coolen, B.Sc. (Pharm.) (Brit. Col.), Wendy Cseke, B.Sc. (Pharm.) (Brit. Col.), Larry Dzuris, B.S.P. (Brit. Col.), Cam Egli, B.Sc. (Pharm.)(Brit. Col.), Mark Fromager, B.Sc. (Pharm.) (Brit. Col.), Sarah Gregson, B.Sc. (Pharm.) (Brit. Col.), Jim Gustafson, B.Sc. (Pharm.) (Brit. Col.), Cathie Hamm, B.Sc. (Pharm.) (Brit. Col.), Kathryn Ann Hawkins, B.Sc. (Pharm.) (Brit. Col.), Stewart Howes, B.Sc.(Pharm.) (Brit. Col.), Jennifer Hurd, B.Sc. (Pharm.) (Brit. Col.), Robert Kui, B.Sc. (Pharm.) (Brit. Col.), Sukhi Lalli, B.Sc. (Pharm.) (Brit. Col.), Denise Law, B.Sc. (Pharm.) (Brit. Col.), Russ McElroy, B.Sc. (Pharm.) (Brit. Col.), Nesta McGraw, B.A., B.Sc. (Pharm.) (Brit. Col.), Megan Maitland, B.Sc. (Pharm.) (Brit. Col.), Tom Nolan, B.Sc. (Pharm.) (Brit. Col.), Rhonda L. Novitsky, B.Sc. (Pharm.), (Alta.), Darcy O'Toole, B.Sc. (Pharm.) (Brit. Col.), Mike Ramaradhya, B.Sc. (Pharm.) (Brit. Col.), Mohamed Rehtulla, B.Sc. (Pharm.) (Brit. Col.), Blake Reynolds, B.Sc. (Pharm.) (Brit. Col.), Howard Rose, B.Sc. (Pharm.) (Brit. Col.), Laurence Roy, B.Sc. (Pharm.) (Brit. Col.), Kimberly Sentes, B.A. (Psychology), B.S.P. (Sask.), John Shaske, B.Sc. (Pharm.) (Brit. Col.), Felicity Stahl, B. Pharm. (South Africa), Chris Sutton, B.Sc. (Pharm.) (Brit. Col.), Rita Thomson, B.Sc. (Pharm.) (Brit. Col.), Beverly Webb, B.S.P. (Sask.), Debbie Wilson B.S.P. (Sask.), Stephanie Sullivan, B.Sc. (Pharm) (Brit. Col.).

2003-04

22 The School of Rehabilitation Sciences

A SCHOOL WITHIN THE FACULTY OF MEDICINE

Director's Office
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Head, Division of Physical Therapy, TBA
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Rehabilitation Sciences Website (www.rehab.ubc.ca)

The School of Rehabilitation Sciences provides professional preparation in the rehabilitation sciences, and awards the degrees of Bachelor of Science in Occupational Therapy and Bachelor of Science in Physical Therapy. **Important note: The School is seeking approval to make the transition to professional Master's entry-level degrees commencing September 2004.** Degree programs in the School of Rehabilitation Sciences typically require four years of education beyond secondary school. Prerequisites, which usually require one or more years of study, may be completed at the University of British Columbia or any other accredited university, or at a community college. Opportunity for graduate study leading to a Master of Science in Rehabilitation Sciences is also available. See *Rehabilitation Sciences*, p. 257 in the Faculty of Graduate Studies section.

For those admitted to the professional programs in the School, the second, third and fourth years of study for the degree are completed in the School of Rehabilitation Sciences and at affiliated health care facilities in British Columbia and across Canada. Because of the nature of the curricula, pursuit of the degrees offered by the School is normally on a full-time basis. Students must complete the requirements for the Bachelor of Science in Occupational Therapy or Bachelor of Science in Physical Therapy within six years of admission to the program.

Bachelor of Science in Occupational Therapy

Occupational therapists are concerned with the effects of various conditions on the life performance of their clients. Following a thorough assessment of the client's abilities and skills, occupational therapists implement treatment and intervention programs which enable maximum independence in the home, community or workplace. They do so

through the use of carefully selected activities designed to increase functional skills, through prescription of adaptive aids and devices, through recommendation of appropriate modifications in the living environment, and through other educational and training strategies which address physical, psychological, or cognitive deficits interfering with the daily occupations of self-care, work, and play.

In many settings, therapists serve as members of a team of rehabilitation specialists, including physicians, nurses, social workers, special educators, speech pathologists and psychologists. Occupational therapists may 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.

ACADEMIC ADVISING

Advising is not required. Once admitted, students must request advanced standing/exemption in writing from the manager of Student and Administrative Services by August 15.

ADMISSION

Important Note:

The Division of Occupational Therapy is intending to suspend admission to the Bachelor of Science in Occupational Therapy program for the academic year 2003-04 to facilitate the planned transition to a professional Master's entry-level degree. Please consult the website (www.rehab.ubc.ca) for further updates and specific information on admission requirements.

Applications for admission to the programs in the School of Rehabilitation Sciences will be considered from candidates who have completed the pre-requisite courses and meet the minimum academic standing listed in the applicable program of study. Because of limitations in clinical placements, facilities and resources, class sizes must be restricted. Not every qualified applicant will be offered admission. Admission is based on a selection process which strives to enrol the most highly qualified applicants. Selection is based on the following criteria:

- 1 Completion of 70 hours of volunteer or work experience with persons with disabilities at no more than two facilities, verified by letter(s) of reference.

- 2 A minimum overall academic standing of 70% (G.P.A. of 2.8). In the case of applicants who have completed more than 60 credits of prior university-level study, the overall average is calculated on the basis of the most recently completed 60 credits. For applicants who have completed 30 to 60 credits, overall academic standing is based on the average of all university-level courses attempted.
- 3 A minimum academic standing of 70% in the thirty credits of prerequisites listed below (or other acceptable courses in the same academic area, provided those courses are not part of the Rehabilitation Sciences curriculum). This is the competitive average on which applicants are compared to each other.
- 4 Written communication skill, as judged by performance on a timed test of competence in written English.
- 5 Verbal communication skill, maturity and personal suitability, as judged by letters of reference and an interview.

All applicants who meet the minimum requirements outlined in points 1, 2 and 3 above must write the test in written English in early March, and will be allowed one attempt per application, with no appeal. Invitations for an interview may follow.

Primary consideration is given to residents of British Columbia. Specific and up-to-date admissions procedures are described in the applicant information brochures of the respective programs, which are available from the School.

Applicants for a second degree in the School of Rehabilitation Sciences will be considered along with all other applicants to second year. If admitted for the second degree they may be given credit for required courses completed within the preceding five years.

Upon receipt of an official letter of offer, each successful applicant must send a deposit of CAD\$300, 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 School of Rehabilitation Sciences in the academic session specified.

Students are reminded that the general policies of the University of British Columbia as to admission and registration will be followed.

APPLICATION PROCEDURE AND FEE

All enquiries and requests for application forms should be addressed to Admissions, School of Rehabilitation Sciences (admissions@rehab.ubc.ca). All parts of the application are to be completed and submitted to the School no later than February 28, with the single exception of final official post secondary transcripts which must be submitted no later than May 31.

An application fee of CAD\$159 must be submitted if transcripts are from an institution outside BC, or CAD\$107.50 if transcripts are from an institution within BC.

Applications received with incomplete documentation or without the correct fee will not be processed.

ADVANCED STANDING

Advanced standing/exemption for required courses in the Occupational Therapy and Physical Therapy programs may be granted only with previous completion of the identical course(s) or their equivalent. Requests for advanced standing/exemption will be considered if they are received in writing by the manager of Student and Administrative Services by August 15.

OTHER REQUIREMENTS

Upon acceptance each applicant must provide evidence of immunizations (Tetanus/Diphtheria-Toxoid, Polio, MMR) and a negative TB skin test, in accordance with the regulations of the Student Health Services.

By March 31 of the second year, all students are required to show evidence of:

- 1 a valid first aid certificate (e.g., St. John's) or equivalent competence;
- 2 a valid Basic Cardiac Life Support (BCLS) Level C certificate. In addition students will be required to show proof of current certification in BCLS Level C on an annual basis prior to commencing clinical fieldwork; and,
- 3 completion of the medical terminology requirement outlined in the letter of acceptance. (Completion of CLST 301 exempts students from this requirement.)

COSTS OTHER THAN SESSIONAL FEE

Students should be prepared for the additional expenses required in these professional programs, including costs associated with uniforms, travel, clinical fieldwork and books. General information is available in the Applicant Information brochure. Specific information is available at the School for incoming students only.

Since some clinical fieldwork placements are located outside Vancouver, students should include the additional costs associated with travel, meals and accommodation for such placements in estimating total expenses. Because of the requirements for travel

associated with the various levels of clinical fieldwork placements within Vancouver and the Lower Mainland, students should be prepared to arrange for convenient transportation (preferably access to a car) in order to minimize the time and effort necessary to meet their obligations for these educational experiences.

Several courses have an online component, and regular access to a computer is required. A limited number of student access computers are available on campus, and students are provided with an Interchange account. Students may elect to increase their access at their own expense.

ACADEMIC REGULATIONS

ADVANCEMENT

The Promotions Committee will determine a student's eligibility for promotion from one year to the next only when academic and fieldwork courses are complete. In order to be eligible for promotion students must pass all courses and have achieved an overall GPA of 65% in the work of the academic year just ended.

A student may repeat a course only once.

When students have been assigned a failing grade or a supplemental examination in three or more courses over the duration of the program they will be required to withdraw from the School. Students who are required to withdraw from the School under the provisions of this policy will not be permitted to apply for readmission.

Although satisfactory academic and fieldwork performance (at least 65% GPA in each year and no less than pass in any course) are prerequisites to advancement, they are not the sole criteria in the consideration of the suitability of a student for promotion or graduation. The Promotions Committee 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 occupational therapy or physical therapy.

ATTENDANCE

Students are expected to attend all lectures and laboratory periods in each course. Admission to lectures or laboratories and credit for attendance may be refused by an instructor for lateness, misconduct, inattention or neglect of duty.

A student absent from classes because of illness must comply with the regulations of the Student Health Service.

If unavoidably absent for clinical placements, a student is required to notify the clinical facility and the School.

EXAMINATIONS

Examinations in the School of Rehabilitation Sciences may be held at various times throughout the year. Final Examinations are normally written at the end of each academic term, and are obligatory for all students.

Absence from an end-of-term examination will normally result in a failing mark for the examination which could result in a failure for the course.

If, for reasons of health, a student is unable to attend a scheduled examination and has advised the School accordingly, the student may apply to the instructor and division head for permission to take the examination at a later date. Documentation from the Student Health Service or a physician certifying the nature and duration of an illness is required for students missing scheduled examinations for reasons of health.

The minimum passing mark in the School of Rehabilitation Sciences is 60%.

Essays and examination papers may be denied a passing mark if they are illegible or unacceptably deficient in English.

In any course in which evaluation includes laboratory (practical) and written course requirements, students may be required to achieve a minimum of 60% in each of the laboratory (practical) and written course requirements in order to achieve a pass (60% or above) in the course.

An instructor of a course may request that the Promotions Committee grant a supplemental examination in a failed course provided that:

- 1 attendance has been satisfactory,
- 2 a mark of at least 50% has been achieved in the failed section(s) of a course,
- 3 no more than two supplementals have been granted since admission to the program, and
- 4 an average of at least 65% in the work of the year including the failed course(s) has been obtained.

The passing mark for a supplemental examination is 65%. When a supplemental exam is passed, the student's mark for the course will be recorded as a 'C+' (65%). In the event only one section of the course is examined in the supplemental, the mark for that section will be 65%.

CLINICAL FIELDWORK EXPERIENCE

Clinical fieldwork, in facilities which have been approved by the School of Rehabilitation Sciences and affiliated with the University, will be supervised by university-appointed personnel. Clinical fieldwork in either occupational therapy or physical therapy will be provided in facilities such as hospitals, health clinics, community care agencies, rehabilitation centres, and private practice. A minimum of one five- to seven-week clinical fieldwork experience is required to be completed outside the Greater Vancouver area. Students are responsible for all expenses involved. Students normally must achieve a passing grade in all RHSC and RSOT academic courses that are scheduled prior to each fieldwork course.

- RSOT 235 (6 weeks). A student who fails one or more sections of this course or withdraws for any reason, may be granted permission to advance to third year only on the recommendation of the Promotions

Committee. This course is completed on a full-time basis in specified blocks of time between May and August after second year.

- RSOT 335 (12 weeks). A student who fails one or more sections of this course or withdraws for any reason, may be granted permission to advance to fourth year only on the recommendation of the Promotions Committee. This course is completed on a full-time basis in specified blocks of time between April and August after third year.
- RSOT 435 (14 weeks). A student who fails one or more sections of this course or withdraws for any reason, will not be eligible for graduation. Graduation will be delayed until all sections of this course have been successfully completed. This course is completed on a full-time basis in specified blocks of time during the academic year.

If a supplemental is granted in any section of a clinical fieldwork course or if a student misses a complete fieldwork experience due to accident or illness the section must be repeated and passed before a student can be eligible for graduation.

DEGREE REQUIREMENTS

PREREQUISITES

Prerequisite courses (or other acceptable courses in the same academic area) consist of a minimum of 30 credits i.e. equivalent of university or college coursework and must include

- Biology, or equivalent six credits, BIOL 111 and 121 and one of BIOL 130 or 140
- English, three credits (ENGL 112 recommended)
- Psychology, three to six credits at 100- or 200-level
- SOCI 100 or equivalent
- Statistics, three credits
- Electives, 6 to 12 credits, as required to fulfil 30-credit minimum or equivalent.
- CHEM 111 and 112 or 121 and 123 are recommended.

B.SC. (O.T.)

Second Year

| | |
|---------------|----|
| ANAT 392 | 4 |
| ANAT 393 | 4 |
| PHYL 301 | 6 |
| PATH 375 | 2 |
| RHSC 201 | 2 |
| RHSC 202 | 2 |
| RSOT 207 | 5 |
| RSOT 210 | 3 |
| RSOT 235 | 2 |
| Total Credits | 30 |

Third Year

| | |
|----------|---|
| RHSC 420 | 4 |
| RHSC 301 | 6 |
| RHSC 302 | 3 |
| RSOT 303 | 4 |
| RSOT 307 | 4 |

Third Year (Continued)

| | |
|---------------|----|
| RHSC 311 | 1 |
| RSOT 312 | 2 |
| RSOT 322 | 3 |
| RSOT 323 | 3 |
| RSOT 335 | 6 |
| Elective | 3 |
| Total Credits | 39 |

Fourth Year

| | |
|----------------------|----|
| RHSC 402 | 3 |
| RHSC 408 | 2 |
| RSOT 416 | 3 |
| RSOT 418 | 2 |
| RSOT 424 | 3 |
| RSOT 425 | 1 |
| RSOT 434 | 3 |
| RSOT 435 | 7 |
| RSOT 436 | 2 |
| RSOT 426 or Elective | 3 |
| Total Credits | 29 |

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 Occupational Therapy. For more information see Courses (students.ubc.ca/calendar/courses.cfm), IHHS, or the *College's section*, p. 271 in this chapter, or visit the website (www.health-disciplines.ubc.ca).

Bachelor of Science in Physical Therapy

Physical therapists specialize in problems related to movement. The more common movement disorders result from impairment of neuromuscular, musculoskeletal, respiratory or cardiovascular systems. Following assessment of their clients, they 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, including physicians, nurses, social workers, special educators, speech pathologists and psychologists. Physical therapists may 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.

ACADEMIC ADVISING

Advising is not required. Once admitted, students must request advanced standing/exemption in writing from the manager of

Student and Administrative Services by August 15.

ADMISSION

Important Note: The Division of Physical Therapy is intending to suspend admission to the Bachelor of Science in Physical Therapy program for the academic year 2003-04 to facilitate the planned transition to a professional Master's entry-level degree. Please consult the website (www.rehab.ubc.ca) for further updates and specific information on admission requirements.

Applications for admission to the programs in the School of Rehabilitation Sciences will be considered from candidates who have completed the pre-requisite courses and meet the minimum academic standing listed in the applicable program of study. Because of limitations in clinical placements, facilities and resources, class sizes must be restricted. Not every qualified applicant will be offered admission. Admission is based on a selection process which strives to enrol the most highly qualified applicants. Selection is based on the following criteria:

- 1 Completion of 70 hours of volunteer or work experience with persons with disabilities at no more than two facilities, verified by letter(s) of reference.
- 2 A minimum overall academic standing of 70% (G.P.A. of 2.8). In the case of applicants who have completed more than 60 credits of prior university-level study, the overall average is calculated on the basis of the most recently completed 60 credits. For applicants who have completed 30 to 60 credits, overall academic standing is based on the average of all university-level courses attempted.
- 3 A minimum academic standing of 70% in the thirty credits of prerequisites listed below (or other acceptable courses in the same academic area, provided those courses are not part of the Rehabilitation Sciences curriculum). This is the competitive average on which applicants are compared to each other.
- 4 Written communication skill, as judged by performance on a timed test of competence in written English.
- 5 Verbal communication skill, maturity and personal suitability as judged by letters of reference and an interview.

All applicants who meet the minimum requirements outlined in points 1, 2 and 3 above must write the test in written English in March, and will be allowed one attempt per application, with no appeal. Invitations for an interview may follow.

Primary consideration is given to residents of British Columbia. Specific and up-to-date admissions procedures are described in the applicant information brochures of the respective programs, which are available from the School.

Applicants for a second degree in the School of Rehabilitation Sciences will be considered along with all other applicants to second year. If admitted for the second degree they may

be given credit for required courses completed within the preceding five years.

Upon receipt of an official letter of offer, each successful applicant must send a deposit of CAD\$300, 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 School of Rehabilitation Sciences in the academic session specified.

Students are reminded that the general policies of the University of British Columbia as to admission and registration will be followed.

APPLICATION PROCEDURE AND FEE

All enquiries and requests for application forms should be addressed to Admissions, School of Rehabilitation Sciences. All parts of the application are to be completed and submitted to the School no later than February 28, with the single exception of final official post secondary transcripts which must be submitted no later than May 31.

An application fee of CAD\$159 must be submitted if transcripts are from an institution outside BC, or CAD\$107.50 if transcripts are from an institution within BC.

Applications received with incomplete documentation or without the correct fee will not be processed.

ADVANCED STANDING

Advanced standing/exemption for required courses in the Occupational Therapy and Physical Therapy programs may be granted only with previous completion of the identical course(s) or their equivalent. Requests for advanced standing/exemption will be considered if they are received in writing by the School office by August 15.

OTHER REQUIREMENTS

Upon acceptance each applicant must provide evidence of immunizations (Tetanus/Diphtheria-Toxoid, Polio, MMR) and a negative TB skin test, in accordance with the regulations of the Student Health Services.

By March 31 of the second year, all students are required to show evidence of:

- 1 a valid first aid certificate (e.g., St. John's) or equivalent competence;
- 2 a valid Basic Cardiac Life Support (BCLS) Level C certificate. In addition students will be required to show proof of current certification in BCLS Level C on an annual basis prior to commencing clinical fieldwork; and,
- 3 completion of the medical terminology requirement outlined in the letter of acceptance. (Completion of CLST 301 exempts students from this requirement.)

COSTS OTHER THAN SESSIONAL FEE

Students should be prepared for the additional expenses required in these professional programs, including costs associated with uniforms, travel, clinical fieldwork and books. General information is available in the Applicant Information brochure. Specific

information is available at the School for incoming students only.

Since some clinical fieldwork placements are located outside Vancouver, students should include the additional costs associated with travel, meals and accommodation for such placements in estimating total expenses. Because of the requirements for travel associated with the various levels of clinical fieldwork placements within Vancouver and the Lower Mainland, students should be prepared to arrange for convenient transportation (preferably access to a car) in order to minimize the time and effort necessary to meet their obligations for these educational experiences.

ACADEMIC REGULATIONS

ADVANCEMENT

The Promotions Committee will determine a student's eligibility for promotion from one year to the next only when academic and fieldwork courses are complete. In order to be eligible for promotion, students must pass all courses and have achieved an overall GPA of 65% in the work of the academic year just ended.

A student may repeat a course only once.

When students have been assigned a failing grade or a supplemental examination in three or more courses over the duration of the program they will be required to withdraw from the School. Students who are required to withdraw from the School under the provisions of this policy will not be permitted to apply for readmission.

Although satisfactory academic and fieldwork performance (at least 65% GPA in each year and no less than pass in any course) are prerequisites to advancement, they are not the sole criteria in the consideration of the suitability of a student for promotion or graduation. The Promotions Committee 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 occupational therapy or physical therapy.

ATTENDANCE

Students are expected to attend all lectures and laboratory periods in each course. Admission to lectures or laboratories and credit for attendance may be refused by an instructor for lateness, misconduct, inattention or neglect of duty.

A student absent from classes because of illness must comply with the regulations of the Student Health Service.

If unavoidably absent from clinical placements, a student is required to notify the clinical facility and the School.

EXAMINATIONS

Examinations in the School of Rehabilitation Sciences may be held at various times throughout the year. Final Examinations are normally written at the end of each academic term, and are obligatory for all students.

Absence from an end-of-term examination will normally result in a failing mark for the examination which could result in a failure for the course.

If, for reasons of health, a student is unable to attend a scheduled examination and has advised the School accordingly, the student may apply to the instructor and division head for permission to take the examination at a later date. Documentation from the Student Health Service or a physician certifying the nature and duration of an illness is required for students missing scheduled examinations for reasons of health.

The minimum passing mark in the School of Rehabilitation Sciences is 60%.

Essays and examination papers may be denied a passing mark if they are illegible or unacceptably deficient in English.

In any course in which evaluation includes laboratory (practical) and written course requirements, students may be required to achieve a minimum of 60% in each of the laboratory (practical) and written course requirements in order to achieve a pass (60% or above) in the course.

An instructor of a course may request that the Promotions Committee grant a supplemental examination in a failed course provided that:

- 1 attendance has been satisfactory,
- 2 a mark of at least 50% has been achieved in the failed section(s) of a course,
- 3 no more than two supplementals have been granted since admission to the program, and
- 4 an average of at least 65% in the work of the year including the failed course(s) has been obtained.

The passing mark for a supplemental examination is 65%. When a supplemental exam is passed, the student's mark for the course will be recorded as a 'C+' (65%). In the event only one section of the course is examined in the supplemental, the mark for that section will be 65%.

CLINICAL FIELDWORK EXPERIENCE

Clinical fieldwork, in facilities which have been approved by the School of Rehabilitation Sciences and affiliated with the University, will be supervised by university-appointed personnel. Clinical fieldwork in either occupational therapy or physical therapy will be provided in facilities such as hospitals, health clinics, community care agencies, rehabilitation centres, and private practice. A minimum of one five- to seven- week clinical fieldwork experience is required to be completed outside the Greater Vancouver area. Students are responsible for all expenses involved. Students normally must achieve a passing grade in all RHSC and RSPT academic courses that are scheduled prior to each fieldwork course.

- RSPT 230 (5 weeks). A student who fails one or more sections of this course or withdraws for any reason, may be granted permission to advance to third year only on the recommendation of the Promotions Committee. This course is completed on a

full-time basis in specified blocks of time between May and August after second year.

- RSPT 330 (15 weeks). A student who fails one or more sections of this course or withdraws for any reason, may be granted permission to advance to fourth year only on the recommendation of the Promotions Committee. This course is completed on a full-time basis in specified blocks of time between January and August of third year.
- RSPT 430 (15 weeks). A student who fails one or more sections of this course or withdraws for any reason, will not be eligible for graduation. Graduation will be delayed until all sections of this course have been successfully completed. This course is completed on a full-time basis in specified blocks of time during the academic year.

If a supplemental is granted in any section of a clinical fieldwork course or if a student misses a complete fieldwork experience due to accident or illness the section must be repeated and passed before a student can be eligible for graduation.

DEGREE REQUIREMENTS

PREREQUISITES

Pre-requisite courses consist of a minimum of 30 credits or equivalent of university or college coursework and must include

- Biology, or equivalent six credits, BIOL 111 and 121 and one of BIOL 130 or 140.
- Chemistry: six credits, CHEM 111 and 112 or 121 and 123
- English: three credits (ENGL 112 recommended)
- Psychology: three to six credits at 100- or 200-level
- Statistics: three credits
- Electives: six to twelve credits, as required to fulfil 30-credit minimum.

The secondary school pre-requisites are Physics 11 and Physics 12.

B.S.C. (P.T.)

Second Year

| | |
|---------------|----|
| ANAT 392 | 4 |
| ANAT 393 | 4 |
| PHYL 301 | 6 |
| PATH 375 | 2 |
| RHSC 201 | 2 |
| RHSC 202 | 2 |
| RHSC 205 | 2 |
| RSPT 203 | 2 |
| RSPT 206 | 3 |
| RSPT 208 | 3 |
| RSPT 230 | 2 |
| Total Credits | 32 |

Third Year

| | |
|----------|---|
| RHSC 420 | 4 |
| RHSC 301 | 6 |
| RHSC 302 | 3 |
| RSPT 304 | 2 |

Third Year (Continued)

| | |
|----------------------|----|
| RSPT 305 | 3 |
| RSPT 308 | 2 |
| RHSC 311 | 1 |
| RSPT 313 | 2 |
| RSPT 314 | 3 |
| RSPT 330 | 9 |
| Elective | 3 |
| Total Credits | 38 |
| Fourth Year | |
| RHSC 402 | 3 |
| RHSC 408 | 2 |
| RSPT 411 | 2 |
| RSPT 412 | 4 |
| RSPT 413 | 6 |
| RSPT 414 | 1 |
| RSPT 419 | 3 |
| RSPT 430 | 6 |
| RSPT 441 | 1 |
| RSPT 415/442/443/445 | 1 |
| Total Credits | 29 |

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 Physical Therapy. For more information see Courses (students.ubc.ca/calendar/courses.cfm), IHHS, or visit the website (www.health-disciplines.ubc.ca).

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

Elizabeth Dean, B.A., Dip. (P.T.) (Manit.), M.S. (S.Calif.), Ph.D. (Manit.); **Isabel Dyck**, Dip. (O.T.), England, B.A., M.A. (Manc.), Ph.D. (S.Fraser); **Susan R. Harris**, B.S. (P.T.), M.Ed., Ph.D. (Wash.).

ASSOCIATE PROFESSORS

Anne Carswell, Dip. (O.T.), B.Sc., M.Sc. (McG.), Ph.D. (Tor.); **L. Hosti**, B.S.R., M.A. (Brit. Col.); **Lyn Jongbloed**, Dip. (O.T.) (S.A.), B.Sc. (O.T.) (W.Ont.), M.A., Ph.D. (Brit. Col.); **Donna L. MacIntyre**, Dip.(P.T.) (Alta.), B.S.R.(P.T.), M.P.E., Ph.D.(Brit. Col.); **D. Mah-Jones**, B.Sc. (O.T.) (Alta.); **W. Darlene Reid**, B.M.R. (P.T.) (Manit.), Ph.D. (Brit. Col.); **L. Roxborough**, B.S.R. (Brit. Col.).

ASSISTANT PROFESSORS

Janice Eng, B.Sc. (P.T.) (Brit. Col.), M.Sc. (Tor.), Ph.D. (Wat.); **B. Hudson**, B.Sc. (P.T.) (McG.); **William H. Miller**, B.Sc. (OT) (Brit. Col.), M.Sc. (OT) (W. Ont.), Ph.D. (W. Ont.); **Darlene Redenbach**, Dip. (P.T.) (Alta.), B.S.R. (P.T.), M.Sc., Ph.D. (Brit. Col.); **J. Spence**, B.S.R. (Brit. Col.).

SENIOR INSTRUCTORS

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INSTRUCTOR

Lesley Bainbridge, Dip. (P.T.), B.S.R., M.Ed. (Brit. Col.), Head, Division of Physical Therapy.

ASSOCIATE MEMBERS

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ADJUNCT PROFESSOR

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CLINICAL INSTRUCTORS

E. Aubert, Dip. (P.T.) (England); **D. Betz**, B.Sc. (O.T.) (Brit. Col.); **G. R. Beverley**, Dip. (P.T.) (England); **H. Boyes**, B.Sc. (O.T.) (Brit. Col.); **M.L. Chin**, B.Sc. (O.T.), (Brit. Col.); **N. Cho**, B.S.R. (Brit. Col.), M.B.A. (City U.); **M. Conroy**, BPhy (Queensland); **I.L. Davidson**, B.S.R. (Brit. Col.); **J. Duivestein**, B.S.R. (Brit. Col.); **G. Ebert**, Dip. (P.T.), (Alta.); **P. Erlendson**, B.Sc. (O.T.) (McG.); **B. Gordon**, Dip. (O.T.) (Manit.); **T. Green**, B.Sc. (O.T.) (Brit. Col.); **R. C. Groves**, B.s.r. (Brit. Col.); **M. Harris**, Dip. (P.T.); **S. Haskett**, B.Sc. (O.T.) (Brit. Col.); **H. Hermans**, B.S.A. (Brit. Col.), B.Sc.(P.E.) (Wash.); **C. Horii**, B.S.R. (Brit. Col.); **M. T. Kyi**, B.Sc. (O.T.) (Brit. Col.); **Y. Le**, B.Sc. (P.T.) (Brit. Col.); **C. Lefaivre**, B.Sc. (O.T.) (Alta.); **J. Letkemen**, B.M.R. (P.T.) (Manit.); **P. Lieblich**, B.P.T. (McG.); **W. Lintott**, B.Sc. (O.T.) (W. Ont.); **H. Macinnis**, B.Sc. (O.T.) (Eastr. Mich.); **Y. J. Mansfield**, B.S.R. (Brit. Col.); **A. McLean**, B.Sc. (O.T.) (Brit. Col.); **A. McMichael**, Dip. (P.T.) (England); **B. McNair**, B.Sc. (O.T.) (Alta.); **K. A. Mills**, B.A., B.Sc. (O.T.) (W. Ont.); **J. G. Montgomery**, B.Sc. (P.T.) (Brit. Col.); **J. P. Moscovitch**, B.O.T. (McG.); **A. Neale**, Dip. (O.T.); **N. Pearson**, B.A. (B.P.H.E.), B.Sc. (P.T.), M.Sc. (Queen's); **J. Pillsworth**, Dip. (P.T.) (England); **A. E. Rankin**, B.Sc. (P.T.) (McGill), M.Sc. (P.T.) (UWO); **T. Readman**, Dip. (O.T.) (England); **M. Rizzardo**, B.P.E., M.P.E., B.Sc. (P.T.) (Brit. Col.); **A. Scott**, B.S.R. (Brit. Col.); **J. Selman**, B.Sc. (Psych.) (Vic. B.C.), B.Sc. (O.T.) (Brit. Col.); **B. Sherwood**, B.A. (Brit. Col.), Dip. (O.T.) (Kingston); **J. Shortreed**, B.Sc. (O.T.) (Queen's), M.Ed. (W.Ont.); **K. Skarpnes**, B.S.R. (Brit. Col.); **L. A. Smith**, B.Sc. (O.T.) (Queen's); **A. G. Taylor**, B.Sc. (P.T.) (Brit. 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.) (Brit. Col.).

23 The Faculty of Science

Dean's Office

L. Whitehead, 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

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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 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. 209.

Bachelor of Science

To earn a Bachelor of Science students must follow one of the following programs:

- **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.
- **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.

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.
- **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 which cross the boundaries of these areas. Admission to this program is limited and requires application to the ISP Board of Admissions.

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 (Agricultural Sciences, Arts, or Commerce and Business Administration) 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 Office 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. 361 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 here 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.science.ubc.ca/advising).

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 *Undergraduate Admission*, p. 21 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. 355 under Bachelor of Science, Academic Regulations and *English Requirement*, p. 357 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. 360 under Bachelor of Science, Degree Requirements) will be admitted to the year level that is appropriate according to the First-Degree Promotion Requirements, which 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. 358 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. 360).

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. 23.

For detailed information about advanced credit for courses taken in the International Baccalaureate or Advanced Placement programs, consult the Undergraduate Viewbook (students.ubc.ca/welcome/apply.cfm) under "First-Year Credit". 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 they registered in second year or transferred to the Faculty of Science at UBC.

The following is only a summary of the registration procedures for Science students. Complete information may be obtained from the material mailed to the students with their Letter of Acceptance (new students) or Statement of Grades (returning students).

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 three 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, 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 (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. 35 in the chapter Academic Regulations in 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. 358 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 16. First-year students wishing to enrol in the Coordinated Science Program can register directly through the Student Service Centre (students.ubc.ca/ssc). The Science One Program and the Coordinated

Science Program are described under *First-Year Programs*, p. 360 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. 381 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 Science Advising Website (www.science.ubc.ca/advising) 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. 359 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. 119, and for *Bachelor of Science*, p. 363).

Students intending to do a Minor in Science, Arts, or Agricultural Sciences must obtain approval before the start of their third year. A form is available from the Science Advising Website (www.science.ubc.ca/advising) 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. 362 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 terminating in December or in April, and also in December for courses continuing all year. 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.

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.

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. Paired 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 *Pairing Lists for Science*, p. 362 in this Chapter.

Paired courses are not necessarily equivalent, so permission of a program advisor is required for substitution of a required course with a course from the Pairing Lists.

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. 357 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 12 credits, except with the permission of the Dean. It is not possible to take two laboratory science courses concurrently in Summer Session.

CONCURRENT STUDIES

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. It is the student's responsibility upon return to ensure that an official transcript from the other institution is forwarded to Undergraduate Admissions in Enrolment Services.

STUDENT ACADEMIC PERFORMANCE

SCIENCE SCHOLAR

Graduating students and students promoted to second, third or fourth year with a standing of 90.00% 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 90.00% 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 80.00% 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 80.00% 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 nine credits of Integration (ISCI) courses 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. 22 under Language Proficiency Index Requirement for First-Year English in the chapter Undergraduate Admission. See also *English Requirement*, p. 357 under Bachelor of Science, Degree Requirements.

Students who do not meet the six-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.

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 55.00% 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 50.00% 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 50.00% but less than 55.00% in a Winter or Summer Session will be placed on Academic Probation (ACPR). This will be noted on their statement of grades. 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 55.00% 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. 359 under Bachelor of Science, Degree Requirements) or who otherwise leave UBC while ACPR is on their transcript may apply for re-admission after one full year, but no student has the right to re-admission. Applications for re-admission 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 re-admission, 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 54 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 G.P.A. 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.

Students required to withdraw after completing more than 54 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 | College Transfer Credits Required |
|-------------------|-----------------------------------|
| up to 45 | 24 |
| more than 45 | 12 |

ACADEMIC CONCESSION

Students whose academic performance or attendance is severely affected by medical, emotional, or other problems must consult their instructor or the Science Information and Advising as soon as possible if they wish to request academic concession. Students absent from formal end-of-term examinations must request academic concession from the

SUMMARY OF CONTINUATION REQUIREMENTS

| Sessional Average, Course Success | Student Previously in Good Standing | ACPR on Student Record | Fail on Student Record |
|---|-------------------------------------|---|-----------------------------|
| 55.00% 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 50.00% but less than 55.00%, passed all courses | Pass, eligible to continue | Pass, eligible to continue; ACPR carried forward | Pass, eligible to continue |
| 55.00% or higher, failed one or more courses | Pass, permitted to continue | Pass, permitted to continue; ACPR carried forward | Pass, permitted to continue |
| At least 50.00% but less than 55.00%, failed one or more courses | ACPR, permitted to continue | Fail, required to withdraw | Fail, required to withdraw |
| Below 50.00%; 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 50.00%; enrolled in under 12 credits (Winter) or under 6 (Summer) | Fail, permitted to continue | Fail, required to withdraw | Fail, required to withdraw |

Information and Advising Office. Students who are absent at other times, 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. 33 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 from the Information and Advising Office.

Students who apply for consideration through the Information and Advising Office will be required to complete a 'Request for Academic Concession' form and provide the necessary supporting documentation. Absences from formal examinations in any term must be reported, with documentation, by January 15 for term-one winter session examinations, by May 15 for term-two, and by August 31 for all summer session and deferred examinations. Untimely notification will not normally be accepted.

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. 35 in the chapter Academic Regulations of this Calendar.

DEFERRED STANDING

Deferred standing granted by the Dean gives a student the right to complete outstanding course work (i.e. the final examination) by writing another examination. For Science courses offered in the next term or session, writing the scheduled examination for that offering is the preferred means of fulfilling Deferred Standing. For term-one winter session courses that are prerequisite to term-two courses, if the department schedules a make-up examination early in term two a student with Deferred Standing should write that examination in order to complete the prerequisite. 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. Science students who are not able to write the next examination offered in the course must report their circumstances to the Dean. 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. 33.

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 specialisation.

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 fulfil 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. 22.
- 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 University 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. 22).
- 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 Agricultural Sciences have Science credit: FNH 350, 351,

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.

UPPER-LEVEL REQUIREMENT

For upper-level course requirements, see the table "Summary of Program Requirements" below. For the Bachelor of Science major, 30 of the 48 upper-level credits must be in Science courses. Of the remaining 18 upper-level credits for the major six must be in further Science courses or in Arts, and 12 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 12 credits in any faculty, but at most six credits will count toward the minimum upper-level requirements.

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 three 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

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 |

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 six 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. 378 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, Arts 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 combinations of Science and Arts courses). Refer to individual program listings for definitions of the field of the Major. ISCI

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 nine 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. 358 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 courses, i.e., count one course to fill program requirements in both areas of specialization. However, in order to graduate, Double Major students must have 54 upper-level Science credits, Major+Minor in Science students must have 42, and Honours+Minor in Science students must have 54; this number of credits cannot be arrived at by double-counting. There is no maximum number of credits that can be double-counted, but students should be aware that by double-

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. 355 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 six additional credits in CPSC, MATH, or STAT. Some programs may allow the completion of statistics courses in departments other than Statistics to satisfy part of the CPSC/MATH/STAT requirement.

Students who intend to pursue an Honours program requiring six 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 three credits of 100-level PHYS (normally PHYS 100) if credit was not obtained for Physics 12. All students take six 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 three credits of 100-level BIOL. Students with credit for Biology 11 or 12 complete three credits of an ASTR, BIOL, EOSC, or science-credit GEOG or PSYC lecture course.

LABORATORY SCIENCE

Students take two 1-term laboratory courses chosen from ASTR, BIOL, CHEM, EOSC, GEOG, PHYS, 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 12 credits from a Faculty other than Science or Arts; see *Other Credit Allowances* in this section.

Students should consult the intended program of study to determine the correct choice of courses to fulfil 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

Completion of Science One satisfies the lower-level requirements for physical sciences, other sciences, and laboratory science and six of the required nine credits in computational sciences.

PROGRAM REQUIREMENTS

Students are reminded that the regulations listed under *Student Academic Performance*, p. 355 under Bachelor of Science, Academic Regulations apply. Choice of program and option will be limited if good academic standing is not maintained.

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. 363.

HONOURS AND COMBINED

HONOURS PROGRAM

In addition to meeting the specific department course requirements, Honours candidates are expected 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 expected to complete at least 15 credits in each study term. Other Honours students are expected to complete at least 30 credits in each Winter Session.

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. After the Lower-Level Requirement (i.e. English, physical sciences, computational sciences, other sciences, and laboratory science) and the Arts Requirement have been met, each Major program requires at least 9 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. 358). The field of the Major is defined for each program in the *Bachelor of Science program listings*, p. 363. 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.

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 should consult departmental advisors before the beginning of their third year (see *Registration and Program Approval*, p. 354 under Bachelor of Science, Admission). All Double Major programs need the approval of both departments and a senior faculty advisor. 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. 357 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.

Students in the following B.Sc. major programs may not complete a B.A. Major in the same subject: Geography, Mathematics, Mathematical Sciences, Psychology.

MINOR PROGRAM

Students intending to embark on a Minor program should see *Minor Programs*, p. 361. 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.

INTEGRATED SCIENCES 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. 355). 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.

PROMOTION REQUIREMENTS

PROMOTION TO SECOND YEAR

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 TO THIRD YEAR

Successful completion of a total of 48 or more credits which must include six credits of first-year English, at least 12 required Lower-level science credits or advanced placement in these requirements, and at least 18 additional science credits. A student who does not meet the minimum requirements for promotion to third year within a maximum of 90 credits of course work attempted will be required to withdraw from the Faculty of Science.

PROMOTION TO FOURTH YEAR

Successful completion of a total of 78 or more credits of which 50 or more must be Science credits including all the lower-level Faculty of

Science requirements. A student who does not meet the minimum requirements for promotion to fourth year within a maximum of 120 credits of course work attempted 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.

SECOND DEGREE STUDIES

REQUIREMENTS FOR THE BACHELOR OF SCIENCE

Students with a recognized undergraduate degree may be eligible to pursue a Bachelor of Science as a second degree. The pursuit of an Honours or General Science program as a second degree normally is not permitted. 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 fulfil all degree requirements. Students will not be permitted to undertake a second degree program that overlaps significantly with studies for a previously granted degree. Because no transfer credit appears on the transcript, students admitted to a second degree must consult the Faculty of Science Information and Advising Office and the appropriate department regarding specific second degree requirements prior to commencing their program.

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.

For students admitted into first year, promotion to second year requires completion of at least 12 lower-level Science credits (either with UBC credits or from prior study). For students admitted into or promoted to second year, promotion to third year requires completion of any of the following that were not met with prior study: at least 3 credits of English requirements, the lower-level Science requirements, and a total of at least 30 Science credits. For students admitted into or promoted to third

year, promotion to fourth year requires completion of at least 18 UBC credits including any remaining part of the English requirement and at least 9 credits of Science courses numbered 300 or above.

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. 357 in this section.)

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 three credits of first-year English.
- 3 The Science One Program (25 credits plus 1 credit for co-requisite Biology 140 Lab), is an academically rigorous interdisciplinary course. A separate application is required.

For additional information on first-year programs, visit the First Year website (www.science.ubc.ca/students/firstyear/index.html).

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 2-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 (msp@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/~msp).

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 May 15. (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 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. 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 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. Those who do not achieve a level 5 on the LPI will be required to withdraw from Science One and enter the regular first-year Science program. For information about English eligibility and the LPI (Language Proficiency Index) requirement, see *English Language Admission Standard*, p. 21 and *English Language Proficiency Index*, p. 22 in the chapter, Undergraduate Admission of 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 one-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 requirements 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 *Special Fees*, p. 49 in the Fees 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 three 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 enquire about application deadlines and for further information, please contact 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).

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 following four types of Minor program are available: Minor in Science, Minor in Arts, Minor in Commerce and Minor in

Agricultural Sciences. 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 website: www.science.ubc.ca/advising.

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. 358 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.

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. 361, 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 Dean's Office and 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.

The program will consist of ECON 310 and 311(6), COMM 457(3), COMM 493(3), and six credits selected from COMM 329(3) COMM 458(3), COMM 473(3), COMM 465(3), COMM 486F(3) for a total of 18 credits. Students who have completed ECON 101 and ECON 102 prior to entry into the program may use this course in lieu of ECON 310 and 311, but may require additional upper-level credits to satisfy graduation requirements.

Note: Students may encounter difficulty fitting the COMM courses into their Science program timetable; careful planning is essential. Upon successful completion of this Minor program, the notation "Minor in Commerce" will be placed on the student's transcript.

MINOR IN AGRICULTURAL SCIENCES

A minor in Agricultural Sciences may be undertaken by students in an Honours or Major 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 six credits selected from BIOC 300, BIOL 310, BIOL 334, FNH 350 and 12 credits selected from AGRO 311, AGRO 312, AGRO 315, AGRO 327, AGRO 360, AGRO 411,

AGRO 414, AGRO 416, AGRO 316, AGRO 417, AGRO 418, FNH 350, 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 421, 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 six credits selected from BIOL 316(AGRO 326), BIOL 327(AGRO 327), BIOL 317(AGRO 328), BIOL 351(PLNT 324) and 12 credits selected from AGRO 322, AGRO 360, AGRO 420, AGRO 421, AGRO 422, AGRO 423, AGRO 429, AGRO 442, FNH 330, FNH 430, 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 451, FNH 452, FNH 453, FNH 454, FNH 471, FNH 490 for a total of 18 credits.

Space in many Science and Agricultural Sciences courses is limited. Admission to an Agricultural Sciences Minor does not guarantee access to courses agreed upon for the minor.

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 Agricultural Sciences.

The course requirements for admission to W.C.V.M. are

- 1 six credits each of English, Biology, Biochemistry, Chemistry, Physics, and Mathematics or Statistics;
- 2 three 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 Agricultural Sciences, UBC; or directly from the University of Saskatchewan.

PAIRING LISTS

Listed below are courses in which there is sufficient overlap that credit may be obtained for only one course in each group. Some courses, although paired with others, may not satisfy program requirements.

Atmospheric Science

-
- 1 ATSC 409, ATSC 506, OCGY 510

Chemistry

-
- 1 CHEM 111, 121, 151, 154
 - 2 CHEM 112, 113, 122, 123, 151, 154
 - 3 CHEM 201, 205, 251
 - 4 CHEM 201, 205, 252
 - 5 CHEM 203, 231, 233, 260
 - 6 CHEM 203, 231, 235
 - 7 CHEM 204, 232, 260
 - 8 CHEM 250, 202
 - 9 CHEM 250, 309/310
 - 10 CHEM 311, 352
 - 11 CHEM 312, PHYS 304, 452
 - 12 CHEM 312, PHYS 450
 - 13 CHEM 313, 330
 - 14 CHEM 407, 503, PHYS 303, 403, 455
 - 15 CHEM 413, CHEM 569, BIOC 403

Computer Science

-
- 1 CPSC 100, FRST 232
 - 2 CPSC 101, WMST 201
 - 3 CPSC 111, 122, 124, 151, 152
 - 4 CPSC 126, 128, 211, 251
 - 5 CPSC 121, 218, EECE 259
 - 6 CPSC 121, 220, EECE 320
 - 7 CPSC 211, 216, 251, 252
 - 8 CPSC 221, 220
 - 9 CPSC 304, COMM 437
 - 10 CPSC 310, CPSC 352, EECE 310
 - 11 CPSC 313, 315, EECE 315
 - 12 CPSC 313, 318, EECE 476
 - 13 CPSC 319, EECE 319
 - 14 CPSC 405, COMM 310, EECE 423
 - 15 CPSC 414, EECE 478
 - 16 CPSC 417, EECE 456
 - 17 CPSC 435, FRST 435
 - 18 CPSC 404, COMM 437

Earth and Ocean Sciences

-
- 1 EOSC 110, EOSC 210
 - 2 EOSC 112, GEOG 102, GEOG 101
 - 3 More than 6 credits of EOSC 114, GEOG 101, GEOG 102, GEOG 103
 - 4 EOSC 120, 121
 - 5 EOSC 222, 326
 - 6 EOSC 330, GEOG 306
 - 7 EOSC 220, 324
 - 8 EOSC 352, PHYS 406
 - 9 EOSC 371, BIOL 305, MRNE 435
 - 10 EOSC 477, OCGY 405
 - 11 EOSC 471, ATSC 404
 - 12 EOSC 477, ATSC 414

Geography

- 1 GEOG 101, GEOG 102, EOSC 112
- 2 GEOG 101, GEOG 103
- 3 No more than 6 credits of GEOG 101, GEOG 102, GEOG 103, EOSC 114
- 4 GEOG 201, GEOG 204, SOIL 204, GEOG 300
- 5 GEOG 205, CIVL 418, FOPR 388
- 6 GEOG 306, EOSC 330
- 7 GEOG 444, GEOG 448

Life Sciences

- 1 ANAT 390/391, 400 (for six credits)
- 2 BIOC 300, BIOC 302, BIOC 303
- 3 BIOC 300, BIOL 201
- 4 BIOC 303, BIOC 503
- 5 BIOC 403, CHEM 413, CHEM 569
- 6 BIOC 410, BIOC 510
- 7 BIOC 435, BIOL 435, BIOC 535
- 8 BIOL 110 or 115 plus 120, 344
- 9 BIOL 110 or 115 plus 120, FRST 300
- 10 BIOL 112, MICB 201, BIOL 346
- 11 BIOL 201, BIOC 300
- 12 BIOL 300, EPSE 482, EPSE 483, FRST 231, GEOG 374, HKIN 371, PSYC 218, PSYC 366, POLI 380, STAT 200, STAT 203
- 13 BIOL 301, FRST 430, STAT 305
- 14 BIOL 316, AGRO 326
- 15 BIOL 317, AGRO 328
- 16 BIOL 337, EOSC 371, MRNE 435
- 17 BIOL 310, MRNE 446, PSYC 306
- 18 BIOL 324, PLNT 258
- 19 BIOL 327, AGRO 327
- 20 BIOL 334, AGRO 414, FRST 302
- 21 BIOL 345, 302 and 303
- 22 BIOL 346, BIOL 112, MICB 201
- 23 BIOL 351, PLNT 324, FRST 311
- 24 BIOL 352, PLNT 325
- 25 BIOL 353, AGRO 312, BIOL 355, PHYL 301 and 302 or 303
- 26 BIOL 426, MRNE 412
- 27 BIOL 443, AGRO 424
- 28 BIOL 438, PHYS 438
- 29 BIOL 446, PHIL 464
- 30 BIOL 451, OCGY 415
- 31 BIOL 462, FRST 413
- 32 MICB 300, MICB 400, SOIL 400
- 33 MICB 306, 408
- 34 MICB 318, CHBE 381, CHBE 482
- 35 MICB 401, SOIL 401
- 36 MICB 402, MEDG 410
- 37 MICB 407, PATH 437
- 38 MICB 502, MEDG 510
- 39 MRNE 446, BIOL 310, PSYC 306
- 40 EOSC 371, BIOL 305, MRNE 435

Life Sciences (Continued)

- 41 PCTH 300, 305; PHAR 370, 380
- 42 PCTH 400, PHAR 385
- 43 PHYL 301 and 302 or 303, AGRO 312, BIOL 353, BIOL 363
- 44 PSYC 201 and 202, 260
- 45 PSYC 304, 360
- 46 PSYC 217 and 218, 366
- 47 PSYC 306, MRNE 446, BIOL 310

Mathematics

- 1 MATH 100, 102, 104, 111, 120, 140, 153, 180, 184
- 2 MATH 101, 103, 105, 121, 141, 154
- 3 MATH 152, 221, 223
- 4 MATH 200, 217, 226, 253
- 5 MATH 215, 255, 256
- 6 MATH 227, 254, 317, 266
- 7 MATH 257, 316, PHYS 312
- 8 MATH 300, 350, 266
- 9 MATH 301, 350
- 10 MATH 302, 318, STAT 241, 251, 302
- 11 MATH 303, 318
- 12 MATH 312, 437
- 13 MATH 313, 437
- 14 MATH 407, CPSC 402

Physics

- 1 PHYS 101/102, 107/108, 109, 121/122, 153
- 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, 452, CHEM 312
- 9 PHYS 303, 455, CHEM 407, 503
- 10 PHYS 312, MATH 257, 316
- 11 PHYS 401, 454
- 12 PHYS 438, BIOL 438

Probability and Statistics

- 1 STAT 200, 203, BIOL 300, FRST 231, PLNT 321
- 2 STAT 241, 251, 302, MATH 302
- 3 STAT 300, 306, COMM 411
- 4 STAT 335, WOOD 335
- 5 COMM 290, COMM 311, MATH 302, STAT 302, STAT 241, STAT 251
- 6 BIOL 300, COMM 291, COMM 312, EPSE 482, EPSE 483, FRST 231, GEOG 374, HKIN 371, PLNT 321, POLI 380, PSYC 318, PSYC 366, STAT 200, STAT 203
- 7 ECON 325, PSYC 366, STAT 241, STAT 251

ASTRONOMY

The Department of Physics and Astronomy offers opportunities for study in Astronomy at the bachelor's, master's and doctoral levels. For information on graduate degrees, see *Physics and Astronomy*, p. 254 in the Graduate Studies section.

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 | 8(6) |
| Electives ⁴ | 6-8 |
| 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 | 9-11 |
| Total Credits | 31 |

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 120

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider 120 and/or 121. Three 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 adviser 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 twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and a further nine 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 of 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 122, 152 or 124. 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. 389.

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 for Undergraduate Affairs of the Atmospheric Science Program. For information concerning the diploma program see *Diploma in Meteorology*, p. 397. For information on graduate degrees, see *Atmospheric Science*, p. 223 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 résumé 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 *Special Fees*, p. 49 in the chapter Fees 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 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).

MAJOR (0167): ATMOSPHERIC SCIENCE(ATSC)

| First Year | |
|---|--------|
| ENGL 100-level ¹ | 6 |
| CHEM 121, 123 (111, 113) | 8 |
| CPSC 122 | 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, 108, 109 (101, 102) ² | 6(8) |
| Arts Elective | 3 |
| Total Credits | 33(37) |

| Second Year | |
|-----------------------------|----|
| ATSC 200, 201 | 6 |
| EOSC 250, 251 | 6 |
| GEOG 200 | 3 |
| MATH 200, 221 | 6 |
| PHYS 216 | 3 |
| Arts Electives ³ | 6 |
| Elective ^{3,4,5,6} | 3 |
| Total Credits | 33 |

| Third Year | |
|----------------------------|----|
| ATSC 300, 301, 303 | 6 |
| GEOG 300 | 3 |
| MATH 215 | 3 |
| PHYS 312 or MATH 316 | 3 |
| PHYS 313 | 3 |
| STAT 241 or 200 | 3 |
| Arts Elective ³ | 3 |
| Electives ^{3,4,5} | 6 |
| Total Credits | 30 |

| Fourth Year | |
|-----------------------------------|------------|
| ATSC 304, 404, 405 | 9 |
| ATSC Electives ⁷ | 6 |
| Electives ^{3,4,5} | 15 |
| Total Credits | 30 |
| Minimum credits for degree | 126 |

- 1 ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three 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 students are encouraged to take PHYS 107/108/109.
- 3 18 credits of electives must be numbered 300 or higher.
- 4 Nine 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 may choose courses so as to build a knowledge of an area of study related to Atmospheric Science. Some suggestions are: Chemistry (CHEM 201 and 302); Oceanography (EOSC 370, 371, 474 and/or 476); Computer Science (CPSC 128, 216); electronics (ELEC 263, 366, 485).
- 6 Students without Biology 11 or 12 must take 3 credits of 100-level BIOL.
- 7 Selected from EOSC 354; GEOG 401, 402; MECH 482; PHYS 314; SOIL 314.

HONOURS (0429): ATMOSPHERIC SCIENCE (ATSC)

| 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) | 3(4) |
| MATH 121 (or 101 or 103 or 105) | 3(4) |
| PHYS 107, 108 (101,102) ² | 8(6) |
| Elective ^{3,4} | 6 |
| Total Credits | 34(37) |

| Second Year | |
|--------------------|----|
| ATSC 201 | 3 |
| CHEM 201 | 3 |
| CPSC 111 | 3 |
| MATH 215, 217, 221 | 9 |
| PHYS 203, 206 | 6 |
| STAT 241 or 200 | 3 |
| Arts Electives | 6 |
| Total Credits | 33 |

| Third and Fourth Year | |
|-----------------------------------|------------|
| ATSC 301, 303, 404, 405, 449 | 18 |
| ATSC Electives ⁶ | 6 |
| CHEM 302, 304 | 6 |
| GEOG 300, 304 | 6 |
| MATH 300, 301, 316, 400 | 12 |
| PHYS 301, 314 | 6 |
| Arts Electives | 6 |
| Electives ⁵ | 9 |
| Total Credits | 69 |
| Minimum credits for degree | 136 |

- 1 ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits for 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 students are encouraged to take PHYS 109.
- 3 Students without Biology 11 or 12 must take 100-level Biology.
- 4 Recommended electives: EOSC 100-level or GEOG 102.
- 5 Six credits total may be in any faculty.
- 6 Selected from ATSC 406, 409, 414; EOSC 354; GEOG 401, 402; AGRO 341.

BIOCHEMISTRY

The Department of Biochemistry and Molecular Biology offers opportunities for study leading to bachelor's, master's and doctoral degrees. For information on graduate degrees, see *Biochemistry and Molecular Biology*, p. 223 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).

MAJOR (0244): BIOCHEMISTRY (BIOC)

First Year

| | |
|---------------------------------------|-----|
| ENGL 100-level ¹ | 6 |
| BIOL 111 ² | 3-0 |
| BIOL 121, 140 | 4 |
| CHEM 121, 123 (111, 113) ³ | 8 |

| | |
|--|---------------|
| First Year (Continued) | |
| 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 | 33(35) |

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 |
| CHEM 304, 305 | 6 |
| CHEM 313, 333 | 7 |
| Electives ⁶ | 24 |
| Total Credits | 61 |

Minimum Credits for Degree 126

1 ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.

2 If students do not have Biology 12, then they must also take Biology 111, in addition to Biology 121 and Biology 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 pre-requisite can complete MATH 180 or 184.

5 The requirement of six 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 three 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 Physics 100 as part of the required six credits of Physics.

6 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 six credits of first-year English). c. A further nine 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 pre-requisites 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.

COMBINED HONOURS (0565): BIOCHEMISTRY AND CHEMISTRY (BIOC, CHEM)

First Year

| | |
|--|---------------|
| ENGL 100-level ¹ | 6 |
| BIOL 111 ² | 3-0 |
| BIOL 121, 140 | 4 |
| 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 | 33(35) |

Second Year

| | |
|----------------------------|-----------|
| BIOL 200, 201 | 6 |
| CHEM 203, 204 ⁷ | 8 |
| CHEM 201, 202 | 6 |
| CHEM 211 | 4 |
| MATH 200 | 3 |
| Electives ^{7,8} | 12 |
| Total Credits | 39 |

Third Year

| | |
|--------------------------|-----------|
| BIOC 303 | 6 |
| BIOC 301 | 3 |
| BIOL 334, 335 | 6 |
| CHEM 313, 333 | 7 |
| CHEM 304 | 3 |
| CHEM 305 (307) | 3 |
| CHEM 311 | 4 |
| 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. Three credits of first-year English may be deferred until second year.

2 If students do not have Biology 12, then they must also take Biology 111, in addition to Biology 121 and Biology 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 pre-requisite can complete MATH 180 or 184.
- 5 The requirement of six 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 three 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 Physics 100 as part of the required six credits of Physics.
- 6 Electives must include at least 12 credits in the Faculty of Arts (in addition to the six 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 in second year.

HONOURS: BIOCHEMISTRY (BIOC)

First Year

| | |
|--|--------|
| ENGL 100-level ¹ | 6 |
| BIOL 111 ² | 3-0 |
| BIOL 121,140 | 4 |
| 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 | 33(35) |

Second Year

| | |
|--------------------------------|--------|
| BIOL 112, 200, 201 | 9 |
| CHEM 203, 204 ⁷ | 8 |
| CHEM 201 and either 202 or 211 | 6(7) |
| MATH 200 | 3 |
| MICB 202 | 3 |
| Electives ⁶ | 9 |
| 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 ⁶ | 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 |
| Electives ⁶ | 6-6-3 |
| Biochemistry and Molecular Biology Electives ⁸ | 9-6-6 |

Fourth Year (Continued)

Total Credits 33

Minimum credits for degree 138

- 1 ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- 2 If students do not have Biology 12, then they must also take Biology 111, in addition to Biology 121 and Biology 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 pre-requisite can complete MATH 180 or 184.
- 5 The requirement of six 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 three 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 Physics 100 as part of the required six credits of Physics.
- 6 Electives must include at least 12 credits in the Faculty of Arts (in addition to the six credits of first year English). Students are encouraged to complete the Arts requirement by the end of the third year. A total of nine to twelve credits of electives is available in the third and fourth years.
- 7 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.
- 8 A total of six or nine credits of Biochemistry and Molecular Biology electives is required in the third and fourth year from the following list: BIOC 435 (3); three credits of 300- or 400-level Chemistry courses; three credits of Microbiology courses from MICB 302, 306, 405 or 409; PHYL 301(6). Select nine credits from these courses if only three credits were chosen from BIOC 421/449. Select six credits if six or nine 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.

BIOLOGY

The Departments of Botany and Zoology jointly offer one undergraduate degree, that is a degree in Biology. For information on graduate programs in Biology, see *Botany*, p. 224, and *Zoology*, p. 261 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 Major 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.

THIRD-YEAR STANDING IN BIOLOGY

Enrolment in the Biology program is limited. Acceptance into third-year Biology requires concurrent registration in or prior credit for one of the three physiology courses: BIOL 350, 351, or 353. Students are not permitted to take more than one of these three courses.

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 except Applied Plant Biology.

MAJOR AND HONOURS: BIOLOGY (BIOL)

First Year

| | |
|-----------------------------|-----|
| ENGL 100-level ¹ | 6 |
| BIOL 111 ² | 3-0 |
| BIOL 112 | 3 |
| BIOL 121 ² | 3 |

| | |
|---|------|
| First Year | |
| BIOL 140 | 1 |
| 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 | 6-0 |
| Total Credits | 33 |

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three 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 three credits of 100-level Arts or Science 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 three credits of elective with PHYS 100 prior to PHYS 101.

MAJOR (0149): ANIMAL BIOLOGY (ANIM)

| | |
|---------------------------------|----|
| Second Year | |
| BIOL 200, 201 | 6 |
| BIOL 204, 205 | 8 |
| BIOL 240 ¹ | 1 |
| CHEM 233, 235, 205 ² | 7 |
| Electives ³ | 12 |
| Total Credits | 34 |

Third and Fourth Years

| | |
|--------------------------|----|
| BIOL 300 | 3 |
| BIOL 302, 303 | 6 |
| BIOL 334 | 3 |
| BIOL 335 or 336 | 3 |
| BIOL 353 ⁴ | 7 |
| Animal Biology Electives | 18 |
| Electives ³ | 21 |
| Total Credits | 61 |

Minimum credits for degree 128

¹ BIOL 240 will first be given in 2003/04.
² In 2001/2002 the required second year Chemistry courses are CHEM 231 and 232 in all Biology programs. CHEM 233, 235, 205 (new version) will first be given in 2002/2003.

³ The 36 credits of electives have the following requirements: a. At least 12 credits of Arts. b. A further nine 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 Agricultural Sciences that have Science credit. c. A further six credits of Arts or Science courses (may include courses from the Animal Biology Electives list below). d. Of the 27 credits defined so far, at least nine must be upper-level Arts of Science courses to ensure a program minimum of 48 upper-level credits. e. Twelve credits may be in any faculty.

⁴ Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.

HONOURS (0054): ANIMAL BIOLOGY (ANIM)

| | |
|-----------------------|----|
| Second Year | |
| BIOL 200, 201 | 6 |
| BIOL 204, 205 | 8 |
| BIOL 240 ¹ | 1 |
| CHEM 233, 235, 205 | 7 |
| Science Electives | 6 |
| Arts Electives | 6 |
| Total Credits | 34 |

Third and Fourth Years

| | |
|--------------------------|----|
| BIOL 300 | 3 |
| BIOL 302, 303 | 6 |
| BIOL 334 | 3 |
| BIOL 335 or 336 | 3 |
| BIOL 353 ² | 7 |
| BIOL 331 | 3 |
| BIOL 447 | 3 |
| BIOL 449 | 6 |
| Arts Elective | 6 |
| Animal Biology Electives | 21 |
| Electives ³ | 12 |
| Total Credits | 73 |

Minimum credits for degree 140

¹ BIOL 240 will first be given in 2003/04.
² Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.
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 (0633): CELL BIOLOG AND GENETICS (CGBI)

| | |
|--|-----|
| Second Year | |
| BIOL 200, 201 | 6 |
| BIOL 240 | 1 |
| Two of BIOL 204, 205, 209, 210 or MICB 202 | 7-8 |
| CHEM 233, 235, 205 ¹ | 7 |
| Electives ^{2,3} | 12 |
| Total Credits | 34 |

Third and Fourth Years

| | |
|--|-------|
| BIOL 300 | 3 |
| BIOL 302 or 303 | 3 |
| BIOL 334, 335 | 6 |
| BIOL 350 ⁴ | 6 |
| BIOC 302 or 303 ⁵ | 3/6 |
| Cell Biology and Genetics Electives ⁵ | 18/15 |
| Electives ³ | 21 |
| Total Credits | 60 |

Minimum credits for degree 127

¹ In 2001/2002 the required second year Chemistry courses are CHEM 231 and 232 in all Biology programs. CHEM 233, 235, 205 (new version) will first be given in 2002/2003.

² CHEM 205 recommended.
³ The 36 credits of electives have the following requirements: a. At least 12 credits of Arts. b. A further nine 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 Agricultural Sciences that have Science credit. c. A further six credits of Arts or Science courses (may include courses listed under MY below). d. Of the 27 credits defined so far, at least nine must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits. e. Twelve credits may be in any faculty.
⁴ Must be taken in third year.
⁵ Depending on whether BIOC 302 (3) or BIOC 303 (6) is taken.

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 | 7(8) |
| BIOL240 ¹ | 1 |
| CHEM 233, 235, 205 | 7 |
| Arts Elective | 6 |
| Elective | 6 |
| Total Credits | 33(34) |

Third and Fourth Years

| | |
|--------------------------------|----|
| BIOL 300 | 3 |
| BIOL 302 or 303 | 3 |
| BIOL 331 or 352 | 3 |
| BIOL 334, 335 | 6 |
| BIOL 350 ² | 7 |
| BIOL 330 | 3 |
| BIOC 303 | 6 |
| BIOL 447 | 3 |
| BIOL 449 | 6 |
| Cell and Development Electives | 15 |
| Arts Electives | 6 |
| Electives ³ | 12 |
| Total Credits | 73 |

Minimum credits for degree 139

¹ BIOL 240 will first be given in 2003/04.
² Must be taken in third year.
³ BIOL 347 is recommended. Consult a Biology adviser before choosing electives.

CELL AND DEVELOPMENT ELECTIVES
 See the Biology Program Guide (www.zoology.ubc.ca/bpg/) for the list of program electives.

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 |
| BIOL 353 or 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 will first be given in 2003/04
- 2 The 36 credits of electives have the following requirements: a. At least 12 credits of Arts. b. A further nine 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 Agricultural Sciences that have Science credit. c. A further six credits of Arts or Science courses (may include courses listed under MY below). d. Of the 27 credits defined so far, at least nine must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits. e. Twelve credits may be in any faculty.
- 3 Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.

HONOURS (0583): CONSERVATION BIOLOGY (CONS)

Second Year

| | |
|---|--------|
| BIOL 200, 201 | 6 |
| One of BIOL 204, 205 | 4 |
| 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 | 33(34) |

Third and Fourth Years

| | |
|------------------------------|-----|
| BIOL 300, 301 | 6 |
| BIOL 302, 303 | 6 |
| BIOL 334, 336 | 6 |
| BIOL 353 or 351 ³ | 7/3 |
| BIOL 414 or 415 | 3 |
| BIOL 416 | 3 |
| BIOL 447 | 3 |

Third and Fourth Years (Continued)

| | |
|-----------------------------------|------------|
| 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 will first be given in 2003/04.
- 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 350, 351 and 353.
- 4 BIOL 347 is recommended. Consult a Biology adviser 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 |
| BIOL 351 and 352, or 353 ³ | 7 |
| BIOL 336 or 335 | 3 |
| Ecology Electives | 18 |
| Electives ² | 21 |
| Total Credits | 61 |
| Minimum credits for degree | 128 |

- 1 BIOL 240 will first be given in 2003/04.
- 2 The 36 credits of electives have the following requirements: a. At least 12 credits of Arts. b. A further nine 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 Agricultural Sciences that have Science credit. c. A further six credits of Arts or Science courses (may include courses listed under Ecology Electives, p. 368). d. Of the 27 credits defined so far, at least nine must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits. e. Twelve credits may be in any faculty.

- 3 Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.

HONOURS (0045) ECOLOGY AND ENVIRONMENTAL BIOLOGY (ECOL)

Second Year

| | |
|----------------------|----|
| BIOL 200, 201 | 6 |
| One of BIOL 204, 205 | 4 |
| One of BIOL 209, 210 | 4 |
| BIOL 240 | 1 |
| CHEM 233, 235, 205 | 7 |
| Science Electives | 6 |
| Arts Electives | 6 |
| Total Credits | 34 |

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 ¹ | 7 |
| BIOL 414 or 415 | 3 |
| BIOL 447 | 3 |
| BIOL 449 | 6 |
| Ecology Electives | 21 |
| Arts Elective | 6 |
| Electives ² | 12 |
| Total Credits | 73 |
| Minimum credits for degree | 140 |

- 1 Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.
- 2 BIOL 347 is recommended. Consult a Biology adviser before choosing electives.

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 |
| Six (seven) 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 |
| BIOL 334, 336 | 6 |
| BIOL 351 and 352, or 353 ³ | 7 |
| BIOL 414 or 415 | 3 |
| BIOL 447 | 3 |
| BIOL 449 | 6 |
| EOSC 326 | 3 |
| Evolution and Systematics Electives | 21 |
| Arts Elective | 6 |

Third and Fourth Years (Continued)

| | |
|-----------------------------------|------------|
| Electives ⁴ | 6 |
| Total Credits | 73 |
| Minimum credits for degree | 138 |

- ¹ BIOL 240 will first be given in 2003/04.
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 350, 351 and 353.
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 (0572): GENERAL BIOLOGY (GENB)**Second Year**

| | |
|---|-------|
| BIOL 200, 201 | 6 |
| BIOL240 ¹ | 1 |
| Two of BIOL 204, 205, 209, 210, and MICB 202 | 7-8 |
| CHEM 233, 235, 205 | 7 |
| Electives ² | 12 |
| Total Credits | 33-34 |

Third and Fourth Years

| | |
|--|----|
| BIOL 300 | 3 |
| Six credits from BIOL 302, 303 and BIOC 302 | 6 |
| BIOL 334 | 3 |
| BIOL 335 or 336 | 3 |
| BIOL 350 or 351 and 352 or 353 ³ | 7 |
| BIOL courses numbered 300 or above | 12 |
| Electives ² | 27 |
| Total Credits | 61 |

Minimum credits for degree

- ¹ BIOL 240 will first be given in 2003/04
² The 39 credits of electives have the following requirements: a. 12 credits of Arts. b. A further nine 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 Agricultural Sciences that have Science credit. c. A further 12 credits of Arts or Science courses (may include courses from the field of the Major). 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. Twelve credits may be in any faculty.
³ Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.

MAJOR IN CELL BIOLOGY AND GENETICS
 See *Major (0633): Cell Biology and Genetics (CGBI)*, p. 369 for a Majors program.

HONOURS (0415): GENETICS (GENE)**Second Year**

| | |
|---|----|
| BIOL 200, 201 | 6 |
| BIOL 240 ¹ | 1 |
| Eight credits from BIOL 204, 205, 209, 210 | 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 |
| BIOC 303 | 6 |
| BIOL 350 ² | 7 |
| BIOL 447 | 3 |
| BIOL 449 | 6 |
| Genetics Electives | 15 |
| Arts Electives | 6 |
| Electives ³ | 15 |
| Total Credits | 73 |

Minimum credits for degree

- ¹ BIOL 240 will first be given in 2003/04.
² Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.
³ BIOL 347 is recommended. Consult a Biology adviser 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 | 8 |
| CHEM 233, 235, 205 | 7 |
| Electives ² | 12 |
| Total Credits | 34 |

Third and Fourth Years

| | |
|---------------------------------------|------------|
| BIOL 300 | 3 |
| BIOL 302, 303 | 6 |
| BIOL 320 | 3 |
| BIOL 326 | 3 |
| BIOL 334 | 3 |
| BIOL 335 or 336 | 3 |
| BIOL 351 and 352, or 353 ³ | 7 |
| Marine Biology Electives | 12 |
| Electives ² | 21 |
| Total Credits | 61 |
| Minimum credits for degree | 128 |

¹ BIOL 240 will first be given in 2003/04

² The 36 credits of electives have the following requirements: a. At least 12 credits of Arts. b. A further nine 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 Agricultural Sciences that have Science credit. c. A further six credits of Arts or Science courses (may include courses from the Animal Biology Electives list below). d. Of the 27 credits defined so far, at least nine must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits. e. Twelve credits may be in any faculty.

³ Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.

HONOURS (0518): MARINE BIOLOGY (MRNB)**Second Year**

| | |
|-----------------------|----|
| BIOL 200, 201 | 6 |
| BIOL 205, 209 | 8 |
| BIOL 240 ¹ | 1 |
| CHEM 233, 235, 205 | 7 |
| Science Electives | 6 |
| Arts Electives | 6 |
| Total Credits | 34 |

Third and Fourth Years

| | |
|---------------------------------------|----|
| BIOL 300 | 3 |
| BIOL 302, 303 | 6 |
| BIOL 320 | 3 |
| BIOL 326 | 3 |
| BIOL 334 | 3 |
| BIOL 335 or 336 | 3 |
| BIOL 351 and 352, or 353 ² | 7 |
| BIOL 447 | 3 |
| BIOL 449 | 6 |
| Marine Biology Electives ³ | 21 |
| Arts Electives | 6 |
| Electives ⁴ | 9 |
| Total Credits | 73 |

Minimum credits for degree

- ¹ BIOL 240 will first be given in 2003/04.
² Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.
³ At least three credits must be taken at a marine station such as the Bamfield Marine Station. 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 | 8 |

| | |
|--------------------------------|----|
| Second Year (Continued) | |
| CHEM 233, 235, 205 | 7 |
| Electives ² | 12 |
| Total Credits | 34 |

| | |
|-----------------------------------|------------|
| 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 |

- BIOL 240 will first be given in 2003/04.
- The 36 credits of electives have the following requirements: a. At least 12 credits of Arts. b. A further nine 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 Agricultural Sciences that have Science credit. c. A further six credits of Arts or Science courses (may include courses listed under *Plant Biology Electives*, p. 370) d. Of the 27 credits defined so far, nine must be upper-level Arts or Science courses to ensure a program minimum of 48 upper-level credits. e. Twelve credits may be in any faculty. Courses in Plant Science, Forestry and Soil Science may be useful; consult an adviser.
- An equivalent statistics course may be taken with permission of the head of Botany.
- 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 | 8 |
| BIOL 240 ¹ | 1 |
| CHEM 233, 235, 205 | 7 |
| Science Electives ² | 6 |
| Arts Electives | 6 |
| Total Credits | 34 |

| | |
|--------------------------------|---|
| 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 |

| | |
|---|------------|
| Third and Fourth Years (Continued) | |
| BIOL 449 | 6 |
| Plant Biology Electives | 12 |
| Electives ⁵ | 6 |
| Arts Elective | 6 |
| Total Credits | 73 |
| Minimum credits for degree | 140 |

- BIOL 240 will first be given in 2003/04.
- BIOL 204 or 205 is recommended.
- An equivalent statistics course may be taken with permission of the head of Botany.
- Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.
- 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.

HONOURS (1013): APPLIED
PLANT BIOLOGY (APPL)

| | |
|--|--------|
| First Year | |
| ENGL 100-level ¹ | 6 |
| AGSC 210 | 3 |
| BIOL 111 ² | 0-3 |
| BIOL 112 | 3 |
| BIOL 121 | 3 |
| BIOL 140 | 1 |
| 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 | 3 |
| Elective | 3 |
| Total Credits | 36(41) |

| | |
|-----------------------|----|
| Second Year | |
| BIOL 200, 201, 210 | 10 |
| BIOL 240 ⁴ | 1 |
| CHEM 233, 235, 205 | 7 |
| ECON 100 | 6 |
| FRST 100 | 2 |
| SOIL 200, 204 | 6 |
| Elective ⁵ | 3 |
| Total Credits | 35 |

| | |
|----------------------------------|---|
| Third and Fourth Years | |
| AGSC 300 or FRST 351 | 3 |
| BIOL 300 or FRST 231 or PLNT 321 | 3 |
| BIOL 302, 303 | 6 |
| BIOL 324 | 3 |
| BIOL 334 | 3 |
| BIOL 351 ⁶ | 3 |
| BIOL 347 | 3 |
| BIOL 447 | 3 |
| BIOL 449 | 6 |
| PLNT 335 (BIOL 315) | 3 |

| | |
|--|------------|
| Third and Fourth Years (Continued) | |
| Arts electives ⁷ | 6 |
| Science, Agricultural Sciences and Forestry electives ^{7,8} | 24 |
| Electives ⁷ | 6 |
| Total Credits | 72 |
| Minimum credits for degree | 143 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- Students with Biology 12 are not required to take BIOL 111.
- Students without credit for Physics 12 will be required to replace three credits of elective with PHYS 100 prior to PHYS 101.
- BIOL 240 will first be given in 2003/04
- A course in Natural Resources Conservation, Biology, or Arts is suggested.
- Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.
- Enough electives must be in Arts or Science courses numbered 300 or above to ensure a program total of 48 credits. The program must include a total of 72 Science credits. Consult a Biology adviser before choosing electives. At least 12 credits must be in Arts.
- At least 12 credits must be from Agricultural Sciences or Forestry.

SCIENCE, AGRICULTURAL SCIENCES AND FORESTRY ELECTIVES
See the Biology Program Guide
(www.zoology.ubc.ca/bpg/) for the list of program electives.

COMBINED HONOURS (0057) BIOLOGY AND CHEMISTRY HONOURS (BIOL, CHEM)

| | |
|---|--------|
| First Year | |
| ENGL 100-level ¹ | 6 |
| BIOL 111 ² | 0-3 |
| BIOL 112 | 3 |
| BIOL 121 | 3 |
| BIOL 140 | 1 |
| 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 |
| Elective ^{2,3} | 3-0 |
| Total Credits | 36(38) |

| | |
|-----------------------|----|
| Second Year | |
| BIOL 200, 201 | 6 |
| BIOL 240 ⁴ | 1 |
| CHEM 202, 201 | 6 |
| CHEM 203, 204 | 8 |
| CHEM 211 | 3 |
| MATH 200 | 3 |
| MICB 202 | 3 |
| Arts Elective | 6 |
| Total Credits | 36 |

| | |
|-----------------------------|----|
| Third Year | |
| BIOL 334, 335 | 6 |
| BIOL 350 ⁵ | 7 |
| CHEM 312 | 3 |
| CHEM 304, 305 (307) | 6 |
| CHEM 313, 333 | 7 |
| BIOL Electives ⁶ | 3 |
| Arts Elective | 6 |
| Total Credits | 38 |

| | |
|----------------------------------|------------|
| Fourth Year | |
| BIOC 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 | 141 |

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of 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 three 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 will first be given in 2003/04.
- ⁵ Must be taken in third year. Students are not permitted to take more than one of BIOL 350, 351 and 353.
- ⁶ Organismal: three credits from: BIOL 204, 205, 209, 210, 324 and 332.
- ⁷ Biology courses pertaining to organisms suggested.
- ⁸ To be chosen from 400-level CHEM lecture courses.

COMBINED HONOURS IN BIOLOGY AND OCEANOGRAPHY
See *Oceanography*, p. 386.

BOTANY

The Department of Botany 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. 224 in the Graduate Studies section and the Department of Botany's Graduate Brochure, available in the Botany Office.

CHEMISTRY

The Department of Chemistry 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. 225 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. 359 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 qualified 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 résumé 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 *Special Fees*, p. 49 in the chapter Fees of 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
Honours and Major students are required to take CHEM 304, 309, 310, 311 and 312 (CHEM 309 corequisite) prior to CHEM 425. This should be done in third year.

PRIMARILY FOR FOURTH-YEAR STUDENTS
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.

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 |

| Second Year (Continued) | |
|-----------------------------------|------------|
| Electives ^{3,4} | 12 |
| Total Credits | 33 |
| Third and Fourth Years | |
| CHEM 309, 310 ⁵ | 6 |
| CHEM 311 ⁵ | 4 |
| CHEM 304 ⁵ | 3 |
| CHEM 312 ⁵ | 3 |
| CHEM 313 or 330 | 4 |
| CHEM 425 ^{6,7} | 6 |
| CHEM Electives ^{6,7,8} | 6 |
| MATH 221 ⁴ | 3 |
| Electives ³ | 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. Three 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 nine 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 12 elective credits may be taken in any faculty. Possible electives might include Computer Science courses (e.g., CPSC 122, 128, 216) and/or another Science and/or ENGL 301. Students considering entering chemical industry are encouraged to consider CHBE 241, 242, 261. 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 MATH 221 is prerequisite to CHEM 320.

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 one term) for CHEM 425. In this case, nine credits of Chemistry electives are required. With permission, Co-op students may substitute CHEM 449 for CHEM 415 and three credits of Chemistry electives.

⁸ Chosen from 300- and 400- level CHEM courses.

MAJOR: ENVIRONMENTAL OPTION (2995)

| 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 |

| Second Year (Continued) | |
|-----------------------------------|------------|
| 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 309, 310 ⁷ | 6 |
| CHEM 311 ⁷ | 4 |
| CHEM 304 ⁷ | 3 |
| CHEM 312 ⁷ | 3 |
| CHEM 313 or 330 | 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. Three 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 nine 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 12 elective credits may be taken in any faculty.

⁵ Three 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 (e.g., CPSC 122, 128, 216); 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, three credits of Chemistry electives are required. With permission, Co-op students may substitute CHEM 449 for CHEM 415 and three 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) |

| First Year (Continued) | |
|------------------------|--------|
| 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, 221 | 6 |
| Electives ³ | 15 |
| Total Credits | 39 |

| Third Year | |
|---------------------------|----|
| CHEM 304 | 3 |
| CHEM 307 or 305 | 3 |
| CHEM 309, 310 | 6 |
| CHEM 311 | 4 |
| CHEM 312, 320 | 6 |
| CHEM 330 (or 313) and 333 | 7 |
| Electives ³ | 9 |
| Total Credits | 38 |

| Fourth Year | |
|-----------------------------|----|
| CHEM 401 | 3 |
| CHEM 449 | 6 |
| CHEM electives ⁴ | 6 |
| 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. Three 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 (e.g., CPSC 122, 128, 216); and/or another Science; and/or ENGL 301. Students considering entering Chemical Industry are encouraged to consider CHBE 241, 242, 261. Breadth in the choice of electives is encouraged.

⁴ Chosen from 400-level Chemistry courses.

HONOURS: ENVIRONMENTAL OPTION (0677)

| 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 |

| Second Year (Continued) | |
|------------------------------------|----|
| CHEM 211 | 4 |
| MATH 200, 221 | 6 |
| STAT 200 | 3 |
| Earth Science courses ³ | 6 |
| Electives ³ | 6 |
| Total Credits | 39 |

| Third Year | |
|---------------------------|----|
| CHEM 301, 302 | 6 |
| CHEM 304, 307 (305) | 6 |
| CHEM 312, 320 | 6 |
| CHEM 330 (or 313) and 333 | 7 |
| CHEM 309, 310 | 6 |
| CHEM 311 | 4 |
| 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

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- Chosen from BIOL 111, 112, 121, 140, in keeping with prescribed prerequisites.
- 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.
- A total of 18 credits of Arts must be taken. These include first year English, ECON 310/311 or 101/102, and six further credits.
- Twelve 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 (e.g., CPSC 122, 128, 216); and/or ENGL 301.
- Must include at least one 400-level Chemistry course. CHEM 417 is suggested.

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, 203, 204 | 14 |
| 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, 312 | 6 |
| CHEM 310 | 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

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC, or Science credits GEOG or PSYC.
- Electives must include at least 12 credits in the Faculty of Arts.
- Students intending to take CHEM 320 must take MATH 221 as a prerequisite.
- The choice between 307 (305), 320 and 330 (313), 333 will depend on the other subject.
- Must include at least three credits numbered 400 and above.
- This may be substituted by an equivalent thesis course in the other department.

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) |
| 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 |

| Second Year (Continued) | |
|---------------------------|----|
| 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 312, 320 | 6 |
| CHEM 311 | 4 |
| MATH 320, 321 | 6 |
| Nine 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 |
| Twelve credits from MATH 318,400-405, 416-429, 433-440, 449 | 12 |
| Electives ⁴ | 9 |
| Total Credits | 30 |

Minimum credits for degree 138

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- Students with credits for Biology 11 or 12 may substitute 3 credits of ASTR, EOSC, or Science credits GEOG or PSYC.
- CPSC 124/126 is recommended.
- Electives must include 12 credits of Arts.
- 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. 373 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. 364.

Combined Honours in Biology and Chemistry, see *Biology*, p. 366.

Combined Honours in Chemistry and Oceanography, see *Oceanography*, p. 386.

Chemical Physics Combined Honours, see *Physics*, p. 389.

COGNITIVE SYSTEMS

B.Sc. Major in Cognitive Systems, Major in Cognitive Systems: Cognition and Brain, see listing under *Psychology*, p. 393.

COGNITIVE SYSTEMS: COMPUTATIONAL INTELLIGENCE AND DESIGN

B.SC. IN COGNITIVE SYSTEMS:

Computational Intelligence and Design see listing under *Computer Science*, p. 374.

COMPUTER SCIENCE

The department offers opportunities for study leading to bachelor's, master's and doctoral degrees. For information on graduate degrees, see *Computer Science*, p. 229 in the Faculty of Graduate Studies section. All students who intend to take Honours in Computer Science must consult the head of the department.

Enrolment in Computer Science is limited. Students wishing to pursue Major, Minor, Honours, or combined Honours programs in Computer Science must formally apply to the Department of Computer Science. Admission, normally at the end of first year, and continuation are based on academic performance. The application deadline is May 1st. For more information regarding admission and continuation requirements, students are advised to contact 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 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 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 résumé 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 Cooperative Education program fee for each course (see *Special Fees*, p. 49 in the chapter Fees 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.sciencecoop.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.

MAJOR AND HONOURS: 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) |

First Year (Continued)

| | |
|---|--------|
| 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. Three credits of first-year English may be deferred until second year.
- 2 Students who are planning to enroll in the co-op program, should also take CPSC 211 in the first year or in the summer (before the second year).
- 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 | 32 |

Third and Fourth Years

| | |
|---|----|
| CPSC 310, 320, 313 | 9 |
| 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 | 60 |

Minimum credits for degree 125

- 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 three 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, 220, 223 | 9 |
| STAT 200 | 3 |
| Arts Elective | 6 |
| Electives ¹ | 6 |
| Total Credits | 36 |

Third and Fourth Years

| | |
|---|----|
| CPSC 310, 313, 320 | 9 |
| 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 | 69 |

Minimum credits for degree 137

- 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 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 six credits of 100-level PHYS courses) ³ | (8)6 |
| BIOL ⁴ or ASTR or EOSC or Science credit GEOG or PSYC | 3 |
| Total Credits | 36(32) |

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 | 9 |
| MATH 316, 320, 321 | 9 |
| Six credits from MATH 300, 301, 322, 331 | 6 |
| Electives | 9 |
| Total Credits | 36 |

Fourth Year

| | |
|--|----|
| CPSC 420 or 421 | 3 |
| CPSC courses numbered 300 and above | 9 |
| Twelve 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 134

- 1 ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three 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 (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 | 6-8 |
| BIOL or ASTR or EOSC, or Science credit GEOG, or PSYC ³ | 3 |
| Total Credits | 37(33) |

Second Year

| | |
|----------------------------------|----|
| CPSC 211, 213, 221 | 12 |
| MATH 215, 217 ⁴ , 223 | 10 |
| PHYS 200, 203, 206, 209 | 12 |
| Arts Elective | 3 |
| Total Credits | 37 |

Third Year

| | |
|-------------------------------------|----|
| Six credits from CPSC 302, 303, 313 | 6 |
| CPSC 310, 320 | 6 |
| MATH 316 | 3 |
| PHYS 301, 304, 319 | 9 |
| Arts Elective | 6 |
| Elective | 3 |
| Total Credits | 33 |

Fourth Year

| | |
|----------|---|
| PHYS 403 | 3 |
|----------|---|

Third Year (Continued)

| | |
|---|----|
| Nine 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 |

Minimum credits for degree 136

- 1 ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three 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 twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and six 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 three 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.

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: COMPUTER SCIENCE, SOFTWARE ENGINEERING OPTION

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 Year

| | |
|-------------------------|----|
| CPSC 310, 319, 320 | 9 |
| CPSC 304, 311, 313 | 9 |
| CPSC 410, 411, 416, 421 | 12 |

Third and Fourth Year (Continued)

| | |
|---|------------|
| One of CPSC 417, 415, 444, EECE 494 ³ | 3 |
| MATH or STAT courses numbered 300 or above ⁴ | 6 |
| Electives ² | 21 |
| Total Credits | 60 |
| Minimum credits for degree | 125 |

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 three 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 nine 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 nine 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: COMPUTER SCIENCE, SOFTWARE ENGINEERING OPTION

First and Second Year

Same as in the regular Honours program.

Third and Fourth Year

| | |
|---|------------|
| CPSC 310, 319, 320 | 9 |
| CPSC 302 or 303 | 3 |
| CPSC 304, 311, 313 | 9 |
| CPSC 349 ¹ | 0 |
| CPSC 410, 411, 416, 421 | 12 |
| One of CPSC 417, 415, 444, EECE 494 ² | 3 |
| CPSC 449 ³ | 6 |
| MATH 302 | 3 |
| MATH or STAT courses numbered 300 or above ⁴ | 12 |
| Arts Electives | 6 |
| Electives | 6 |
| Total Credits | 69 |
| Minimum credits for degree | 137 |

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. 382 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 | 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 PHYS 107 ⁴) | 3 |
| CHEM 121 ³ (or PHYS 102 or PHYS 108 ⁸) | 3 |
| BIOL ⁵ or ASTR or EOSC or Science credit GEOG or PSYC | 3 |
| Electives ^{6,7,8} | 3 |
| Total Credits | 32(34) |

Second Year

| | |
|--------------------------------------|----|
| COGS 200 | 3 |
| PHIL 220 (or PHIL 320 ⁹) | 3 |
| CPSC 211, 221 | 8 |
| Arts Electives | 6 |
| Electives ^{6,7,8,10} | 12 |
| Total Credits | 32 |

Third and Fourth Years

| | |
|---|--------|
| COGS 400 | 6 |
| PHIL 451 | 3 |
| CPSC 312, 322 | 6 |
| Arts Electives | 6 |
| At least 9 credits from: PSYC 304, 333, 365, 367, 465; PHIL 320, 321, 323, 324, 420; LING 300, 301, 316, 317, 427 | 9 |
| At least 9 credits from: CPSC 213, 304, 310, 313, 319, 320, 404, 405, 410, 414, 420, 421, 422, 430, 444 | 9 |
| Electives ^{7,8,9,10} | 21 |
| Total Credits | 60(61) |

Minimum Credits for degree 124

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.

² Students without credit for Physics 12 must complete PHYS 100 in addition.

³ Students without credit for Chemistry 12 must complete CHEM 111 in addition to CHEM 113 or PHYS 102 (or PHYS 122). These students may delay 3 credits of CHEM or PHYS until second year.

⁴ Students who choose to take PHYS 107 and/or PHYS 108 need to take PHYS 109 or other lab courses to complete the Laboratory Science requirements.

⁵ Students without credit in Biology 11 or Biology 12 must take 3 credits of 100-level biology.

⁶ Students anticipating Cognitive Systems should choose electives carefully to provide prerequisites to appropriate third- and fourth-year level courses. Students planning to enrol in upper-level PSYC courses must complete either PSYC 100 or both PSYC 101 and PSYC 102.

⁷ B.Sc. requires 72 credits Science courses.

⁸ A Cognitive Systems major must select nine credits of electives outside their field of major, that is, outside of CPSC, LING, PHIL, or PSYC.

⁹ The prerequisite PHIL 220 may be waived for PHIL 320 with the consent of the instructor.

¹⁰ 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.

EARTH AND OCEAN SCIENCES

The Department of Earth and Ocean Sciences concerns itself with Earth history and the structure and properties of the Earth, from core to atmosphere. It is a new Department 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 but do not intend to pursue a professional career in geological sciences, geophysics or oceanography. For details of the programs available see *Atmospheric Science*, p. 364, *Geological Sciences*, p. 379, *Geophysics*, p. 380 and *Oceanography*, p. 386.

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 Head, Department of Earth and Ocean Sciences, 604-822-3146.

MAJOR: EARTH AND OCEAN SCIENCE

First Year

| | |
|---|---------------|
| ENGL 100-level ¹ | 6 |
| PHYS 101 ² | 3 |
| CHEM 121, 123 (111, 113) | 8 |
| EOSC 110 and 112 ³ | 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) |
| Elective ⁴ | 3 |
| Total Credits | 34(36) |

Second Year

| | |
|--|----|
| EOSC or ATSC courses numbered 200 or above | 12 |
| Electives ⁵ | 18 |
| Total Credits | 30 |

Third and Fourth Years

| | |
|--|----|
| EOSC or ATSC courses numbered 300 or above | 30 |
| Electives ⁵ | 30 |
| Total Credits | 60 |

Minimum credits for degree⁶ 124

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 take PHYS 100. Such students please see PHYS advisor.

³ One of these 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 The 54 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). Twelve credits may be in any Faculty.
- 6 Note that 48 of the 124 credits must be 300-level or above.

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).

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 (121) | 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 |

Third and Fourth Years

| | |
|------------------------------------|-----|
| GEOG 205 | 3 |
| MATH 200 | 3 |
| STAT 200 or BIOL 300 ⁹ | 3 |
| Electives ^{5,10} | 30 |
| Area of Concentration ⁷ | 15 |
| Total Credits | 60 |
| Minimum Credits for Degree | 123 |

¹ Students eligible to enrol in Science One (21 credits) are encouraged to do so. Science One will satisfy first-year requirements in Biology, Chemistry, Mathematics and Physics. Students in Science One must also include three credits of English and a three-credit elective in first year.

² ENGL 112 is recommended. Qualified students are encouraged to consider 120 and/or 121. Three credits of English may be deferred until second year.

³ 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 three-credit elective. One of EOSC 110, 120, 150 or GEOG 102, 103 is recommended.

⁴ Students without Physics 12 must replace 3 credits of electives with PHYS 100 before taking 101.

⁵ 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.

⁶ Students interested in the Computer Modelling concentration should take CPSC 124 no later than in second year. Students interested in the Life Sciences concentration should consider one of BIOL 204, 205, 209 or 210 in second year.

⁷ See *Areas of Concentration*, p. 377 below.

⁸ Must be taken before ENVR 449 (see footnote 10)

⁹ 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 fulfill an upper-level credit requirement.

¹⁰ 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 (121) | 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 |

Second Year

| | |
|----------------------------|----|
| ENVR 200 | 3 |
| Electives ^{5,6,7} | 17 |
| Total Credits | 35 |

Third and Fourth Years

| | |
|------------------------------------|-----|
| CHEM 301 | 3 |
| ENVR 300 ⁸ | 3 |
| 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 | 134 |

¹ Students eligible to enrol in Science One (21 Credits) are encouraged to do so. Science One will satisfy first-year requirements in Biology, Chemistry, Mathematics and Physics. Students in Science One must also include a three-credit elective in first year.

² ENGL 112 is recommended. Qualified students are encouraged to consider 120 and/or 121. Three credits of English may be deferred until second year.

³ 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 three-credit elective. One of EOSC 110, 120, 150 or GEOG 102, 103 is recommended.

⁴ Students without Physics 12 must replace 3 credits of electives with PHYS 100 before taking 101.

⁵ Electives must be chosen so that along with required courses, the program minimum total of 134 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.

⁶ Students interested in the Computer Modelling concentration should take CPSC 124 no later than in second year. Students interested in the Life Sciences concentration should consider one of BIOL 204, 205, 209 or 210 in second year.

⁷ See *Areas of Concentration* below.

⁸ Must be taken before ENVR 449.

⁹ Must be taken in fourth year.

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 fulfill an upper-level credit requirement.

MAJOR OR HONOURS: AREAS OF CONCENTRATION

Students must select one of the following AOCs. A minimum 15 science credits must be taken from the AOC. 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.

- 1 Chemical analysis of the environment: CHEM 301, 302; EOSC 220, 327, 430. The field includes courses in Chemistry, and Earth and Ocean Sciences.
- 2 Physical analysis of the environment: EOSC 250, 350; GEOG 300, 370. The field includes courses in Earth and Ocean Sciences and courses in Geography that have Science credit.
- 3 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.
- 4 Life Sciences: Systematics: One of BIOL 204, 205, 209 or 210. The field includes courses in Biology, and Microbiology and Immunology.
- 5 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.
- 6 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.
- 7 Computer Modelling: CPSC 124, 126, 216, 405; 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

- 1 Chemistry (CHEM 0081);
- 2 Earth Science (Atmospheric Science, Geography courses for Science credit, Earth and Ocean Science except the following courses: EOSC 310, 311, 312, 314, 315, 371, 470, 471, 474, 475, 478)(ERSC 0225);
- 3 Life Science (ANAT 390, 391; Biochemistry, Biology, Marine Science, Medical Genetics, Microbiology, Pharmacology, Physiology, Psychology courses for Science credit and the following Oceanography courses: EOSC 371, 470, 471, 474, 475, 478) (LFSC 0440);
- 4 Mathematical Science (Computer Science, Mathematics, Statistics) (MASC 0029); and
- 5 Physics and Astronomy (PHYS 0271).

For first-year requirements for entry into the General Science program, see *Lower-Level Requirements*, p. 358 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. 361 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 six 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 offers opportunities for study leading to bachelor's, master's and doctoral degrees. For information on the Bachelor of Arts, see *Geography*, p. 138 under the Bachelor of Arts in the Faculty of Arts section. For information on graduate degrees, see *Geography*, p. 237 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 registered in the Bachelor of Science Geography program must take at least six 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.

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 | 4 |
| Total Credits | 30(32) |

Second Year

| | |
|---------------------------|----|
| CPSC 100-level | 3 |
| GEOG 200, 205, 207 | 9 |
| One of GEOG 121, 122, 290 | 3 |
| MATH 200, STAT 200 | 6 |
| Science Electives | 6 |
| Arts Elective | 3 |
| Total Credits | 30 |

Third Year

| | |
|---------------------------------------|----|
| GEOG 300, 306, 309 ⁵ , 310 | 12 |
| GEOG 372 or 373 | 3 |
| SOIL 200 or EOSC 370 | 3 |
| Arts Elective ⁶ | 6 |
| Electives ⁶ | 6 |
| Total Credits | 30 |

Fourth Year

| | |
|---|------------|
| Two of GEOG 308, 404, 405, 406, 408, EOSC 329 | 6 |
| Two of ATSC 301, 303, GEOG 304, 401, 402 | 6 |
| Two of GEOG 311, 312, 315, 316, 317, 318, 410 | 6 |
| Electives ⁶ | 12 |
| Total Credits | 30 |
| Minimum credits for degree | 120 |

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three 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.
- ⁴ PHYS 102 (108) recommended. Students who take PHYS 107 and 108 should strongly consider PHYS 109. Students without BIOL 11 or 12 must take three credits of Biology.
- ⁵ Field Course taken in May; extra fee to be paid.
- ⁶ 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 nine credits must be outside the field of Major, the field of Major comprising all courses in Geography.

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, 251 | 6 |
| GEOG 205 | 3 |

| | |
|--------------------------------|--------|
| Second Year (Continued) | |
| MATH 200, 221 | 6 |
| Arts Electives | 6 |
| Total Credits | 30(32) |

| | |
|-----------------------------|--------|
| 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 470 | 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 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- Special arrangements may be made for students unable to take this course in first year.
- Students without Physics 12 must take PHYS 100 prior to PHYS 101 or 107.
- 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.
- Field Course taken in May; extra fee to be paid.
- ENGL 301 is recommended.
- 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 or GEOG 103 ³ | 3(4) |
| Science electives ⁴ | 4 |
| Total Credits | 30(33) |

| | |
|--------------------------------------|----|
| Second Year | |
| EOSC 220, 221, 222, 223 ⁵ | 12 |
| GEOG 200, 205 | 6 |
| MATH 200, 221 | 6 |
| STAT 200 | 3 |
| Electives | 9 |
| Total Credits | 36 |

| | |
|----------------------------|----|
| Third Year | |
| EOSC 330 or GEOG 306 | 3 |
| EOSC 323, 329, 350 | 11 |
| GEOG 308 | 3 |
| GEOG 309 ⁵ | 3 |
| GEOG 373 or 470 | 3 |
| MATH 215 | 3 |
| Arts Elective ⁶ | 6 |
| Elective ⁶ | 4 |
| Total Credits | 36 |

| | |
|-----------------------------------|------------|
| Fourth Year | |
| Two of: GEOG 404, 405, 406, 408 | 6 |
| GEOG 449 or EOSC 449 | 6 |
| EOSC 320, 434 | 6 |
| Arts Elective ⁶ | 6 |
| Elective ⁶ | 6 |
| Total Credits | 30 |
| Minimum credits for degree | 132 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- Students without Physics 12 must take PHYS 100 prior to PHYS 101 or 107.
- Special arrangements may be made for students unable to take this course in first year.
- PHYS 102 (108) recommended. Students who take PHYS 108 should strongly consider PHYS 109. Students without BIOL 11 or 12 must take 3 credits of Biology.
- Field Course taken in May; extra fee to be paid.
- Electives in the second, third and fourth years combined must include at least nine credits of courses numbered 300 or above. Students should consult the course guides available from the Departments of Geography and Earth and Ocean Sciences.

GEOLOGICAL SCIENCES

The department of Earth and Ocean Sciences offers two undergraduate programs in Geology: Bachelor of Science with Honours and Bachelor of Applied Science. For information on graduate degrees, see *Earth and Ocean Sciences*, p. 231 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 Major program in Earth and Ocean Sciences 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. 105 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:

- environmental geology;
- sedimentary geology and geobiology;
- crustal and mantle processes; and
- mineral deposits.

Students should consult the Geological Sciences Program Guide (available from the Geological 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 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 at: www.sciencecoop.ubc.ca

HONOURS (0462): GEOLOGICAL SCIENCES

| | |
|---|--------|
| First Year | |
| ENGL 100-level ¹ | 6 |
| CHEM 121, 123 (111, 113) | 8 |
| CPSC 100-level | 3(4) |
| EOSC 110 | 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, 108, 109 (101, 102) ² | 8(6) |
| Total Credits | 33(38) |

| | |
|--------------------------------------|----|
| Second Year | |
| CHEM 202, 205 | 6 |
| EOSC 220, 221, 222, 223 ³ | 12 |
| MATH 200 | 3 |
| MATH 221 or STAT 200 | 3 |
| Arts Elective | 6 |
| Electives ⁴ | 6 |
| Total Credits | 36 |

| | |
|---|------|
| Third and Fourth Years | |
| Two of EOSC 320, 321, 322 | 6 |
| EOSC 323, 327, 328 ⁵ , 330, 332, 449 | 22 |
| EOSC 250 or 350 | 3(4) |
| Arts Electives | 6 |
| Electives ⁶ | 30 |

Third and Fourth Years (Continued)

Total Credits 67(68)

Minimum credits for degree 136

- 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 take PHYS 100. Such students please see PHYS advisor. 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 12 elective credits must be from Geology courses numbered 300 or above; at least 12 elective credits must be Science other than Geology. At least 48 total credits must be numbered 300 or above.

COMBINED HONOURS(0065)

GEOLOGY AND GEOPHYSICS (GEOL, GEOP)

First Year

| | |
|---|--------|
| ENGL 100-level ^{1, 2} | 6 |
| CHEM 121, 123 (111, 113) | 8 |
| CPSC 100-level | 3(4) |
| EOSC 110 | 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, 108, 109 (101,102) ³ | 8(6) |
| Total Credits | 33(38) |

Second Year

| | |
|-----------------------------------|----|
| EOSC 220, 221, 222, 250, 251, 252 | 18 |
| MATH 200, 221, 215 | 9 |
| PHYS 209 | 3 |
| Elective ² | 3 |
| Total Credits | 33 |

Third Year

| | |
|--|----|
| One of EOSC 321, 322 | 3 |
| EOSC 323, 330, 352, 353 ⁴ , 354 | 17 |
| MATH 316, 317 | 6 |
| PHYS 301 or 311, 309 or 319 | 6 |
| Arts Elective | 6 |
| Total Credits | 38 |

Fourth Year

| | |
|--|----|
| EOSC 332, 450, 451 ⁴ , 452 ⁴ , 453 | 15 |
| EOSC 449 | 6 |
| Electives | 9 |
| Arts Elective | 3 |
| Total Credits | 33 |

Minimum credits for degree 137

- 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 Biology 11 or 12 must take 3 credits of 100-level BIOL.
- ³ Students without Physics 12 must take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.

- 109.
- ⁴ EOSC 353, 451 and 452 are offered only in alternate years. Students entering third year should consult a program advisor. One of EOSC 451 and 452 must be taken in third year.

COMBINED HONOURS IN GEOLOGY AND ANOTHER SUBJECT

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 ANOTHER SUBJECT (GEOL)

First Year

| | |
|---|--------|
| ENGL 100-level ^{1, 2} | 6 |
| CHEM 121, 123 (111, 113) | 8 |
| CPSC 100-level | 3(4) |
| EOSC 110 | 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, 108, 109 (101, 102) ³ | 8(6) |
| Total Credits ² | 33(38) |

Second Year

| | |
|--|----|
| EOSC 220, 221, 222, 223 | 12 |
| MATH 200 | 3 |
| MATH 221 or STAT 200 | 3 |
| Additional credits in consultation with other department | 12 |
| Total Credits | 30 |

Third Year

| | |
|--|----|
| Geology credits numbered 300 and above ⁴ | 12 |
| Additional credits in other department | 12 |
| Additional credits in consultation with other department | 6 |
| Arts Elective | 6 |
| Total Credits | 36 |

Fourth Year

| | |
|--|----|
| EOSC 449 or other department 449 | 6 |
| EOSC 328 | 3 |
| Geology courses numbered 300 and above | 9 |
| Additional credits in other department | 12 |
| Arts Elective | 6 |
| Total Credits | 36 |

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 Biology 11 or 12 must take 3 credits of 100-level BIOL.
- ³ Students without Physics 12 must take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.
- ⁴ EOSC courses numbered 320 to 329, 330 to 339, 340 to 349.

OTHER COMBINED

HONOURS PROGRAMS

Combined Honours in Geology and Geography, see *Geography*, p. 378.

Combined Honours in Geology and Oceanography, see *Oceanography*, p. 386.

GEOPHYSICS

The department of Earth and Ocean Sciences offers Honours and Combined Honours programs in geophysics; for details see *Geophysics*, p. 380. The major program in Earth and Ocean Sciences is available for students who have a broad interest in the Earth Sciences as it related 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 *Earth and Ocean Science*, p. 231 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 at: www.sciencecoop.ubc.ca

HONOURS PROGRAM

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, (111, 113) | 8 |
| EOSC 110 | 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, 108, 109, (101, 102) ² | 8(6) |
| Elective ³ | 3 |
| Total Credits | 33(37) |

Second Year

| | |
|--------------------|------|
| CPSC 122 or 152 | 3(4) |
| MATH 200, 221, 215 | 9 |

| | |
|-----------------------------------|------------|
| Second Year | |
| PHYS 203, 209 | 6 |
| Electives ⁴ | 18 |
| Total Credits | 36(37) |
| Third and Fourth Years | |
| EOSC 453 | 3 |
| EOSC 352, 353, 354 | 11 |
| EOSC 449 ⁵ | 6 |
| MATH 317 | 3 |
| MATH 316 (PHYS 312) | 3 |
| PHYS 301, 309 | 7 |
| Electives ⁴ | 35 |
| Total Credits | 68 |
| Minimum credits for degree | 137 |

- 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.
- Students without Physics 12 must take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.
- Students without Biology 11 or 12 must take 100-level Biology.
- The electives of second year to fourth year must contain 12 credits of Arts and six credits of Geology. The remaining electives must form a coherent program to be approved by the departmental undergraduate committee. Sample programs in which the emphasis of the electives varies (e.g., geology, solid earth geophysics, astronomy, oceanography) are available from the department.
- Or equivalent.

OTHER COMBINED HONOURS PROGRAMS

Combined Honours in Geology and Geophysics, see *Geological Sciences*, p. 379.

Combined Honours program in Geophysics and Oceanography, see *Oceanography*, p. 386.

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 a professional degree program such as journalism, law, education, M.B.A. programs, the health sciences, or some graduate programs. Admission to graduate studies in certain fields may require additional qualifying studies. Students considering graduate studies 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.

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. 359 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; and
- past academic performance and successful completion of the key prerequisites in the chosen Area of Concentration.

APPLICATION

Students must complete a preliminary application and seek advice from a member of the ISP board of admissions before submitting a formal application. Students may submit applications at any time during the year, but the ISP board of admissions will meet only twice yearly to select applicants to be admitted to the program. Application deadlines are May 20 for admission by late June and November 30 for admission by mid-December. Students interested in taking summer courses in preparation for the ISP are encouraged to apply before February 1. In these cases, admission to the program will be granted on a conditional basis only.

Normally, the proposed courses will contain a cluster of at least 18 credits of 300- or 400-level courses from one of the Areas of Concentration defined below. 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 board of admissions. Students should make an application for change using a standard form stating the proposed changes and a rationale.

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 independence, 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, 303-6356 Agricultural Road, The University of British Columbia, Vancouver, BC, V6T 1Z4, or from the ISP website www.science.ubc.ca/~isp.

GRADUATION REQUIREMENTS

The Faculty graduation requirements as stated under *Graduation Requirements*, p. 357 under Bachelor of Science, Degree Requirements apply, with the exception of the breadth requirement. The required credits in the Area of Concentration and the Integration courses described below fulfil part of the minimum upper-level credit requirement:

1 Eighteen credits in an Area of Concentration. Each ISP student must complete a minimum of 18 credits of 300- or 400-level courses in one of the four Areas of Concentration listed below. Students who choose to integrate entirely within their Area of Concentration may declare that concentration. Alternatively, well rationalized combinations of courses that cross Areas of Concentration are acceptable and encouraged; students integrating across concentrations should select the ISCI Major (1039). The recognized Areas of Concentration are the following:

- Earth and Ocean Sciences: Atmospheric Science, Earth and Ocean Sciences, Geography, Geology, Geophysics, Oceanography (ISEO 1040)
- Mathematical Sciences: Mathematics, Statistics, Computer Science (ISMS 1041)
- Natural Sciences: Chemistry, Physics and Astronomy (ISNS 1042)
- Life Sciences: Biochemistry and Molecular Biology, Biology, Human Nutrition, Microbiology and Immunology, Pharmacology and Therapeutics, Physiology, Psychology (ISLS 1043)

2 Nine credits of Integration Courses (ISCI).

The ISP offers special interdepartmental 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. 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.

3 Students in the ISP 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.

OPTIONS

Options within the ISP include the following:

- Directed studies in the ISP. This 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 18 credits in a student's Area of Concentration or towards the 9 credits of Integration Courses.
- Minor. Students may, with the approval of an ISP advisor, undertake an optional Minor program in Arts or in Commerce in conjunction with the ISP.

MATHEMATICS

The Mathematics Department 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. 144 in the Faculty of Arts section. For information on graduate degrees, see *Mathematics*, p. 248 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.

A student wishing to enter a 300-level course must have obtained a grade of 51% or better in all prerequisite 200-level courses.

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 |

First Year (Continued)

| | |
|--|-------|
| Laboratory requirement ⁶ | 0-2 |
| BIOL, ASTR, EOSC, GEOG, or PSYC ⁵ | 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. Three 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. 23.

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. 358.

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, including 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:

- Mathematically able students are encouraged to take the honours stream MATH 120, 121, 223, 226 and 227.

- There are several courses on numerical analysis taught in the Computer Science Department which may be of interest to Mathematics majors: CPSC 302, 303, 402, 403. These require completion of CPSC 111, 122, 126, or 128. Other higher level Computer Science courses, which may also be of interest to Mathematics students, require completion of CPSC 111 or 124/126 or 122/128.

- 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.

- 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.

- Students interested in combining Computer Science, Mathematics and Statistics should consider the Mathematical Sciences program offered jointly with the Departments of Computer Science and Statistics.

- Major students should consider taking some of MATH 300, 320, 322.

- MATH 302 and MATH 307 are courses which are useful in many areas of mathematics.

- 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.

- Students interested in teaching are advised to take MATH 308, 309, 312, 313, 414, 446.

- 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.

- Students interested in the physical sciences should take MATH 317 which is important for MATH 300, 316.

- 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.

- 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 | 32-36 |

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 |

Minimum credits for degree 125

- ¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three 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. 23.
- 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. 358.
- 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 ^{5,4} | 0-4 |
| CPSC 111/211 or CPSC 111/MATH 210 ⁷ | 7-8 |
| Laboratory Requirement ⁶ | 0-2 |
| BIOL, ASTR, EOSC, GEOG, or PSYC ⁸ | 3 |
| Elective(s) ^{9,10} | 0-6 |
| Total Credits ¹¹ | 31-36 |

Second Year

| | |
|---|----|
| ECON 206, 207 | 6 |
| MATH 200 (or 226), 215, 220, 221 (or 223) | 12 |
| Electives ^{9,10} | 12 |
| Total Credits | 30 |
| Third and Fourth Years | |
| ECON 306, 325 ¹² , 326 | 9 |
| MATH 320 | 3 |
| Economics courses numbered 300 or above | 6 |
| Economics courses number 400 or above | 3 |
| Mathematics 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. Three credits of first-year English may be deferred until second year.
- ² This requirement can also be satisfied by taking ECON 307 and three additional credits of Economics numbered 300 or above.
- ³ See *UBC-SFU-UVIC-UNBC Calculus Examination Certificate*, p. 23.
- 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. 358.
- 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 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.
- ¹⁰ Breadth Requirement 2: 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, including credits applied to Breadth Requirement 1 (see note for Breadth Requirement 1) 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.

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 six credits of 100-level MATH courses. To remain in Honours Mathematics, a student must maintain an overall 68% average. Faculty regulations require each Honours student to 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 Credits ⁷ | 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 Credits ⁷ | 36 |

| | |
|--|----|
| Third and Fourth Years | |
| MATH 300, 320, 321, 322 ¹¹ | 12 |
| MATH 412 or 422 ¹¹ | 3 |
| Fifteen credits ¹¹ from MATH 400-405, 412, 416-429, 433-440, 443, 449 ¹² | 15 |
| Mathematics courses numbered 300 or above | 9 |
| Science courses numbered 300 or above ¹³ | 12 |
| Arts Elective | 6 |
| Electives | 9 |
| Total Credits ⁷ | 66 |

Minimum credits for degree 132

- 1 ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three 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. 358.
- 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 WITH ANOTHER SUBJECT

| | |
|------------------------------|--|
| First Year | |
| Same as Mathematics Honours. | |
| Second Year | |
| Same as Mathematics Honours. | |

| | |
|--|----|
| Third and Fourth Years | |
| MATH 320, 321 ¹ | 6 |
| Nine credits ¹ from MATH 300, 301, 316, 322, 331 | 9 |
| Twelve 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 offers opportunities for study leading to doctoral, master's and bachelor's degrees. For information on graduate degrees, see *Microbiology and Immunology*, p. 249 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 Honours programs require a sustained, annual academic average above 75% in second, third and fourth year of the program.

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 résumé 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 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)

HONOURS IN BIOTECHNOLOGY

The Department of Microbiology and Immunology at the University of British Columbia and the Biotechnology Program at the British Columbia Institute of Technology 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. Applications and detailed information are 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 Technology Program, 3700 Willingdon Avenue, Burnaby, BC, V5G 3H2; telephone 604-432-8324. The deadline for applications is 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 BCIT) include two four-month work terms along with academic and technical studies. The fourth and fifth years (taken at UBC) include two four-month work terms and advanced studies. Maintenance of an average of 75% in second and subsequent years is required to continue in the program. 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 required average in their fourth or fifth year could ask to have their BCIT courses evaluated on a course-by-course basis for potential UBC credit.

MAJOR (1153): MICROBIOLOGY AND IMMUNOLOGY

| | |
|--|--------|
| First Year | |
| BIOL 112 | 3 |
| BIOL 121, 140 ¹ | 4 |
| 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 | 3(6) |
| Electives ^{4,5} | 3(0) |
| Total Credits ^{5,6} | 33(35) |

| | |
|---|--------|
| Second Year | |
| BIOL 200, 201 | 6 |
| BIOL 240 or MICB 203 ⁶ | 1 |
| CHEM 205, 233, 235 (231, 232, or 203, 204) ⁷ | 7(8) |
| MICB 202 | 3 |
| Electives ⁵ | 15 |
| Total Credits ^{5,6} | 31(33) |

| | |
|-------------------------------|----|
| Third Year⁸ | |
| BIOL 335 | 3 |
| MICB 300, 302, 322, 323 | 12 |

| | |
|--|----|
| Third or Fourth Year⁸ | |
| BIOC 302 ⁹ | 3 |
| MICB 324 ¹⁰ | 3 |
| Additional MICB selections. | 9 |
| Another MICB selection or a selection from BIOC 402, 403, 410; BIOL 315, 316, 334, 421; MEDG 421; EOCS 475 | 3 |
| Electives ⁵ | 21 |

| | |
|--------------------------------|---|
| Fourth Year⁸ | |
| MICB 401 | 3 |
| MICB 421 | 3 |

Minimum credits for degree^{6,8} 124

¹ 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 as a prerequisite to BIOL 121.

² ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.

³ 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.

⁴ Students require six 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 three credits of PHYS until any time before they graduate. This second PHYS may be taken at any level.

⁵ The 36 elective credits in the program must include: (a) At least 9 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 six credits of first year English) (c) At least nine 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 three credits of either CPSC or additional MATH or STAT or BIOL 300 to meet the Faculty requirement for a program total of at least nine credits of computational credits.

⁶ Students that take the second year program after August 2003 will require BIOL 240 or MICB 203. At that time the minimum credits for the degree will rise to 125. Students completing the second year courses before August 2003 do not require BIOL 240 or MICB 203.

⁷ CHEM 201 may be substituted for CHEM 205. CHEM 203 and 204 are required in all Biochemistry and Chemistry programs so enrollment is limited. However, these courses are prerequisites to most upper-level organic CHEM courses essential for a minor including organic chemistry.

⁸ The minimum total program requirement is 124 credits (see footnote 6). The normal course load for the program is 30 credits in each Winter session of third or fourth year.

⁹ BIOC 303 may be substituted for BIOC 302 by using three credits of elective space.

¹⁰ 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

First and Second Years
Same as for Major.¹ 64(68)

| | |
|-------------------------------|----|
| Third Year¹ | |
| BIOL 335 | 3 |
| MICB 300, 302, 322, 323 | 12 |

| | |
|---|----|
| Third or Fourth Year¹ | |
| BIOC 302 ² | 3 |
| MICB 324 ³ | 3 |
| Additional MICB | 12 |
| Another MICB courses or selections from BIOC 402, 403, 410; BIOL 315, 316, 334, 421; MEDG 421; EOCS 475 | 3 |
| Electives ⁴ | 21 |

| | |
|---|----|
| Fourth Year¹ | |
| At least one of MICB 404, 406, 410 or 412 | 3 |
| MICB 401, 421, 430, 449 | 15 |

Minimum credits for degree¹ 136

¹ The minimum total of 136 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 three 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. Students that take the second year program after August 2003 will require BIOL 240 or MICB 203. At that time the minimum credits for the degree will rise to 137. Students completing the second year courses before August 2003 do not require BIOL 240 or MICB 203.

² BIOC 303 may be substituted for BIOC 302 by using three credits of elective space.

³ 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.

⁴ 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 six 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.

HONOURS (1136): BIOTECHNOLOGY

| | |
|--|--------|
| First year | |
| ENGL 100-level ² | 6 |
| BIOL 111 or 112 ³ | 3 |
| BIOL 121, 140 ^{1,3} | 4 |
| 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 | 6 |
| CHEM 121, (or 111) ^{1,4} | 4 |
| CHEM 123 (or 113) ^{1,4} | 4 |
| Total Credits ¹ | 33(35) |

Second Year and Third Year at BCIT

| | |
|--|----|
| Introduction to Biotechnology 1 and 2 | |
| Microbiology for Biotechnology 1 and 2 | |
| Principles of Physiology | |
| Communication for Biotechnology 1 and 2 | |
| Organic Chemistry 1 and 2 | |
| Computer Applications in Bio-technology | |
| Cell Biology | |
| Statistics | |
| Biochemistry 1 and 2 | |
| Molecular Genetics 1 and 2 | |
| Advanced Plant Cell Biotechnology | |
| Process Systems 1 and 2 | |
| Analytical Chemistry 1 and 2 | |
| Introduction to Pharmaceutical Development | |
| Advanced Animal Cell Biotechnology | |
| Advanced Microbiology | |
| Advanced Communication | |
| Management and Regulatory Affairs | |
| Co-op Work Terms I and II | |
| Total Credits | 48 |

Fourth and Fifth Year^{5,6}

| | |
|--------------------------------------|----|
| MICB 306 or 402 or 403 | 6 |
| MICB 409 or BIOC 410 | 3 |
| MICB 404 or 406 or 412 or 430 | 3 |
| MICB 405, 419, 447 | 9 |
| MICB 418, or BIOC 435 | 3 |
| BIOC 402, 403 | 6 |
| COMM 457, 465 | 6 |
| MICB 398, 399, 498, 499 ⁶ | 6 |
| Electives | 18 |
| Total Credits ⁶ | 54 |

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 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.

² ENGL 112 is recommended.

³ Applicants from other universities and colleges may substitute six credits of introductory chemis-

try courses that include labs for the combination of BIOL 112, 121 and 140.

- 4 Applicants from other universities and colleges may substitute six credits of introductory chemistry courses that include labs for the combination of CHEM 113, 123 or 111, 121.
- 5 Some courses only fit particular timetables. Plan schedules to have a maximum of 18 credits in a term.
- 6 The credits for the work terms are not included in the number of academic credits needed for the degree. Students must take the required final two work terms in the Winter term of fourth year, the summer after fourth year or the Fall term of Fifth year so that the program ends with a final study term.

OCEANOGRAPHY

The department of Earth and Ocean Sciences offers Combined Honour degrees in Oceanography and Biology, Oceanography and Chemistry, Oceanography and Geology, Oceanography and Geophysics, Oceanography and Physics and Fisheries Oceanography. The Major program in Earth and Ocean is available for students who have a broad interest in the 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. For information on graduate degrees, see *Earth and Ocean Sciences*, p. 231 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 170, 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/proginfo/eos-conversion.html#ocgy).

COMBINED HONOURS (0535)

OCEANOGRAPHY AND BIOLOGY(OCGY, BIOL)

First Year

| | |
|-----------------------------|---|
| ENGL 100-level ¹ | 6 |
| BIOL 112 ² | 3 |

First Year (Continued)

| | |
|---|--------|
| BIOL 121, 140 ² | 4 |
| 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 107, 108, 109 (101, 102) ^{3,4} | 8(6) |
| Total Credits | 33(37) |

Second Year

| | |
|--------------------------------------|--------|
| BIOL 200, 201 | 6 |
| CHEM 233, 235 (231, 232 or 203, 204) | 4(6) |
| Science Electives ^{4, 5} | 18 |
| Arts Elective | 6 |
| Total Credits | 34(36) |

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 | 6 |
| Additional Science Electives ^{8,9} | 9 |
| Total Credits | 66 |
| Minimum credits for degree | 133 |

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 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 take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.

4 Choose three credits from EOSC 110; CPSC 122, 124 or GEOG 103, and choose 12 to 15 additional credits from BIOL 204, 205, 209, 210; CHEM 201, 202, 205, CPSC 126, MATH 200, 317, MICB 202, PSYC 260. These choices must include at least six credits of courses on organisms, e.g. BIOL 204, 205, 209, 210 or MICB 202 (3). Additional EOSC courses may be taken as electives in third and fourth years. Three 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 these courses be taken in third year.

7 If BIOL 449 is taken, an additional six credits of EOSC courses must be chosen as part of the upper level science electives.

8 EOSC 110; CPSC 124 and 126 (or CPSC 122); or GEOG 103, and 12 to 15 additional credits chosen from BIOL 112, 204, 205, 209, 210; CHEM 205 (201 and 202); MATH 200, 317; MICB 202; PSYC 260; to include at least six credits of courses on organisms, e.g., BIOL 209(3) and BIOL 205(3) or BIOL 112(3) and 202 (3).

9 If BIOL 449 is taken, an additional six credits of Oceanography courses are required as part of the science electives.

COMBINED HONOURS (0577)

FISHERIES OCEANOGRAPHY

First Year

| | |
|---|--------|
| ENGL 100-level ¹ | 6 |
| BIOL 112 ² | 3 |
| BIOL 121, 140 ² | 4 |
| 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 107, 108, 109 (101, 102) ^{3,4} | 8(6) |
| Total Credits | 33(37) |

Second Year

| | |
|----------------------------------|----|
| BIOL 200, 201 | 6 |
| BIOL 204, 205 | 6 |
| CHEM 231, 232 | 4 |
| Science Electives ^{4,5} | 12 |
| Arts Electives | 6 |
| Total Credits | 34 |

Third and Fourth Years

| | |
|--|----|
| BIOL 300, 301, 303, 408, 426 | 21 |
| ECON 101 | 6 |
| EOSC 370, 371, 470, 472, 474, 476, 478 | 21 |
| EOSC 449 | 6 |
| LAW 356 | 3 |
| Arts electives | 6 |
| Science electives ⁶ | 3 |
| Total Credits | 66 |

Minimum credits for degree 133

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 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 take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.

4 Select 12 credits from the following: one of EOSC 110, 120, 150; CPSC 111, 124; or GEOG 103; and additional credits chosen from BIOL 209, 210; CHEM 205 (201, 202); CPSC 118, 126, MATH 200, 201; MICB 202. Three 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 Select three credits from the following: EOSC 470, 471, 473, 475; other potential electives include BIOE 306, BIOC 302, BIOL 302, 334, 325, 320, 326, 332, 353, 402, 403, 404, 405, 428, 429, 434, 435, 445, MICB 300.

COMBINED HONOURS (0287)

OCEANOGRAPHY AND CHEMISTRY (OCGY, CHEM)

First Year

| | |
|---|------|
| ENGL 100-level ¹ | 6 |
| 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) |

| First Year (Continued) | |
|--|--------|
| PHYS 107, 108, 109 (101, 102) ² | 8(6) |
| Electives ^{3,4} | 6 |
| Total Credits | 32(36) |
| Second Year | |
| CHEM 201, 202 | 6 |
| CHEM 203, 204 | 8 |
| CHEM 211 | 4 |
| MATH 200, 221 | 6 |
| Science Electives ³ | 12 |
| Electives ⁴ | 3 |
| Total Credits | 39 |
| Third Year | |
| CHEM 301 | 3 |
| CHEM 304 | 3 |
| CHEM 311 | 4 |
| CHEM 330 or 313 | 4 |
| CHEM 333 | 3 |
| EOSC 370, 371, 473 | 9 |
| Science Electives ^{5,6} | 6 |
| Electives ⁴ | 6 |
| Total Credits | 38 |
| Fourth Year | |
| CHEM 309, 310, 312, 415 | 12 |
| EOSC 472, 476 | 6 |
| EOSC 449 ⁶ | 6 |
| Electives ^{4,5,6} | 6 |
| Total Credits | 30 |
| Minimum credits for degree | 139 |

- 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.
- Students without Physics 12 must take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.
- Students without Biology 11 or 12 must take 100-level Biology.
- Electives must include 12 credits of Arts.
- Science electives may include additional Oceanography courses. PHYS 312 or MATH 316 is prerequisite to EOSC 477.
- If CHEM 449 is taken, an additional three credits of Oceanography courses are required.

| COMBINED HONOURS (0205) OCEANOGRAPHY AND GEOLOGY (OCGY, GEOL) | |
|---|------|
| First Year | |
| ENGL 100-level ¹ | 6 |
| CHEM 121, 123 (111, 113) | 8 |
| EOSC 110 | 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, 108, 109 (101, 102) ² | 8(6) |

| First Year (Continued) | |
|-----------------------------------|--------|
| Science Elective ³ | 3(4) |
| Total Credits | 33(38) |
| Second Year | |
| CHEM 202, 205 | 6 |
| EOSC 220, 221, 222, 223 | 12 |
| MATH 200, 221 | 6 |
| STAT 200 | 3 |
| Electives | 9 |
| Total Credits | 36 |
| Third Year | |
| EOSC 320, 321, 323, 370, 371, 473 | 18 |
| Arts Electives | 6 |
| Science Electives | 9 |
| Total Credits | 33 |
| Fourth Year | |
| EOSC 426, 471 | 6 |
| EOSC 472 | 3 |
| EOSC 449 | 6 |
| Geology Electives ⁴ | 6 |
| Science Electives ⁵ | 6 |
| Arts electives | 6 |
| Total Credits | 33 |
| Minimum credits for degree | 135 |

- 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.
- Students without Physics 12 must take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.
- Students without Biology 11 or 12 must take 100-level Biology.
- Recommended courses include EOSC 322, 325, 327, 329, 425, 429, 430, 431, 432.
- Science electives may include additional Oceanography courses in fourth year.

| COMBINED HONOURS (0240) OCEANOGRAPHY AND GEOPHYSICS (OCGY, GEOP) | |
|--|--------|
| First Year | |
| ENGL 100-level ¹ | 6 |
| CHEM 121, 123 (111, 113) | 8 |
| EOSC 110 | 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, 108, 109 (101, 102) ² | 8(6) |
| Science elective ³ | 3 |
| Total Credits | 33(37) |
| Second Year | |
| CPSC 100-level | 3(4) |
| EOSC 220 | 3 |
| MATH 200, 317 | 6 |
| MATH 215, 221 | 6 |
| PHYS 203, 209 | 6 |
| Arts electives | 6 |

| Second Year (Continued) | |
|--|--------|
| Science Elective ⁴ | 6 |
| Total Credits | 36(37) |
| Third Year | |
| EOSC 352, 353 ⁵ , 354, 370, 371, 473 | 20 |
| MATH 316 (or PHYS 312) | 3 |
| PHYS 301, 309 | 6 |
| Arts electives | 6 |
| Science Electives | 3 |
| Total Credits | 37 |
| Fourth Year | |
| EOSC 450, 451 ⁵ , 452 ⁵ , 453, 477 | 15 |
| EOSC 449 | 6 |
| Electives ^{4,5} | 9 |
| Total Credits | 30 |
| Minimum credits for degree | 136 |

- 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.
- Students without Physics 12 must take PHYS 100 prior to PHYS 101 or 121. Such students should take PHYS 102 in the second year. Qualified students are encouraged to take PHYS 121/122.
- Students without Biology 11 or 12 must take 3 credits of 100-level BIOL.
- To be chosen in consultation with the departments.
- EOSC 353, 451 and 452 are offered only in alternate years. Students entering third year should consult a program adviser. One of EOSC 451 and 452 must be taken in third year.

| COMBINED HONOURS (0336) OCEANOGRAPHY AND PHYSICS (OCGY, PHYS) | |
|---|--------|
| First Year | |
| ENGL 100-level ¹ | 6 |
| 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 107, 108, 109 (101, 102) ² | 8(6) |
| Elective ³ | 4 |
| Total Credits | 30(34) |

| Second Year | |
|--------------------------------|----|
| MATH 215, 217 ⁴ | 6 |
| MATH 221 or 223 | 3 |
| PHYS 200, 203 | 6 |
| PHYS 206, 209 | 6 |
| Science Electives ⁵ | 9 |
| Arts Electives | 6 |
| Total Credits | 36 |
| Third Year | |
| MATH 300, 316 | 6 |
| EOSC 370, 371, 473 | 9 |
| PHYS 301, 308 | 6 |
| PHYS 304 | 3 |
| PHYS 309 | 3 |

| | |
|-----------------------------------|------------|
| Third Year (Continued) | |
| EOSC elective | 3 |
| PHYS or EOSC 300 or above | 3 |
| Arts Elective | 3 |
| Total Credits | 36 |
| Fourth Year | |
| EOSC 477 | 3 |
| EOSC 449 or PHYS 449 | 6 |
| PHYS 401, 403 | 6 |
| Upper-level Physics | 3 |
| Arts Elective | 3 |
| Science Electives ⁶ | 9 |
| Total Credits | 30 |
| Minimum credits for degree | 132 |

- 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.
- Students without Physics 12 must take PHYS 100. Such students please see PHYS advisor. Qualified students are encouraged to take PHYS 107/108/109.
- Students without Biology 11 or 12 must take 100-level Biology.
- MATH 217 can be replaced by MATH 226 and 227 or MATH 200 and 317.
- Recommended: more Computer Science, Mathematics, or GEOG 200.
- Recommended from the following: CPSC 302; PHYS 410; EOSC 354; GEOG 301, 302; MATH 400, 318. If PHYS 449 is taken, an additional three credits of EOSC 300 or above must be included in the science electives.

PHARMACOLOGY

The Department of Pharmacology and Therapeutics offers opportunities for study leading to doctoral, master's and bachelor's degrees. For information on graduate degrees, see *Pharmacology and Therapeutics*, p. 254 in the Graduate Studies section. For further information on other courses within the department, see the *Faculty of Medicine*, p. 293. 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 *Special Fees*, p. 49 in the chapter Fees in this Calendar). PCTH 499 is optional for students 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 Pharmacology and Therapeutics, The University of British Columbia, 2176 Health Sciences Mall, Vancouver, BC, V6T 1Z3.

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 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- Students lacking Biology 12 must take BIOL 111 before taking BIOL 121.
- 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 |

Second Year (Continued)

| | |
|--|------|
| CHEM 233, 235 (or 231, 232 or 203, 204) ¹ | 6(8) |
| MICB 202 | 3 |
| BIOL 300 (or STAT 200) | 3 |
| Electives ^{2, 3} | 6 |
| Total Credits | 31 |

Third and Fourth Years

| | |
|---------------------------|-------|
| BIOC 301 ⁴ | 3 |
| BIOC 302, (303) | 3-6 |
| PCTH 300, 302, 400, 404 | 18 |
| PHYL 301 | 6 |
| Electives ^{5, 6} | 30-27 |
| Total Credits | 60 |

Minimum Credits for Degree

- 124**
- CHEM 203 and 204 and restricted to students in CHEM and BIOC programs
 - Electives include: (a) Sufficient courses numbered 300 or higher in Arts or Science 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 the 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.
 - 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, 201.
 - Must be taken in third year.
 - 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.
 - 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 (or 231, 232 or 203, 204) ¹ | 6(8) |
| MICB 202 | 3 |
| BIOL 300 (or STAT 200) | 3 |
| Electives ^{2,3} | 12 |
| Total Credits | 37 |

Third and Fourth Years

| | |
|----------------------------|-----|
| BIOC 301, 303 ⁴ | 9 |
| PCTH 300, 302 | 9 |
| PCTH 400, 402, 404 | 15 |
| PCTH 449 | 3-6 |

| Third and Fourth Years (Continued) | |
|------------------------------------|------------|
| PHYL 301, 303 | 9 |
| PHYL 422 or 423 or 424 | 3 |
| Electives ^{5,6} | 18-15 |
| Total Credits | 66 |
| Minimum credits for degree | 136 |

- ¹ CHEM 203 and 204 and restricted to students in CHEM and BIOC programs.
- 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; BIOC 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 4
- ⁴ Must be taken in third year.
- ⁵ 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.
- ⁶ Suggested electives: ANAT 390, 391; ASTR 101, 102; BIOC 410; BIOC 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, 201.

PHYSICS

The Department of Physics and Astronomy offers opportunities for study leading to bachelor's, master's and doctoral degrees. For information on graduate degrees, see *Physics and Astronomy*, p. 254 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/~birger/ubro_toc.htm) 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 121, 122 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, 121.

PHYS 121 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 122, in addition to PHYS 101 and 121. PHYS 102 has PHYS 101 or 121 as prerequisite, while PHYS 122 requires either PHYS 121, or PHYS 101 with an "A" standing. Admission into second-year Honours Physics generally requires PHYS 121, 122 and a clear first-year pass with either overall second-class standing in 30 credits or at least 68% in each of PHYS 121, 122 and MATH 100, 101 (120, 121). Students who were not eligible for PHYS 121, 122 may substitute PHYS 101, 102 provided all other minimum requirements were also met. Credit will only be given for one of PHYS 102, 122.

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 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 *Special Fees*, p. 49 in the chapter Fees 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).

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 | 8(6) |
| Electives ⁴ | 6 |
| Total Credits | 30(34) |

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 Year ¹¹ | |
|------------------------------------|------------|
| 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 to graduate | 120 |

- 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.
- One of MATH 100, 102, 104, 180, 184 or 120 and one of MATH 101, 103, 105 or 121.
- 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.
- The elective credits taken throughout the program must include at least twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and a further nine 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. Recommended elective: CPSC 122, 152 or 124. 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.
- Admission requirement: overall average of 60% in first-year Physics or permission of the Department Head.
- Students with sufficiently high grades in first-year MATH may take MATH 217 and two credits of electives instead of MATH 200 and MATH 317.
- Students may opt to take PHYS 200 or PHYS 216 in third year, in exchange for an additional three credits of electives in second year. Qualifying students may replace PHYS 216 with PHYS 206.
- Consultation with a Physics departmental adviser is recommended before entering third and fourth year.
- PHYS 304 may replace PHYS 412.
- To be chosen from ASTR or PHYS courses 300-level and above. Some courses intended for Honours students require approval from appropriate instructor(s).
- PHYS 203 or the combination CHEM 201 AND CHEM 304 may replace PHYS 313.

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 | 3-4 |
| MATH 121 (101 or 103 or 105) ² | 3-4 |
| PHYS 107, 108, 109 (101, 102) ^{2,3} | 6-8 |

| First Year (Continued) | |
|------------------------|--------|
| BIOL ^{2,4} | 3 |
| Electives ⁴ | 5 |
| Total Credits | 32(30) |

| Second Year ⁵ | |
|--|----|
| 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 301 or 318 | 3 |
| PHYS 301, 401 | 6 |
| PHYS 304, 402 | 6 |
| PHYS 309 or 319 | 3 |
| PHYS 308 ⁸ | 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 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- First-year Physics, Biology, Chemistry and Mathematics can be replaced by Science One (25 credits).
- Students without Physics 12 should consult departmental adviser as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 121.
- The elective credits taken throughout the program must include at least twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and six credits from the Faculty of Science. Students without Biology 11 or Biology 12 must take three credits of 100-level BIOL. For students with Biology 11 or 12 at least three 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.
- 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.
- 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 three credits of Science elective.

- MATH 221 or MATH 152 can be substituted for MATH 223 under exceptional circumstances. MATH 223 can be taken in first year.
- 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.
- PHYS 308 can be deferred to the fourth year or replaced by PHYS 458 in fourth year.
- Students who are interested in mathematical physics are encouraged to take MATH 320 and MATH 321 as electives. At least three credits must be a 300- or 400-level Physics or Astronomy course.
- With permission of the head of the department, another course may replace MATH 400.
- Co-op students may substitute other Physics courses with the permission of the head of the department.
- PHYS 403 may be replaced by PHYS 455.
- A minimum of six 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} | 6-8 |
| 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 |
| Total Credits | 33(37) |

| Second Year ⁶ | |
|-----------------------------------|--------|
| 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 |
| MATH 300, 316 | 6 |
| MATH 318 | 3 |
| Bio-Science Elective ¹² | 3 |

Third Year (Continued)

| | |
|------------------------|----|
| Electives ⁵ | 9 |
| Total Credits | 36 |

Fourth Year

| | |
|-------------------------------------|-----|
| PHYS 403 or 455 | 3 |
| BIOC, BIOL, MICB, PHYL or PHYS 449 | 6 |
| Bio-Science Electives ¹² | 15 |
| Electives ⁵ | 6 |
| Total Credits | 33 |
| Minimum credits for degree | 134 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- First-year Physics, Biology, Chemistry and Mathematics can be replaced by Science One (25 credits).
- Students without Physics 12 should consult departmental adviser as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 121.
- 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 adviser as early as practical. Normally they must take BIOL 111 prior to BIOL 112 or 121.
- The elective credits taken throughout the program must include at least twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and six credits from the Faculty of Science.
- 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.
- Students planning to take upper-level Chemistry courses should select CHEM 201. Students entering the program prior to 2002 take CHEM 231, 232(6) rather than CHEM 233, 235(4).
- PHYS 206 may be postponed to third year.
- 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.
- MATH 200 plus MATH 317 can replace MATH 217.
- Using three credits of Bio-science electives students may replace BIOC 302 by BIOC 303(6).
- See *Bio-Science Electives*, below.

BIO-SCIENCE ELECTIVES

Of the 18 credits of bio-sciences in the third and fourth years, at least three credits must include a laboratory course: BIOC 301, BIOL 337, BIOL 350, BIOL 351, BIOL 352, BIOL 353, BIOL 437, MICB 321 are recommended. The electives should concentrate mainly on one of the following broad categories:

- Molecular and Cell Biology;
- Macrobiology (Biology on the level of organisms); or
- 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 sciences. Most of such electives have prerequi-

sites; early consultation with an advisor is, therefore, recommended.

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, 350, 351, 352, 353, 354, 408, 414, 415, 425, 430, 432, 433, 434, 436, 452
- Chemistry: CHEM 304, 305, 405
- Mathematics 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} | 6-8 |
| BIOL ^{2,4} | 3 |
| Electives: CPSC 124, 126 or 122, 128 | 5 |
| Total Credits | 32(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 ⁷ | 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 303, 402 | 6 |
| Electives ^{7,8} | 12 |

Fourth Year (Continued)

| | |
|----------------------------|-----|
| Total Credits | 33 |
| Minimum credits for degree | 132 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- First-year Physics, Biology, Chemistry and Mathematics can be replaced by Science One (25 credits).
- Students without Physics 12 should consult a departmental adviser as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 121.
- The elective credits taken throughout the program must include at least twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and six 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.
- 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 three credits of Science elective for MATH 227 or MATH 317.
- MATH 221 or MATH 152 can be substituted for MATH 223 under exceptional circumstances. MATH 223 can be taken in first year.
- At least one Computer Science course is recommended. Of the elective credits available throughout the program, twelve credits must be in the Faculty of Arts.
- 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.

CHEMICAL PHYSICS COMBINED HONOURS (0517)¹¹**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} | 6(8) |
| BIOL ^{2,4} | 3 |
| Electives ⁵ | 3 |
| Total Credits | 32(36) |

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 |

| Second Year (Continued) | |
|---|------------|
| 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 | 6 |
| Additional Physics as per consultation ¹⁰ | 6 |
| Electives ⁵ | 9 |
| Total Credits | 33 |
| Minimum credits for degree | 136 |

- ENGL 112 is recommended. Qualified students are encouraged to consider 120 and/or 121. Three credits of English may be deferred until second year.
- First-year Physics, Biology, Chemistry and Mathematics can be replaced by Science One (25 credits)
- 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.
- 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, EOSC or Science credit GEOG or PSYC.
- The elective credits taken throughout the program must include at least twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and six credits from the Faculty of Science.
- MATH 217 can be replaced by MATH 200 and 317.
- MATH 223 (221) may be taken in first year.
- PHYS 206 may be postponed to third year.
- Must include at least one CHEM course numbered 400 or higher.
- Recommended courses PHYS 401, 402, 410, 474.
- 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 Chemical Society.

COMBINED HONOURS PROGRAM IN PHYSICS AND MATHEMATICS
See *Mathematics*, p. 382 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 |

| First Year (Continued) | |
|--|--------|
| 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} | 6-8 |
| BIOL ^{2,4} | 3 |
| Electives ⁴ | 5 |
| Total Credits | 32(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 303 | 3 |
| PHYS 309 or 319 | 3 |
| Electives ⁴ | 6 |
| Total Credits | 33 |

| Fourth Year | |
|--|------------|
| PHYS 403 | 3 |
| Six credits from PHYS 401, 402, 407 | 6 |
| PHYS 449 | 6 |
| Twelve credits from MATH 318, 322, 400-405, 412, 416-429, 440, 449 | 12 |
| Electives ⁴ | 6 |
| Total Credits | 33 |
| Minimum Credits for Degree | 132 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- First-year Physics, Biology, Chemistry and Mathematics can be replaced by Science One (25 credits).
- Students without Physics 12 should consult a departmental adviser as early as practical. Normally they must take PHYS 100 prior to PHYS 101 or 121.
- The elective credits taken throughout the program must include at least twelve credits in the Faculty of Arts (in addition to the six credits of 100-level English) and six 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.
- 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.

- PHYS 313 with 80% or better may be substituted for PHYS 203.
- PHYS 206 may be postponed to third year.

OTHER COMBINED HONOURS PROGRAMS

Combined Honours in Physics and Oceanography, see *Oceanography*, p. 386.

Combined Honours in Physics and Computer Science, see *Computer Science*, p. 374.

PHYSIOLOGY

The department offers opportunities for study leading to doctoral, master's and bachelor's degrees. For information on graduate degrees, see *Physiology*, p. 255 in the Faculty of Graduate Studies section. For further information on other courses within the department, see the *Faculty of Medicine*, p. 293.

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 Physiology Department 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 three 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 (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 (or 201) | 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 degree⁸

- 137**
- ENGL 112 recommended. Qualified students are encouraged to consider ENGL 120 and/or 121.
 - Students lacking Biology 12 must take BIOL 111 before taking BIOL 121.
 - Student must take 3 credits of PHYS in addition to PHYS 101.
 - At least 12 credits must be from the Faculty of Arts in addition to ENGL.
 - 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.
 - Students should note that they may obtain credit for only one of the introductory courses in Statistics listed under *Pairing Lists*, p. 362.
 - Students will normally be required to take PHYL 430 and 449 in the same Winter Session.
 - This program requires a minimum of 137 credits for graduation.

PSYCHOLOGY

The department offers opportunity for study leading to bachelor's, master's, and doctoral degrees. For information on the Bachelor of Arts, see *Psychology*, p. 148 under the Bachelor of Arts in the Faculty of Arts section. For

information on graduate degrees, see *Psychology*, p. 257 in the Faculty of Graduate Studies section.

The Bachelor of Science program is specifically intended for those students whose interest in psychology is in the biological basis of behaviour. The student with a major interest in the social, personality, developmental, clinical or general experimental areas of psychology should register for the Bachelor of Arts.

Students entering the Major or Honours program should obtain details of the structure of Psychology undergraduate courses from the department office.

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.

MAJOR (0495): PSYCHOLOGY (PSYC)

First Year¹

| | |
|---|---------------|
| ENGL 100-level | 6 |
| BIOL 111 ^{1,2} , 121, 140 | 7 |
| CHEM 111 ^{1,3} , 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 ⁴ | 3 |
| Total Credits | 30(32) |

Second Year

| | |
|--|---------------|
| CHEM 233, 235 | 4 |
| PSYC 100 ^{1,5} | 6 |
| PSYC 260 | 8 |
| Two from BIOL 200 ⁶ , 201 ⁶ , 204, 205 | 6-8 |
| Electives ^{7,8} | 6 |
| Total Credits | 30(32) |

Third Year

| | |
|--|-----------|
| PSYC 360 | 6 |
| PSYC 366 ⁹ | 8 |
| Six 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 ⁷ | 6 |
| Electives ^{7,8} | 6 |
| Total Credits | 32 |

Fourth Year

| | |
|---|-----------|
| Twelve credits from PSYC 361, 363, 364, 365, 367, 368, 460, 461, 463, 465, 466, 467 | 12 |
| Arts Elective ⁷ | 3 |
| Electives ^{7,8} | 15 |
| Total Credits | 30 |

Minimum credits for degree

- PSYC 100 is required in first year if student has credit for Biology 12 and Chemistry 12.
- Students with Biology 12 may substitute three credits of electives for BIOL 111.
- Students with Chemistry 12 may substitute 3 credits of electives for CHEM 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 six of these must be non-Psychology courses in the Faculty of Science. Nine credits of electives must be taken outside of the field of the Major. Field of the Major is defined as any Psychology, Biology, Physiology, Biochemistry, or Pharmacology course. 12 credits of electives may be taken in any faculty.
- PSYC 366, together with six 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 ^{1,3} , 113, or 121, 123 | 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 ⁴ | 3 |
| Total Credits | 30(32) |

Second Year

| | |
|--|---------------|
| PSYC 100 ^{1,5} | 6 |
| PSYC 260 | 8 |
| CHEM 233, 235 | 4 |
| Two from BIOL 200 ⁶ , 201 ⁶ , 204, 205 | 6-8 |
| Electives ^{7,8} | 6 |
| Total Credits | 30(32) |

Third Year

| | |
|--|---|
| PSYC 312 | 6 |
| PSYC 349 | 3 |
| PSYC 360 | 6 |
| PSYC 366 ⁹ | 8 |
| Six credits from one of the following three lists: | 6 |
| PSYC 300, 314, 350, 401, 430 | |

Third Year (Continued)

| | |
|---|----|
| PSYC 302, 315, 319, 320, 322, 325, 412, 413, 414 | |
| PSYC 305, 308, 321, 403, 407, 408, 415 | |
| Electives ^{7,8} | 9 |
| Total Credits | 38 |

Fourth Year

| | |
|--|------------|
| Twelve credits from PSYC 361, 363, 364, 365, 367, 368, 369, 460, 461, 463, 465, 466, 467 | 12 |
| PSYC 449 | 6 |
| Arts Electives ⁷ | 9 |
| Electives ^{7,8} | 9 |
| Total Credits | 36 |
| Minimum credits for degree | 134 |

- 1 PSYC 100 is required in first year if student has credit for Biology 12 and Chemistry 12.
- 2 Students with Biology 12 may substitute three credits of electives for BIOL 111.
- 3 Students with Chemistry 12 may substitute 3 credits of electives for CHEM 111.
- 4 Students without Physics 12 must take PHYS 100 before taking PHYS 101.
- 5 Students may substitute PSYC 101 and 102 for PSYC 100.
- 6 The preferred prerequisite for this course is BIOL 112 but Psychology Honours students are allowed to register without it.
- 7 General electives may be Psychology courses; Arts electives and Science electives may not.
- 8 At least 24 credits of electives (including Arts electives and Arts Psychology electives) must be numbered 300 or above. At least six of these must be non-Psychology courses in the Faculty of Science. Nine credits of electives must be taken outside of the field of the Major. Field of the Major is defined as any Psychology, Biology, Physiology, Biochemistry, or Pharmacology course. 12 credits of electives may be taken in any faculty.
- 9 PSYC 366, together with six 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 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 three 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 1st or 2nd year, is based on academic performance. Admission requires a minimum overall average of 68% in the preceding 2 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 IN COGNITIVE SYSTEMS: COGNITION AND BRAIN

| | |
|---|------|
| First Year | |
| CPSC 124, 126 | 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 100, 101 or 107 | 3-6 |
| CHEM 111, 113 or 121 | 4-8 |
| ENGL 100-Level | 6 |
| Electives ^{1,2,3,6} | 0-6 |

| | |
|------------------------------|----|
| Second Year | |
| COGS 200 | 3 |
| PHIL 220 | 3 |
| PSYC 260 | 8 |
| Arts Electives | 6 |
| Electives ^{1,2,3,6} | 12 |

| | |
|--|----|
| Third and Fourth Years | |
| COGS 400 | 6 |
| PHIL 441, 451 | 6 |
| PSYC 365 | 3 |
| Arts Electives | 6 |
| At least 18 credits from: PSYC 304, 307, 310, 333, 334, 360 ⁵ , 363, 364, 367, 368, 461, 463, 465; PHIL 340, 440; EPSE 316, 421; BIOL 353 ⁵ , 455, 458 | 18 |

Third and Fourth Years (Continued)

| | |
|------------------------------------|------------|
| Electives ^{1,2,3,4} | 9-21 |
| Minimum Credits for Degree: | 125 |

- 1 Students attempting to become a COGS Major should choose electives to obtain prerequisites to appropriate 3rd and 4th year courses.
At least 72 credits of Science courses are required to qualify for the B.Sc. Degree.
- 3 At least 9 credits of courses outside the field of major are required to qualify for the B.Sc. degree; these 9 credits exclude PSYC, PHIL, CPSC courses.
- 4 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.
- 5 Credit will not be granted for both PSYC 360 and BIOL 353.
- 6 Students without credit in Biology 11 or Biology 12 must take 3 credits of 100-level biology.

STATISTICS

The Department of Statistics offers programs of study leading to bachelor's, master's and doctoral degrees. For information on graduate degrees, see *Statistics*, p. 259 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.

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.sciencecoop.ubc.ca).

MAJOR (0562): STATISTICS (STAT)

| | |
|---|------|
| First Year | |
| ENGL 100-level ¹ | 6 |
| CHEM 111 and 113, or 121 | 6-3 |
| CPSC 122, 128 (124, 126) 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 or 121 ³ | 3 |

First Year (Continued)

| | |
|----------------------------|---------------|
| 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 |
| Minimum credits for degree | 122 |

¹ ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.

² May be deferred until second year.

³ Students without Physics 12 must replace the elective with PHYS 100 before taking PHYS 101.

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 For requirements, see 'Electives' below.

⁶ 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 webpage (www.stat.ubc.ca).

ELECTIVES

Electives must include the following:

- at most twelve elective and thematic concentration credits may be in faculties other than Science and Arts;
- at least six elective credits must be for courses numbered 300 or above;
- at least nine elective and thematic concentration credits must be in Science electives outside the field of the Major¹ or in Arts; and

⁴ 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.

B.S.C. 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.

First Year

| | |
|--|---------------|
| ENGL 100-level ¹ | 6 |
| CPSC 122, 128 or 124, 126 ² | 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 | 32(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 Year

| | |
|---|------------|
| 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. Three credits of first-year English may be deferred until second year.

² Can be deferred until second year.

³ Students take CHEM 111 if credit was not obtained for Chemistry 12 and three credits of 100-level PHYS (normally PHYS 100) if credit was not obtained for Physics 12. All students take six 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 three credits of 100-level BIOL. Students with credit for

Biology 11 or 12 take three 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.

HONOURS PROGRAMS

Students planning to take the Honours program in Statistics or a Combined Honours program in Mathematics and Statistics, should note the following:

¹ 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.

² 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.

³ To continue in these programs, a student must obtain an overall second-class standing in each academic year.

HONOURS (0051): STATISTICS (STAT)

First Year

| | |
|---|---------------|
| ENGL 100-level ¹ | 6 |
| CHEM 111 and 113, or 121 | 3-6 |
| CPSC 122, 128 (124, 126) ² | 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 | 34(32) |

Second Year

| | |
|--|-----------|
| MATH 220 ⁵ , 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 six 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 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- May be deferred until second year.
- Students without Physics 12 must replace the elective with PHYS 100 before taking PHYS 101.
- 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.
- Students obtaining 68% or higher in MATH 226 are not required to take MATH 220.
- 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} | 0-3 |
| CPSC 124, 126 or CPSC 122, 128 ⁴ | 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 | 32-(34) |

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 |
| Nine credits from MATH 300, 301, 316, 322, 323, 331 ⁹ | 9 |

| Third Year (Continued) | |
|---|------------|
| STAT 305, 306 | 6 |
| Arts elective | 6 |
| Elective ¹⁰ | 3-6 |
| Total Credits | 33-(36) |
| Four Year | |
| STAT 404, 460 and 461 | 9 |
| Statistics courses numbered 400 and above | 3 |
| Twelve credits from: MATH 400-403, 416-429, 440, 449 ⁹ | 12 |
| Electives ¹⁰ | 9 |
| Total Credits | 33-(36) |
| Minimum credits for degree | 134 |

- ENGL 112 is recommended. Qualified students are encouraged to consider ENGL 120 and/or 121. Three credits of first-year English may be deferred until second year.
- This requirement applies only to students without credit for CHEM 12.
- Total credits in PHYS/CHEM courses must include 6 from beyond PHYS 100, CHEM 111.
- May be deferred until second year.
- 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.
- Students obtaining 68% or higher in MATH 226 are not required to take MATH 220.
- May be deferred until the third year.
- May be replaced by MATH 419 in fourth year.
- An overall 68% average is required in these 27 credits to obtain this combined Honours degree.
- Electives in third and fourth years must include at least six credits selected from Statistics courses numbered 300 or above.

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, 311, 312, 411, 581, 582, 583, 585, 586, 682, 684 |
| Economics | ECON 325, 326, 425, 426, 526, 527, 529, 530 |
| 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, 527 |
| Human Kinetics | HKIN 371 |
| Mathematics | MATH 302, 303, 418, 419, 544, 545, 608 |

| | |
|-------------------------------|------------------------------|
| Anthropology | ANTH 418, 527, 528 |
| Pharmacology and Therapeutics | PCTH 404, 512 |
| Physics | PHYS 509 |
| Plant Science | PLNT 321, 322 |
| Political Science | POLI 380, 381 |
| Psychology | PSYC 317, 318, 366, 464, 545 |
| Rehabilitation Sciences | RHSC 402 |
| Sociology | SOCI 418 |
| Statistics | STAT courses |
| Wood Science and Industry | WOOD 335 |

MAJOR IN MATHEMATICAL SCIENCES See *Mathematics*, p. 382.

ZOOLOGY

The Department of Zoology 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. 261 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 Agricultural Sciences. 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 Agricultural Sciences, 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.

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 Undergraduate 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 twelve 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.

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 (six or nine 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 workterm 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 for application material www.arc.cs.ubc.ca/. There will be a preliminary application fee of \$100. Once admitted to the program, students are assigned a student number and are given eligibility to register.

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S. Chen, B.Sc. (Guongxi), M.Sc., Ph.D. (Chin. Academy of Science); **J. Hu**, B.Sc. (Hefei Polytech.), M.Sc. (Peking), Ph.D. (Inst. of High Energy Physics, China); **Th. Kutter**, Diplom, Ph.D. (Heidelberg); **R. Liang**, B.Sc. (Tsinghua), M.Sc., Ph.D. (Tokyo Inst. of Tech.); **J. Mildner**, B.Sc., M.Sc. (Victoria), Ph.D. (SFU).

POSTDOCTORAL FELLOWS

D. McB. Broun, B.Sc. (U. of Western Australia), Ph.D. (Cambridge U.); **Y-B. Duan**, B.Sc. (Shandong Normal U.), M.Sc. (Toyama U.), Ph.D. (Kanazawa U.); **D. Feng**, B.Sc., M.Sc. (U. Science & Tech. China), Ph.D. (Stanford); **K. Furuuchi**, B.Sc., M.Sc., Ph.D. (Osaka); **K. Kinoshita**, B.S., M.S., Ph.D. (Shizuoka); **P. Lane**, B.Eng. Mgt. (McM.), M.A.Sc. (Tech. U. Nova Scotia), Ph.D. (Dal.); **L.R. Lehner**, Licenciado (U. Nac. de Cordoba, Argentina), Ph.D. (Pittsburg); **B. Maedler**, Diplom, Ph.D. (Leipzig); **R. Schuetzhold**, Dipom, Ph.D. (Dresden Tech.); **D. Sheehy**, B.A. (Johns H.), M.S., Ph.D. (Ill.); **X. Shen**, B.Sc., M.Sc., Ph.D. (Shandong U.); **S. Tixier**, B.Sc. (INSAT, Toulouse), Ph.D. (ETH - Zurich); **H. Villegas-Brena**, M.Sc., Ph.D. (CINVESTAV, Mexico); **H. Villegas-Brena**, M.Sc., Ph.D. (Cinvestav, Mexico).

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James V. Zidek, Head

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PROFESSORS

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J. Bryan, B.Sc. (Yale), Ph.D. (Berkeley); **L. Wu**, B.Sc. (E. China Normal), M.Sc. (Tulane), Ph.D. (Wash.).

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DEPARTMENT OF ZOOLOGY

J. Gosline, Acting Head

HONORARY PROFESSORS

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PROFESSORS

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(Dal.), Ph.D. (Duke), F.R.S.C., University Professor; **D. R. Jones**, B.Sc. (S'ton.), Ph.D. (East Anglia), F.R.S.C.; **C. J. Krebs**, M.A., Ph.D. (Brit. Col.), D.Sc. (Lund), F.R.S.C.; **W. K. Milsom**, B.Sc. (Alta.), M.Sc. (Wash.), Ph.D. (Brit. Col.); **D. G. Moerman**, B.Sc., Ph.D. (S. Fraser); **J. H. Myers**, B.Sc. (Chatham Coll.), M.Sc. (Tufts), Ph.D. (Indiana); **W. E. Neill**, B.A. (Rutgers), M.A., Ph.D. (Texas); **D. Pauly**, M.Sc., Ph.D. (Kiel); **T. J. Pitcher**, B.A., M.A., D.Phil. (Oxon.); **D. J. Randall**, B.Sc., Ph.D. (S'ton.), F.R.S.C.; **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.; **J. N. M. Smith**, B.Sc. (Edin.), D.Phil. (Oxon.); **T. P. Snutch**, B.Sc., Ph.D. (S. Fraser), F.R.S.C.; **J. D. Steeves**, B.Sc., Ph.D. (Manit.); **W. Tetzlaff**, M.D., Ph.D. (Calg.), Man-in-Motion Spinal Cord Chair; **C. J. Walters**, B.Sc. (Humboldt State), M.S., Ph.D. (Colorado State), F.R.S.C.

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INSTRUCTOR

A. M. A. Lacombe, B.Sc., M.Sc. (Bretagne Occidentale), D.E.A. (C.R.S.), Ph.D. (Brit. Col.).

LECTURERS

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ADJUNCT PROFESSORS

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RESEARCH ASSOCIATES

P.E. Axelrod, B.Sc., M.Sc. (Oregon), Ph.D. (Calif.); **J. Dyer**, B.Sc., M.Sc. (Liv.), Ph.D. (Bristol); **H. N. Feldman**, B.Sc. (Brit. Col.), Ph.D. (Oxon.); **L. Fidler**, B.Sc. (Penn State), M.Sc. Ph.D. (Brit. Col.); **H. R. Frith**, B.Sc. (Vic.B.C.), M.Sc. (South Carolina), Ph.D. (Brit. Col.); **M. M. Gilbert**, B.A. (Scripps), M.Sc. (Oregon), Ph.D. (Brit. Col.); **R. E. Gullison**, B.Sc. (Brit. Col.), Ph.D. (Princeton); **D. G. Harper**, B.Sc. (Brit. Col.), M.Sc. (Alta.), Ph.D. (Brit. Col.); **J. W. N. Hodgson**, B.Sc. (Sci. and Tech., Kumasi), Ph.D. (NIMR, London); **M. R. Hughes**, B.A. (Harpur

College), M.A., Ph.D. (Duke); **E. C. Humphrey**, B.Sc. (Bangor), M.Sc., Ph.D. (S'ton); **P. Knight**, B.Sc. (Leeds), Ph.D. (Cantab.); **M. A. Lillie**, B.Sc., M.Sc. (Queen's), Ph.D. (W.Ont.); **J. Liu**, M.D., (Shanghai); **M. E. MacKay**, B.Sc., M.Sc. (Brit.Col.), Ph.D. (Dal.); **J. Martin**, M.Sc. (Brit. Col.); **S. Mduma**, B.Sc., M.Sc. (Dar-es-Salaam), Ph.D. (Brit. Col.); **S. Ner**, B.Sc., Ph.D. (S'ton); **T. A. Pfeifer**, B.Sc. (Brit. 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. (Brit. Col.); **M. Taitt**, B.Sc. (Lond.), M.Sc. (Durham), Ph.D. (Brit. Col.); **A. Tautz**, M.Sc., Ph.D. (Brit. Col.); **I. R. Walker**, B.Sc. (Mt. Allison), M.Sc. (Wat.), Ph.D. (S.Fraser).

POSTDOCTORAL FELLOWS

P. Awadalla, B.Sc. (Western Ontario), M.Sc. (Tor.), Ph.D. (Edinburgh); **J.S. Brashares**, B.A. (Drew.), M.Sc. (Wisc.), Ph.D. (Brit. Col.); **Y. Burelle**, B.Sc. Ph.D. (Montreal); **P.A. Guerette**, B.Sc. (St. F.X.), Ph.D. (Brit. Col.); **J.J. Hellman**, B.S. (Michigan), Ph.D. (Stanford); **T. Johnson**, B.Sc., Ph.D. (Edinburgh); **T.J. Karels**, Ph.D. (Alta.); **C.B. McBride**, B.Sc., Ph.D. (Brit. Col.); **K.R. Norman**, B.Sc. (New Hampshire), Ph.D. (Brit. Col.); **A.D. Peters**, B.A. (Wooster Col.), Ph.D. (Indiana); **H. Rundle**, B.Sc. (Tor.), M.Sc., Ph.D. (Brit. Col.); **K.J. Sepp**, B.Sc. (Tor.), Ph.D. (Brit. Col.); **G. Tattersall**, B.Sc. (Guelph), Ph.D. (Cambridge).

ASSOCIATE MEMBERS

M. Healey, Earth and Ocean Sciences; **S. Hinch**, Forestry, Fisheries Centre, Forestry; **W. Jefferies**, Biotechnology And Microbiology; **T. O'Connor**, Anatomy; **J. Richardson**, Forestry; **J. Roskams**, Molecular Medicine and Therapeutics; **A. W. Trites**, Fisheries, Graduate Studies; **T. Zwimpfer**, Surgery.

DEAN'S OFFICE

Senior Faculty Advisors: E. Collett, T. Crawford, B. Dill, S. Ellis; **Cooperative Education Programs:** M. Javed Iqbal, Director; Sandy Abbey, Coordinator; Z. Forgac, Coordinator; Robyn Schindel, Coordinator; C. Wickstrom, Coordinator; **Science Outreach and Industry Liaison:** Terry Kellam.

2003-04

24 The School of Social Work and Family Studies

A SCHOOL WITHIN THE FACULTY OF ARTS

Director's Office
Graham Riches, Director
2080 West Mall
Vancouver, BC V6T 1Z2
Tel: 604-822-0782
Fax: 604-822-8656

School of Social Work 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 a graduate program leading to the Master of Social Work for persons with a Bachelor of Social Work or equivalent. The School offers a Master of Arts in Family Studies; see *Family Studies*, p. 235 in the Faculty of Graduate Studies section. For information on the School's one-year and part-time Master of Social Work program, see *Family Studies*, p. 235 in the Faculty of Graduate Studies section. The School, in collaboration with the University Colleges of the Cariboo and Okanagan, offers a Master of Social Work through Distance Education and Technology. Entry to this program is currently subject to review. Refer to the School of Social Work Website (www.swfs.ubc.ca) for detailed information regarding admissions, degree requirement, etc.

The School also participates 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 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 (C.A.S.S.W.), the policy and standard-setting body for social work education at the Family Studies or university level in Canada. The School's Social Work degree programs are accredited by the C.A.S.S.W.

Bachelor of Social Work

The program addresses issues of power and issues of discrimination based on age, race, gender, sexual orientation, class and culture. 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. 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 School delivers a single, integrated B.S.W. program. 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 courses in the Bachelor of Arts program; and,
- 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 pre-requisite to SOWK201) and SOWK 201 with a minimum grade of 76% in each course;
- six credits of first-year English;
- eighteen credits of course work selected from the subject areas of anthropology, Canadian history, economics, family studies, geography, political science, psychology, sociology, and women's studies (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. Prior to proceeding to Stage II the applicant must 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 homepage (www.swfs.ubc.ca) or request the Bachelor of Social Work admissions package from the Admissions Office, UBC School of Social Work and Family Studies, telephone 604-822-2609. The package is available from December to February and contains required application forms with instructions and detailed program information.

Deadline for application to the program is February 28.

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 the Bachelor of Social Work program if the student is considered unsuited to proceed with the study or practice of social work.

DEGREE REQUIREMENTS

The Bachelor of Social Work program comprises 60 credits of course work for students entering with a bachelor's degree, and 66 credits for those entering the program after completing two years 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 Prerequisite

| | |
|----------|---|
| 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 |
| Arts Elective courses in the Faculty of Arts ² | 0-6 |

Total Credits 30/36

Fourth Year

| | |
|--|----|
| SOWK 400 | 3 |
| SOWK 405 | 3 |
| SOWK 415 | 6 |
| SOWK 416 | 3 |
| SOWK 425 | 3 |
| SOWK 440 and/or elective courses offered in the Faculty of Arts, preferably in the Social Sciences and Humanities ³ | 12 |
| Total Credits | 30 |

¹ Third and fourth year SOWK courses are open to B.S.W. students only.

² These elective courses are required for students who enter the program without a Bachelor of Arts (or equivalent). Such courses must be numbered 300 or above. They may be taken either during a Summer Session or during the Winter Sessions. Details on qualifying electives will be available to students in the Bachelor of Social Work program at the appropriate time.

³ 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 is responsible for the administration of interprofessional courses (IHHS), which are recommended as electives to students in Social Work. For more information see Courses (students.ubc.ca/calendar/courses.cfm) (IHHS), or visit the website (www.health-disciplines.ubc.ca).

Bachelor of Arts

FAMILY STUDIES MAJOR

The Bachelor of Arts Family Studies Major examines how Families form and change over time.

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. 120 as listed under the Bachelor of Arts in the Faculty of Arts chapter of this Calendar, or call 604-822-2255.

ADMISSION

Applicants should apply for admission to the Faculty of Arts. The Bachelor of Arts Family Studies Major is an academic program open to students registered in the Faculty of Arts. Students should see *Program Requirements*, p. 123 as listed under the Bachelor of Arts for the Faculty of Arts requirements and regulations pertaining to the Major.

ACADEMIC REGULATIONS

The University regulations concerning examination and advancement as listed in the chapter *Academic Regulations*, p. 31 in this Calendar apply. Students registered in the Bachelor of Arts Family Studies Major must satisfy the requirements of the Faculty of Arts.

DEGREE REQUIREMENTS

Students must satisfy the Faculty of Arts requirements: *English Requirement, Language Requirement, Science Requirement, and Literature Requirement*, p. 122, as listed in Faculty Requirements under the Bachelor of Arts in the Faculty of Arts section.

LANGUAGE PROFICIENCY INDEX

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. 22. Students in the Family Studies Major must satisfy the continuation requirements of the Faculty of Arts. See *Continuation Requirements*, p. 121 in Academic Regulations under the Bachelor of Arts in the Faculty of Arts section.

REQUIREMENTS FOR THE MAJOR

A minimum of 120 credits is required for the Family Studies Major. Students must include in their program at least 42 but no more than 60 credits of Family Studies courses.

FIRST AND SECOND YEARS

Students must take FMST 200 and STAT 203.

THIRD AND FOURTH YEARS

Third and fourth years of the program require that students complete

- FMST 420 and FMST 422;
- at least one of FMST 320, 322, 324, 326, 436;
- at least one of FMST 310, 312, 314, 316, 414; and,
- at least one of FMST 338, 340, 342, 440, 442.

The remaining 21 credits required for the Major may be selected from any Family Studies

course and may include a maximum of six credits of the following courses: ANTH/SOCI 214 (3/6)d, 413 (3/6)d; HIST 351 (3); LAW 359 (3), 360 (3); PSYC 319 (3), 325 (3).

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 Family Studies. For more information see Courses (students.ubc.ca/calendar/courses.cfm) (IHHS), or visit the website (www.health-disciplines.ubc.ca).

MINOR IN FAMILY STUDIES

Students take at least 30 credits from Family Studies courses which include 18 credits numbered 300 or above. The credits must include FMST 200 and 420 and

- at least one of FMST 320, 322, 324, 326, 436;
- at least one of FMST 310, 312, 314, 316, 414; and,
- at least one of FMST 338, 340, 342, 440, 442.

The remaining 15 credits required for the Minor may be selected from any Family Studies course and may include a maximum of six credits of the following courses: ANTH/SOCI 214, 413; HIST 351; LAW 359, 360; PSYC 319.

Academic Staff

PROFESSORS

Carole P. Christensen, B.A. (Howard), M.S.W. (Mich.), D.Ed. (McG.); **Anne Martin-Matthews**, B.A. (Nfld.), M.A., Ph.D. (McM.); **Daniel Perlman**, A.B. (Bard Col.), M.A., Ph.D. (Claremont Graduate School); **Graham Riches**, M.A. (Cantab.); **Mary Russell**, B.A., B.S.W., M.S.W. (Brit.Col.), M.A., Ph.D. (S.Fraser); **James White**, B.A. (Colorado College), M.A. (Calg.), Ph.D. (Alta.).

ASSOCIATE PROFESSORS

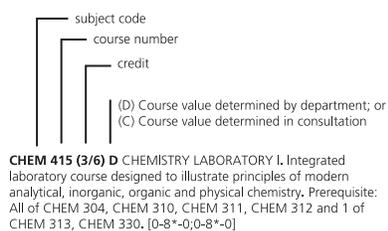
Phyllis J. Johnson, B.S., M.S. (Kansas State), Ph.D. (Ohio State); **Edward A. Kruk**, B.A., M.S.W. (Tor.), Ph.D. (Edin.); **Paule McNicoll**, B.A., B.S.W. (Laval), M.S.W., Ph.D. (Wash.); **Deborah O'Connor**, B.S.W. (Windsor), M.S.W. (Tor.), D.S.W. (Wilfrid Laurier); **Brian O'Neill**, M.S.W. (Car.), D.S.W. (Wilfrid Laurier); **James Ponzetti**, B.S. (San Francisco), M.S., Ph.D. (Oregon State); **Tim Stainton**, B.Sc. (W.Ont.), M.S.W. (Tor.), Ph.D. (London); **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. (Brit.Col.).

ASSISTANT PROFESSORS

Susan Cadell, B.A. (Waterloo), M.S.W., Ph.D. (Wilfrid Laurier); **Grant Charles**, B.S.W. (W.Ont.), M.S.W. (Calgary), Ph.D. (Vic.B.C.); **Jan Hare**, B.A.Sc. (Guelph), B.Ed. (Nipissing), M.Ed. (W.Ont.), Ph.D. (Brit.Col.); **Sheila Marshall**, B.A.Sc., M.A., Ph.D. (Guelph); **Brian O'Neill**, M.S.W. (Car.), D.S.W. (Wilfrid Laurier); **Margaret Wright**, B.A., M.S.W., Ph.D. (Tor.); **Margaret Wright**, B.A., M.S.W., Ph.D. (Tor.); **Carrie Yodanis**, B.S. (Penn.), M.A., Ph.D. (N. Hampshire).

XII Courses

NOTE: Descriptions of all regular courses offered by the University are found in this section. Some common notations found on course descriptions are illustrated below. Please refer to headings on this page for details.



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 departments concerned. 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 two to six inclusive; the form: (2/6) implies that the course will be given either for two credits or six 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 offering the course. Where the parentheses are followed immediately by "d" the credit value of the course in any particular session will be determined by the department offering the course.

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 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 (courses.students.ubc.ca). For those courses not so listed, contact the department concerned.

COURSES LISTED BY SUBJECT CODE

| | | | | | |
|------|---|------|---|------|---|
| ADHE | Adult & Higher Education | BUED | Business Education | FINA | Fine Arts |
| AGEC | Agricultural Economics | BUSI | Business | FISH | Fisheries Research |
| AGRO | Agroecology | CCST | Critical Curatorial Studies | FMED | Foundations Of Medicine |
| AGSC | Agricultural Sciences | CDST | Canadian Studies | FMPR | Family Practice |
| ANAE | Anesthesia | CENS | Central, Eastern And Northern European Studies | FMST | Family Studies |
| ANAT | Anatomy | CHBE | Chemical And Biological Engineering | FNH | Food, Nutrition And Health |
| ANSC | Animal Science | CHEM | Chemistry | FNLG | First Nations Languages |
| ANTH | Anthropology | CHIL | Children's Literature | FNSP | First Nations Studies Program |
| APSC | Applied Science | CHIN | Chinese | FOOD | Food Science |
| ARBC | Arabic Studies | CICS | Computing Information & Cognitive Systems | FOPR | Forest Operations |
| ARCH | Architecture | CIVL | Civil Engineering | FRE | Food And Resource Economics |
| ARST | Archival Studies | CLST | Classical Studies | FREN | French |
| ARTE | Art Education | CNPS | Counselling Psychology | FRST | Forestry |
| ARTH | Art History | CNRS | Classical, Near Eastern & Religious Studies | GENE | Genetics |
| ARTS | Arts One Program | COGS | Cognitive Systems Program | GEOG | Geography |
| ASIA | Asian Studies | COML | Comparative Literature | GERM | German |
| ASLA | Asian Languages | COMM | Commerce | GREK | Greek |
| ASTR | Astronomy | CONS | Natural Resources Conservation | GRS | Global Resource Systems |
| ASTU | Arts Studies | CPSC | Computer Science | HCEP | Health Care & Epidemiology |
| ATSC | Atmospheric Science | CRWR | Creative Writing | HEBR | Hebrew |
| AUDI | Audiology And Speech Sciences | CSED | Computing Studies Education | HECO | Human Ecology |
| BA | Business Administration–Core | CSIS | Critical Studies In Sexuality | HESO | Health & Society |
| BAAC | Business Administration: Accounting | CSPW | Coordinated Science Program Workshop | HINU | Hindi-urdu |
| BABS | Business Administration: Business Statistics | CUST | Curriculum Studies | HIST | History |
| BAEN | Business Administration: Entrepreneurship | DENT | Dentistry | HKIN | Human Kinetics |
| BAFI | Business Administration: Finance | DERM | Clinical Dermatology | HMEC | Home Economics |
| BAHR | Business Administration: Human Resources Management | DHYG | Dental Hygiene | HMED | Home Economics Education |
| BAIM | Business Administration: International Management | DPAS | Doctor/dentist, Patient & Society | HUNU | Human Nutrition |
| BAIT | Business Administration: Information Technology Management | DRAM | Drama | IAR | Asian Research |
| BALA | Business Administration: Law | EADM | Educational Administration | IEST | European Studies |
| BAMA | Business Administration: Marketing | ECED | Early Childhood Education | IHHS | Interprofessional Health & Human Service |
| BAMS | Business Administration: Management Science | ECON | Economics | INDE | Interdepartmental Medicine |
| BAPA | Business Administration: Policy Analysis | EDCI | Education Curriculum & Instructional Studies | INDO | Indonesian |
| BASM | Business Administration: Strategic Management | EDST | Educational Studies | INDS | Interdisciplinary Studies |
| BATL | Business Administration: Transportation And Logistics | EDUC | Education | ISCI | Integrated Sciences |
| BATM | Business Administration: Technology Management | EECE | Electrical & Computer Engineering | ITAL | Italian |
| BAUL | Business Administration: Urban Land Economics | ENDS | Environmental Design | ITST | Italian Studies |
| BIOC | Biochemistry | ENGL | English | JAPN | Japanese |
| BIOE | Bio-resource Engineering | ENVR | Environmental Studies | JRNL | Journalism |
| BIOL | Biology | EOSC | Earth And Ocean Sciences | KORN | Korean |
| BOTA | Botany | EPSE | Educational Psychology & Special Education | LARC | Landscape Architecture |
| | | ETEC | Educational Technology | LAST | Latin American Studies |
| | | EXCH | Exchange Programs | LATN | Latin |
| | | FDNS | Foundations Program | LAW | Law |
| | | FILM | Film Studies | LIBE | Teacher Librarianship |
| | | | | LIBR | Library And Information Studies |
| | | | | LING | Linguistics |
| | | | | LLED | Language And Literacy Education |

| | | | |
|-------------|---|-------------|--|
| MAED | Mathematics And Science Education | RMST | Romance Studies |
| MATH | Mathematics | RSOT | Occupational Therapy |
| MDVL | Medieval Studies | RSPT | Physical Therapy |
| MECH | Mechanical Engineering | RUSS | Russian |
| MEDG | Medical Genetics | SANS | Sanskrit |
| MEDH | History Of Medicine & Science | SCAN | Scandinavian |
| MEDI | Medicine | SCED | Science Education |
| MICB | Microbiology | SCIE | Science One |
| MIDW | Midwifery | SEAL | Southeast Asian Languages |
| MMAT | Metals And Materials Engineering | SLAV | Slavic Studies |
| MMPE | Mining Engineering | SOAL | South Asian Languages |
| MRNE | Marine Science | SOCI | Sociology |
| MUED | Music Education | SOIL | Soil Science |
| MUSC | Music | SOWK | Social Work |
| NEUR | Neurosurgery | SPAN | Spanish |
| NRSC | Neuroscience | SSED | Social Studies Education |
| NURS | Nursing | STAT | Statistics |
| OBMS | Oral Biological Medical Sciences | SURG | Surgery |
| OBST | Obstetrics And Gynaecology | THTR | Theatre |
| OCCH | Occupational And Environmental Hygiene | TSED | Technology Studies Education |
| OHS | Oral Health Sciences | UKRN | Ukrainian |
| OPTH | Ophthalmology | URST | Urban Studies |
| ORNT | Orientation To Medical School | VISA | Visual Arts |
| ORPA | Orthopaedics | VRHC | Vocational Rehabilitation Counselling |
| PAED | Paediatrics | VURS | Visiting Undergraduate Research Students |
| PATH | Pathology | WMST | Women's Studies & Gender Relations |
| PCTH | Pharmacology And Therapeutics | WOOD | Wood Products Processing |
| PETE | Physical Education-Teacher Education | WRIT | University Writing Centre Courses |
| PHAR | Pharmaceutical Sciences | ZOOL | Zoology |
| PHIL | Philosophy | | |
| PHYL | Physiology | | |
| PHYS | Physics | | |
| PLAN | Community And Regional Planning | | |
| PLNT | Plant Science | | |
| POLI | Political Science | | |
| POLS | Polish | | |
| PORT | Portuguese | | |
| PPEN | Pulp And Paper Engineering | | |
| PRIN | Principles Of Human Biology | | |
| PSYC | Psychology | | |
| PSYT | Psychiatry | | |
| PUNJ | Punjabi | | |
| RADI | Radiology | | |
| RELG | Religious Studies | | |
| RGLA | Religion, Literature & The Arts | | |
| RHSC | Rehabilitation Sciences | | |
| RMES | Resource Management & Environmental Studies | | |

**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 (6) 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 512 (3) TRANSITIONS BETWEEN SCHOOLING AND WORK. Equivalency: HIED 512.

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) COMPARITIVE 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 THS. Equivalency: ADED 599.

ADHE 699 (0) DOCTORAL THESIS. Equivalency: ADED 699.

**AGEC — AGRICULTURAL ECONOMICS
FACULTY OF AGRICULTURAL SCIENCES**

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
AGRICULTURAL SCIENCES**

BIOL 121 and 140 are prerequisites for AGRO 326, 327, and 328.

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. 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 agroecosys-

tems 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 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, FRST302. 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. Equivalency: BIOL 421. [3-2]

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. This course builds on the faculty land, food and community core theme, as well as the agroecology core. The biophysical, economic and social components of sustainable agroecosystems are developed through the analysis of problems in agricultural production systems. A fee will be assessed each student to cover field trip costs. Prerequisite: AGRO 360. [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 Agricultural Sciences. [0-0-3]

AGRO 497 (2-6) 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 advisor 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 advisor; consult before the end of classes in third year.

AGSC — AGRICULTURAL SCIENCES FACULTY OF AGRICULTURAL SCIENCES

AGSC 100 (1) INTRODUCTION TO LAND, FOOD AND COMMUNITY. Orientation to the programs and learning environment and core values of the Faculty of Agricultural Sciences; career programs; survey of professional opportunities and requirements; introduction to developing a portfolio of learning outcomes and accomplishments. [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 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 Agricultural Sciences.

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 predissected 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 AGRICULTURAL SCIENCES

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 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]

ANSC 480 (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]

ANSC 500 (3) GRADUATE SEMINAR. Participation in this course is compulsory for all graduate students in Animal Science. [2-0]

ANSC 513 (6) QUANTITATIVE GENETICS. Concepts and recent research in quantitative inheritance, behavioural and evolutionary genetics. Not offered every year. [3-0; 3-0]

ANSC 514 (3-6) D CURRENT TOPICS IN ANIMAL NUTRITION. [3-0; 3-0]

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 523 (3) VITAMIN METABOLISM AND UTILIZATION IN DOMESTIC ANIMALS. Requirements, metabolism, toxicology and utilization of vitamins in domestic animals. Credit will not be given for both ANSC 523 and HUNU 515. Not offered every year.

ANSC 524 (2-6) D ADVANCED TOPICS IN ANIMAL NUTRITION. [0-0-3]

ANSC 525 (2-6) D ADVANCES IN COMPARATIVE NUTRITION. Qualitative and quantitative differences in nutritional requirements of terrestrial and aquatic species. Recent advances in the physiology of digestion, metabolism and excretion. Prerequisite: ANSC 425.

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 581 (3) FISH DISEASES. Common diseases of fish. Epidemiology, zoonotic potential, prevention and treatment of diseases.

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) HUMAN ORIGINS. The origin and evolution of the human lineage, with emphasis on the fossil record before the Pleistocene; emphasis on a neo-Darwinian evolutionary perspective

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 IN AFRICA, LATIN AMERICA. 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.

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) INTRODUCTION TO PHYSICAL ANTHROPOLOGY. A survey of the sub-discipline with discussions of major issues in each area.

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 (6) 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 technologi-

cal 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. Prerequisite: ANTH 305. Permission of the instructor is also acceptable.

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 PALAEO-LITHIC 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. Prerequisite: ANTH 103. Permission of the instructor is also acceptable.

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. Prerequisite: ANTH 103. Permission of the instructor is also acceptable.

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 historical 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) 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 folktale, 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. Equivalency: GEOG 422.

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 six 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 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 (6) ENGINEERING CASE STUDIES. Application of scientific principles and technical knowledge to practical problems. Introduction to the engineering design process and to engineering graphics. [3-4-2]

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 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. [1-0-2]

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: APSC278 may be taken as a co-requisite. [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 characteristics; 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 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 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 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 597 (6) PROJECT FOR M.ENG. PROGRAM IN PULP AND PAPER ENGINEERING. Project on an assigned topic in student's field of specialization. Literature search, evaluation, mill visit to collect data, analysis of data and project report.

APSC 598 (1-6) D TOPICS IN ENGINEERING.

ARBC — ARABIC STUDIES FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.crns.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

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.E.D. 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.E.D. 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.E.D. 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.E.D. 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.E.D. students. Credit will be given for only one of ARCH 437, ARCH 537.

ARCH 500 (9) ARCHITECTURAL DESIGN 1A. Studies and exercises using the project method as a means of problem-solving in the area of the man-made environment, stimulation of creative ability and the development of skills important to the architect. Prerequisite: ARCH 502.

ARCH 501 (9) ARCHITECTURAL DESIGN 1B. Description as for ARCH 500.

ARCH 502 (2) INTRODUCTORY WORKSHOP. Experiments in specially selected environmental situations carried out during an extended field trip. 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. Developments in modern and contemporary architectural thought. 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 1. 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) TECHNIQUES. Theories, histories and techniques of architectural representation; geometry, design and expression are principal areas of focus. [2-1-1]

ARCH 517 (3) COMPUTER APPLICATIONS IN ARCHITECTURE 1. Instruction in three major topic areas: computer graphics (fundamentals, data organization and interactive systems); project management (scheduling, resource allocation and cost control); and space planning (programming, utilization and design) Computing facility developed in context through hands-on experience and access to program libraries. Prerequisite: ARCH 411.

ARCH 520 (9) ARCHITECTURAL DESIGN 2A. Studies and exercises using the project method as a means of problem-solving in the area of the man-made environment. The stimulation of creative abilities and the further development of skills important to the architect.

ARCH 521 (9) ARCHITECTURAL DESIGN 2B. Description as for 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) CURRENT THEORIES OF ARCHITECTURE. A seminar covering current theories of architecture, based on reading assignments, papers and presentations. Enrolment is limited to facilitate discussion.

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. Studies and exercises of a nature related to problems in man-made environment. Such studies and exercises aim at understanding the environment, of human responses to it and the means the architect may use for defining and solving problems.

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: Successful completion of fourth term review.

ARCH 543 (3) TOPICS IN APPLIED PROFESSIONAL PRACTICE. Individual case studies of a range of current professional topics based on students' prior design work. Successful completion of fourth term review prerequisite. [0-3-0]

ARCH 544 (3/6) D ARCHITECTURAL SEMINAR. An explanation of selected topics in architecture. Course enrolments will be restricted. Permission of instructor required.

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.

ARCH 549 (9) GRADUATION DESIGN PROJECT—PART 2. The development and resolution of the design project set out in Part 1. Prerequisite: ARCH 548.

ARCH 555 (3) CO-OPERATIVE 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-operative Education Program.

ARCH 556 (3) CO-OPERATIVE 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-operative 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 METHODS 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 (3-9) 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 (3-9) 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 (3/6) 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) 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: FINA 181. Six credits of art history are also required. [1-3; 1-3]

ARTE 305 (6) DESIGN IN ART EDUCATION. Exploration of design, particularly in relation to textiles. Prerequisite: FINA 181. Six credits of art history are also required. [1-3; 1-3]

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.

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.

ARTE 402 (3) GRAPHICS FOR THE ART CLASSROOM.

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.

ARTE 404 (3) DESIGN CONTENT FOR THE ART CLASSROOM. Study of design considerations in various art media for the art classroom.

ARTE 405 (3) COMPUTER STUDIES FOR ART EDUCATION. Use of computer technology in teaching and learning of aesthetics and design.

ARTE 406 (3) PHOTOGRAPHIC PRACTICES FOR THE CLASSROOM. Photographic and related printmaking techniques and methods for image development and reasoned criticism in elementary and secondary grades. [1-2]

ARTE 425 (3) EXPLORATIONS IN THE TEACHING OF ART TO CHILDREN: ELEMENTARY. Laboratory-based course involving work with children. [1-3-0]

ARTE 426 (3) ART, EDUCATION AND CULTURAL DIVERSITY. Implications of cultural diversity for teaching of art in elementary and secondary schools. [3-0]

ARTE 441 (3) ART EDUCATION THEORY AND RESEARCH. Art Education theory and research is studied relative to school practice. 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.

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.

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. Equivalency: FINA 100.

ARTH 125 (6) HISTORY OF WESTERN ART. The history of architecture, sculpture, and painting of the Western World from Ancient Egypt and Mesopotamia to the present. Offered Extra-Sessionally only. Credit will not be granted for both ARTH/FINA 125 and ARTH/FINA 225 and/or 226. Equivalency: FINA 125.

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/FINA 125 and ARTH/FINA 225 and/or 226. Equivalency: FINA 225.

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/FINA 125 and ARTH/FINA 225 and/or 226. Equivalency: FINA 226.

ARTH 251 (3) ASPECTS OF ASIAN ART. The arts, excluding architecture, of the civilizations of India, China, and Japan. Equivalency: FINA 251.

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. Equivalency: FINA 253.

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. Equivalency: FINA 261.

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. Equivalency: FINA 262.

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. Equivalency: FINA 300.

ARTH 327 (6) ARCHAEOLOGY OF THE ANCIENT NEAR EAST. Equivalency: RELG 300, 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, FINA 329.

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. Same as RELG 324. Credit granted for only one of ARTH 330, FINA 331, RELG 324 or former RELG 326 (6).

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). Credit granted for only one of ARTH 331, FINA 331, RELG 325 or former RELG 326 (6). Equivalency: RELG 325.

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. Credit granted for only one of ARTH 332, FINA 332, FINA 333, current RELG 326 (3) or former RELG 327 (6). Equivalency: RELG 326.

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. Credit granted for only one of ARTH 333, FINA 332, FINA 333 or RELG 327. Equivalency: RELG 327.

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. Credit granted for only one of ARTH 334 or FINA 335.

ARTH 335 (3) ITALIAN RENAISSANCE ART AND CULTURE (1500-1600). Visual Art and culture within social, political and religious upheaval and fragmentation. Credit granted for only one of ARTH 335 or FINA 335.

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. Credit granted for only one of ARTH 336 or FINA 337.

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. Credit granted for only one of ARTH 337 or FINA 337.

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. Credit granted for only one of ARTH 338 or FINA 339.

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. Credit granted for only one of ARTH 339 or FINA 339.

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. Equivalency: FINA 340.

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. Equivalency: FINA 341.

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. Equivalency: FINA 343.

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. Equivalency: FINA 344.

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. Equivalency: FINA 346.

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. Equivalency: FINA 347.

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. Equivalency: FINA 348.

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. Equivalency: FINA 349.

ARTH 351 (3/6) ISLAMIC ART AND ARCHAEOLOGY. A study of the artifacts of Islam as an expression of Islamic beliefs. Same as 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. Credit granted for only one of ARTH 352 or FINA 357.

ARTH 353 (3) NEPAL AND TIBET: ART, RITUAL AND PERFORMANCE. Art of the Himalayan region situated within social and religious practices, festivals, and performances. Credit granted for only one of ARTH 353 or FINA 357.

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. Credit granted for only one of ARTH 354 or FINA 358. Equivalency: FINA 358.

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. Credit granted for only one of ARTH 355 or FINA 358.

ARTH 358 (3) ARTS OF CHINA'S BRONZE AGE. Bronze, jade, ceramic, and other arts from the Neolithic period to the Zhou Dynasty (prehistoric to 222 BCE), stressing recent archaeological discoveries. Credit granted to only one of ARTH 358 or FINA 351. Equivalency: FINA 351.

ARTH 359 (3) ARTS OF EARLY IMPERIAL CHINA. Tomb furnishings and Buddhist sculpture from the Qin to the Tang Dynasties (222 BCE-907 CE). Credit granted for only one of ARTH 359 or FINA 351.

ARTH 360 (3) EARLY CHINESE PAINTING The formation of painting as art in China from the Tang to the Song Dynasties (618-1279). Credit granted for only one of ARTH 360 or FINA 352.

ARTH 361 (3) LATER CHINESE PAINTING. Chinese painting from the Yuan Dynasty (1279-1368) to the present. Credit granted for only one of ARTH 361 or FINA 352.

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. Credit granted for only one of ARTH 364 or FINA 353.

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. Credit granted for only one of ARTH 365 or FINA 353.

ARTH 366 (3) JAPANESE PAINTING TRADITIONS: 7TH -15TH CENTURIES. The development of earlier Japanese painting with a focus on landscape and narrative handscroll paintings. Credit granted for only one of ARTH 366 or FINA 354.

ARTH 367 (3) JAPANESE PAINTING TRADITIONS: 16TH -19TH CENTURIES. Genre painting of the Momoyama and Edo periods including screens, woodblock prints and other media. Credit granted for only one of ARTH 367 or FINA 354.

ARTH 370 (3) ARTS OF MEXICO'S EARLY PEOPLES. Pre-Aztec monumental and portable arts of the Olmec, Zapotec, Teotihuacan and Classic Veracruz peoples. Credit granted for only one of ARTH 370 or FINA 363.

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. Credit granted for only one of ARTH 371 or FINA 363.

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. Credit granted for only one of ARTH 372 or FINA 365.

ARTH 373 (3) MAYA OBJECTS OF IDENTITY, WEALTH AND STATUS. 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. Credit granted for only one of ARTH 373 or FINA 365.

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. Credit granted for only one of ARTH 376 or FINA 369

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. Credit granted for only one of ARTH 377 or FINA 369

ARTH 397 (6) DIRECTED STUDY ABROAD (SUMMER SCHOOL). Equivalency: FINA 397.

ARTH 429 (3/6) D STUDIES IN THE ART AND ARCHAEOLOGY OF GREECE AND ROME. Equivalency: CLST 429, FINA 429.

ARTH 431 (3) SEMINAR IN ART OF THE EARLY MIDDLE AGES. Equivalency: FINA 431.

ARTH 432 (3) SEMINAR IN ART OF THE HIGH MIDDLE AGES. Equivalency: FINA 432.

ARTH 433 (3) SEMINAR IN ARCHITECTURE OF THE MIDDLE AGES. Equivalency: FINA 433.

ARTH 435 (3) SEMINAR IN 15TH-CENTURY ART. Equivalency: FINA 435.

ARTH 436 (3) SEMINAR IN 16TH-CENTURY ART. Equivalency: FINA 436.

ARTH 437 (3) SEMINAR IN 17TH-CENTURY ART. Equivalency: FINA 437.

ARTH 438 (3) SEMINAR IN 18TH-CENTURY ART. Equivalency: FINA 438.

ARTH 439 (3) SEMINAR IN 19TH-CENTURY ART. Equivalency: FINA 439.

ARTH 440 (3) SEMINAR IN 20TH-CENTURY ART. Equivalency: FINA 440.

ARTH 443 (3) SEMINAR IN CANADIAN ART. Equivalency: FINA 443.

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. Equivalency: FINA 445.

ARTH 448 (3) SEMINAR IN NORTH AMERICAN ARCHITECTURE. Equivalency: FINA 448.

ARTH 451 (3) SEMINAR IN EARLY CHINESE ART. Equivalency: FINA 451.

ARTH 452 (3) SEMINAR IN CHINESE PAINTING. Equivalency: FINA 452.

ARTH 453 (3) SEMINAR IN JAPANESE BUDDHIST ART. Equivalency: FINA 453.

ARTH 454 (3) SEMINAR IN JAPANESE PAINTING. Equivalency: FINA 454.

ARTH 457 (3) SEMINAR IN THE ART OF INDIA. Equivalency: FINA 457.

ARTH 458 (3) SEMINAR IN SOUTHEAST ASIAN ART. Formerly FINA 458

ARTH 463 (3) SEMINAR IN AZTEC ART. Equivalency: FINA 463.

ARTH 465 (3) SEMINAR IN MAYA ART. Equivalency: FINA 465.

ARTH 469 (3) NORTH AMERICAN ABORIGINAL ART. Equivalency: FINA 469.

ARTH 499 (6) HONOURS ESSAY. Equivalency: FINA 499.

ARTH 531 (3/6) D STUDIES IN EARLY MEDIEVAL ART. Equivalency: FINA 531.

ARTH 533 (3/6) D STUDIES IN MEDIEVAL ART. Equivalency: FINA 533.

ARTH 535 (3/6) D STUDIES IN THE ART OF THE RENAISSANCE. Equivalency: FINA 535.

ARTH 537 (3/6) D STUDIES IN 17TH- AND 18TH-CENTURY ART. Equivalency: FINA 537.

ARTH 539 (3/6) D STUDIES IN 19TH-CENTURY ART. Equivalency: FINA 539.

ARTH 540 (3/6) D STUDIES IN 20TH CENTURY ART. Equivalency: FINA 540.

ARTH 543 (3/6) D STUDIES IN CANADIAN ART. Equivalency: FINA 543.

ARTH 548 (3/6) D STUDIES IN NORTH AMERICAN ARCHITECTURE. Equivalency: FINA 548.

ARTH 551 (3/6) D STUDIES IN CHINESE ART. Equivalency: FINA 551.

ARTH 553 (3/6) D STUDIES IN JAPANESE ART. Equivalency: FINA 553.

ARTH 555 (3/6) D STUDIES IN SOUTH AND SOUTHEAST ASIAN ART. Equivalency: FINA 555.

ARTH 561 (3/6) D STUDIES IN THE INDIGENOUS ARTS OF THE AMERICAS. Equivalency: FINA 561.

ARTH 571 (6) THE METHODOLOGY OF ART HISTORY. Required of all art history graduate students. Equivalency: FINA 571.

ARTH 577 (3/6) C DIRECTED READING. Equivalency: FINA 577.

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 311 (3) HISTORY OF CHINESE CIVILIZATION. A survey of Chinese history and culture from ancient times to 1840, with emphasis on the period up to AD 1000. Equivalency: HIST 382.

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 321 (3/6) D THE CIVILIZATION OF LATE IMPERIAL CHINA. Evolution of Chinese civilization from c 1000 to 1600. The cultural and political legacy of the Sung period; the impact of the period of Mongol domination; the Ming period. Cultures of peoples who ruled part or all of China will be touched upon. Not offered every year. Equivalency: HIST 381.

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 INDONESIA. A critical examination of what it means to be a woman or a man within the social and cultural context of Indonesia. 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 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–ca750 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 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. No prerequisites.

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 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 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: Physics 11 and Mathematics 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: Physics 11 and Mathematics 12. [3-3*-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. [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. 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) ASTROPHYSICAL PROCESSES. Diffuse matter; radiation processes; atomic and molecular line emission; cosmic masers; nucleosynthesis; astrophysical hydrodynamics; star formation; shocks and accretion flows; supernova remnants. 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 six credits, a thesis will be required.

ASTR 500 (6) 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 may elect this course with special permission of the department head). Prerequisite: Fourth-year standing in physics honours program or permission of department head is required.

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 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 101 (8) RTES 21ST CENTURY.

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.

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: CPSC 122 and one of ATSC 201, GEOG 200. [2-2-0]

ATSC 304 (3) SYNOPTIC METEOROLOGY AND CLIMATOLOGY. Analysis of meteorological fields, diagnostic analysis of synoptic weather systems, applications of synoptic meteorology. Prerequisite: MATH 101 and one

of ATSC 200, GEOG 200. ATSC 201 or GEOG 201 are recommended. Equivalency: GEOG 304. [3-2-0]

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 GEOG 200, 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: One of GEOG 200, ATSC 201, GEOG 300.

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: EOSC 250 and one of PHYS 312, MATH 316 and one of EOSC 251, 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: All of ATSC 200, ATSC 201. Corequisite: ATSC 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, CPSC 122. [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 Chairperson 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: All of ATSC 304, ATSC 399 and one of ATSC 303, GEOG 303.

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 595 (2-6) D DIRECTED STUDIES.

ATSC 599 (12-15) 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 (3) INTRODUCTION TO NEUROLINGUISTICS. Principles governing the understanding of the relationship between brain and language; brain organization, including lateralization and localization; levels of language disturbance. Prerequisite: All of LING 300, LING 310. [0-0; 3-0]

AUDI 513 (3) ACOUSTIC PHONETICS.

Concepts of acoustics in their practical application to speech, voice and hearing problems, in both normal and pathological situations; the source-filter theory. Prerequisite: All of LING 316, LING 317. [3-0; 0-0]

AUDI 514 (3) AUDITORY MECHANISMS I. The normal hearing process, including auditory physiology and psychoacoustics. Prerequisite: One of PSYC 217, PSYC 367. PSYC 368 is recommended. [3-0; 0-0]

AUDI 516 (3) DISCOURSE ANALYSIS. Speech act theory and description; frameworks for describing discourse genres, structures and organization; overview of discourse development and disorders. Prerequisite: LING 452. [0-0; 3-0]

AUDI 518 (3) FUNDAMENTALS OF AUDIOLOGY. Causes, identification and assessment of hearing impairment; hearing screening, basic audiologic test procedures, interpretation of results, and rehabilitation options. Lab and observations. Open only to students enrolled in the School. Corequisite: All of AUDI 513, AUDI 514, AUDI 522. [2-2; 0-0]

AUDI 520 (3) DEVELOPMENTAL PHONETICS AND PHONOLOGY. Theories of speech sound development, with emphasis on English; analysis of methodology and research techniques; phonetic transcription. Lab. Prerequisite: All of LING 310, LING 311, LING 316, LING 317. LING 312 is recommended. [2-2; 0-0]

AUDI 522 (2) COMMUNICATION DISORDERS: ASSESSMENT AND INTERVENTION. Principles for identifying, screening, evaluating and treating individuals with speech, language and hearing disorders; standardized and non-standardized measures, case history interviewing, development of assessment and treatment plans, and report writing. Lab and observations. Open only to students enrolled in the School.

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 528 (3) AURAL REHABILITATION: PRINCIPLES AND PRACTICE. Current approaches to assessment and rehabilitation of communication problems arising from hearing impairment. Lab. Prerequisite: AUDI 518. [2-2; 0-0]

AUDI 530 (2) RESEARCH METHODS. Procedures suitable for speech-language pathology, audiology, and speech, language

and hearing sciences; includes experimental, quasi-experimental and descriptive paradigms; single-subject and group analyses; culminates in research proposal. [0-0; 2-0]

AUDI 545 (0) ISSUES IN CLINICAL PRACTICE. Ethics, service delivery systems, practice considerations specific to the work place.

AUDI 546 (1-9) D SEMINAR IN AUDIOLOGY AND SPEECH-LANGUAGE SCIENCES. 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 (1-3) D TOPICS IN AUDIOLOGY AND SPEECH SCIENCES. May be taken more than once for credit.

AUDI 552 (3) AUDIOLOGIC ASSESSMENT 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 554 (3) AUDITORY MECHANISMS II. Advanced treatment of the mechanisms of the auditory system; combines auditory physiology and psychoacoustics. Prerequisite: AUDI 514. [0-0; 3-0]

AUDI 556 (3) AURAL REHABILITATION: INSTRUMENTATION. Use of hearing instruments in an aural rehabilitation program, including selection and evaluation. Lab. Prerequisite: All of AUDI 518, AUDI 522. [0-0; 2-2]

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 560 (2) AUDIOLOGIC ASSESSMENT II. Principles and procedures of special audiologic tests; integration of etiologies of hearing loss, effects on the auditory system and audiologic test battery. Lab. Prerequisite: All of AUDI 552, AUDI 554. Corequisite: AUDI 558.

AUDI 562 (2) CHILDHOOD HEARING DISORDERS. Advanced pediatric assessment and management; etiology of childhood hearing loss; speech and language of children with hearing impairment. Prerequisite: All of AUDI 520, AUDI 552, LING 451, LING 452. [2-0; 0-0]

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 570 (3) PHONOLOGICAL AND PHONETIC DISORDERS. Nature, identification, assessment and treatment of disorders of phonology and phonetics; includes cleft lip and palate and other orofacial anomalies; assessment methodology and case management planning. Lab. Prerequisite: All of AUDI 520, AUDI 522. [0-0; 2-2]

AUDI 571 (3) DEVELOPMENTAL LANGUAGE DISORDERS. Nature of such disorders; principled strategies for assessment and intervention; language sample analysis; and critique of current approaches to language intervention. 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) LINGUISTIC APHASIOLOGY. 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. Demands on the language of school age children; classroom discourse; language and curriculum content; bilingualism and cultural diversity; description, identification, and management of language disorders related to academic performance. Prerequisite: All of LING 451, LING 452, AUDI 516. [3-0; 0-0]

AUDI 576 (3) DISORDERS OF SPEECH PRODUCTION. Identification, assessment and treatment of individuals with voice, fluency or motor speech disorders; includes disorders in adults and children, and principles of augmentative/alternative communication. Lab. Prerequisite: All of LING 316, LING 317. [0-0; 2-2]

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 (2) DEVELOPMENTAL SPEECH PERCEPTION. Auditory, phonetic and developmental theories of the perception of speech and nonspeech signals; examination of data, methodologies and research techniques. Lab. Prerequisite: All of AUDI 513, AUDI 520, AUDI 523. [0-0; 2-0]

AUDI 581 (3) COMMUNICATION: SPECIAL POPULATIONS. Acquisition and use of speech and language by people with lifetime challenges, including hearing or visual impairment, mental retardation, autism; management of concomitant communication disorders.

Prerequisite: All of LING 451, LING 452, AUDI 520 and one of PSYC 300, PSYC 302. AUDI 522 and AUDI 571 are recommended. [3-0; 0-0]

AUDI 583 (3) ADVANCED SPEECH SCIENCE. Theories and models of speech production, with particular emphasis on coarticulation, timing control, invariance and motor equivalence. Prerequisite: AUDI 523. [3-0; 0-0]

AUDI 585 (2) DETERMINANTS OF LANGUAGE DEVELOPMENT. Critical examination of current theories of language acquisition; implications for research and clinical practice. Prerequisite: All of LING 451, LING 452. [0-0; 2-0]

AUDI 586 (3) ACQUIRED SPEECH AND LANGUAGE DISORDERS. Treatment of aphasic, head-injured and/or dysarthric individuals; current approaches to intervention, their efficacy and practical application. 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 522, AUDI 526, AUDI 570, AUDI 571, AUDI 576.

AUDI 591 (1-3) D SPEECH-LANGUAGE PATHOLOGY BASIC PRACTICUM II. Prerequisite: AUDI 590.

AUDI 593 (1.5) SPEECH-LANGUAGE PATHOLOGY ADVANCED PRACTICUM I. Prerequisite: All of AUDI 591, AUDI 572, AUDI 575, AUDI 581, AUDI 586.

AUDI 594 (1.5) SPEECH-LANGUAGE PATHOLOGY ADVANCED PRACTICUM II. Prerequisite: AUDI 593.

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 COMMERCE &
BUSINESS ADMINISTRATION

BA 500 (6-20) D MBA CORE.

BA 510 (1.5)

BA 520 (1.5)

**BAAC — BUSINESS ADMINISTRATION:
ACCOUNTING** FACULTY OF COMMERCE
& BUSINESS ADMINISTRATION

BAAC 500 (1.5) FINANCIAL REPORTING.

BAAC 501 (1.5) FINANCIAL STATEMENT
ANALYSIS I.

BAAC 502 (1.5) FINANCIAL STATEMENT
ANALYSIS II.

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.

BAAC 521 (1.5) TAXATION AND DECISION
MAKING II.

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
COMMERCE & BUSINESS
ADMINISTRATION

BABS 500 (1.5) APPLIED BUSINESS
STATISTICS I.

BABS 501 (1.5) APPLIED BUSINESS
STATISTICS II.

BABS 502 (1.5) FORECASTING FOR
MANAGEMENT.

BABS 503 (1.5) ANALYZING MULTIVARIATE
BUSINESS DATA.

BABS 504 (1.5) SURVEY DESIGN AND
ANALYSIS.

BABS 505 (1.5) PROCESS IMPROVEMENT
AND QUALITY CONTROL.

BABS 510 (1.5) CASE STUDIES IN BUSINESS
STATISTICS.

BABS 520 (1.5) EMPIRICAL INVESTIGATIONS
IN FINANCE.

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
COMMERCE & BUSINESS
ADMINISTRATION

BAEN 500 (1.5) ENTREPRENEURSHIP AND
NEW VENTURE CREATION.

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.

BAEN 505 (1.5) VENTURE CAPITAL FINANCE
OF ENTREPRENEURSHIP.

BAEN 506 (1.5) TECHNOLOGY
ENTREPRENEURSHIP I.

BAEN 507 (1.5) TECHNOLOGY
ENTREPRENEURSHIP II.

BAEN 580 (1.5) TOPICS IN
ENTREPRENEURSHIP.

BAEN 590 (1.5/3) D DIRECTED STUDIES IN
ENTREPRENEURSHIP.

**BAFI — BUSINESS ADMINISTRATION:
FINANCE** FACULTY OF COMMERCE &
BUSINESS ADMINISTRATION

BAFI 500 (1.5) BASIC FINANCE.

BAFI 501 (1.5) BANKING AND CAPITAL
MARKETS.

BAFI 502 (1.5) CAPITAL BUDGETING—
VALUATION.

BAFI 503 (1.5) CAPITAL BUDGETING—
ESTIMATION.

BAFI 504 (1.5) CAPITAL STRUCTURE AND
DIVIDEND POLICY.

BAFI 505 (1.5) FINANCIAL PLANNING.

BAFI 506 (1.5) FINANCIAL STRATEGIES.

BAFI 507 (1.5) CORPORATE CONTROL.

BAFI 508 (1.5) CASES IN FINANCIAL
STRATEGY.

BAFI 509 (1.5) DEBT, FINANCIAL DISTRESS,
AND REORGANIZATION.

BAFI 510 (1.5) SECURITY ANALYSIS.

BAFI 511 (1.5) SECURITY PRICING.

BAFI 512 (1.5) OPTIONS AND FUTURES.

BAFI 513 (1.5) INTEREST RATE RISK
MANAGEMENT.

BAFI 514 (1.5) INSTITUTIONAL INVESTMENT.

BAFI 515 (1.5) DYNAMIC PORTFOLIO
STRATEGIES.

BAFI 517 (1.5) OPTIONS ON REAL ASSETS.

BAFI 518 (1.5) FIXED INCOME SECURITIES.

BAFI 519 (1.5) SECURITY MARKET
IMPERFECTIONS.

BAFI 521 (1.5) FOREIGN EXCHANGE RISK
MANAGEMENT.

BAFI 580 (1.5) SPECIAL TOPICS IN FINANCE.

BAFI 590 (1.5/3) D DIRECTED STUDIES IN
FINANCE.

**BAHR — BUSINESS ADMINISTRATION:
HUMAN RESOURCES MANAGEMENT**
FACULTY OF COMMERCE & BUSINESS
ADMINISTRATION

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) EMPLOYEE AND LABOUR
RELATIONS.

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 COMMERCE & BUSINESS
ADMINISTRATION

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
MANAGEMENT.

BAIM 511 (1.5) CENTRAL BANKS AND
CAPITAL MARKETS.

BAIM 512 (1.5) INTERNATIONAL FINANCIAL
ENVIRONMENT.

BAIM 513 (1.5) PACIFIC REGION FINANCIAL
MARKETS.

BAIM 520 (1.5) GLOBAL MARKETING
CHALLENGES.

BAIM 521 (1.5) INTERNATIONAL
MARKETING STRATEGY.

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
MANAGEMENT** FACULTY OF
COMMERCE & BUSINESS
ADMINISTRATION

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: One of BAIT
500, BAIT 501.

BAIT 506 (1.5) BUSINESS MODELING FOR
INFORMATION TECHNOLOGY
APPLICATIONS. Prerequisite: One of BAIT
500, BAIT 501.

BAIT 510 (1.5) MANAGING BUSINESS
INFORMATION TECHNOLOGY PROJECTS.
Prerequisite: One of BAIT 500, BAIT 501.

BAIT 511 (1.5) MANAGING INFORMATION
TECHNOLOGY. Prerequisite: One of BAIT
500, BAIT 501.

BAIT 512 (1.5) CONTROL AND SECURITY OF
INFORMATION RESOURCES. Prerequisite:
One of BAIT 500, BAIT 501.

BAIT 513 (1.5) IMPLEMENTING E-BUSINESS
IN THE ORGANIZATION. Prerequisite: One of
BAIT 500, BAIT 501.

BAIT 514 (1.5) INDUSTRY AND MARKET
TRENDS IN INFORMATION TECHNOLOGY.

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 COMMERCE &
BUSINESS ADMINISTRATION

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 COMMERCE &
BUSINESS ADMINISTRATION

BAMA 500 (1.5) MARKETING
MANAGEMENT.

BAMA 501 (1.5) PRICING.

BAMA 502 (1.5) MANAGING CUSTOMER
CONTACTS.

BAMA 503 (1.5) PRODUCT MANAGEMENT
STRATEGIES.

BAMA 504 (1.5) PROMOTION
MANAGEMENT.

BAMA 505 (1.5) CUSTOMER ANALYSIS.

BAMA 506 (1.5) BUYER BEHAVIOUR.

BAMA 507 (1.5) CREATIVE MARKETING
STRATEGIES.

BAMA 508 (1.5) MARKETING RESEARCH.

BAMA 509 (1.5) ADVERTISING.

BAMA 510 (1.5) PUBLIC AND NONPROFIT
MARKETING MANAGEMENT.

BAMA 512 (1.5) DATABASE MARKETING
AND DATA MINING.

BAMA 580 (1.5) TOPICS IN MARKETING.

BAMA 590 (1.5/3) D DIRECTED STUDIES IN
MARKETING.

**BAMS — BUSINESS ADMINISTRATION:
MANAGEMENT SCIENCE** FACULTY OF
COMMERCE & BUSINESS
ADMINISTRATION

BAMS 500 (1.5) MANAGEMENT SCIENCE-
BEST PRACTICES.

BAMS 501 (1.5) PROBABILISTIC MODELS
FOR MANAGEMENT.

BAMS 502 (1.5) STOCHASTIC PROCESSES.

BAMS 503 (1.5) SIMULATION FOR DECISION
MAKING.

BAMS 504 (1.5) ADVANCED SIMULATION
FOR DECISION MAKING.

BAMS 505 (1.5) APPLICATIONS OF GAME
THEORY IN MANAGEMENT.

BAMS 506 (1.5) OPTIMIZATION MODEL.

BAMS 507 (1.5) THEORY OF OPTIMIZATION.

BAMS 508 (1.5) APPLICATIONS OF DISCRETE
OPTIMIZATION.

BAMS 509 (1.5) THEORY OF DISCRETE
OPTIMIZATION.

BAMS 510 (1.5) PLANNING AND
SCHEDULING FOR OPERATIONS AND
LOGISTICS.

BAMS 511 (1.5) MANUFACTURING AND
SERVICE SYSTEMS.

BAMS 512 (1.5) OPERATIONS STRATEGY.

BAMS 513 (1.5) SCHEDULING AND
CONTROL OF PRODUCTION AND SERVICE
SYSTEMS.

BAMS 514 (1.5) SUPPLY CHAIN
MANAGEMENT.

BAMS 515 (1.5) TOTAL QUALITY
MANAGEMENT.

BAMS 516 (1.5) CURRENT ISSUES IN
OPERATIONS MANAGEMENT.

BAMS 517 (1.5) DECISION ANALYSIS.

BAMS 518 (1.5) MARKOR DECISION PROCESSES.

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 COMMERCE & BUSINESS ADMINISTRATION

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.

BASM — BUSINESS ADMINISTRATION: STRATEGIC MANAGEMENT FACULTY OF COMMERCE & BUSINESS ADMINISTRATION

BASM 500 (1.5) STRATEGIC DECISION MAKING.

BASM 501 (1.5) BUSINESS STRATEGY.

BASM 502 (1.5) CORPORATE STRATEGY.

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 LOGISTICS FACULTY OF COMMERCE & BUSINESS ADMINISTRATION

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 504 (1.5) AIR TRANSPORT POLICY AND GLOBAL ALLIANCE NETWORKS.

BATL 505 (1.5) AIR TRANSPORT MANAGEMENT AND PRACTICES.

BATL 510 (1.5) INTRODUCTION TO LOGISTICS AND OPERATIONS MANAGEMENT.

BATL 511 (1.5) DESIGN OF LOGISTICS AND OPERATIONS SYSTEMS.

BATL 512 (1.5) SUPPLY CHAIN MANAGEMENT FOR E-BUSINESS.

BATL 520 (1.5) PROJECT MANAGEMENT.

BATL 521 (1.5) MANAGEMENT OF INFRASTRUCTURE.

BATL 580 (1.5) CURRENT ISSUES IN LOGISTICS AND OPERATIONS MANAGEMENT.

BATL 590 (1.5/3) D DIRECTED STUDIES IN TRANSPORTATION AND LOGISTICS.

BATM — BUSINESS ADMINISTRATION: TECHNOLOGY MANAGEMENT FACULTY OF COMMERCE & BUSINESS ADMINISTRATION

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 COMMERCE & BUSINESS ADMINISTRATION

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.

BAUL 508 (1.5) REAL ESTATE SECURITIZATION.

BAUL 509 (1.5) REAL ESTATE DEVELOPMENT.

BAUL 510 (1.5) REAL ESTATE AND PORTFOLIO ANALYSIS.

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 SCIENCE

BIOC 300 (6) PRINCIPLES OF BIOCHEMISTRY. An introduction to proteins and enzymes, the major metabolic pathways and control mechanisms and the biochemistry of gene function, with an emphasis on human biochemistry. Students are advised not to take this course unless their standing in the prerequisite is at least 60%. Prerequisite: Either (a) one

of CHEM 204, CHEM 232 or (b) All of CHEM, CHEM 205. [3-0;3-0]

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. Prerequisite: Either (a) BIOL 201 and 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 Majors and Honours students in Biochemistry and Honours students in other life science programs. Prerequisite: Either (a) BIOL 201 and 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. Credits 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 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. 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 (three credits) or a laboratory project with written report (three or six 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 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.SC. 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 540 (3) ADVANCED DESIGN OF BIOAQUATIC SYSTEMS. Technical and economical feasibility studies, design of waste treatment, feeding and rehabilitation systems for aquatic organisms in natural and artificial settings. Prerequisite: BIOE 485.

BIOE 549 (12) MASTER'S THESIS. For M.Sc.

BIOE 554 (3) INSTRUMENTATION FOR BIOMATERIAL RESEARCH. Instruments, theory, applications, methods and standards for measuring and recording temperature, flow, pressure, humidity, time, colour, force, deformation and length. Application to problems in biomaterial research and food engineering. The purpose of this course is to familiarize the student with methods, techniques and problems of measurement.

BIOE 560 (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.

BIOE 561 (3) ADVANCED DRAINAGE. Theory of land drainage; horizontal and vertical drainage; hydrologic characteristics of drainage systems; drainage requirements of crop; salinity control.

BIOE 562 (3) ADVANCED IRRIGATION. Land preparation; irrigation planning and design; water supplies and control; crop growth and water quality.

BIOE 563 (3) QUALITY OF WATER SUPPLIES. Criteria of water quality related to its use. Factors affecting water quality due to desirable and undesirable processes.

BIOE 565 (2) ENVIRONMENTAL CONTROL FOR FOOD RESOURCE PLANNING. Thermal, psychrometric and illumination control in food resource systems. Special problems associated with high population densities in plant and animal confined housing.

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 110 (3) CELLULAR AND ORGANISMAL BIOLOGY. Structure and functioning of cells and multicellular organisms. Lab includes local field trips. Not open to students who have credit for Biology 12. Credit may be obtained for only one of BIOL 110 or 115. [3-2.5-0]

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. Prerequisite: One of Chemistry 12 or CHEM 111 and one of Biology 11, or Biology 12, or BIOL 111. [3-0-1]

BIOL 115 (3) ORGANISMAL BIOLOGY. Structure and functioning of organisms in their habitats. Lab includes local field trips. [3-2.5-0]

BIOL 120 (3) ECOLOGY, GENETICS AND EVOLUTION. Ecological relationships in populations, mechanism of inheritance, evidence for and mechanisms of evolution. [3-2.5-0]

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 (1) LABORATORY INVESTIGATIONS IN LIFE SCIENCE. Guided experimental investigations of biological questions. Prerequisite: One of BIOLOGY12, BIOL 111, BIOL 112. [0-2; 5-0]

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: All of BIOL 112 and one of CHEM 123 or CHEM 113; or all of SCIE 1; or all of BIOL 121 and co-requisite of all of CHEM 203. Transfer students may use seven credits of first-year BIOL and six credits of first-year CHEM in lieu of the other prerequisites. [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. Prerequisite: BIOL 200. Corequisite: One of CHEM 204, CHEM 232, CHEM 233. [3-0-2]

BIOL 204 (4) 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. [3-3-0]

BIOL 205 (4) COMPARATIVE INVERTEBRATE ZOOLOGY. An introduction to the invertebrate phyla. Prerequisite: All of BIOL 121, BIOL 140. [3-3-0]

BIOL 209 (4) 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. [3-3-0]

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: BIOL 121 AND 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 318 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 315 (3) PLANT-MICROBE INTERACTIONS. Introduction to the ecology and physiology of the interactions between plants and microbes. Prerequisite: BIOL 201. Equivalency: PLNT 335. [3-2-0]

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 (3) 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 BRYOPHYTA. 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 201, 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. Credit given for one only of MICB 201 and BIOL 346. 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) CHEM123 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 353 (7) VERTEBRATE PHYSIOLOGY. Lectures in organismic physiology with an emphasis on vertebrates; laboratories with an emphasis on animal physiology. Restricted to Majors and Honours students in Biology and to Majors in Nutritional Sciences. Credit will be given for only one of BIOL 353, BIOL 355, PHYL301. Prerequisite: BIOL 204 and Either (a) CHEM 204 or (b) all of CHEM 233, CHEM 235 or CHEM232 [3-3-0]

BIOL 355 (6) LECTURES IN VERTEBRATE PHYSIOLOGY. Lectures in organismic physiology with an emphasis on vertebrates. Credit will be given for only one of BIOL 353, 355 or PHYL 301. Prerequisite: BIO 204 and Either (a) CHEM 204 or (b) all of CHEM 233, CHEM 235 or all of CHEM 232 [3-0-0; 3-0-0]

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 403 (3) BIOLOGICAL OCEANOGRAPHIC METHODS. A practical course in analytical techniques and field operations as used in biological oceanography. Prerequisite: Permission of the Head of Zoology is also acceptable. Corequisite: One of BIOL 305, EOSC 371. [1-4-1]

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 (3) 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, geneecology, 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 210. 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 (3) 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: BIOL 335 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 Head of Botany or Zoology, and the supervisor required. No more than six 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, after consultation with the Head of Botany or Zoology, and 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 BIOC 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. Permission of the Head of Zoology is also acceptable. [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: One of BIOL 353, BIOL 350, PSYC 360. [3-0-2*]

BIOL 456 (3) COMPARATIVE AND MOLECULAR ENDOCRINOLOGY. A comparative study of vertebrate and invertebrate endocrinology. Prerequisite: BIOL 353. Permission of the Head of Zoology is also acceptable. [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 DEVELOPMENT GENETICS. Detailed analysis of the role of genes in establishment of embryonic polarity and axes, pattern formation, segmentation and establishment of tissue types. A detailed research proposal is developed. Prerequisite: BIOL 463. [3-0-0]

BIOL 465 (3) BIOLOGY OF FISHES. Diversity, ecology, evolution, and phylogenetic relations of fishes. Credit will be given for only one of BIOL 465 and The University College of the Cariboo course, BIOL 329. 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 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.

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 533 (3) SHORT DISTANCE ION TRANSPORT.

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.

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.

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 COMMERCE & BUSINESS ADMINISTRATION

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.

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 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 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 330 (3) FOUNDATIONS OF REAL ESTATE APPRAISAL. Introduction to concepts and techniques for appraising the value of real estate

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.

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 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 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.

BUSI 442 (3) CASE STUDIES IN APPRAISAL I. Examines the day-to day issues that affect the practice of real estate appraisal.

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.

BUSI 444 (6) COMPUTER AIDED MASS PROPERTY ASSESSMENT. This course develops and applies the major techniques for valuing real property. Prerequisite: 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.

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 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 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.

CCST — CRITICAL CURATORIAL STUDIES FACULTY OF ARTS

CCST 500 (6) SEMINAR IN INTERDISCIPLINARY FRAMEWORKS IN MUSEUM AND CURATORIAL STUDIES. Introduces students to 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 (6) 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) 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.

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 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 254 (3) BIOLOGICAL SYSTEMS ENGINEERING. Basic engineering aspects of biological systems; material and energy balances in biological systems; enzyme kinetics and growth models; protein production, fermentation and cell culture methodologies; ecological engineering; biological monitoring, biological applications of thermodynamics. Prerequisite: CHBE 241. [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 330 (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: All of CPSC 152, MATH 256. [3-0-2*]

CHBE 344 (3) UNIT OPERATIONS I. Characterization of particles; comminution, screening and classification; filtration, sedimentation, centrifugal separations and fluidization; thermal operations including evaporation and crystallization; introduction to stage-wise mass transfer operations; extraction and absorption. Prerequisite: Either (a) CHBE 242 or (b) all of CHBE 241, MECH 270; and one of CHBE 251, CIVL 215, MECH 280. [3-0-2*]

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: CHBE 254. [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) BIOLOGICAL PROCESS ENGINEERING. Design and modeling of single and multi-species bioreactors, industrial, fermentation and product recovery systems. Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184 and BIOL 112. Equivalency: MICB 318. [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 hetero-

geneous 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. Prerequisite: CHBE 242. [3-0-0]

CHBE 460 (3) SOIL AND WATER ENGINEERING. Application of engineering principles to soil and water engineering system planning and design; water management practices and water quality; environmental interactions of soil and water management system operations for productive and sustainable land and water resources. Prerequisite: One of CHBE 251, CIVL 215. [2-2*-2*]

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. 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: CHBE 344. [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) ADVANCED TOPICS IN BIOLOGICAL ENGINEERING. Advanced kinetic modeling, bioreactor systems and dynamics. Immobilized cells and enzymes, eukaryote cell cultures, rDNA products, bioseparations and biomedical applications. 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) POLLUTION PREVENTION ENGINEERING FOR CHEMICAL AND PROCESS INDUSTRIES. General concepts of industrial ecology; methodology for implementation of waste minimization programs; impact of in-process changes on waste production; development of closed cycle technologies. The course will make extensive use of industrial examples and case studies. 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; technolo-

gies 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 568 (3) MIXING OPERATIONS IN CHEMICAL PROCESS. Mixing fundamentals; scale of scrutiny; mixing measurement and assessment; mixer types and characteristics, impeller characteristics; viscous and non-Newtonian systems; impact on chemical reactions; industrial practices.

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; electro-winning 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 591 (3) ADVANCED DRAINAGE. Theory of land drainage; horizontal and vertical drainage; hydrologic characteristics of drainage systems; drainage requirements of crop; salinity control.

CHBE 592 (3) ADVANCED IRRIGATION. Land preparation; irrigation planning and design; water supplies and control; crop growth and water quality.

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 Chemistry 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 Chemistry 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 Chemistry 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: Chemistry 12. [3-3*-0]

CHEM 201 (3) INTRODUCTION TO PHYSICAL CHEMISTRY. Principles of chemical kinetics, reaction mechanisms and chemical thermodynamics. For Honours students in all B.Sc. programs and in Chemistry or Biochemistry Major programs. Credit will be given for only one of CHEM 201 and 205. 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. MATH 200 or MATH 253 is recommended. [2-4*-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. [2-4*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 for prospective Honours or Majors students in Science. 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 for prospective Honours or Majors students in Science. Credit will be given for only one pair of CHEM 203, 204, or CHEM 231, 232, or CHEM 233, 235. 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 intended for Honours or Major in Chemistry. Credit will be given for only one of CHEM 201 and 205. Prerequisite: Either (a) all of CHEM 111, CHEM 113 or (b) all of CHEM 121, CHEM 123 or (c) SCIE 001. MATH 101 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. [2-4-1]

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: 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) CHEM 154. [3-0-1*]

CHEM 260 (4) ORGANIC CHEMISTRY FOR ENGINEERS. A description of the properties and reactions of organic compounds with emphasis on compounds and reactions of industrial importance. [2-0-0; 2-0-0]

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: 1 of CHEM 202, and 1 of CHEM 204, CHEM 232, CHEM 233, or 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. MATH 200 is recommended. [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. MATH 200 is recommended. [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: All of CHEM 304, MATH 200. [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. Corequisite: CHEM 312. [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 CHEMISTRY. Principles of quantum mechanics; atomic wavefunctions; angular momentum; spin; atomic term symbols. Prerequisite: Either (a) all of CHEM 121, CHEM 123 or (b) all of CHEM 111, CHEM 113; and one of MATH 101, MATH 121. Corequisite: MATH 200. [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: Either (a) all of CHEM 231, CHEM 232 or (b) all of CHEM 203, CHEM 204. [3-4-0]

CHEM 320 (3) INTRODUCTION TO CHEMICAL SPECTROSCOPY. Transition moments; matrix methods; electron and nuclear magnetic resonance; rotation and vibration spectroscopy; introduction to group theory in chemistry. Prerequisite: CHEM 312 and one of MATH 152, MATH 221. [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: Either (a) all of CHEM 203, CHEM 204 or (b) all of CHEM 231, CHEM 232. [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: One of CHEM 313, CHEM 330. [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) QUANTUM CHEMISTRY. Introduction to variational methods; many-electron systems; semi-empirical methods; perturbation theory; symmetry; ligand field theory. Prerequisite: CHEM 320. [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. CHEM 320 is recommended. [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: Either (a) all of CHEM 203, CHEM 204 or (b) all of CHEM 231, CHEM 232. 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: Either (a) all of CHEM 231, CHEM 232 or (b) 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. 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: CHEM 304. [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. Prerequisite: CHEM 202 and one of CHEM 201, CHEM 205. Credit will not be given for both CHEM 410 and CHEM 502. [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: 2 of CHEM 233, CHEM 235 or 2 of CHEM 231, CHEM 232 or 2 of CHEM 203, CHEM 204 or 1 of 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: CHEM 310. [3-0-0]

CHEM 415 (3) 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. 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. Prerequisite: CHEM 310. [3-0-0]

CHEM 420 (3) MOLECULAR SPECTROSCOPY. A detailed study of rotational, vibrational and electronic spectroscopy. Prerequisite: One of CHEM 320, PHYS 304. [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, 2 of CHEM 203, CHEM 204 or 2 of CHEM 231, CHEM 232 or 2 of CHEM 233, CHEM 235 or 1 of CHEM 260. Recommended: CHEM 304, CHEM 309 and 1 of CHEM 313, CHEM 330. [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. Prerequisite: All of CHEM 304, CHEM 309. Credit will not be given for both CHEM 435 and CHEM 526. [3-0-0]

CHEM 448 (3) DIRECTED STUDIES IN CHEMISTRY. Students will undertake an investigation of a specific topic as agreed upon by a student and the faculty co-supervisors.

Normally available only at University College of the Cariboo or Okanagan University College.

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) INTRODUCTORY QUANTUM MECHANICS. Review of principles. Solution of phenomenological problems by matrix methods. Time evolution of quantum states. Time independent and dependent perturbation theory.

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 both CHEM 407 and CHEM 503.

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) SCATTERING THEORY AND QUANTUM MECHANICS. Continuous energy spectra, transition rates and cross sections. Many electron wave functions, semiempirical methods.

CHEM 511 (3) NUCLEAR CHEMISTRY. Nuclear rotational and vibrational structure, angular correlation theory, nuclear reactions and scattering theory, nuclear synthesis and transuranic elements, mesonic atoms and molecules, muonium 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. The preparation, properties and structures of organic derivatives of metals and metalloids.

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 BIO 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. 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.

**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. Prerequisite: One of CHIN 101, CHIN 102.

**CHIN 200 (3) INTERMEDIATE CHINESE
READING AND WRITING.** Further study of the grammar and syntax of modern Chinese, with emphasis on reading, translating, and writing. Prerequisite: One of CHIN 111, CHIN 112.

**CHIN 201 (3) INTERMEDIATE CHINESE
READING AND WRITING.** Continuation of CHIN 200. Prerequisite: CHIN 200.

**CHIN 202 (6) INTENSIVE INTERMEDIATE
CHINESE I.** Further study of the grammar and syntax of modern Chinese, with emphasis on listening, speaking, reading, and writing. Prerequisite: One of CHIN 111, CHIN 112.

**CHIN 210 (3) INTERMEDIATE CHINESE
CONVERSATION AND COMPOSITION.** Further study of the grammar and syntax of modern Chinese, with emphasis on listening, speaking, and writing. Prerequisite: One of CHIN 111, CHIN 112.

**CHIN 211 (3) INTERMEDIATE CHINESE
CONVERSATION AND COMPOSITION.** Continuation of CHIN 210 Prerequisite: CHIN 210.

**CHIN 212 (6) INTENSIVE INTERMEDIATE
CHINESE II.** Further study of the grammar and syntax of modern Chinese, with emphasis on listening, speaking, and writing. Prerequisite:

CHIN 111 or CHIN 112 for heritage students, and CHIN 202 for non-heritage students.

**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. 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. 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. 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) INTENSIVE READING IN 20TH
CENTURY CHINESE LITERATURE.** An intensive course for students who have acquired a good reading knowledge of modern Chinese before entering the university. Prerequisite: Either (a) all of CHIN 301, CHIN 311 or (b) all of CHIN 302, CHIN 312.

CHIN 330 (3) CLASSICAL CHINESE I. An introduction to the grammar and syntax of Classical Chinese. Prerequisite: Either (a) all of

CHIN 201, CHIN 211 or (b) all of CHIN 202, CHIN 212.

CHIN 331 (3) CLASSICAL CHINESE I. Continuation of CHIN 330 Prerequisite: CHIN 330.

**CHIN 332 (6) INTENSIVE CLASSICAL
CHINESE I.** An introduction to the grammar and syntax of Classical Chinese. Prerequisite: Either (a) all of CHIN 201, CHIN 211 or (b) all of CHIN 202, CHIN 212.

**CHIN 380 (6) READING COURSE IN CHINESE
FOR HONOURS STUDENTS.**

**CHIN 410 (3) TWENTIETH-CENTURY CHINESE
SHORT STORY I.** Selected short fiction from 1917 to the present. Only for students who do not have a good reading knowledge of modern Chinese before entering University. Prerequisite: One of CHIN 301, CHIN 302. Completion of 60 credits is also required.

**CHIN 411 (3) TWENTIETH-CENTURY CHINESE
SHORT STORY II.** Continuation of CHIN 410.
Prerequisite: CHIN 410.

**CHIN 412 (6) TWENTIETH-CENTURY CHINESE
SHORT STORY.** Selected short fiction from 1917 to the present. Only for students who do not have a good reading knowledge of modern Chinese before entering the University. Prerequisite: One of CHIN 301, CHIN 302. Completion of 60 credits is also required.

**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. Prerequisite: 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.** Advanced readings in Classical Chinese literary, historical, and philosophical texts. 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 AND DRAMA I. Selected passages from thirteenth-century drama and seventeenth- to nineteenth-century fiction. 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.

CHIN 451 (3) PRE-MODERN CHINESE FICTION AND DRAMA II. Continuation of CHIN 450. Prerequisite: CHIN 450.

CHIN 452 (6) PRE-MODERN CHINESE FICTION AND DRAMA. Selected passages from thirteenth-century drama and seventeenth- to nineteenth-century fiction. 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.

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.

CHIN 461 (3) READINGS IN CLASSICAL CHINESE POETRY I. Continuation of CHIN 460. Prerequisite: CHIN 460.

CHIN 462 (6) READINGS IN CLASSICAL CHINESE POETRY I. Translation and analysis of selected works, especially from pre-Han, North-South, and early Tang periods. Prerequisite: One of CHIN 331, CHIN 332.

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.

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.

CICS — COMPUTING INFORMATION AND COGNITIVE SYSTEMS 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 121 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, and registration forms, 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. [3-0-0]

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. [4-0-0]

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, including preparation of an assigned specification. Torts and independent contractor; sources of law and major

subdivisions, Companies; partnerships; mechanics liens; agency; evidence; expert witness Engineers Act and Code of Ethics; The Association of Professional Engineers and Geoscientists of BC; industrial design and trade secrets; employment law for engineers; liability implications of consulting engineering. Prerequisite: Fourth-year standing. [1-2-0]

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, groundwa-

ter 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. 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. [3-0-0]

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. [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: PHYS 101. 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. Requires approval of the Department Head.

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 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 (2) ENVIRONMENTAL FLUID MECHANICS. Analysis of density stratified flows with application to water quality problems in inland and coastal waters.

CIVL 542 (2) 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 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 (2) PHYSICAL-CHEMICAL TREATMENT PROCESSES. Development of the principles of selected physical and chemical treatment unit operations. Example applications will be drawn from both the water and wastewater treatment areas.

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 (3) NUMERICAL METHODS IN SOIL MECHANICS. Applications of finite difference and finite element analysis to the solution of stress, seepage, and consolidation problems. Constitutive modeling. Foundation vibrations. Seismic analysis of earth structures.

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 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.

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.

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 (2) 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.

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.crnns.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. Equivalency: ANTH 204.

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. Plato; 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, PAGAN AND CHRISTIAN. Women in the Roman world in the culture of the Republic and the Empire and in the Christian subculture of Late Antiquity. 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 AND ANCIENT PROSE FICTION. Vergil's Aeneid, Ovid's Metamorphoses. Classical forerunners of the novel: Petronius' Satyricon, Apuleius' Golden Ass, Longus' Daphnis and Chloe, Heliodorus' Ethiopian Story. In translation.

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/FINA 329.

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 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 336 (3) GREEK PHILOSOPHY AND LITERATURE FROM HOMER TO SOPHOCLES. Major philosophical and literary ideas of the Archaic Age of Greece (750-440 BC).

CLST 337 (3) GREEK PHILOSOPHY AND LITERATURE IN THE SOPHISTS, PLATO AND ARISTOTLE. The literature of the last third of the fifth century BC and selected works of Plato and Aristotle studied as evidence of the relation between Greek literature and philosophy, and as sources for theories of literature.

CLST 339 (3) THE ANCIENT NEAR EAST. A history of the ancient Near East from 3100-333 B.C. with emphasis on Egypt and Mesopotamia.

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, such as classical astronomy and ancient medicine.

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/FINA 429.

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) TOPICS IN GREEK ARCHAEOLOGY.

CLST 519 (3/6) TOPICS IN ROMAN ARCHAEOLOGY.

CLST 520 (3/6) DIRECTED STUDIES IN GREEK ARCHAEOLOGY.

CLST 521 (3/6) DIRECTED STUDIES IN ROMAN ARCHAEOLOGY.

CLST 547 (3) 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 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) 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 in Master's program.

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: 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 in the Doctoral program.)

CNPS 698 (6) PRE-DOCTORAL INTERNSHIP. A 1600-hour supervised internship in Counselling Psychology. Internship sites offer counselling services as detailed in the "Speciality Guidelines for the Delivery of Services by Counselling Psychologists" (APA).

CNPS 699 (0) DOCTORAL THESIS.

CNRS — CLASSICAL, NEAR EASTERN & RELIGIOUS STUDIES FACULTY OF ARTS

Not all courses are offered every year. For current listings, consult the departmental website at: www.crn.s.ubc.ca.

CNRS 500 (3) JERUSALEM AND ATHENS.

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 400 (6) SPECIAL TOPICS IN COGNITIVE SYSTEMS. Interdisciplinary seminar and research course dealing with theory, methods, and current research topics. Prerequisite: This course is restricted to students majoring in Cognitive Systems with fourth year standing in the Faculty of Arts or Science. [3-3-0; 0-0-3]

COML — COMPARATIVE LITERATURE 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 549 (6/12) C MASTER'S THESIS.

COML 649 (0) PH.D. THESIS.

COMM — COMMERCE FACULTY OF COMMERCE & BUSINESS ADMINISTRATION

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 201 (3-36) D STUDY ABROAD, LANGUAGE. 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 (4) 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 (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: COMM 290.

COMM 292 (4) 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, FRE 295, COMM 295. Prerequisite: All of ECON 100, MATH 105.

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. Prerequisite: All of COMM 290, COMM 293, MATH 105 and one of COMM 295, ECON 201. [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 301 (3-36) D STUDY ABROAD, ADVANCED LANGUAGE. 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.

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: One of COMM 295, ECON 201 and COMM 297.

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 216.

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. Prerequisite: One of COMM 291, COMM 237.

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. Prerequisite: All of COMM 290, COMM 291 and one of ECON 101, COMM 295. 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, COMM 297, COMM 397.

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: All of COMM 391, 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. Corequisite: COMM 391.

COMM 371 (3) THEORY OF FINANCE. Basic concepts of corporate finance, including security valuation and financial decisions by the corporation. Prerequisite: 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: 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: COMM 297.

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: 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 hedging 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 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) LABOUR RELATIONS. Management of employment relations as conducted through collective bargaining and trade unions. Emphasis on public policy, negotiation processes, and dispute resolution. Prerequisite: All of COMM 292, ECON 101, ECON 102.

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 (4) 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.

COMM 396 (4) INTRODUCTION TO MARKETING. Basic considerations affecting the domestic and international marketing of

goods and services. Prerequisite: All of COMM 293, COMM 295.

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. Grading: 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.

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: COMM 297 and one of COMM 295, ECON 201.

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.

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) ADVANCED TOPICS IN ORGANIZATIONAL BEHAVIOUR. Human behavioural processes and their effects on individual behavior in organized work settings. Topics may include social comparison, frustra-

tion, power, stratification, and attribution processes. 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: COMM 437.

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. Prerequisite: 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: COMM 295.

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 206.

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: COMM 295.

COMM 449 (3) SUPPLY-CHAIN MANAGEMENT. Integrated management of production and logistics systems; management of inter-organizations relationships in the supply chain, including vendor selection, bidding and negotiation processes, partnering and performance measurement. Prerequisite: COMM 349.

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: 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: All of COMM 293, COMM 297, 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: All of ECON 101, ECON 102, COMM 457.

COMM 468 (3) MARKETING STRATEGY. 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 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: ECON 101. At least six credits of university-level mathematics. Corequisite: 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 individ-

ual 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 third and fourth year). Prerequisite: Either (a) all of ECON 101, ECON 102 or (b) all of ECON 310, ECON 311; and COMM 457. Corequisite: Two of COMM 329, COMM 458, COMM 465, COMM 473.

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) 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) M.B.A. MAJOR ESSAY.

COMM 548 (3) DIRECTED STUDY IN BUSINESS ADMINISTRATION.

COMM 549 (6/12) C MASTERS 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) 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 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 nine 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 AND FOREST SCIENCES. 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. Theory and tools needed for the selection and design of protected areas, the designation of land use types, and the management of biodiversity in the context of human use. Theory in landscape ecology, land use planning, outdoor recreation planning, and ecosystem management. [2-2]

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. Emphasis on case studies, principles and paradigms which demonstrate conservation successes and failures. 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 (4) SEMINAR IN BIOLOGICAL CONSERVATION. Topics in conservation biology with application to current issues and particular reference to (but not limited to) forested ecosystems. [2-1; 2-1]

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 for credit. 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. 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>). 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.

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: Mathematics 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: Mathematics 12 [3-2-1]

CPSC 122 (4) PRINCIPLES OF COMPUTER PROGRAMMING. Systematic study of algorithms and data structures using an object-oriented programming language. Introduction to the foundations of computer science. Credit will only be given for one of CPSC 122 and 124. Corequisite: One of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184. [3-3-1]

CPSC 124 (4) PRINCIPLES OF COMPUTER SCIENCE I. Mathematical introduction to computer science, including procedural and data abstraction, and an introduction to program design methodology. This course is normally followed by CPSC 126. Computer Science 12 (provincial) is helpful. Corequisite: One of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184. [3-3-1]

CPSC 126 (4) PRINCIPLES OF COMPUTER SCIENCE II. Mathematical introduction to computer science, including models of

computation, program design methodology, computer organization and compiling. The sequences CPSC 124/126 or CPSC 122/128 are the intended prerequisite for advanced study in Computer Science. Credit will not be given for both CPSC 126 and CPSC 128. [3-3-1]

CPSC 128 (4) PRINCIPLES OF COMPUTER SCIENCE. Mathematical introduction to computer science, including procedural and data abstraction, program design methodology, models of computation, computer organization, and compiling. This course covers topics from CPSC 124/126 not included in CPSC 122. Credit will not be given for both CPSC 126 and 128. [3-3-1]

CPSC 152 (3) PRINCIPLES OF SOFTWARE DEVELOPMENT. The design and testing of software. Program design: types, variables, subroutines; control structures and data structures; recursion; testing. Credit will be given for only one of CPSC 122, 124 and 152. Prerequisite: Three credits of first-year Mathematics (may be taken concurrently). [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: CPSC 111. [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: All of CPSC 121, 211. [3-3-0]

CPSC 216 (4) PROGRAM DESIGN AND DATA STRUCTURES. Introduction to techniques for designing and implementing programs of intermediate complexity. Program design methodology, especially object-oriented programming. Programming environments. Data structures, especially graphs and trees. Algorithms for searching and sorting. Students will undertake a programming project. [3-2-1]

CPSC 218 (4) COMPUTER ORGANIZATION. Overview of computer organization. Sequential and combinational circuits. Finite-state machines. Microinterpreters and microprogramming. Stack and register machine languages. Memory hierarchies. Processes. Credit will be given for only one of CPSC 218 and EECE 259. [3-2-1]

CPSC 219 (3) SOFTWARE DEVELOPMENT LABORATORY. Techniques for programming and software development, productivity and quality, including debugging and testing methods and tools, input techniques, software configuration, and scripting languages. Prerequisite: One of CPSC 126, CPSC 128 or CPSC 122 with second-year standing. [1.5-2-2]

CPSC 220 (3) INTRODUCTION TO DISCRETE STRUCTURES. An introduction to computer science applications of discrete mathematics. Sets; logic; functions and relations; induction;

program correctness; mathematical rigour; algorithms and applications. Prerequisite: MATH 101. Corequisite: One of CPSC 126, CPSC 128. [3-0-1]

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, 103, 105, 121. [3-2-0]

CPSC 252 (4) PROGRAM DESIGN AND DATA STRUCTURES FOR ENGINEERS. Object-oriented design and data abstraction; data structures including lists, trees and graphs; searching and sorting algorithms. Credit will be given for only one of CPSC 216 or CPSC 252. Prerequisite: CPSC 152. [4-3-0]

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 122, CPSC 126 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 122, CPSC 126 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: One of CPSC 216, CPSC 252 and one of CPSC 220, EECE 320. [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: All of CPSC 216, CPSC 219, CPSC 220. [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: All of CPSC 216, CPSC 220. [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: All of CPSC 216, CPSC 220. [3-0-1]

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: All of CPSC 213, CPSC 221. [3-0-1]

CPSC 315 (3) INTRODUCTION TO OPERATING SYSTEMS. Introduction to batch, multiprogramming and time-sharing systems. Process synchronization and communication. Main memory allocation techniques including virtual memory. Process scheduling. Deadlock avoidance and prevention. File organization and device management. Credit can be obtained for only one of CPSC 315 or EECE 315. Prerequisite: One of CPSC 216, CPSC 252 and one of CPSC 218, EECE 259. [3-0-1]

CPSC 318 (3) MACHINE STRUCTURES. Machine organization and classification. Instruction formats and addressing. Input/Output including bus protocols, memory-mapped I/O, direct memory access, and interrupts. Processor architectures including instruction classes, instruction cycle, micro-programming, representation of numeric and non-numeric data. Memory organization. Advanced computer architectures. Credit will be given for only one of CPSC 318, ELEC 476. Prerequisite: All of CPSC 216, CPSC 218. [3-0-1]

CPSC 319 (4) SOFTWARE ENGINEERING PROJECT. The design, implementation, and test of a large software system, using a team approach. [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: One of CPSC 216, CPSC 252 and one of CPSC 220, EECE 320. In addition to above pre-requisites: 6 credits of [2nd Yr. Math of Stats] or 3 credits of [2nd Yr. Math or Stats] and 72% average. [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: All of CPSC 216, CPSC 220. [3-0-0]

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 enroll. [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 application 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 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: STAT 241 and one of CPSC 216, CPSC 252. [3-0-0]

CPSC 410 (3) ADVANCED SOFTWARE ENGINEERING. Specification, design, construction and validation of multi-version software systems. Prerequisite: CPSC 310 and one of CPSC 319, EECE 419. Corequisite: Co-op students may take CPSC 319 or EECE 419 as a corequisite. [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: All of CPSC 218, CPSC 311. [3-0-0]

CPSC 414 (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. Credit will not be given for both CPSC 414 and EECE 478. Prerequisite: All of CPSC 216, MATH 200, MATH 221. [3-1-0]

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: CPSC 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. Prerequisite: CPSC 315. CPSC 318 is 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: 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: 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: All of CPSC 216, CPSC 220. 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: All of CPSC 216, MATH 221, MATH 317. Corequisite: One of CPSC 414, EECE 478. [3-0-1]

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: Three credits of Computer Science and at least third-year standing. [3-0-0]

CPSC 435 (3) COMPUTER-BASED IMAGE ANALYSIS FOR FOREST INVENTORY. The digital processing of remotely sensed image data for forest inventory. Techniques for acquiring, calibrating, registering, enhancing and interpreting digital satellite data. Digitized planimetric and topographic map databases. Case studies of existing forest inventory systems. Prerequisite: CPSC 216. Equivalency: FRST 435. [3-0-1]

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. Prerequisite: CPSC 310. Corequisite: CPSC 319. [3-1-0]

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 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) DATABASE DESIGN. Organizing information as relations. Information retrieval through queries against relations. Storing relations as data. Efficient storage and retrieval of data needed by queries. Reliability integrity and security considerations in database design. Prerequisite: CPSC 404.

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. Integrating software with hardware. Software engineering aspects of real-time and distributed systems. Safety-critical systems.

Reliability measures. System validation. Formal specification and verification. Cost estimation and scheduling. Students will undertake a programming project. Prerequisite: All of CPSC 310, CPSC 311, CPSC 318.

CPSC 514 (3) COMPUTER GRAPHICS: HARDWARE AND VISUALIZATION.

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 518 (3) COMPUTER SYSTEMS PERFORMANCE EVALUATION. Basic computer performance evaluation techniques of measurement, simulation and mathematical modeling. Applications to performance improvement, computer selection, planning and computer design. Prerequisite: CPSC 315.

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 ALGORITHM AND ARCHITECTURE.

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. Applica-

tions in question-answering interfaces for large databases. Prerequisite: CPSC 503.

CPSC 524 (3) COMPUTER GRAPHICS: MODELING AND RENDERING.

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 DATABASE DESIGN. Possible topics: studies of particular database systems, design of special query languages, and studies of efficiency, reliability, and security in databases.

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 542 (2-6) D TOPICS IN NUMERICAL COMPUTATION. Various topics not covered in specific graduate courses in numerical computation.

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 589 (3) M.S.C. MAJOR ESSAY.

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 advisor may assign marks equal to three 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 advisor may assign marks equal to three 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.

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. [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 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, 311. Or teaching experience.

CUST 440 (3/9) D SPECIAL STUDY IN A SUBJECT-MATTER FIELD. Topics in a subject field relevant to secondary teaching and not covered in previous undergraduate work. Permission of the Head is required. Open only to secondary students admitted with an academic deficiency. Not for credit toward a graduate degree or for undergraduate credit in an academic subject. Pass/Fail.

CUST 510 (3) VIDEO ETHNOGRAPHY IN EDUCATION RESEARCH: CULTURE, TECHNOLOGY AND INTERPRETATION. Prerequisite: 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) ISSUES IN CURRICULUM PLANNING AND 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) DOCTORAL SEMINAR.
CUST 602 (3/6) DOCTORAL SEMINAR.
Pass/Fail
CUST 699 (0) DOCTORAL THESIS.

DENT — DENTISTRY FACULTY OF DENTISTRY

DENT 407 (6) ORAL HEALTH CARE IN RESIDENTIAL CARE SETTINGS.

DENT 410 (9) DENTISTRY I. An initial exposure to clinical dentistry in the UBC dental clinic and the practicing community. In problem-based tutorials and clinical settings, students will be introduced to professional behaviour, critical evaluation of literature, dental ergonomics, infection control, patient assessment, and the fundamentals of oral disease.

DENT 420 (9) DENTISTRY II. An initial exposure to clinical dentistry in the UBC dental clinic and the practicing community. In problem-based tutorials and clinical settings, students will be introduced to professional behaviour, critical evaluation of literature, dental ergonomics, infection control, patient assessment and the fundamentals of oral disease. 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 431 (34) ASSOCIATE DENTAL CLERKSHIP. A continuing integrated clinical, affective and cognitive environment where students participate in group practices, and assume more individual practice responsibilities. More advanced clinical procedures will be learned in clinical simulation. Prerequisite: DENT 430. May be taken as corequisite. [5-6-18]

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) 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 SCIENCES. 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] Prerequisite: One of HCEP 400, EPSE 482. prerequisites required for the 2 credit version Corequisite: One of HCEP 400, EPSE 482. corequisite required for the 2 credit version [0-0-0; 2-0-0]

DHYG 402 (6) DENTAL HYGIENE CARE. Dental hygiene concepts, processes, and skills for individuals and communities. [3-0-0; 3-0-0]

DHYG 404 (6) ADVANCED DENTAL HYGIENE CARE. 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.

DHYG 435 (3) ORAL PATHOLOGY. Pathobiology of oral diseases.

DHYG 461 (4) LITERATURE REVIEW IN PERIODONTOLOGY I. [2-0-0; 2-0-0]

DHYG 462 (4) LITERATURE REVIEW IN PERIODONTOLOGY II. A continuation of OBMS 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 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.

EADM 598 (3-12) C FIELD EXPERIENCES.

EADM 599 (6/12) C MASTER'S THESIS.

EADM 699 (0) DOCTORAL THESIS.

ECED — EARLY CHILDHOOD EDUCATION FACULTY OF EDUCATION

ECED 333 (3) PREKINDERGARTEN 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, prekindergarten through primary. [3-0]

ECED 343 (3) PREKINDERGARTEN INSTRUCTION. Planning and implementing prekindergarten learning experiences; resources, materials, guidance, curriculum integration, evaluation, scheduling, and classroom design. [3-0]

ECED 405 (3) FOUNDATIONS OF CURRICULUM AND INSTRUCTION IN EARLY CHILDHOOD EDUCATION.

ECED 415 (3) SUPPORTING LEARNING IN THE PRIMARY YEARS. Corequisite: ECED 405 or teaching experience

ECED 425 (3) ADVANCED STUDIES IN CURRICULUM DEVELOPMENT: NON-GRADED PRIMARY PROGRAM. The development, organization, and implementation of non-graded integrated primary programs with an emphasis on the individualization of instruction and the continuous progress of students. Implications of recent research on non-graded programs are considered in the context of educational practice. Prerequisite: ECED 405. [3-0]

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) KINDERGARTEN INSTRUCTION. 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.

ECED 598 (3-12) C FIELD EXPERIENCES. For those in 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 prereq-

quisite 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 and ECON 206, ECON 301, ECON 304. 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 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. Prerequisite grade requirement: 68% in MATH 105, MATH 104, ECON 102, ECON 101. 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 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, 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: ECON 101 and one of MATH 105, 101, 103.

ECON 302 (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, ECON 207, ECON 302, ECON 305. Prerequisite: All of ECON 101, 102 and one of MATH 105, 101, 103.

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 MATH 105, MATH 101, MATH 103 and one of ECON 201, ECON 206, ECON 301, ECON 304.

ECON 304 (3) HONOURS INTERMEDIATE MICROECONOMIC ANALYSIS. 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: ECON 101 and one of MATH 101, 103, 105.

ECON 305 (3) HONOURS 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, ECON 207, ECON 302 or ECON 305. Prerequisite: All of ECON 101, 102, MATH 104, 105.

ECON 306 (3) INTERMEDIATE MICROECONOMICS II. Factor markets, general equilibrium, uncertainty and information, contract theory, externalities, public goods, welfare. An intensive version of ECON 303. Intended primarily for prospective honours and other qualified students. Credit may be obtained for only one of ECON 303 and 306. Prerequisite: One of ECON 206, ECON 304. 68% is required in ECON 206, or ECON 304. Permission of the department is also acceptable.

ECON 307 (3) INTERMEDIATE MACROECONOMICS II. Theories of economic growth and the business cycle. Intended primarily for prospective honours and other

qualified students. Prerequisite: One of ECON 207, ECON 305. At least 68% is required. 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 ECON 101. 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 and one of MATH 104, MATH 100, MATH 102, MATH 140, MATH 180, MATH 184 and one of MATH 105, MATH 101, MATH 103, MATH 141.

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 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, 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 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, 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; and one of ECON 202, ECON 207, ECON 302, ECON 305.

ECON 407 (3) TOPICS IN MACROECONOMICS. Selected topics in advanced macroeconomic analysis. Prerequisite: One of ECON 201, ECON 206 and one of ECON 202, ECON 207 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, 206, 304, 301 and one of ECON 202, 207, 305, 302. 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 co-requisites.)

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, 206, 301, 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 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 ECON 355 and ECON 455. 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 301, ECON 304.

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.

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, Honours and Combined Majors in Economics in fourth year. Prerequisite: All of ECON 325, ECON 326 and one of ECON 201, ECON 206, ECON 301 and one of ECON 202, ECON 207, ECON 302. For additional possible prerequisites see individual

course descriptions on the departmental website.

ECON 492 (3/6) C DIRECTED READING.

ECON 495 (6) HONOURS SEMINAR. Reports and group discussions of selected topics. Open only to Honours students in fourth year.

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) TOPICS IN APPLIED ECONOMETRICS I. Prerequisite: Prior graduate-level work in econometrics is required.

ECON 629 (1-3) 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.

EDCI — EDUCATION CURRICULUM AND INSTRUCTIONAL STUDIES FACULTY OF EDUCATION

EDCI 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]

EDCI 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.

EDCI 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]

EDCI 488 (3) KEY CURRICULAR ORIENTATIONS: PROGRESSIVISM. Key concepts and practical implications of progressive curricular orientations. [3-0]

EDCI 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.

EDCI 561 (3-12) C LABORATORY PRACTICUM.

EDCI 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.

EDCI 567 (3/6) C PROBLEMS AND ISSUES IN ELEMENTARY EDUCATION. Recent developments, current issues, analysis and evaluation of research in elementary education.

EDCI 572 (3/6) D ADVANCED SEMINAR IN CURRICULUM. Examination of current theories and practices in the curriculum field 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.

EDCI 580 (3-12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

EDCI 590 (3) GRADUATING PAPER.

EDCI 598 (3-12) C FIELD EXPERIENCES. For those in master's, doctoral and diploma programs.

EDCI 599 (6-12) C MASTER'S THESIS.

EDCI 601 (3-12) C DOCTORAL SEMINAR.

EDCI 699 (0) DOCTORAL THESIS.

**EDST — EDUCATIONAL STUDIES
FACULTY OF EDUCATION**

EDST 314 (3) THE ANALYSIS OF EDUCATION. Concepts, abilities, and procedures for assessing educational claims, policies, and practices. Pass/Fail. [3-0-0]

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.

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.

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.

EDST 428 (3) THE SOCIAL FOUNDATIONS OF EDUCATION. An application of the social sciences to the study of education.

EDST 429 (3) EDUCATIONAL SOCIOLOGY. Selected theories of society and schooling applied to Canadian education.

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.

EDST 452 (3) GENDER AND EDUCATION.

EDST 453 (3) MORAL EDUCATION IN ELEMENTARY AND SECONDARY SCHOOLING. Approaches to moral education; developing educationally and morally justifiable teaching strategies.

EDST 454 (3) CRITICAL THINKING: FRAMEWORKS, METHODS, AND CHALLENGES. Competing conceptions of critical thinking, including feminist and post-colonial; teaching and evaluation strategies.

EDST 455 (3) HISTORY OF CHILDHOOD AND YOUTH.

EDST 500 (3/6) D MEMORY AND THE CONSTRUCTION OF THE EDUCATIONAL PAST.

EDST 501 (3/6) D MAKING SENSE OF SEX: GENDER AND THE HISTORY OF EDUCATION.

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) SCHOOLING BODIES: HISTORICAL PERSPECTIVES ON EDUCATION AND HEALTH.

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) RACE AND NATION IN THE HISTORY OF EDUCATION.

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.

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) DOCTORAL SEMINAR. Required of students in the first year of a doctoral program. To be graded as pass/fail.

EDST 602 (3/6) C DOCTORAL SEMINAR. For students in the second year of a doctoral program.

EDST 690 (0) ED.D. THESIS.

EDST 699 (0) DOCTORAL THESIS.

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 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. [3-0]

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. [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. 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. 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. 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 co-requisites. [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.

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 (18) EXTENDED PRACTICUM: ELEMENTARY. A developmental program of teaching practice, normally in one BC elementary school. Candidates will teach all subjects in the elementary curriculum. The assignment covers the full school term. Prerequisite: All requirements set to precede this practicum. [0-40]

EDUC 419 (18) EXTENDED PRACTICUM: MIDDLE YEARS. Candidates will teach the subjects for which they have been academically and pedagogically prepared. Prerequisite: All requirements set to precede this practicum. [0-40]

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. 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. 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.

EECE — ELECTRICAL & COMPUTER ENGINEERING FACULTY OF APPLIED SCIENCE

EECE 201 (7) PROJECT INTEGRATED PROGRAM I. This is a project based learning equivalent of EECE 251, EECE 256, EECE 280. [4-4-3]

EECE 202 (16) PROJECT INTEGRATED PROGRAM II. This is a project based learning equivalent of EECE 253, EECE 254, EECE 259, EECE 261, EECE 281, and EECE 285. Prerequisite: Either (a) EECE 201 or (b) all of EECE 251, EECE 256, EECE 280. [7-8-10]

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. [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 non-linear electronic circuits including 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 sequential 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. Credit given for only one of CPSC 213 and EECE 259. 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. Prerequisite: MATH 255. (Students may take MATH 256 concurrently in lieu of MATH 255.) [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. Prerequisite: Either (a) CPSC 252 or (b) all of CPSC 128, CPSC 216. [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. EECE 314 may not replace CPSC 216 as a prerequisite for Computer Science courses. Students who intend to register for additional Computer Science courses must take CPSC 216. Prerequisite: CPSC 252 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: EECE 259 and one of (a) CPSC 252, or (b) all of CPSC 128, CPSC 216. [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: Either (a) EECE 256 and CPSC 252; or (b) all of CPSC 128, CPSC 216, EECE 256. [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 252. [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 (4) 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 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. Prerequisite: EECE 254 and one of EECE 253, EECE 263. [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. Students taking this course will not be eligible for credit for EECE 369. Prerequisite: One of EECE 253, EECE 263. [3-0-0]

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 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. Students may replace EECE 369 with either EECE 359 or EECE 360. Prerequisite: One of EECE 202, EECE 253. [3-1-0]

EECE 370 (3) ELECTRICAL MACHINES AND POWER TRANSMISSION. A study of the basic types of electric motors and generators, transformers, rectifiers and inverters; electrical power measurements; distribution of electrical energy. Not open to students in Electrical and Computer Engineering. Prerequisite: One of EECE 251, EECE 263. [2-2*-1*]

EECE 371 (3) INDUSTRIAL POWER SYSTEMS. Three-phase supplies. Per-unit modelling. Fault analysis. Symmetrical components. Protection. Grounding Voltage regulation. Motor starting. Harmonics. Prerequisite: One of EECE 253, EECE 202 and one of EECE 261, EECE 202, PHYS 251. [3-0-0]

EECE 372 (3) ELECTRICAL MACHINES. Magnetic circuits and transformers. Electromechanical conversion. DC machines Induction motors. Synchronous machines. Stepper motors. Power electronic controllers. Prerequisite: EECE 371. [3-0-0]

EECE 373 (4) ELECTRO-MECHANICAL ENERGY CONVERSION AND TRANSMISSION. Three phase transformers and harmonics; distributed windings and rotating fields; polyphase induction machines; synchronous machines; variable frequency operation and "brushless dc" machines; power generation and transmission over short lines. Prerequisite: One of EECE 202, EECE 253, EECE 263. [3-3*-0]

EECE 374 (4) ELECTRONICS AND ELECTROMECHANICS. BJT and MOSFET amplifiers; cascode 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. 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 379 (3) DESIGN OF DIGITAL AND MICROCOMPUTER SYSTEMS. Logic synthesis using VHDL; the processor bus; memory systems; I/O interfaces and programing; programmed, interrupt-driven, direct memory access; timing analysis; system and peripheral buses. Prerequisite: Either (a) one of EECE 259, EECE 202 or (b) all of EECE 256, CPSC 218 or (c) all of EECE 201, CPSC 218. [2-3*-1]

EECE 412 (3) AUTOMATED SOFTWARE ENGINEERING. Domain-specific languages: principles, examples, and construction of environment support tools. Deductive synthesis: transformational, proofs-as-programs, and schema-guided. Inductive/abductive synthesis: trace-based, model-based. Cost and benefits. Prerequisite: Either (a) all of CPSC 252, EECE 320, EECE 321 or (b) one of CPSC 310, CPSC 352. [3-0-0]

EECE 415 (3) REQUIREMENTS ENGINEERING FOR SOFTWARE-INTENSIVE SYSTEMS. Functional, non-functional requirements. Requirements validation. Requirements traceability. Requirements management. Specialized methods, including use of formal languages. Prerequisite: One of CPSC 352, CPSC 310 and EECE 315 and one of EECE 320, CPSC 220. [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 CPSC 352, CPSC 310 and EECE 315 and one of EECE 320, CPSC 220. [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 CPSC 252, CPSC 216 and one of EECE 320, CPSC 220 and one of CPSC 310, CPSC 352, EECE 314. [3-0-0]

EECE 419 (5) SOFTWARE ENGINEERING PROJECT. Team project involving the application of 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 252 or (b) all of CPSC 128, CPSC 216; 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 CPSC 252, CPSC 216 and one of EECE 320, CPSC 220 and one of CPSC 310, CPSC 352. [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 216, CPSC 252 and one of CPSC 310, CPSC 352, 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: All of EECE 359, STAT 251. [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. [3-0-1]

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: All of EECE 356, EECE 359. [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 and compensation networks. Design of PI, PD and PID analog and digital controllers. Prerequisite: EECE 360. [2-0-2]

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. DSP systems overview; DSP architectures; programming DSPs in "C" and Assembly, I/O issues; real-time operating systems; host interfaces; code mapping and optimization; testing; DSP solutions in speech, audio, radar, telecommunications and control. [2-2-0]

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 318 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 414 and EECE 478. Prerequisite: CPSC 252. [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) MICROELECTRONIC DEVICES: DESIGN AND ANALYSIS. The design and analysis of high frequency and high-speed microelectronic transistors (MOSFETs, MESFETs, HEMTs, BJTs, HBTs). Commercial software tools are used for device design and circuit analysis. Small chips are designed, submitted to a foundry for fabrication,

measured and analyzed. Prerequisite: EECE 352. [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. Prerequisite: EECE 364. [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 486 (3) OPTIMIZATION METHODS FOR SYSTEMS DESIGN. Numerical methods for the optimization of nonlinear objective functions of one and several variables, with and without constraints. Introduction to linear programming. Applications to system design in Electrical Engineering. [2-0-2]

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 202, EECE 253, EECE 263. [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: EECE 315. [3-0-0]

EECE 495 (4) 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. [2-3*-2*]

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 498 (2) ENGINEERING REPORTS. Copies of specifications are issued by the Department and are available from the Department Office. Prerequisite: One of ENGL 301, APSC 201. Fourth-year standing.

EECE 500 (3) TOPICS IN COMMUNICATION.

EECE 501 (3) TOPICS IN SOFTWARE ENGINEERING.

EECE 502 (3) TOPICS IN INTEGRATED CIRCUIT AND SYSTEM DESIGN.

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 546 (3) ARCHITECTURE OF COMPLEX SIGNAL PROCESSING SYSTEMS. Principles and practices of system 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 547 (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 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. Includes computer Lab.

EECE 550 (3) TOPICS IN POWER ELECTRONIC DESIGN. New devices and applications in power electronics. Prerequisite: EECE 493.

EECE 551 (3) APPLIED ELECTROMAGNETIC THEORY. Basic relations, concepts and theorems; Green's functions; transverse electromagnetic waves; transmission lines, cylindrical and surface waveguides; problems involving plane-wave, cylindrical-wave and spherical wave functions; perturbational and variational techniques and applications; radiation.

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 555 (3) FAULT TOLERANT DIGITAL SYSTEMS. Design and analysis of high-availability and life-critical embedded and commercial systems.

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 557 (4) NON-LINEAR SYSTEMS. Analytical and graphical techniques applied to non-linear and time-varying systems. Stability via Liapunov's Direct Method. Applications to engineering problems.

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 non-linear estimation, cost functions, recursive mean square estimation, Wiener and Kalman filters.

EECE 565 (3) DATA COMMUNICATIONS. Analysis and design of data networks for electronic information services and computer communications. Queuing analysis of data link response times; circuit, message and packet switching; multiplexing alternatives; modems; effects of data link capacity, link flows and topology on network performance; network operation and management via data link controls, error control, routing and flow control.

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 570 (3) ADVANCED INDUSTRIAL PROCESS CONTROL. Discrete time models; process control algorithms; control of systems with process delay; minimum variance control; parameter identification; Kalman filtering. For students in Pulp and Paper Engineering and other specializations using process control.

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 573 (3) PROCESS CONTROL APPLICATIONS IN THE PULP AND PAPER INDUSTRY. Control of paper machines, digesters and other pulp and paper process units.

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 AND TEST. Contemporary design and test methodologies (VLSI) digital analog, and mixed-signal circuits; high-level to low-level abstraction analysis and synthesis; testing, design for testability, VLSI testers. Emphasis on CMOS and BiCMOS. Prerequisite: EECE 479.

EECE 579 (3) ADVANCED TOPICS IN VLSI DESIGN. A course in VLSI design with an emphasis on new techniques in digital IC design. Top-down design and CAD tools are illustrated through a class project. Prerequisite: All of EECE 479, EECE 481.

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 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 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 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 594 (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. Prerequisite: MECH 563 is recommended.

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 596 (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 597 (6) ENGINEERING REPORT. Project report on assigned topic of specialization. For students registered in the M.Eng. program in Electrical, Computer, or Pulp and Paper Engineering, where project is supervised by a faculty member of the Department of Electrical and 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.

ENDS — ENVIRONMENTAL DESIGN FACULTY OF AGRICULTURAL SCIENCES

ENDS 211 (3) INTRODUCTION TO ENVIRONMENTAL DESIGN. Survey of the visual, cultural, ecological and spatial literacies in environmental design and planning.

ENDS 301 (6) 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 (6) 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 (6) 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 (6) ARCHITECTURAL DESIGN FOUNDATION: INSTITUTION(S). The exploration of a complex physical and spatial program for building in the public realm. Pre-architecture option.

ENDS 403 (6) LANDSCAPE PLANNING FOUNDATION: COMMON(S). The exploration of a complex physical and spatial program in the design and planning of the public realm. 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 score is a prerequisite to registration in 100-level English courses. See "Language Proficiency Index" in the Undergraduate Admissions Section.

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: Six credits of first-year English, 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: Six 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: Six 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: Six 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: Six 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: Six credits of first-year English or Arts One or Foundations.

ENGL 225 (3) POETRY. Principles, methods, and resources for reading poetry. Prerequisite: Six credits of first-year English, Arts One or Foundations.

ENGL 226 (3) DRAMA. Principles, methods and resources for reading drama. Prerequisite: Six 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: Six 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: Six credits of first-year English or Arts One or Foundations.

ENGL 229 (3-6) TOPICS IN THE STUDY OF LANGUAGE AND/OR RHETORIC. Prerequisite: Six credits of first year English, or Arts One, or Foundations.

ENGL 230 (3) BIBLICAL AND CLASSICAL BACKGROUNDS OF ENGLISH LITERATURE. Prerequisite: Six 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: Six credits of first-year English, 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: Six credits of first-year English, 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 306 (6) HISTORY AND THEORY OF RHETORIC. Major theories of rhetoric studied chronologically with particular emphasis on the relationship between traditional and modern theories.

ENGL 307 (3-12) D STUDIES IN RHETORIC. Topics in rhetorical theories and their application.

ENGL 308 (3) THE THEORY AND APPLICATION OF RHETORICAL CRITICISM. A study of literary texts from a rhetorical perspective, a critical point of view that defines the literary work as a structured instrument for the communication of a specific message.

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) ENGLISH TRADITIONAL GRAMMAR. Traditional grammar from its origins to its codification in modern English grammars.

ENGL 322 (3) STYLISTIC VARIATION. The application of linguistic theory and method to the stylistic analysis of English literary texts. Prerequisite: Either (a) ENGL 329 or (b) all of LING 200, LING 201.

ENGL 323 (3) DIALECTAL VARIATION. Geographical and social variation in English. Prerequisite: One of ENGL 329, LING 200.

ENGL 324 (3) LITERARY SEMANTICS. The relation and application of semantic principles to literary theory and interpretation. An introductory course in linguistics or English language is recommended.

ENGL 325 (3) HISTORY OF THE ENGLISH LANGUAGE. For Honours students.

ENGL 326 (3-12) D STUDIES IN THE ENGLISH LANGUAGE. Intensive study of some topic or aspect of English language.

ENGL 329 (6) THE STRUCTURE OF MODERN ENGLISH. A description of English phonetics, phonology, grammar, and vocabulary.

ENGL 340 (3/6) D 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 (3-12) D 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) 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. Global and local examples of plate tectonics as the driving force for volcanism, mountain building, and earthquakes. Imaging Earth's interior and exploring its dynamic interaction with the

surface. Environmental geoscience and sustainability. [3-0-0]

EOSC 111 (1) SOLID EARTH LABORATORY. Major concepts in rock, mineral and fossil identification; basic geological field techniques, interpretation of geological features from air photographs and maps. Corequisite: EOSC 110. [0-2-0]

EOSC 112 (4) 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. Credit will be given for either EOSC 112 or GEOG 102 but not both. [3-2-0] [3-2-0]

EOSC 114 (3) THE CATASTROPHIC EARTH—NATURAL DISASTERS. Introduction to causes and physical characteristics of disasters such as volcanic eruptions, earthquakes, tsunami, hurricanes, storm surge, thunderstorms, tornadoes, landslides, wind waves, meteor impacts, mass extinctions. Prerequisite: Two of EOSC 114, GEOG 101, GEOG 102, GEOG 103. [3-0-0]

EOSC 115 (1) CATASTROPHIC EARTH LABORATORY. Simulations of earthquakes, tsunami. Analysis of storm energy, volcanic eruptions, meteor impacts, landslides. Interpretation of satellite images, fossils, rocks. Corequisite: EOSC 114. [0-2-0]

EOSC 116 (3) DINOSAUR 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. [3-0-0]

EOSC 117 (1) DINOSAUR EARTH LABORATORY. Concepts in geology, geophysics, oceanography, and atmospheric sciences relating to the Mesozoic Earth. Corequisite: EOSC 116. [0-2-0]

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 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: One of EOSC 110, EOSC 120, EOSC 121 or a standing of at least "B-" in EOSC 210 or GEOG 101. [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 and one of EOSC 222, EOSC 320. [2-2-0]

EOSC 250 (3) GEOPHYSICAL FIELDS AND FLUXES I. Application of classical theory of scalar and vector fields to geophysical sciences. Gauss' theorem. Conductive, convective and radiative energy flux, fluid flow and flow in porous media, sediment flux, biogeochemical cycles. Prerequisite: One of PHYS 101, PHYS 121, PHYS 110, PHYS 115, PHYS 120. Corequisite: MATH 200. [3-0; 0-0]

EOSC 251 (3) GEOPHYSICAL FIELDS AND FLUXES II. Gravity, electrical, and magnetic fields as applied to earth system problems. Stokes theorem, Maxwell's equations. Prerequisite: EOSC 250. [0-0; 3-0]

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 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 316 (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: MATH 101 and one of PHYS 101, PHYS 121 and one of CHEM 121, CHEM 112. [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 for science students in the Department of Earth & Ocean Sciences, except those following an applied geophysics stream in Geological Engineering. Credit will not be given for EOSC 324 and EOSC 220. Corequisite: One of EOSC 110, GEOG 103. [2-3-0]

EOSC 325 (3) ADVANCED ANALYTICAL TECHNIQUES IN MINERALOGY AND GEOCHEMISTRY. Application of X-ray diffraction, scanning electron microscopy, electron probe microanalysis and other methods to the analysis of geological materials. Quality control, sampling statistics and decomposition techniques in geochemical analysis. Prerequisite: All of EOSC 220, CHEM 208. [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) GEOCHEMISTRY. 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; 0-0]

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 121. [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 Innuittian 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 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. 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 GEOPHYSICAL TIME SERIES. 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: One of MATH 101, MATH 121 and one of PHYS 101, PHYS 121. [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 426 (3) MARINE GEOLOGY. History and methods; morphology and plate tectonics of ocean basins; hot spots and seamount chains; processes at mid-oceanic ridges; relations between oceanic circulation and sediments; continental margins. Prerequisite: EOSC 321. [2-3; 0-0]

EOSC 427 (3) WATER-ROCK INTERACTIONS. Introduction to irreversible mass transfer between aqueous solutions and rocks as applied to problems in weathering, groundwater geochemistry, ocean geochemistry, environmental contamination, diagenesis, hydrothermal ore formation and geothermal systems. Corequisite: EOSC 327. [2-2-0]

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. enrolment 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) GROUNDWATER GEOCHEMISTRY. Quantitative approaches to practical groundwater 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. Prerequisite: EOSC 320. [2-2-0]

EOSC 433 (2) GEOTECHNICAL ENGINEERING PRACTICE. Application of the principles and techniques of geology, geophysics, soil mechanics and rock mechanics at engineering sites. Analysis of projects and problems on a local and regional scale. Case histories. Prerequisite: All of EOSC 329, CIVL 310, MMPE 303. [2-0-0]

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 (2/6) C DIRECTED STUDIES. Investigation of a topic to be agreed upon by a member of the faculty and the student. Permission of an undergraduate advisor 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 METHODS. The theory and quantitative interpretation of potential field methods in geophysical exploration. Topics include gravity, magnetics, electrical and electromagnetic techniques. Prerequisite: One of PHYS 201, PHYS 311 and one of MATH 316, PHYS 312. [3-0; 0-0]

EOSC 451 (3) APPLIED POTENTIAL FIELD AND BOREHOLE METHODS. Gravity, magnetics, radiometrics and borehole logging techniques. Fundamentals, field surveys, forward and inverse computer modelling, case histories and integrated geological/geophysical interpretations. Offered in alternate years with EOSC 452. Prerequisite: EOSC 250. [2-3-0]

EOSC 452 (3) APPLIED ELECTROMAGNETIC METHODS. DC resistivity, induced polarization, time-domain EM, frequency-domain EM and natural-source EM survey techniques. Fundamentals, field surveys, forward and inverse modelling, case histories and integrated geological/geophysical interpretations. Offered in alternate years with EOSC 451. Prerequisite: EOSC 250. [2-3-0]

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 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. Oceanographic instrumentation, methods of study and the analysis of oceanographic data. Field school format, held during May. 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.

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 six 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. Fourth year standing or permission of the department head is required. [3-0-0]

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. Prereq-

uisite: 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.

EOSC 512 (3) ADVANCED GEOPHYSICAL FLUID DYNAMICS.

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 in basinal 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. enrolment 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 548 (3) GRADUATING PAPER FOR

MASTERS CANDIDATES WITHOUT THESIS.

EOSC 549 (6-12) 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 570 (3) PALEOCEANOGRAPHY. [3-0-0]

EOSC 571 (2-6) D SEMINAR IN PHYSICAL OCEANOGRAPHY. Oral presentations by students of current research of their own or from the literature. Topics chosen in consultation with faculty.

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 (1-2) C SEMINAR IN BIOLOGICAL OCEANOGRAPHY. A course to allow students the opportunity to present their own work, or that of others, orally. Topics will be chosen in consultation with faculty. Students will be expected to present at least one seminar during the term and to participate in the discussion of other seminars. Students in biological oceanography will normally take the seminar twice during their tenure at UBC.

EOSC 579 (1) DYNAMIC OCEANOGRAPHY. Credit will not be granted for both EOSC 477 and EOSC 579. Corequisite: All of EOSC 370, EOSC 327.

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 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) 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. Prerequisite: One of EPSE 306, EPSE 313. Corequisite: One of EPSE 306, EPSE 313. [3-0]

EPSE 318 (3) EDUCATION OF ADOLESCENTS WITH DISABILITIES. A study of the physical, psychological and sociological characteristics of adolescents with disabilities and their implications for program development and implementation. Prerequisite: One of EPSE 312, EPSE 317. Corequisite: One of EPSE 312, EPSE 317. [3-0]

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 343 (3) MATERIALS IN SPECIAL EDUCATION: DEVELOPING PERSPECTIVE. Focuses on the critical examination of published materials for use with exceptional children. Students will be expected to investigate, analyse and adapt materials to suit special educational circumstances. [3-1]

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 345 (3) A CRITICAL REVIEW OF RESEARCH IN SPECIAL EDUCATION. Designed to assist the special education teacher in the process of critically reviewing the research literature in the areas of developmental and learning disabilities and behavioural/emotional problems. [3-1]

EPSE 346 (3) ACADEMIC CURRICULA IN SPECIAL EDUCATION: DEVELOPING PERSPECTIVES. Based on a practical examination of curricula used in special education focusing on both long and short term goals. Provisions will be made to accommodate a student's special interest area in the study of exceptional children. [3-1]

EPSE 348 (3) FAMILY-CENTRED PRACTICE FOR CHILDREN WITH SPECIAL NEEDS.

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. Prerequisite: One of EPSE 312, EPSE 317. [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. Prerequisite: EPSE 303. [3-0]

EPSE 410 (3) MICROCOMPUTER TECHNOLOGY IN SPECIAL EDUCATION AND REHABILITATION. The use of microcomputers, adaptive technology, and software across age levels and areas of exceptionality in special education and health care settings. Prerequisite: Either (a) EPSE 312 or (b) all of EPSE 317, CSED 402. Corequisite: CSED 402. [2-1]

EPSE 411 (3) AUGMENTATIVE AND ALTERNATIVE COMMUNICATION FOR INDIVIDUALS WITH SEVERE SPEECH AND/OR PHYSICAL IMPAIRMENTS. Prerequisite: One of EPSE 312, EPSE 317 and EPSE 403. Corequisite: One of EPSE 312, EPSE 317 and EPSE 403. [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 418 (3) CAREER AND ALTERNATIVE EDUCATIONAL PROGRAMS FOR STUDENTS WITH DISABILITIES. A review of programs at the secondary and post-secondary level which develop the social and career-related skills for adolescents and adults with disabilities. Prerequisite: One of EPSE 312, EPSE 317. [3-0]

EPSE 419 (3) INTRODUCTION TO SPEECH AND COMMUNICATION DISORDERS. A classroom teacher oriented survey of the natural development of speech and language as a basis for recognizing and understanding deviations from the normal. Prerequisite: One

of EPSE 312, EPSE 317. Corequisite: One of EPSE 312, EPSE 317. [3-0]

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. Prerequisite: Either (a) EPSE 312 or (b) all of EPSE 317, EPSE 423. [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 424 (3) THE STIMULATION OF LANGUAGE DEVELOPMENT IN EXCEPTIONAL CHILDREN. The course is designed to acquaint teachers with the variety of approaches, programs, and methods for the remediation of severe language disorders in children. Prerequisite: EPSE 315. [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 co-requisite: 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. Prerequisite: One of EPSE 312, EPSE 317. Corequisite: One of EPSE 312, EPSE 317. [3-0-0]

EPSE 436 (3) SURVEY OF BEHAVIOUR DISORDERS IN CHILDREN AND ADOLESCENTS. Prerequisite: One of EPSE 312, EPSE 317. [3-0]

EPSE 437 (3) INTERVENTIONS FOR CHILDREN AND ADOLESCENTS WITH BEHAVIOUR DISORDERS. Prerequisite: One of EPSE 433, EPSE 436. [3-0]

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.

EPSE 441 (3) SUPPORTING SENSORI-MOTOR AND COGNITIVE DEVELOPMENT IN INFANTS AND YOUNG CHILDREN WITH SPECIAL NEEDS. Prerequisite: All of EPSE 328, 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. Prerequisite: Either (a) EPSE 312 or (b) all of EPSE 317, EPSE 403. [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.
Prerequisite: All of EPSE 501, EPSE 592.

EPSE 503 (3) LEARNING, INSTRUCTION AND EDUCATIONAL TECHNOLOGIES.
Prerequisite: All of EPSE 501, EPSE 592.

EPSE 505 (3) HUMAN DEVELOPMENT IN EDUCATION.

EPSE 506 (3) COLLEGE AND UNIVERSITY TEACHING.

EPSE 507 (3) HISTORY OF SPECIAL EDUCATION. Prerequisite: One of EPSE 312, EPSE 317.

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 (3-6) D MICROCOMPUTERS IN SPECIAL EDUCATION. Prerequisite: EPSE 410.

EPSE 511 (3) SPECIAL TOPICS IN HUMAN DEVELOPMENT IN EDUCATION.
Prerequisite: EPSE 505.

EPSE 512 (3) CRITICAL ISSUES IN SPECIAL EDUCATION.

EPSE 513 (3) SEMINAR IN DEVELOPMENTAL DISABILITIES. Prerequisite: EPSE 403.

EPSE 514 (3) SEMINAR IN BEHAVIOURAL ASSESSMENT AND INTERVENTION.
Prerequisite: EPSE 433.

EPSE 515 (3-6) D SEMINAR IN BEHAVIOUR DISORDERS. Prerequisite: All of EPSE 436, EPSE 437. Permission of the instructor is required.

EPSE 516 (3) SEMINAR IN THE EDUCATION OF THE CREATIVE AND GIFTED LEARNER.
Prerequisite: All of EPSE 303, EPSE 408.

EPSE 517 (3) ACOUSTIC ENVIRONMENTS AND AMPLIFICATION IN THE CLASSROOM.
Prerequisite: AUDI 598. [3-0]

EPSE 518 (3) SPEECH DEVELOPMENT OF DEAF AND HARD OF HEARING STUDENTS.
Prerequisite: EPSE 517.

EPSE 519 (3) DEVELOPMENT OF ENGLISH LANGUAGE SKILLS OF DEAF AND HARD OF HEARING STUDENTS. Prerequisite: EPSE 518. LING 350 is recommended.

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.

EPSE 525 (3) STUDIES IN SIGN LANGUAGE. [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 546 (3) INTERNATIONAL TRENDS IN SPECIAL EDUCATION.

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.
Prerequisite: All of EPSE 501, EPSE 505.

EPSE 585 (3) SOCIAL-EMOTIONAL DEVELOPMENT IN EDUCATION.
Prerequisite: EPSE 505.

EPSE 590 (3) GRADUATING PAPER/ SEMINAR.

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.

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. Prerequisite: All of EPSE 502, EPSE 503. EPSE 682 is recommended.

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.

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) CONSTRUCTIVIST 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.

EXCH — EXCHANGE PROGRAMS

EXCH 101 (0)

EXCH 370 (0) STUDENT EXCHANGE PROGRAM, LAW.

EXCH 371 (0) STUDENT EXCHANGE, COMMERCE. Prerequisite: 2nd, 3rd, or 4th year standing.

EXCH 372 (0) STUDENT EXCHANGE PROGRAM, PHARMACY.

EXCH 375 (0) STUDENT EXCHANGE PROGRAM, EDUCATION. Prerequisite: for BEDN, DEDU, BEDS, BEDE, BEDM.

EXCH 380 (0) STUDENT EXCHANGE PROGRAM, UNDERGRADUATE.

EXCH 400 (0) .

EXCH 450 (0) STUDENT EXCHANGE PROGRAM, SUMMER.

EXCH 580 (0) STUDENT EXCHANGE PROGRAM, GRADUATE.

EXCH 600 (0) .

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 STUDIES 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 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) 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) 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) 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) SEMINAR IN FILM STUDIES. Topics to be arranged.

FILM 547 (3/6) DIRECTED STUDIES IN FILM.

FILM 549 (6-18) D THESIS.

FINA — FINE ARTS FACULTY OF ARTS

Courses designated FINA by the former Department of Fine Arts are now listed under ARTH or VISA by the Department of Art History, Visual Art and Theory. Credit will be given to only one of the current ARTH and VISA listings or their former FINA equivalents.

FISH — FISHERIES RESEARCH 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 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. Correlation of first year basic medical and behavioural sciences to the Family Practice setting. Principles and skills of patient interviewing, history taking, physical examination are practiced under supervision in office, home, hospital and community settings role of Family Physician in comprehensive patient care. [0-3-0]

FMPR 420 (6) FAMILY PRACTICE CONTINUUM II. Advanced application of medical and behavioural science to family practice. [0-3-0]

FMPR 428 (4) RURAL AND UNDER-SERVED COMMUNITY PRACTICE. A 4-8 week full time course that allows medical students in Phase IV of the undergraduate program to apprentice with family physicians in rural and under-served community practices.

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) INTRODUCTION TO FAMILY STUDIES. A developmental approach, focusing on individual development in families, internal dynamics of family life, and the place of the family in North American society.

FMST 310 (3) THE FAMILY CONTEXT OF HUMAN DEVELOPMENT. The influence of family structure and dynamics on human development studied from a multi-disciplinary, theoretical perspective. Prerequisite: FMST 200.

FMST 312 (3) PARENT-CHILD RELATIONSHIPS. Parent-child interaction as affected by family structure and social conditions. Impact of social change on parent-child interaction. Prerequisite: One of FMST 200, PSYC 100.

FMST 314 (3) DEVELOPMENT OF RELATIONSHIPS. The empirically based study of the development, course, and decline of personal relationships over the life span. Emphasis will be on the internal dynamics of dyadic relationship development. Prerequisite: One of FMST 200, PSYC 100, SOCI 240.

FMST 316 (3) HUMAN SEXUALITY. An examination of research and theory on selected topics in human sexual development and behaviour throughout the life span. Prerequisite: FMST 200.

FMST 320 (3) FAMILY DIVERSITY IN NORTH AMERICA. An examination of the ethnic, social, class, regional and other diversities of families in North America. Prerequisite: FMST 200.

FMST 322 (3) MARITAL AND FAMILY INTERACTION IN NORTH AMERICA. Interactional processes within the family; special emphasis on marital interaction and its effects on children. Prerequisite: One of FMST 200, SOCI 200.

FMST 324 (3) THE DEVELOPMENT OF FAMILY CAREERS. The paths Canadians follow through the life span and the relationships between family career, educational career, and occupational career.

FMST 326 (3) COMMUNICATION IN THE FAMILY. Historical overview; theoretical and methodological issues in the study of communication in family settings.

FMST 338 (3) FAMILY RESOURCE MANAGEMENT. Conceptual models of management; resource management concepts as related to family careers and to different family types.

FMST 340 (3) FAMILY FINANCIAL MANAGEMENT. Major financial alternatives available to families during the various periods of the family career; financial decisions of families and their impact on family and individual well-being; use of current and future income (credit); purchasing of goods and services; providing financial security; organizations and laws which affect family financial decisions.

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 six 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 co-requisites).

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. The family during the later stages of its career; topics include changing family dynamics, marital satisfaction, intergenerational relations, widowhood, grandparenthood, and remarriage. Prerequisite: One of FMST 200, PSYC 100, ANTH 214, SOCI 214.

FMST 420 (3) CONTEMPORARY THEORIES IN FAMILY ANALYSIS. Major theoretical approaches to the study of the family. Each approach is assessed for its strengths and weaknesses on the basis of empirical data. Prerequisite: FMST 200.

FMST 422 (3) FAMILY RESEARCH. Introduction to the types of research methods used in the study of the family, their special problems and applications. Techniques for both conducting and evaluating research. Prerequisite: All of FMST 200, STAT 203.

FMST 436 (3) FAMILY LIFE EDUCATION OVER THE LIFE SPAN. Examination of programs which educate individuals for present and future family roles; rationale, implementation, and evaluation of such programs; issues in training. Prerequisite: One of FMST 200, FMSC 312.

FMST 440 (3) FAMILIES IN THE CANADIAN ECONOMY. Forces in the Canadian economy which have an impact on families; inflation/recession, taxation, social assistance, and employment policies as these affect family income generation, adequacy, and security. Prerequisite: All of ECON 101, ECON 102.

FMST 442 (3) FAMILIES AND WORK. The effect of combining family and work roles: Implications for the workplace, family life and social policy. Prerequisite: 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: FMST 422.

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 AGRICULTURAL SCIENCES

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 nutrition applied to current nutrition issues. The focus is on human nutrition, but some cross species comparisons will be made. 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 270 (1) ORIENTATION TO DIETETICS.

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. [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: All of CHEM 205, CHEM 233. [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 (6) FOOD SCIENCE LABORATORY I. Integrated laboratory encompassing the processing and analysis of foods. Enrolment restricted to Food Science students or by consent of instructor. Prerequisite: All of FNH 300, FNH 301, FNH 302. These courses can be done as corequisites [0-3-1; 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. Prerequisite: One of FNH 301, FNH 340. Also accepted as co-requisites. [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. BIOC 300 is also acceptable as a corequisite. [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. BIOC 300 is also acceptable as a corequisite. [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 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: 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 II. Integrated course designed to illustrate principles of research and product development in the food industry. Prerequisite: FNH 325 or permission of the instructor. [0-5-1]

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 co-requisites. [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. equivalency: AGRO 452 [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. Equivalency: AGRO 453 [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 471 (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 472 (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.

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 preven-

tion, 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.

FNPS — FIRST NATIONS STUDIES PROGRAM FACULTY OF ARTS

FNPS 200 (3/6) FIRST NATIONS OF NORTH AMERICA. An historical and contemporary survey of First Nations issues including language, culture, identity, social structures, colonialism and resistance, political issues; and 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 co-requisite.

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. Prerequisite: FNSP 200. May be taken as co-requisite.

FNSP 400 (6) PRACTICUM/ADVANCED RESEARCH SEMINAR. Applied research/community oriented project designed and implemented in collaboration with student, faculty and Aboriginal community. Emphasis on examining ethical issues and developing culturally respectful and academically rigorous forms of research. Prerequisite: All of FNSP 310, FNSP 320.

FNSP 433 (3/6) C DIRECTED STUDY.

FOOD — FOOD SCIENCE FACULTY OF AGRICULTURAL SCIENCES

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 530 (2-6) C DIRECTED STUDIES.

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 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 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 262. [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) CABLE MECHANICS. Engineering aspects of cable logging systems. Calculation of tensions, load carrying capability and load paths of common cable systems. Analysis of guylines tensions and anchor loads. Application of computers to cable design and layout. Prerequisite: PHYS 170. [2-2]

FOPR 360 (1) FOREST ENGINEERING ECONOMICS. Planning and analysis of economic problems in harvesting operations. Prerequisite: Third year standing in the Forest Operations major Corequisite: FRST 318. [1-0-1]

FOPR 361 (3) FOREST OPERATIONS I. Introduction to forest road design and location, harvest, and transportation systems. Prerequisite: Third year standing in the Faculty of Forestry [2-3-0]

FOPR 362 (3) FOREST OPERATIONS II. Detailed analysis of the engineering, economic, environmental, and aesthetic factors influencing forest operations planning. Topics on advanced forest road location, slope stability, harvest unit design, harvest scheduling in an integrated resource framework are centered around practical planning projects. Available only through Distance Education. Prerequisite: FOPR 361. [3-2]

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 FOPR 262, PHYS 170. Corequisite: WOOD 376. [3-2]

FOPR 365 (2) FOREST OPERATIONS II. Detailed analysis of the engineering, economic, environmental, and aesthetic factors influencing forest operations planning. Topics on advanced forest road location, slope stability, harvest unit design, harvest scheduling in an integrated resource framework are centered around practical planning projects Prerequisite: FOPR 361. [2-1-0]

FOPR 388 (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 for stream crossings. Prerequisite: All of FRST 231, FOPR 262. [3-2]

FOPR 459 (3) ANALYSIS OF HARVESTING OPERATIONS. A capstone project-based course for forest operations students. Computer applications, statistical analyses and operations research techniques applied to forest operations. Restricted to Forest Operations majors. [2-2]

FOPR 463 (3) FOREST ROADS AND BRIDGES. Analytical techniques for determining the bearing capacity of roads, design of bridge abutments, piled foundations, and simply supported bridge spans. Prerequisite: Either (a) all of FOPR 363, WOOD 376 or (b) CIVL 228. [3-2]

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 262. [2-2]

FRE — FOOD AND RESOURCE ECONOMICS FACULTY OF AGRICULTURAL SCIENCES

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: One of ECON 100, ECON 101; 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 100, ECON 101. Corequisite: ECON 101 may be taken as a co-requisite. [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 100, ECON 101. [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: Either (a) ECON 100 or (b) 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 100, ECON 101. Students also have to have introductory statistics or 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 100, ECON 101. [3-0]

FREN — FRENCH FACULTY OF ARTS

Students offering a prerequisite equivalent from another institution should consult a departmental advisor.

FREN 105 (6) BEGINNING FRENCH.

Grammar, composition, reading, and oral practice. Not available to students with prerequisite for FREN 110.

FREN 110 (6) FIRST-YEAR FRENCH. Not available for credit to students with French 12. Prerequisite: One of FREN 105, FRENCH 11.

FREN 121 (3) CONTEMPORARY FRENCH LANGUAGE. Preparation for first-year university French, for students with French 12 or FREN 110 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. Prerequisite: One of FREN 12, FREN 110, FREN 121. Students with less than 80% in FREN 110 are advised to take a placement test.

FREN 123 (3) CONTEMPORARY FRENCH LANGUAGE AND LITERATURE II. Prerequisite: FREN 122 or assignment based on placement test.

FREN 125 (6) FRENCH THROUGH CULTURE AND CIVILIZATION. Spoken and written French focusing on the cultures of France, Canada, and other Francophone countries for students who do not intend to specialize in French. Prerequisite: One of FREN 12, FREN 110, FREN 121. Students with less than 80% in FREN 110 are advised to take a 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. Prerequisite: One of FREN 123, FREN 125.

FREN 220 (6) AN INTRODUCTION TO LITERATURE WRITTEN IN FRENCH AND TO TEXTUAL ANALYSIS. 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 224 or FREN 223 and FREN 342. Prerequisite: FREN 222 or assignment based on placement test.

FREN 224 (6) AN INTERDISCIPLINARY APPROACH TO FRENCH. French language for ex-immersion students. Credit will not be granted for FREN 222/223 and FREN 224 or for FREN 215 and FREN 224. Prerequisite: French 12.

FREN 300 (3/6) D METHODS OF LITERARY ANALYSIS. A systematic inquiry into problems and methods of literary criticism. Emphasis on the application of various analytical techniques to texts chosen from different genres. At least three credits required for Honours students specializing in literature; open to all students with FREN 220.

FREN 320 (3) FRENCH LITERATURE FROM THE MIDDLE AGES TO 1700 IN ITS HISTORICAL AND CULTURAL CONTEXT. Prerequisite: FREN 220.

FREN 321 (3) FRENCH LITERATURE FROM 1700 TO THE PRESENT IN ITS HISTORICAL AND CULTURAL CONTEXT. Prerequisite: FREN 220.

FREN 330 (3/6) D FRENCH-CANADIAN LITERATURE. From its origins to the present, characteristic works. Prerequisite: FREN 220.

FREN 334 (3/6) D FRENCH CIVILIZATION. A thematic approach to selected topics in French culture and civilization. Prerequisite: One of FREN 220, FREN 223 or permission of the department.

FREN 335 (3/6) D FRENCH-CANADIAN CIVILIZATION. A thematic approach to selected topics in French-Canadian culture and civilization. Prerequisite: One of FREN 220, FREN 223 or permission of the department.

FREN 340 (6) FRENCH FOR READING KNOWLEDGE I. This course provides students having little or no previous language instruction in French with a basic knowledge of French grammar and vocabulary sufficient for the understanding of scientific and scholarly works. Classwork and outside assignments consist mainly of oral and written translation into English of texts from the humanities, the social sciences, and the natural sciences. Intended primarily as a service course for university departments requiring a reading examination in their advanced programs, this course is not available for credit toward a Major or Honours program in French and does not satisfy the language requirement of the Faculty of Arts. Not available for credit to students with French 12, FREN 100, FREN 110, or equivalent.

FREN 341 (6) FRENCH FOR READING KNOWLEDGE II. This course provides students having some basic knowledge of French with a review of French grammar and vocabulary, to improve their ability to understand scientific and scholarly works. Classwork and outside assignments consist mainly of oral and written translation into English of texts from the humanities, the social sciences, and the natural sciences. Intended primarily as a service course for university departments requiring a reading examination in their advanced programs, this course is not available for credit toward a Major or Honours program in French. Available to students with French 12, FREN 100, FREN 110, FREN 123 or equivalent. Not available to students with FREN 223 or equivalent.

FREN 342 (6) FRENCH PRACTICE FOR NON-SPECIALISTS. Equivalent to FREN 222, FREN 223, for students not specializing in French. Credit will not be granted for either FREN 222 or FREN 223 and FREN 342. Prerequisite: FREN 123 and at least third-year standing. Equivalency: FREN 222, FREN 223.

FREN 344 (6) TECHNIQUES OF ORAL EXPRESSION IN FRENCH. Intensive workshop designed to strengthen skills in formal oral presentation in French, emphasis on structured expression as well as effective oral delivery. Not available for credit toward a Minor, Major or Honours Program in French. Prerequisite: One of FREN 215, FREN 224. 68% or better in FREN 215 is recommended.

FREN 346 (3) BUSINESS FRENCH. The essential vocabulary and style of French

commercial correspondence and business texts. Not available for credit toward a Minor, Major or Honours Program in French. Prerequisite: FREN 123 or equivalent.

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 223.

FREN 353 (3) FRENCH GRAMMAR. Systematic study of the fundamental principles of French grammar. Prerequisite: FREN 223 or equivalent.

FREN 355 (3) FRENCH COMPOSITION I. 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 400 (6) A SURVEY OF FRENCH LITERATURE IN TRANSLATION. Not available for credit towards a Minor, Major or Honours program in French. Prerequisite: Six credits of first-year English, Arts One, or Foundations, and at least second-year standing.

FREN 402 (3/6) D AN INTRODUCTION TO FRENCH POSTSTRUCTURALIST THOUGHT (IN ENGLISH). Key texts by writers such as Foucault, Derrida, Lacan, Kristeva, Cixous and Irigaray will be read in translation, with assignments and discussion in English. Open to all students in third year and above. Not available for credit toward a Minor, Major or Honours Program in French.

FREN 403 (6) SURVEY OF FRENCH-CANADIAN LITERATURE IN TRANSLATION. Not available for credit towards a Minor, Major or Honours program in French. Prerequisite: Six credits of first-year English or Arts One, or Foundations, and at least second-year standing.

FREN 407 (3/6) D MEDIEVAL FRENCH LITERATURE. Representative literary texts from the eleventh to the fifteenth century. Topics and authors may include the epic, Tristan texts, Arthurian texts, the short narrative, satirical texts, religious drama, secular drama, lyric poetry, didactic poetry, François Villon. Prerequisite: FREN 220.

FREN 408 (3/6) D LITERATURE OF THE SIXTEENTH CENTURY. Topics may include works by Rabelais, Montaigne, Scève, Labé, Ronsard, and DuBellay. Prerequisite: FREN 220.

FREN 409 (3/6) D LITERATURE OF THE SEVENTEENTH CENTURY. Representative authors. Topics may include works by Corneille, Racine, Molière, Descartes, Pascal,

La Fontaine, and Mme de la Fayette. Prerequisite: FREN 220.

FREN 410 (3/6) D LITERATURE OF THE EIGHTEENTH CENTURY. The drama, the novel and representative writings of Voltaire, Diderot, and Rousseau. Prerequisite: FREN 220.

FREN 411 (3/6) D POETRY AND DRAMA OF THE NINETEENTH CENTURY. Representative works and significant trends. Prerequisite: FREN 220.

FREN 412 (3/6) D THE NINETEENTH-CENTURY NOVEL. Significant historical, social and cultural trends. Representative authors may include Stendhal, Balzac, Flaubert, and Zola. Prerequisite: FREN 220.

FREN 414 (3/6) D TWENTIETH-CENTURY DRAMA. The themes and codes of Francophone drama. Topics may include the theatre of the absurd, the theatre of alienation, and the nature of the theatrical illusion. Prerequisite: FREN 220.

FREN 415 (3/6) D THE TWENTIETH-CENTURY NOVEL. The aesthetics of the novel and the development of narrative techniques; the historical background of the period and the writing of themes such as alienation, authenticity, commitment, representation of sexuality, and textual self-reflexivity. Prerequisite: FREN 220.

FREN 417 (3/6) D TWENTIETH-CENTURY FRENCH POETRY. Representative works and significant trends. Prerequisite: FREN 220.

FREN 418 (3/6) D AFRICAN AND CARIBBEAN LITERATURE IN FRENCH. An introduction to representative works. Topics include Negritude, the evolution of post-colonial literature, and the socio-historical context of each work. Prerequisite: FREN 220.

FREN 419 (3/6) D FRANCOPHONE WOMEN WRITERS. Representative French women writers from the Middle Ages to the present; contemporary women writers in French Canada. Students may not receive credit for both FREN 419 and 422. Prerequisite: FREN 220.

FREN 420 (3-6) D FRENCH LITERATURE. Selected topics. Prerequisite: FREN 220.

FREN 421 (3/6) D FRENCH OR FRANCOPHONE CULTURES (IN ENGLISH). Selected topics. Open to all students in third year and up. Not available for credit towards a Minor, Major or Honours Program in French.

FREN 422 (3-6) D FRANCOPHONE WOMEN WRITERS IN TRANSLATION. Selected texts by French and Francophone Canadian/Quebecois women writers. Taught in English, using texts in translation. Assignments in English. Not available for credit toward a Minor, Major or Honours Program in French. Students may not receive credit for both FREN 419 and 422.

FREN 425 (3/6) D CHILDREN'S LITERATURE OF THE FRENCH-SPEAKING WORLD. Topics may include discussion of fairy tales, legends, moral tales, adventure stories, picture books and comics from socio-political, psychological and aesthetic perspectives; production and reception throughout the centuries; special

attention to the contemporary corpus. Prerequisite: FREN 220.

FREN 426 (3) STAGING THEATRE IN FRENCH. The study and production of a play in French. All students will be expected to be involved in some aspect of the production, and to complete written assignments on the play and/or the author. Prerequisite: FREN 220. FREN 300 is recommended.

FREN 427 (3) FRANCOPHONE CINEMA. Representative films in a cultural approach. Prerequisite: FREN 220.

FREN 430 (3/6) D FRENCH-CANADIAN LITERATURE. Selected topics. Prerequisite: One of FREN 330, FREN 335 (three credits of either).

FREN 440 (3) COMPUTER APPLICATIONS FOR FRENCH I. This course is an introduction to the use of computers in French language and literature studies, and to the immediate practical and theoretical implications of computational approaches. No experience with computers is required.

FREN 441 (3) COMPUTER APPLICATIONS FOR FRENCH II. This course is offered to students who would like to apply computational techniques to their own literary or linguistic research project. The course will develop both the methodological and the theoretical implications of the computational approach in the context of the student's projects. Possible projects include literary textbase design, automatic thematic tagging, automatic writing, and computer-assisted quantitative linguistics. Prerequisite: FREN 440.

FREN 453 (3) FRENCH STYLISTICS. Prerequisite: One of FREN 353, FREN 355, FREN 357.

FREN 455 (3) FRENCH COMPOSITION II. Workshop in creative writing, fiction and non-fiction. Prerequisite: FREN 355.

FREN 457 (3) TRANSLATION II. Advanced translation. Prerequisite: FREN 357.

FREN 461 (3) HISTORICAL PHONETICS AND PHONOLOGY OF FRENCH. Phonetic evolution from Latin to modern French. Emphasis on the Latin of northern Gaul and the origins of the phonology of modern French. Prerequisite: All of FREN 351, FREN 370.

FREN 462 (3) HISTORICAL MORPHOLOGY AND SYNTAX OF FRENCH. Development of grammatical forms from Latin, through medieval French, to the modern language. Prerequisite: FREN 370.

FREN 464 (3) HISTORICAL LEXICOLOGY OF FRENCH. Popular vocabulary, loan-words; relationships between lexicon and cultural history; the stages in the assimilation of neologisms; changes in meaning. 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 470 (3-6) D FRENCH LANGUAGE.

Selected topics. Prerequisite: FREN 223. Other prerequisites depending on topic.

FREN 471 (3) ADVANCED FRENCH

PHONETICS. Descriptive phonetics: advanced features in phonetic script and intonation, sociolinguistic and regional variation, presentation of computer-assisted speech analysis. Prerequisite: FREN 351.

FREN 472 (3/6) D 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 (3/6) D 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 (3/6) D 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 476 (3) THE PRONOMINAL APPROACH

AND THE DESCRIPTION OF SPOKEN FRENCH. A formal analysis of syntactic structures based on examples of spoken French. Prerequisite: All of FREN 353, FREN 370. Corequisite: FREN 353 and 370 may be taken concurrently with the permission of the instructor.

FREN 478 (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: RMST 478, LING 320.

FREN 499 (6-12) C HONOURS ESSAY.**FREN 500 (3) METHODS OF BIBLIOGRAPHY AND RESEARCH.****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 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 (0) 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 (6-12) D 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. [2-0]

FRST 111 (6) DENDROLOGY. Development, anatomy, morphology, function and autecology of trees. [3-2; 3-2]**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. SOIL 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 111, MATH 180. [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 (5) TREE AND STAND LEVEL MEASUREMENTS. An introduction to measurement of individual trees and stands, plus basic forest surveying; use of aerial photographs, maps, and various measurement instruments. Prerequisite: All of FRST 231, FRST 232. [5-2-0]

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 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. [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: All of BIOL 121, BIOL 140. [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 (2) 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. Prerequisite: All of ECON 101, ECON 102. [2-0-1]

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: All of ECON 101, ECON 102. [2-0-1]

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 385 (3) WATERSHED HYDROLOGY. Measurement and analysis of hydrological processes in response to forest management activities. Prerequisite: Third year standing in the Faculty of Forestry. [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 387 (3) FOREST HYDROLOGY AND FISH-FORESTRY INTERACTIONS. Application of forest hydrology to watershed management; introduction to aquatic ecology; effects of forest management activities on fish and aquatic habitat. [3-2]

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 (4) RESEARCH METHODS. Lectures and seminars in research philosophies and the scientific method, with special emphasis on field research. [2-0; 2-0]

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 410 (3) ROOT SYMBIOSES. Interactions between plant roots and soil microorganisms with emphasis on mutualism. Prerequisite: One of FRST 310, SOIL 321. Equivalency: SOIL 422. [2-3]

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 (2) FOREST POLICY. The development, implementation and analysis of forest policy. Prerequisite: All of ECON 101, ECON 102. [2-0-1]

FRST 418 (3) ECONOMICS OF THE FOREST 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 319, 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: All of ECON 101, ECON 102 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 (13) SUSTAINABLE FOREST MANAGEMENT. Integration of biophysical and socio-economic components of forest management. Prerequisite: Fourth year standing in the B.S.F. program. [0-0-26]

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 443. [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 239. [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. Non-forestry students must have instructor's permission. [2-2]

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. Extrasessional course; fees will be assessed to meet expenses. Prerequisite: Third 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) APPLICATIONS OF SOCIAL SCIENCE IN FORESTRY. Social aspects of forestry and forest communities. Prerequisite: Fourth year standing in the B.S.F. program. [3-2-1]

FRST 485 (2) FOREST WATERSHED MANAGEMENT. Effects of land management on quality, quantity and timing of water flow. Prerequisite: FRST 385. [2-2-0]

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 (2) 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 492 (3) FOREST RECREATION. Management and conservation of wildland recreation resources. Prerequisite: Fourth year standing in the B.S.F. program. [3-2-0]

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 500 (2-6) C STUDIES IN FOREST TREE PHYSIOLOGY. Principles of plant physiology as applied to problems in growth and development of tree species.

FRST 501 (3) FOREST TREE IMPROVEMENT. Identification and utilization of genetic variation in forests and forest trees. Offered in alternate years. Prerequisite: All of FRST 302, FRST 430.

FRST 502 (2-6) C STUDIES IN FOREST GENETICS. Problems associated with forest tree improvement; analysis of variation in tree quality.

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 (2-6) C SILVICS AND SILVICULTURE. Directed study in silvical characteristics of forest trees; silvicultural systems.

FRST 505 (2-6) C ADVANCED STUDIES IN FOREST ECOSYSTEMS. Directed studies in the energetics and biogeochemistry of forest ecosystems including studies on the ecological impact of forest land management practices.

FRST 506 (3) ADVANCED FOREST PATHOLOGY. Hereditary, physiological, anatomical, environmental, and microbiological factors influencing forest tree diseases.

FRST 507 (2-6) C PROBLEMS IN FOREST PROTECTION.

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 (2) FOREST TREE SEED. Seed production, collection, provenance, testing, treatment, and the application of these to the practice of forestry.

FRST 511 (2) ADVANCED TOPICS IN FOREST REGENERATION. Ecological, physiological, and silvicultural problems in forest regeneration.

FRST 512 (2-6) C PROBLEMS IN FOREST SOILS AND TREE NUTRITION. Directed studies of forest soils and tree nutrition. Equivalency: SOIL 503.

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 514 (2) SEMINAR IN FOREST BIOLOGY. Advanced topics in biology as related to forestry and wood sciences.

FRST 515 (2-6) C STUDIES IN FOREST AND LAND USE HISTORY.

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 517 (2-6) C STUDIES IN FOREST POLICY.

FRST 519 (2-6) C ADVANCED STUDIES IN FOREST ECONOMICS AND FINANCE. Economics of reforestation, forest land management, harvesting, manufacturing and marketing.

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: AGEC 520. [3-0]

FRST 521 (2-6) C STUDIES IN FOREST DEVELOPMENT PLANNING. Silvicultural, managerial, and manufacturing methodology for development with particular regard to the developing nations.

FRST 525 (2-6) C PROBLEMS IN FOREST LAND MANAGEMENT. Directed studies in various aspects of forest management including forest-level modelling, valuation of resources and economic considerations.

FRST 527 (2-6) C STUDIES IN FOREST FIRE SCIENCE AND MANAGEMENT. Directed studies in forest fire science and management.

FRST 529 (2) SEMINAR IN MANAGEMENT OF FOREST RESOURCES. Objectives and methods for integration and improvement of management and use of forests and associated wildlands.

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 (2-6) C DATA PROCESSING IN FORESTRY. Selected readings and problems in the collection and analysis of data in forestry. Use of electronic computers for special forestry and forest research problems. Prerequisite: A good working knowledge of a programming language, preferably FORTRAN.

FRST 533 (2-6) C PROBLEMS IN STATISTICAL METHODS. Directed studies in problems of advanced statistical techniques as a tool in forest research.

FRST 535 (3) APPLIED POPULATION GENETICS. Equivalency: BIOL 510.

FRST 536 (2-6) 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 539 (2-6) C PROBLEMS IN FOREST SAMPLING.

FRST 542 (2-6) ADVANCED STUDIES IN FOREST PHOTOGRAMMETRY. Problems in photo-interpretation, photo mensuration and forest land classification.

FRST 543 (2) SELECTED TOPICS IN REMOTE SENSING. A weekly two-hour seminar series in applied aspects of remote sensing pertaining to natural resources topics; included are uses of remote sensing in forest appraisal, forest recreation, wildlife and soils.

FRST 545 (1) GENERAL FORESTRY SEMINAR. Principles and practice of oral presentations. [0-0-2]

FRST 546 (4) RESEARCH METHODS. Lectures and seminars in research philosophies and methods with special emphasis on field and applied research. [2-0; 2-0]

FRST 547 (2) SEMINAR IN FOREST HARVESTING. Selected topics in forestry and harvesting.

FRST 548 (3) MAJOR ESSAY. For non-thesis master's degree programs.

FRST 549 (6-18) C MASTER'S THESIS.

FRST 551 (3) FORESTRY IN BRITISH COLUMBIA.

FRST 555 (6) DYNAMIC PROGRAMMING IN RESOURCE ALLOCATION. Mathematical background, classical optimization methods,

principle of optimality in one, two, and three dimensions; dimensionality reduction; feedback mechanisms; examples from Forestry and Natural Sciences. Prerequisite: Linear algebra, calculus and probability theory, or permission of the instructor.

FRST 559 (2-6) C OPERATIONS RESEARCH IN FORESTRY. Directed studies in the application of OR techniques to the diverse problems of the forest environment and forest industries.

FRST 560 (3) ADVANCED ANALYSIS OF HARVESTING OPERATIONS. The application of advanced analytical methods to problems in harvesting. Development of proficiency in problem formulation, commercial software, and interpretation of results. Topics include linear, integer, non linear, and dynamic programming; classical optimization; simulation; bounding and search techniques.

FRST 561 (3) MODELING AND SIMULATION OF HARVESTING OPERATIONS. Principles and methodology for performing simulation experiments. Emphasis is placed on building, running, and analyzing network-based simulation models applicable to many harvesting operations.

FRST 562 (2-6) C MICROCOMPUTER APPLICATIONS IN FOREST ENGINEERING. Directed studies in analyzing microcomputer applications related to the planning, analysis and design of harvesting operations.

FRST 563 (2-6) C PROBLEMS IN FOREST ENGINEERING. Directed studies in planning and control of logging systems; special design problems of forest roads, bridges, cableways and associated structure.

FRST 564 (3) RESEARCH METHODS IN FOREST HARVESTING. A lecture and laboratory course covering the major research methods applicable to the study of forest harvesting operations. Topics covered include experimental design, production studies, and economic analysis.

FRST 565 (3) TRANSPORTATION NETWORK PLANNING. Determination of optimal road spacing, road standards under assumptions of irregular cutting boundaries, non-uniform timber volumes, non linear cost functions, and multiple stand entries. Examination of large scale transportation network optimization.

FRST 566 (3) MECHANICS OF GROUND VEHICLES. Analysis of forces influencing the payloads and mobility of wheeled and tracked vehicles. Ground pressures and dynamics of the wheel-soil interface. Mechanics and energy transfers for engines, torque converters, transmission, differentials, and planetary gears.

FRST 567 (3) ADVANCED CABLE MECHANICS. Advanced topics in cable mechanics, including multispan systems, yarder mechanics, spar and tail-tree analysis.

FRST 568 (3) RESEARCH MANAGEMENT AND TECHNOLOGY DELIVERY. Broad overview of research and technology management, covering relevant issues including envisioning and strategy development,

managing the innovation process, and delivering technology for commercial exploitation.

FRST 569 (3) BUSINESS FUNDAMENTALS IN THE FORESTRY SECTOR. Overview of business operations within the forestry sector with a focus on industry structure and practices.

FRST 570 (2-6) C WOOD SCIENCE. Research in basic wood and fibre properties; anatomy, chemistry and physics; analysis of variation in wood qualities; chemistry of wood extractives.

FRST 571 (3) BIODETERIORATION AND WOOD PROTECTION. Recent advances in understanding the factors influencing the performance of wood in service. Topics include bacterial and fungal degradation of wood, novel application technologies, accelerated testing of preservatives, factors influencing preservative performance. [3-3]

FRST 572 (2-6) C ENERGY TRANSFER MECHANISMS IN WOOD AND RELATED PRODUCTS. Response of high polymers to energy sources with special reference to chemical and physical effects on wood and related products; cross-linking, copolymerization and degradation reactions; ionizing radiation.

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. Prerequisite: All of MATH 200, WOOD 372.

FRST 574 (2-6) C RHEOLOGICAL BEHAVIOURS OF WOOD BASE MATERIALS. Time-dependent phenomena of the wood matrix and wood fibre webs; relation of polymer constructions with emphasis on wood molecular architecture; features of viscoelastic memory systems. Corequisite: All of WOOD 375, MATH 300.

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 577 (2-6) C ORIGIN OF WOOD PULP PROPERTIES. Exploration of basic interrelationships between wood characteristics, chemical and mechanical processing and wood pulp behaviours. [3-3]

FRST 578 (2-6) C ADVANCED STUDIES IN WOOD PRODUCTS. Research in the properties of solid and reconstituted wood products.

FRST 579 (3) FOREST PRODUCTS BIOTECHNOLOGY. Uses of microbiology, enzymology and immunology to enhance the processing and value of forest products. [3-3]

FRST 580 (2-6) C PROBLEMS IN FOREST PRODUCTS. Directed study in problems associated with the forest industries; utilization; integration; development and marketing of forest products.

FRST 581 (3) FOREST PRODUCTS MARKETING/MANAGEMENT. Options available to the forest products industry with emphasis on methods of strategic analysis. Industry structure; business environment limitations; a practical market assessment. Prerequisite: WOOD 461.

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 584 (3) WOOD AND PULP SCIENCE SEMINAR. Presentation and critical review of topics and problems relating to wood properties and manufacturing processes. [3-0; 3-0]

FRST 585 (4) RESEARCH METHODS IN FOREST HYDROLOGY. Methodology and technique of studying the terrestrial components of the hydrologic cycle, in relation to forest hydrology.

FRST 586 (3) WOOD PRODUCTS PROCESSING. Mechanical processing principles applicable to the conversion of logs to forest products including: lumber processing and control systems, wood composite classification and manufacturing concepts, preservation processing technology and fiber to pulp conversion. [3-2]

FRST 587 (2/3) D WOOD COMPOSITES. Relationship of bulk and surface properties of wood to composite formation; influence of adhesive chemical and physical properties on bond performance. Processing strategies to enhance strength and durability of wood composites. Prerequisite: WOOD 487. [3-2]

FRST 589 (2-6) C PROBLEMS IN FOREST WATERSHED MANAGEMENT.

FRST 590 (3) STATISTICAL METHODS IN HYDROLOGY.

FRST 591 (2-6) C RESEARCH METHODS IN FOREST AND WILDLAND RECREATION.

FRST 592 (3) HYDROLOGICAL MODELLING APPLICATIONS IN FORESTRY

FRST 593 (2-6) 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 594 (3) LANDSCAPE ECOLOGY AND MANAGEMENT. Ecological aspects of the development, form, and function of landscapes.

FRST 595 (2-6) C RESEARCH METHODS IN FOREST WILDLIFE STUDIES.

FRST 597 (2-6) C PROBLEMS IN FOREST WILDLIFE MANAGEMENT.

FRST 599 (6-18) D M.A.SC. THESIS.

FRST 649 (0) PH.D. THESIS.

GENE — GENETICS 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 (formerly 190), 321, 327, 328, 329, 350, 360, 361 (formerly 260), 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. The following GEOG courses have Science credit: 101, 102, 103, 200, 201, 204, 205, 207, 300, 301, 303, 304, 306, 308, 309, 370, 372, 373, 401, 402, 404, 405, 406, 407, 408, 409, 449, 470, 471, 472, 500, 501, 503, 504, 505, 507, 508, 509, 515. Additional fees are charged for some courses.

GEOG 101 (6) INTRODUCTION TO PHYSICAL GEOGRAPHY. Introduction to the physical environment; basic physical principles of climate, hydrology, geomorphology and biogeography, including human-induced changes; global and regional patterns of natural phenomena. Lab exercises cover measurement techniques, data analysis, and map and air photo analysis. Same as GEOG 102 plus GEOG 103.

GEOG 102 (3) INTRODUCTION TO PHYSICAL GEOGRAPHY: AIR AND WATER. Physical principles and processes governing the circulations and characteristics of air and water on

earth, energy and water cycles, atmospheric and oceanic climate, surface and subsurface hydrology, and human impacts. Credit will be given for only one of GEOG 101 or 102.

GEOG 103 (3) INTRODUCTION TO PHYSICAL GEOGRAPHY: LANDFORMS AND VEGETATION. Physical and biological processes governing the evolution and distributions of landforms, soils and vegetation of Earth Biogeochemical cycles and budgets. Human impacts. Credit will be given for only one of GEOG 101 and 103.

GEOG 121 (3) GEOGRAPHICAL CHANGE IN THE MODERNIZING WORLD I. An introduction to the human geography of the modernizing world, c 1450–1945, including: power, space and the geography of agrarian societies; the formation of a European world system; geographies of industrialization, urbanization and geopolitics of wars and revolutions.

GEOG 122 (3) GEOGRAPHICAL CHANGE IN THE MODERNIZING WORLD 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. Continuation of GEOG 121, but may be taken separately.

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. 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/SOIL 204 or GEOG 300. Equivalency: SOIL 204.

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) GEOGRAPHY OF ECOSYSTEMS. Landscape ecology, emphasizing the vegetation component of ecosystems; their spatial distributions and interactions; the effects of disturbance and management. Data sources, including historical records. Regional examples will be emphasized. 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 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 be given for only one of GEOG 204, 300 or SOIL 204. Prerequisite: GEOG 200.

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: GEOG 200. ATSC 201 is recommended.

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 GEOG 251. Prerequisite: One of GEOG 101, GEOG 103, EOSC 110. Equivalency: EOSC 330.

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: Either (a) GEOG 101 or (b) two of GEOG 102, 200, 204, 203, 205, 207. Six credits from GEOG 101, GEOG 102 (or GEOG 200 or GEOG 204), GEOG 103, GEOG 205, GEOG 207, GEOG 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: Six 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: Six 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: Six 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) SOCIAL GEOGRAPHIES OF HEALTH AND HEALTH CARE. Explores Social and 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) THE GEOGRAPHY OF THIRD WORLD URBANIZATION. 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 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: GEOG 122 or the former 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: GEOG 122 or the former GEOG 260.

GEOG 370 (3) INTRODUCTION TO GEOGRAPHIC INFORMATION SYSTEMS. Introduction to Geographic Information Systems and to computer-based graphical methods of data analysis. Emphasis on data visualization techniques such as cartographic modelling and exploratory data analysis. Priority enrolment for Major and Honours students in Geography.

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 enrolment 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: Six 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.

GEOG 374 (3) STATISTICS IN GEOGRAPHY I. Introduction to statistical techniques and their application to geographical problems. Priority enrolment for Honours and Major students in Geography.

GEOG 375 (3) SPATIAL DATA ANALYSIS. Introduction to computer programming and statistical techniques for managing, analyzing, and mapping spatial data; survey of topics complemented by assignments using package computer programs and geographical information systems.

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 MONSOON 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: Either (a) one of GEOG 204, SOIL 204 or (b) GEOG 300.

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 GEOMORPHOLOGY. 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 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) GEOGRAPHY AND RESOURCE ANALYSIS. Geographical analysis of society-environment systems. Relates resource allocation, use, and development to changing demand, technology, policy, institutional arrangements, and social values. 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 six 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 produc-

tion 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 advisor 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 advisor 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. Credit will be given for only one of GEOG 407 and 448. Prerequisite: Permission of the department head and supervising faculty member is required.

GEOG 449 (3/6) D HONOURS ESSAY. Carries six 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.

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 470 (3) ADVANCED GEOGRAPHIC INFORMATION SYSTEMS. Theoretical and practical aspects of Geographic Information Systems, including cartographic modelling, digital terrain models, management issues and spatial interpolation. Limited enrolment. Prerequisite: GEOG 370 or completed second year of a Geography B.Sc. with some introductory knowledge of GIS.

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 470.

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 370, GEOG 372 or permission of instructor.

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 human adaptations to changing ecological conditions in the region, with particular reference to the Malay World. 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) GEOGRAPHY OF EASTERN EUROPE. Communist-era policies for economic and social development: their regional impact and their legacy for the post-Communist states. Current regional development problems. Normally alternates with GEOG 494. Prerequisite: GEOG 391.

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 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. Topics chosen to fit student needs in any given year. Prerequisite: Experimental methods and scale problems in geomorphology and hydrology; runoff and sediment and solute source analysis; watershed mass balance and management.

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 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 510 (3/6) D SPATIAL AND CARTOGRAPHIC TECHNIQUES. Analysis of spatial data involving statistical methods, mathematical modelling, and computer mapping, with emphasis on cartographic analysis and display of data.

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 516 (3) ADVANCED GEOGRAPHIC INFORMATION SYSTEMS. The structure of geographic data bases. Evolution of cartographic data structures. Applications in geography.

GEOG 517 (3) ENVIRONMENTAL SUSTAINABILITY. Environmental sustainability is examined through conceptual literature and empirical examples. Emphasis on links between the natural and social sciences. Case studies are used to discuss appropriate scales of development, potential limits to growth, and geographic distribution of benefits and costs associated with resource allocation and development.

GEOG 518 (3) CULTURES OF NATURE IN CONTEMPORARY POLITICAL ECOLOGIES. How contemporary configurations of nature are tied to imaginative and material geographies of inequality.

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 530 (3) URBAN SOCIAL GEOGRAPHY. An examination of empirical research in social urban geography, including such topics as the geography of social problems, the quality of life, the geography of minority groups, migration, tourism, and the experience of place.

GEOG 531 (3) URBAN SYSTEMS IN DEVELOPED COUNTRIES. Analysis of changing urban systems, with examples drawn primarily from Canada, the United States, and the United Kingdom.

GEOG 532 (3) URBANIZATION IN DEVELOPING COUNTRIES. Problems of urbanization in developing countries as illustrated by Asian case studies.

GEOG 534 (3/6) D ECONOMIC GEOGRAPHY. Recent literature on the spatial organization of economic activity.

GEOG 536 (3/6) D CULTURAL GEOGRAPHY. Theories of culture and methods of cultural geography applied either to the cultural ecology of subsistence systems or to the geography of advanced societies.

GEOG 537 (3) SOCIETY AND ENVIRONMENT IN BRITISH COLUMBIA. Analysis of geographical change in a recently-colonized, recently-modernized corner of North America.

GEOG 538 (3) HISTORICAL URBAN GEOGRAPHY. Social and economic geography of early Canadian and American cities.

GEOG 539 (3/6) D TOPICS IN HUMAN GEOGRAPHY.

GEOG 548 (0) MAJOR ESSAY.

GEOG 550 (3/6) D DIRECTED READING IN HUMAN GEOGRAPHY.

GEOG 556 (3/6) D ADVANCED SEMINAR IN HUMAN GEOGRAPHY.

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: GERM 110 or German 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) REFRESHER II. Emphasis on the reviews of grammatical structures. Fluency in many situations, competence in important areas of cultural life, familiarity with study resources and skills, ability to participate in discussions of controversial issues and to express ideas clearly in writing. Prerequisite: GERM 213.

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 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.

Concentrating on the nineteenth century, this course traces the reflections in literature of changes in politics, society, ideas, and spiritual values. Readings drawn from a variety of genres by authors such as Heine, Buchner, Hebbel, Grillparzer, Nestroy, Schnitzler, Keller, Storm and Fontane.

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 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 six-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.crns.ubc.ca.

GREK 100 (6) BEGINNERS' GREEK. An introduction to the fundamentals of reading and writing classical Greek. Credit will not be granted for both GREK 100 and GREK 125.

GREK 125 (6) INTRODUCTION TO NEW TESTAMENT GREEK. See GREK 100.

GREK 200 (6) SECOND-YEAR GREEK. Prerequisite: GREK 100.

GREK 301 (6) GREEK LITERATURE OF THE CLASSICAL PERIOD. Composition, Plato's Apology, and a tragedy. Prerequisite: GREK 200.

GREK 302 (3) GRAMMAR AND COMPOSITION. Prerequisite: GREK 200.

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 547 (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 AGRICULTURAL SCIENCES

GRS 290 (1-2) D 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 (1-2) D 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 (1-2) D 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.

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 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. To study the design and methods used in observational studies. Design issues will focus on the three major analytical study designs used in epidemiology: cohort, case-control, and cross-sectional studies. Practical aspects of study design and conduct will be discussed and methods used to reduce precision and enhance power highlighted. Prerequisite: One of HCEP 400, HCEP 502, HCEP 505.

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, subtrees, 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 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 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: All of HCEP 502, OCCH 509 or permission of instructor.

HCEP 532 (1.5) RISK ASSESSMENT AND COMMUNICATION. Methods of evaluating occupational and environmental health risks, including the health exposure.

HCEP 533 (3) OCCUPATIONAL AND ENVIRONMENTAL TOXICOLOGY. Mechanism of action of commonly encountered occupational toxic agents; relevance of labora-

tory 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 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 (3) SELECTED TOPICS. By seminar and directed readings, certain topics of current interest are explored in depth.

HCEP 599 (12) MSC THESIS.

HCEP 607 (1.5) PHD RESEARCH SEMINAR. Required course in PhD program. Topics of current interest will be presented and discussed by students and various faculty.

HCEP 699 (0) PHD 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.crns.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 BIBLICAL 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 AGRICULTURAL SCIENCES

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) EUROPE FROM THE FALL OF ROME TO THE REFORMATION. The evolution of medieval Europe emphasizing structures and their changes: the ordering of society, the economy, beliefs and ideas, the organization of communities and their political development.

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 125 (6) MAIN CURRENTS IN TWENTIETH-CENTURY HISTORY. International relations, the emergence and impact of major political ideologies, and the dynamics of social and economic change in the developed and developing world.

HIST 135 (6) THE HISTORY OF CANADA. Some of the principal events in Canadian history and the various interpretations of them.

HIST 150 (6) WORLD HISTORY SINCE 1500. The civilizations of, and the demographic, ecological, economic and intellectual links between Africa, America, Asia, Europe and the Pacific.

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 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 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 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) HONOURS TUTORIAL.

HIST 322 (6-12) 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 353 (3) POLITICS AND SOCIETY IN NINETEENTH-CENTURY LATIN AMERICA. The changing structure of power in Latin America 1820-1914, emphasizing the factors which prevented the establishment of stable political systems. Focuses mainly on Argentina, Brazil and Mexico.

HIST 354 (3) POLITICS AND SOCIETY IN TWENTIETH-CENTURY LATIN AMERICA. The changing structure of power in Latin America since 1900, focusing on the political movements that have challenged the status quo. Concentrates on the experience of Mexico, Cuba, Brazil and Chile.

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 ECONOMIC HISTORY OF MEDIEVAL EUROPE. A general survey of social organization, of the development of public and private institutions, and of major changes in the economy and economic organization.

HIST 372 (6) IDEAS AND INSTITUTIONS OF THE MIDDLE AGES. Studies in medieval political ideas and the institutions of government and law.

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) THE CIVILIZATION OF LATE IMPERIAL CHINA. Evolution of Chinese civilization from c. AD1000 to 1600. The many-sided cultural and political legacy of the Sung period; the impact of the period of Mongol domination; the Ming period. Cultures of peoples who ruled part or all of China will be touched upon. Not offered every year. Equivalency: ASIA 321.

HIST 382 (6) HISTORY OF CHINESE CIVILIZATION. A survey of Chinese history from ancient times to 1840, with emphasis on the period up to AD 1000.

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) 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 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 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 1900s.

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 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 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 490 (3) SEMINAR FOR HISTORY MAJORS. The course will explore selected problems and issues in the theory and practice of historical work. For seminar topics each

year, consult the department. Open to majors with the permission of the department.

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 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) CONDITIONING FOR SPORT AND PHYSICAL ACTIVITY. Physical fitness and exercise; conditioning methods, exercise techniques and fitness appraisal. [2-2]

HKIN 110 (3) ANALYSIS OF INDIVIDUAL PERFORMANCE. The analysis and application of basic human movement principles. [2-2]

HKIN 120 (3) ANALYSIS OF TEAM PERFORMANCE. Structural dynamics, team instruction and analysis of performance. [2-2]

HKIN 161 (3) SOCIAL AND MANAGERIAL ASPECTS OF LEISURE AND SPORT. An introductory examination of the political, economic and social basis of leisure and sport; concepts, theories and problems. [3-0]

HKIN 163 (3) BIODYNAMICS OF PHYSICAL ACTIVITY. An introductory examination of the mechanical, anatomical and physiological bases of human physical performance. [3-0]

HKIN 164 (3) DYNAMICS OF MOTOR SKILL ACQUISITION. An introductory examination of motor skill acquisition, the variables which influence the learning and performance of motor skills, and the relationship between skill acquisition and growth and development. [3-0]

HKIN 210 (3/9) D PERFORMANCE ANALYSIS OF SELECTED INDIVIDUAL SPORTS AND ACTIVITIES. Specific individual topics to be announced each year. Prerequisite: HKIN 110 and completion of first year. [2-2]

HKIN 220 (3/9) D PERFORMANCE ANALYSIS OF SELECTED TEAM SPORTS AND ACTIVITIES. Specific topics to be announced each year. Prerequisite: HKIN 120 and completion of first year. [2-2]

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: Completion of first year. [3-0]

HKIN 261 (3) LEISURE AND SPORT IN CANADIAN SOCIETY. The Canadian leisure and sport delivery system and related policies. Prerequisite: HKIN 161. [3-0]

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. [3-0]

HKIN 281 (3) SOCIOLOGICAL ASPECTS OF SPORT. Selected aspects of sport examined in relation to modern social structures and cultures. Prerequisite: HKIN 161. [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: HKIN 164. [3-0]

HKIN 290 (3) FUNCTIONAL ANATOMY AND APPLIED 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. Prerequisite: HKIN 163. [2-2]

HKIN 291 (3) FUNCTIONAL ANATOMY AND APPLIED PHYSIOLOGY II. Structure and function of the digestive, endocrine, urinary, circulatory and respiratory systems. Special emphasis on exercise physiology. Prerequisite: HKIN 290. [2-2]

HKIN 292 (3) LEISURE AND SPORT EVENT MANAGEMENT. Issues and strategies of leisure and sport event management are examined. Prerequisite: HKIN 161. [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. [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: Completion of second year. [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: All of HKIN 103, HKIN 290, HKIN 291. [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: HKIN 110. [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: Completion of first year. [2-2]

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: Completion of second year. [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: Completion of second year 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 completion of second year. [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: All of HKIN 290, HKIN 291. [2-2]

HKIN 362 (3) ADAPTED PHYSICAL ACTIVITY. For persons with disabilities; a developmental, lifelong approach to programming. Includes field work. Prerequisite: Completion of second year. [2-0-2]

HKIN 363 (3) MECHANICS AND KINETICS. An introduction to the physical laws of nature and an interpretation of those laws as applied to human movement observed in athletic skills. An examination of the biomechanical systems of the human body with respect to forces developed. An analysis of various specific athletic performances and an introduction to the research tools of Kinesiology. Prerequisite: Either (a) all of HKIN 290, HKIN 291 or (b) all of ANAT 390, ANAT 391. [3-2]

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: HKIN 164 and completion of second year. [3-0]

HKIN 365 (3) FOUNDATIONS OF COACHING. Methods of athletic conditioning, planning the program, psychology of training and coaching, athletic evaluation. Prerequisite: Completion of second year. [3-0]

HKIN 366 (3) MOVEMENT EXPERIENCES FOR YOUNG CHILDREN. The design and implementation of movement experiences for children in early childhood years. Prerequisite: Completion of second year. [3-0]

HKIN 367 (3) LEISURE AND DISABLED PERSONS. Policy issues relating to leisure opportunities for persons with disabilities. Prerequisite: Completion of second year. [3-0]

HKIN 368 (3) MOTOR SKILL LEARNING AND PERFORMANCE. The principles of motor skill acquisition, application to learning and instruction in sport and physical activity programs. Prerequisite: HKIN 164. Completion of second year. [2-2]

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: Completion of second year. [2-2]

HKIN 370 (3) INTRODUCTION TO MEASUREMENT IN SPORT AND PHYSICAL ACTIVITY. An introduction to the theory and practice of physical fitness appraisal, motor skill evaluation and test construction relative to sport and physical activity. Prerequisite: Completion of second year. [2-2]

HKIN 371 (3) INTRODUCTION TO STATISTICS AND RESEARCH METHODOLOGY. Descriptive statistics, norms, normal probability curve; concepts of correlation, reliability and validity; statistical inference. Principles of research methodologies used in the study of sport and physical activity. Prerequisite: Completion of second year. [3-0]

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: Completion of second year. [3-0]

HKIN 374 (3) PERSPECTIVES ON PLAY. Play theories and behaviour. Prerequisite: HKIN 161. [3-0]

HKIN 382 (3) MEANING AND VALUES IN SPORT. An analysis of the experience of sports activities. Prerequisite: HKIN 261. Completion of second year. [3-0]

HKIN 383 (3) THE OLYMPIC GAMES: ANCIENT AND MODERN. Prerequisite: Completion of second year. [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: HKIN 291. [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. [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: Completion of second year. [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. [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 210. (Dance). [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: Completion of second year.

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 290, HKIN 291, HKIN 361, HKIN 363. 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 accumula-

tions and protein functions. Prerequisite: All of HKIN 290, HKIN 291, HKIN 463. [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. Prerequisite: Either (a) all of HKIN 290, HKIN 291 or (b) all of ANAT 390, BIOL 353. [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. [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: Completion of second year. [2-0-2]

HKIN 468 (3) HUMAN MOTOR PERFORMANCE. Acquisition, performance and control of skilled movements. Processes and underlying mechanisms involved in learning and performing motor skills. Prerequisite: Completion of second year. [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. [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. [3-0]

HKIN 473 (3) HUMAN BIOMECHANICAL ANALYSIS. Advanced quantitative analysis of human motion. Prerequisite: HKIN 363 or first-year Physics. [3-0]

HKIN 481 (3) SPORT MARKETING AND COMMUNICATION. A seminar on the application of social science theories and methods to sport marketing and communication. Prerequisite: COMM 465. [3-0]

HKIN 489 (3/6) D SEMINAR. Current topics and research in specific areas. Prerequisite: Completion of third year. [3-0; 3-0]

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. [3-0]

HKIN 499 (3) PROJECTS IN HUMAN KINETICS. Provides opportunities to perform research pertaining to a chosen area of human kinetics. Prerequisite: Completion of third year and permission of Associate Director, Undergraduate Affairs.

HKIN 500 (3) GRADUATE SEMINAR.

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 development, 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.

HKIN 601 (3/12) C DOCTORAL SEMINAR.

HKIN 699 (0) PH.D. THESIS.

HMEC — HOME ECONOMICS FACULTY OF AGRICULTURAL SCIENCES

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]

HMEC 476 (3) DIRECTED STUDY IN HOME ECONOMICS. Directed investigation of a problem, requiring a written or oral report of findings. Fourth-year Home Economics students only. Prerequisite: Satisfactory standing and permission of faculty member supervising the investigation.

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: HMED 314. [3-0]

HMED 440 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: CLOTHING. 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.

HMED 441 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: FOODS. 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.

HMED 442 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: FAMILY LIFE. 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.

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.

HMED 598 (3-12) C FIELD EXPERIENCES. For those in master's, doctoral and diploma programs.

HMED 599 (6/12) C MASTER'S THESIS.

HUNU — HUMAN NUTRITION FACULTY OF AGRICULTURAL SCIENCES

Most of the undergraduate courses have been renamed as Food, Nutrition and Health (FNH). Please see the FNH section.

HUNU 477 (3) DIRECTED STUDY IN HUMAN NUTRITION. 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 Human Nutrition or Dietetics students only.

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) NUTRITION SEMINAR.

Students or guests present seminars on current topics in nutrition. Required of all first-year graduate students in Human Nutrition. After the first year, graduate students are expected to attend without credit.

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 649 (0) PH.D. THESIS.

IAR — ASIAN RESEARCH GRADUATE STUDIES

IAR 500 (6) PERSPECTIVES AND METHODS IN ASIA PACIFIC POLICY STUDIES.

IAR 505 (3) THE NEW INSTITUTIONALISM IN ASIA.

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 GRADUATE STUDIES

IEST 500 (3) PRO-SEMINAR EUROPEAN STUDIES.

IEST 501 (3) INTERNSHIP/EUROPEAN EXCHANGE.

IEST 502 (3 9) DIRECTED READING.

IEST 505 (3-6) TOPICS IN EUROPEAN STUDIES.

IEST 511 (3) EXTENDED ESSAY.

IEST 512 (6) MA 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 IEST541 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 391.

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: Enrolment 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.

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, Pediatrics 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 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 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 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 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 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 448 (3-6) D DIRECTED STUDIES. Permission of the Director is required.

ITAL — ITALIAN FACULTY OF ARTS

Students with Italian 11 or 12 or exposure to the Italian language or dialects must consult a departmental advisor for placement in appropriate courses.

ITAL 100 (6) FIRST-YEAR ITALIAN. Grammar, reading, and oral practice for beginners without previous exposure to the Italian language or dialects.

ITAL 101 (6) FIRST-YEAR ITALIAN. Grammar, reading, composition, and oral practice for beginners with previous exposure to Italian or any Italian dialect.

ITAL 105 (12) INTENSIVE ITALIAN. An accelerated course. Grammar, reading, composition, with special emphasis on the spoken language. This course is equivalent to ITAL 100 and 200.

ITAL 200 (6) SECOND-YEAR ITALIAN. Reading, writing, and oral practice, with constant and systematic reference to the grammatical structure of the language. Prerequisite: ITAL 100 or permission of the department.

ITAL 201 (6) SECOND-YEAR ITALIAN. Intermediate grammar, reading, and composition. Prerequisite: ITAL 101 or permission of the department.

ITAL 300 (6) ADVANCED COMPOSITION, TRANSLATION, AND STYLISTICS.

ITAL 302 (6) INTRODUCTION TO ITALIAN FOR SENIOR STUDENTS. An intensive course aiming to impart a reasonable degree of proficiency in spoken and written Italian. Basic grammar, conversation, progressive reading of literary texts. Prerequisite: Proficiency in another Romance language or Latin.

ITAL 303 (6) ITALIAN LITERATURE FROM THE ORIGINS TO THE ROMANTIC PERIOD. A thematic approach to Italian literary works considered in a broad cultural context. Alternates with ITAL 304.

ITAL 304 (6) ITALIAN LITERATURE FROM THE END OF THE ROMANTIC PERIOD TO THE 1960S. The development of modern Italian literature against the background of social and historical events. Alternates with ITAL 303.

ITAL 400 (6) ADVANCED STUDIES IN ITALIAN LANGUAGE AND STYLE. Intensive training in translation and free composition with special emphasis on the stylistic analysis of literary texts.

ITAL 401 (3/6) D ITALIAN LITERATURE OF THE MIDDLE AGES. Dante, Petrarch, Boccaccio, and the minor lyric poets.

ITAL 405 (3/6) D TOPICS IN THE LITERATURE OF THE ITALIAN RENAISSANCE. The topics in any year may be selected from the following: Italian Humanism; Machiavelli and Ariosto; Tasso and the Literature of the Late Renaissance; Italian Renaissance Drama.

ITAL 407 (3/6) D TOPICS IN ITALIAN LITERATURE: ROMANTICISM. The topics in any year may be selected from the following: the Romantic debate; neoclassic and Romantic poetry; Manzoni and the novel; literature of the Risorgimento.

ITAL 408 (3/6) D TOPICS IN MODERN AND CONTEMPORARY ITALIAN LITERATURE. The topics in any year may be selected from the following: from "Neo-realismo" to the "Avant-garde"; Croce's role in the poetics of twentieth-century Italian literature; Carducci, Pascoli, D'Annunzio, and the crisis of poetical language; the evolution of the modern Italian novel: Verga, Tozzi, Pirandello, Svevo, etc; Pirandello and the revolution of Italian drama; Italian poetry of the twentieth century; from Gozzano to Montale.

ITAL 420 (3/12) D SPECIAL TOPICS IN ITALIAN LANGUAGE AND LITERATURE. A maximum of six credits is available in any one topic.

ITAL 449 (6/12) C 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 six 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 230 (3/6) D INTRODUCTION TO ITALIAN CIVILIZATION. The development of Italian culture from its origins to the present. In English.

ITST 310 (3/6) D THE DIVINE COMEDY IN TRANSLATION.

ITST 421 (3/6) D SPECIAL TOPICS IN ITALIAN STUDIES.

ITST 431 (3/6) D LITERATURE OF THE ITALIAN RENAISSANCE IN TRANSLATION.

ITST 432 (3/6) D ITALIAN FILM AND ITS CULTURAL BACKGROUND (FILMS WITH ENGLISH SUBTITLES).

JAPN — JAPANESE FACULTY OF ARTS

JAPN 100 (3) BEGINNING JAPANESE I.

JAPN 101 (3) BEGINNING JAPANESE I.
Prerequisite: JAPN 100.

JAPN 102 (3) BEGINNING JAPANESE II.
Prerequisite: JAPN 101.

JAPN 103 (3) BEGINNING JAPANESE II.
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. Corequisite: JAPN 150 and 151 may be taken in the same year.

JAPN 151 (6) INTENSIVE BEGINNING JAPANESE II. Prerequisite: JAPN 150.

JAPN 180 (12) INTENSIVE SUMMER COURSE IN JAPANESE. Equivalent to JAPN 100 and 101.

JAPN 200 (3) INTERMEDIATE JAPANESE: READING AND WRITING. Prerequisite: One of JAPN 103, JAPN 151. Corequisite: to be normally taken in conjunction with JAPN 202.

JAPN 201 (3) INTERMEDIATE JAPANESE: READING AND WRITING. Prerequisite: JAPN 200. Corequisite: to be normally taken in conjunction with JAPN 203.

JAPN 202 (3) INTERMEDIATE JAPANESE: CONVERSATION AND COMPOSITION. Prerequisite: One of JAPN 103, JAPN 151. Corequisite: To be normally taken in conjunction with JAPN 200.

JAPN 203 (3) INTERMEDIATE JAPANESE: CONVERSATION AND COMPOSITION. Prerequisite: JAPN 202. Corequisite: To normally be taken in conjunction with JAPN 201.

JAPN 280 (12) INTENSIVE SUMMER COURSE IN INTERMEDIATE JAPANESE. Prerequisite: One of JAPN 103, JAPN 151, JAPN 104 or equivalent. Equivalency: JAPN 200, 201, 202 AND 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 (A).
Instructor's permission necessary.

JAPN 312 (3) CLASSICAL JAPANESE I (B).
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 301, 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) 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 mixed script on aspects of Korean culture, customs, and contemporary life, along with structured conversations based on those readings. Prerequisite: KORN 200.

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 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 FACULTY OF AGRICULTURAL SCIENCES

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 I. 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.E.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.E.D. students. Credit will be given for only one of LARC 440, LARC 540.

LARC 500 (0) LANDSCAPE ARCHITECTURE SEMINAR. A forum for the exchange of ideas and the presentation of papers by faculty, students, and visitors.

LARC 501 (9) DESIGN STUDIO 1: INTRODUCTION. Restricted to MLA students. [2-10]

LARC 502 (9) DESIGN STUDIO 2: DESIGN METHODS. Prerequisite: LARC 501. [2-10]

LARC 503 (9) DESIGN STUDIO 3: URBAN AND SUSTAINABILITY WORKSHOPS. Prerequisite: LARC 502. [2-10]

LARC 504 (9) DESIGN STUDIO 4: URBAN AND REGIONAL PUBLIC REALMS. Prerequisite: LARC 503. [2-10]

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) SITE ANALYSIS AND PLANNING I. Site analysis and planning of relatively simple sites, emphasizing grading design. [2-3]

LARC 532 (3) STRUCTURES AND MATERIALS. Prerequisite: LARC 531. [2-3]

LARC 533 (3) ADVANCED LANDSCAPE TECHNOLOGY. Prerequisite: LARC 532. [2-3]

LARC 535 (3) INTRODUCTION TO COMPUTERS IN LANDSCAPE ARCHITECTURE. [1-4]

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 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.cms.ubc.ca.

LATN 100 (6) FIRST-YEAR LATIN. For students with no previous knowledge of Latin.

LATN 200 (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, Latin 12.

LATN 302 (3) GRAMMAR AND COMPOSITION. 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 547 (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 201 (4/5) D PERSPECTIVES ON LAW.

Selected legal theories and their contribution to the understanding of law and legal institutions. [2-0; 2-0]

LAW 203 (4/5) D LEGAL INSTITUTIONS OF CANADIAN GOVERNMENT. The development of law through the institutions of government in Canada, including legislatures, government departments, administrative bodies, quasi-judicial tribunals, and self-governing professions. [2-0; 2-0]

LAW 205 (5/6) 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 207 (6-7) D TORTS. A study of the bases of civil liability for intentionally and accidentally caused harms. [3-0; 3-0]

LAW 209 (6-7) D CONTRACTS. Historical development; formation and enforceability of contracts; parties; contractual terms; changes of circumstances; remedies for breach. [3-0; 3-0]

LAW 211 (6-7) D REAL PROPERTY. Historical and conceptual analysis of interests in land, future interests, the Torrens system of land registration. [3-0; 3-0]

LAW 213 (0) LEGAL WRITING AND MOOT COURT. Each first-year student will be assigned to a small group for one first-year course. Part of the final mark for that course will be based on grades received for assignments on legal writing and research, given from time to time throughout the year.

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 304 (2-4) D PSYCHOANALYSIS, FEMINISM, AND THE LAW. The implications of psychoanalytic social theory for feminist legal theory, drawing on the work of Freud and Lacan. [2-0] or [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 306 (3) LAW AND SOCIETY IN BRITISH COLUMBIA AND YUKON. Issues concerning law in the history of British Columbia and Yukon, with emphasis on how law and legal discourses are related to culture, ideas and interests across space and time. Not offered each year; consult Faculty. [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 314 (3) CRIMINAL JUSTICE HISTORY. Aspects of the history of criminal law and criminal justice from the eighteenth to the twentieth century. 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 317 (2-4) D LAW OF THE SEA. International law relating to the oceans, including the regimes of inland waters, territorial seas, continental shelves, exclusive economic zones, high seas and the deep sea-bed. Not offered each year, consult Faculty. [2-0] or [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 (2-4) D TOPICS IN CONFLICT OF LAWS. Not offered each year, consult Faculty. [2-0] or [3-0]

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 (2-4) D CULTURAL PROPERTY AND LAW. National and international regimes for the protection of cultural property. Not offered each year, consult Faculty. [2-0] or [3-0]

LAW 332 (2-3) D MARITIME LAW. Canadian maritime law and admiralty practice. [2-0] or [3-0]

LAW 333 (2-4) D CIVIL LAW. Comparative study of selected legal systems belonging to the civil law family, such as those of Quebec, France, Germany or the countries of Latin America. Not offered each year, consult Faculty. [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 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 344 (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 upon the Charter of Rights and Freedoms. Credit may not be obtained for LAW 344 and either of LAW 345 or LAW 346. [3-0; 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 347 (2-4) D FUNDAMENTAL FREEDOMS. Doctrinal and theoretical issues in the fundamental freedoms category of the Charter of Rights and Freedoms. Not offered each year; consult Faculty. [2-0] or [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 352 (3) FIRST NATIONS AND CANADIAN LAW. Survey of the history and present status of the legal relationships between Canada's First Nations peoples and the state.

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 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 359 (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 360 (3) CHILDREN AND THE LAW. The civil and criminal law affecting juveniles; custody, guardianship and adoption. Prerequisite: 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 369 (2-4) D LAW AND AGING. The use of the law to advance the interests of older people. 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 372 (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 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 regulation 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 400 (2-3) D ADVANCED CRIMINAL PROCEDURE. Selected topics relating to procedural law and practice in criminal matters. [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 402 (2-4) D JUVENILE JUSTICE. The causes of juvenile crime; models of juvenile justice systems; the treatment of juvenile offenders; comparison of relevant Canadian legislation with that in other countries. 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 407 (3) TAXATION I. A survey of the law and practice of income and capital gains taxes. [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: LAW 407. [2-0] or [3-0]

LAW 409 (2-4) D TAX AND THE FAMILY. Financial and tax planning for an individual during lifetime and on death. Not offered each year, consult Faculty. Students cannot receive credit for LAW 409 and COMM 357. Prerequisite: 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 416 (2-4) D HUMAN RIGHTS AND LABOUR. Human rights issues relating to the workplace. Not offered each year, consult Faculty. [2-0] or [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 427 (3) LEGAL REASONING AND ARTIFICIAL INTELLIGENCE. The nature and structure of legal reasoning and how to think about and analyse legal issues and problems, through representing legal knowledge in computer-based information systems such as expert systems. Not offered each year, consult Faculty. [3-0]

LAW 428 (2-3) D LAW AND INFORMATION TECHNOLOGY. Acquisition, structuring and presentation of legal and non-legal information in the practice of law, and the use of computer-based technology to research, access, organize and disseminate legal information. [2-0] or [3-0]

LAW 429 (2-4) D ADVANCED LAW AND INFORMATION TECHNOLOGY. Techniques in the computer-based analysis, representation, processing and retrieval of legal information; the creation and maintenance of specialized

legal information systems. 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 433 (2-4) D PERSONAL INJURY LAW. Issues arising in a personal injury lawsuit, including solicitor-client relations and the civil litigation process. 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 446 (2-4) D PROBLEMS IN COMMERCIAL LAW AND TRANSACTIONS. Selected commercial transactions examined from the point of view of legal theory and practice. 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 451 (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 452 (2-3) D SUCCESSION. The law of wills and intestate succession, variation of wills, principles of probate and administration of estates. Prerequisite: 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 459 (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 460 (3) CORPORATIONS II. Selected topics such as the nature of shares, equity financing, corporate structure and reorganization, and shareholder squeezeouts. Prerequisite: 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: 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 require-

ments and civil liability. Prerequisite: LAW 459 is recommended. [2-0] or [3-0]

LAW 464 (2-4) D THEORY OF THE CORPORATION. Theoretical perspectives on business organizations. Not offered each year, consult Faculty. [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 469 (2-3) D CIVIL LITIGATION. 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 470 (4) EVIDENCE. The admissibility and use of evidence in litigation. [2-0; 2-0] or [4-0]

LAW 471 (2-4) D RULES OF EVIDENCE AND THE PROCESS OF PROOF. Fact investigation; integrating legal theories, factual propositions and evidence. Not offered each year, consult Faculty. [2-0] or [3-0]

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: 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 oral advocacy. Restricted to students representing the Faculty for the first time in an approved oral advocacy competition. [5-0]

LAW 484 (3-6) D COMPETITIVE MOOTS ADVOCACY AND CLIENT COUNSELLING CREDIT B. Appellate and related forms of oral advocacy and client counselling. Restricted to students who have received credit for LAW 483 or LAW 485, and who are representing the Faculty for a second time in an approved oral 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. Simulated legal negotiation. Restricted to students representing the Faculty in an approved legal negotiation competition. [4-0]

LAW 488 (11) CLINICAL TERM. Open to a limited number of students in second and third year. The clinical experience will be designed to explore the functioning of the legal system in relation to members of society who are socially, economically or politically disadvantaged. Under the supervision of Faculty and Staff Lawyers, students will act for clients in a range of legal matters and can expect to represent clients before courts and tribunals. Students will also work with community-based organizations that are active in addressing the needs of the disadvantaged. The program includes a significant classroom component, and students are required to submit a paper on some aspect of the legal system as it relates to the disadvantaged, see LAW 489. A student who receives credit for LAW 474, LAW 490 or LAW 491 cannot receive credit for this course. Prerequisite: 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: All of LAW 470, LAW 400. [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 (3) LAW FOR TEACHERS: INTRODUCTION TO LEGAL PROCESS. An introduction to law-related aspects of the school curriculum, including the nature and purpose of law, legal institutions, legal procedures, legal reasoning and skills in dealing with legal materials, such as cases and statutes. Offered extra-sessionally only. Not for credit in the Faculty of Law.

LAW 498 (3) LAW FOR TEACHERS: INTRODUCTION TO SUBSTANTIVE LAW. An introduction to areas of law such as family, constitutional, criminal, labour, contract, tort, and property law. Comparative, historical, economic and political aspects will be discussed together with legal aspects. Offered extra-sessionally only. Not for credit in the Faculty of Law.

LAW 500 (4) CURRENT LEGAL PROBLEMS.

LAW 501 (2-6) 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 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 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. This seminar will address issues of legal theory in interdisciplinary and comparative perspective. Discussion will focus on the 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. In addition, discussion will address the applicability of concepts drawn from fields outside of law to legal research and scholarship.

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.

LIBE 598 (3-12) C FIELD EXPERIENCES. For those in 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 (3/6) 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 (1-9) D LITERATURE AND OTHER MATERIALS FOR CHILDREN.

LIBR 524 (3) LITERATURE AND OTHER MATERIALS FOR YOUNG ADULTS.

LIBR 538 (1-9) D SPECIALIZED LITERATURES.

LIBR 539 (1-9) D SPECIALIZED MATERIALS.

LIBR 540 (3) FOUNDATIONS OF INFORMATION SERVICES.

LIBR 541 (3) SUBJECT-BASED INFORMATION SERVICES.

LIBR 542 (1-9) D SERVICES FOR YOUTH.

LIBR 544 (1-9) D SERVICES FOR ADULTS.

LIBR 548 (1-9) 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 (1-9) D TOPICS IN COMPUTER-BASED INFORMATION SYSTEMS.

LIBR 560 (3) FOUNDATIONS OF INFORMATION-BASED ORGANIZATIONS.

LIBR 569 (1-9) 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 (1-9) 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 (3/6) 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 I. Generative theories as applied to morphology, syntax, and semantics. Throughout this course the data will be taken from English. Prerequisite: One of LING 201, ENGL 329.

LING 301 (3) STUDIES IN GRAMMAR II. More advanced studies in the areas covered in LING 300, including a critical examination of current contributions to syntactic theories. Prerequisite: LING 300.

LING 305 (3/6) D MORPHOLOGY. Analytic problem-solving and discussion of theoretical questions concerning the development and present status of morphological theory. Topics include: problems in the identification and classification of morphemes, the analysis of morphophonemic alternation, Item and Arrangement as opposed to Item and Process descriptions, principles governing the word-formation processes of inflection, derivation and compounding and discussion of the form, place and function of a morphological component within grammar. Prerequisite: All of LING 200, LING 201.

LING 310 (3) PHONETICS PRACTICUM.

Practice in the discrimination, production, and description of sounds in a variety of languages. Prerequisite: One of LING 200, ENGL 329.

LING 311 (3) STUDIES IN PHONOLOGY I.

Introduction to phonological analysis and theory, with a strong emphasis on description and analysis of data from a wide variety of languages. Prerequisite: One of LING 200, ENGL 329.

LING 312 (3) STUDIES IN PHONOLOGY II. A more advanced study of the phonological issues introduced in LING 311. Critical examination and application of recent theoretical developments. Prerequisite: LING 311.

LING 316 (3) INTRODUCTION TO SPEECH SCIENCE. Introduction to the speech chain, with examples from speech anatomy, physiological phonetics, acoustic 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 nature and development of language; the diachronic and diatopic study of language; linguistic change; the classification of languages in terms of genetic affiliation. Prerequisite: All of LING 200, LING 201.

LING 320 (3/6) D 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. Equivalency: FREN 478, RMST 478.

LING 337 (3/6) D LANGUAGE OF THE YEAR. The structure of one of the world's thousands of languages will be investigated in linguistic terms. The language chosen will vary from year to year, depending on expertise available. The primary purpose of the course is to understand the nature and structure of the language, not to achieve communicative competence. Prerequisite: All of LING 200, LING 201.

LING 415 (3/6) D EXPERIMENTAL PHONETICS. Introduction to the use of instruments for experimental phonetic research and to the design of phonetic and phonological experiments. Prerequisite: LING 310 and one of LING 316, LING 317.

LING 420 (6) INTRODUCTION TO LINGUISTICS. General background to linguistic studies; the different approaches to the analysis of languages; synchronic and diachro-

nic linguistics; phonetics, phonology, morphology, syntax, and semantics. Not available for credit toward a Major or Honours program in Linguistics.

LING 427 (3/6) D INTRODUCTION TO SEMANTICS. Part I—Lexical analysis: the linguistic sign, language and thought, semantic fields and componential analysis, basic semantic relationships. Part II—Syntax and semantics: propositions and semantic cases, anaphora, negation, quantifiers, semantic interpretation in current syntactic theories. Offered in alternate years. Prerequisite: LING 300.

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: PHONOLOGY. Elicitation, transcription, organization, and analysis of phonological data from a native speaker of a language not commonly studied. Practical experience in the use of conventional field work equipment. Offered in alternate years. Prerequisite: All of LING 310, LING 311.

LING 432 (3) FIELD METHODS: MORPHOLOGY AND SYNTAX. Elicitation, transcription, organization and analysis of morphological and syntactic data from a native speaker of a language not commonly studied. Practical experience in the use of conventional field work equipment. Offered in alternate years. Prerequisite: All of LING 310, LING 300.

LING 433 (3) NATIVE LANGUAGES OF NORTH AMERICA. Survey of the indigenous languages of North America. Study of the basis of genetic classification of these languages and areal similarities among them. The structure of representative languages will be presented and contrasted. The present status of American Indian languages will be considered.

LING 434 (3) NATIVE LANGUAGES OF CANADA. Classification and structure of the indigenous languages of Canada. Survey of their present status, native language programs, and efforts to preserve and maintain them.

LING 435 (3/6) D LANGUAGE TYPOLOGY AND UNIVERSALS. Introduction to the typological and contrastive study of languages and phonology, morphology, syntax, and semantics; the relation between typology and universals; the role of universals in linguistic theory.

LING 445 (3/6) D SOCIOLINGUISTICS. The systematic study of language as a social phenomenon.

LING 447 (3/6) D TOPICS IN LINGUISTICS.

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). 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). 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 301.

LING 505 (3/6) D ISSUES IN MORPHOLOGICAL THEORY AND ANALYSIS. Morphology from both historical and theoretical perspectives. Prerequisite: All of LING 301, LING 312.

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: All of LING 310, LING 312.

LING 508 (3) PHONETIC THEORY & ANALYSIS. Discussion and critical analysis of current issues in linguistic phonetics; instrumental analysis. Prerequisite: LING 507.

LING 510 (3) PHONOLOGICAL THEORY AND ANALYSIS. Discussion and critical analysis of current issues in phonological theory. Prerequisite: LING 507.

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. Prerequisite: LING 502.

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. Prerequisite: LING 502.

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 SOCIO-LINGUISTICS.

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. Corequisite: LLED 226.

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] or [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, EDUC 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 or permission of the Head 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. Curriculum and Instruction in French: Secondary. Pass/Fail. Equivalency: LLED 312.

LLED 320 (4) CURRICULUM AND INSTRUCTION IN LANGUAGE AND LITERACY EDUCATION: ELEMENTARY AND MIDDLE YEARS. Prerequisite: LLED 310. [2-4-0]

LLED 321 (3) TEACHING AND LEARNING LANGUAGE AND LITERACY: KINDERGARTEN AND PRIMARY GRADES. Prerequisite: An introductory-level reading or language arts course [3-0-0]

LLED 322 (3) TEACHING AND LEARNING LANGUAGE AND LITERACY: INTERMEDIATE AND MIDDLE YEARS. Prerequisite: An introductory-level reading or language arts course. [3-0-0]

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. Pass/Fail.

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: One of FREN 220, FREN 222, FREN 223 or approval of advisors in Modern Languages Education. Equivalency: MLED 393 and MLED 394. [3-0-0]

LLED 333 (3) DRAMA-IN-EDUCATION: KINDERGARTEN AND PRIMARY GRADES. Credit may not be obtained for both LANE or LLED 333 and 335. [3-0-0]

LLED 334 (3) DRAMA-IN-EDUCATION: INTERMEDIATE THROUGH SECONDARY. Credit may not be obtained for both LANE or LLED 334 and 335. [3-0-0]

LLED 335 (3/6) D DRAMA-IN-EDUCATION: K-12. Credit may not be obtained for both LLED 335 and LLED 333 and 334.

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 1 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 course.

LLED 420 (3/4) D USING CANADIAN CHILDREN'S LITERATURE IN THE FRENCH EDUCATION CLASSROOM. Taught in French. Credit will only be given for one of LANE 340, LLED 440, or LLED 420. Equivalency: MLED 340. [3-0-0]

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. Prerequisite: One course in methodology of teaching French and one year of experience in teaching French. Equivalency: MLED 396. [3-0-0]

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. Taught in French. Credit will be given for only six credits of LLED 480 and LLED 429 (formerly LANE 480 and MLED 480.) Equivalency: MLED 480.

LLED 435 (3/6) D ADVANCED STUDIES IN DRAMA-IN-EDUCATION. 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. Equivalency: LANE 338. [3-0-0]

LLED 439 (3) SHAKESPEARE IN THE CLASSROOM. Prerequisite: LLED 314. Recommended: at least three 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. Credit will be given for only one of LLED 440 and LLED 420. Equivalency: LANE 340. [3-0-0]

LLED 441 (3) INTRODUCTION TO TEACHING CHILDREN'S LITERATURE. Equivalency: LANE 341. [3-0-0]

LLED 442 (3) TRENDS AND ISSUES IN TEACHING CHILDREN'S LITERATURE. Prerequisite: LLED 441. Equivalency: LANE 341. [3-0-0]

LLED 443 (3) TEACHING FOLKLORE IN THE ELEMENTARY CLASSROOM. Prerequisite: LLED 441. Equivalency: LANE 341. [3-0-0]

LLED 444 (3) MULTICULTURAL CHILDREN'S LITERATURE IN THE ELEMENTARY CLASSROOM. Prerequisite: LLED 441. Equivalency: LANE 341. [3-0-0]

LLED 445 (3) POETRY IN EDUCATION. Equivalency: LANE 345. [3-0-0]

LLED 446 (3) TEACHING WITH ILLUSTRATED MATERIALS: K-12. (Formerly LANE 346.) Prerequisite: One of LLED 441, LLED 449. Equivalency: LANE 341. [3-0-0]

LLED 449 (3) TEACHING ADOLESCENTS' LITERATURE. Equivalency: LANE 349. [3-0-0]

LLED 452 (3) LITERACY IN THE CONTENT AREAS: INTERMEDIATE THROUGH SECONDARY. Equivalency: LANE 472. [3-0-0]

LLED 453 (3) MATERIALS AND TEXTS OF READING INSTRUCTION. Prerequisite: An introductory-level reading or language arts course. Equivalency: LANE 473. [3-0-0]

LLED 454 (3) ADOLESCENT LITERACY. Equivalency: LANE 474. [3-0-0]

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 six-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. 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. [3-2-0; 3-2-0]

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 six 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. (Formerly LANE 477.) Prerequisite: One of LLED 300, LLED 310 and one of LLED 320, LLED 321, LLED 322, LLED 391. (LLED 321, 322 formerly LANE 320.) [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. Equivalency: LANE 567.

LLED 511 (3/6) 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 CHILDREN'S LITERATURE K-12.

LLED 550 (3/6) C REVIEW OF READING RESEARCH. (Formerly READ 508.)

LLED 552 (3) THEORETICAL BASES FOR READING RESEARCH AND PRACTICE. (Formerly LANE 544.) Prerequisite: LLED 300 and Either (a) one of LLED 321, LLED 322 or (b) one of LLED 391, LLED 452.

LLED 553 (3) THEORETICAL FOUNDATIONS OF ESL/EL READING PEDAGOGY. Prerequisite: A three-credit course in linguistics and a three-credit course in reading education. Equivalency: LLED 545.

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) THEORY AND RESEARCH IN EARLY LITERACY. Equivalency: LANE 589.

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.

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. Equivalency: ENED 508A.

LLED 571 (3) RESEARCH IN LANGUAGE CURRICULUM: SOCIAL PRACTICE PERSPECTIVES. Equivalency: ENED 508B.

LLED 572 (3/6) D THEORY AND RESEARCH IN TEACHING ENGLISH AS A SECOND LANGUAGE. Prerequisite: All of LLED 478, LLED 489 or a senior course in linguistics. Equivalency: LANE 453.

LLED 573 (6) THE APPLICATION OF THEORIES OF SECOND LANGUAGE ACQUISITION. Prerequisite: LING 350 or equivalent course in Linguistics. Equivalency: LANE 550.

LLED 580 (3/12) C PROBLEMS IN EDUCATION. Investigation and report of a problem.

LLED 590 (3) GRADUATING PAPER.

LLED 598 (3-12) C FIELD EXPERIENCES. For those in 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 400 (3) MATHEMATICS EDUCATION: ELEMENTARY. Prerequisite: One of MAED 300, 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.

MAED 598 (3/12) C FIELD EXPERIENCES. For those in 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 266. 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 Undergraduate Admissions section. MATH 180 and 184 are designed for students without high-school calculus. Continuing Studies offers MATH 099, a refresher course in pre-calculus material. For further information see 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. Credit will be given for only one of MATH 100, 102, 104, 111, 120, 180 or 184. Prerequisite: High-school calculus, and a standing of "C+" or better 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. Credit will be given for only one of MATH 101, 103, 105, or 121. 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. Credit will be given for only one of MATH 100, 102, 104, 111, 120, 180 or 184. Prerequisite: High-school Calculus, and a standing of "C+" or better 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. Credit will be given for only one of MATH 101 or 103 or 105 or 121. Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 111, MATH 120. [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. Credit will be given for only one of MATH 100, 102, 104, 111, 120, 180, or 184. Prerequisite: High-school Calculus, and a standing of "C+" or better 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. Credit will be given for only one of MATH 101 or 103 or 105 or 121. Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 111, MATH 120. [3-0-0]

MATH 111 (6) ELEMENTARY CALCULUS. Calculus; topics from algebra, geometry, and trigonometry in the context of calculus. MATH 100, 102, 104 and 111 are equivalent as prerequisites to further courses in Mathematics. Credit will not be given for more than one of MATH 100, 102, 104, or 111. Faculties that require Mathematics 12 for admission to first year will grant three credits only for this course toward a degree. This course is not open to students with recent credit for Mathematics 12. Prerequisite: Principles of Mathematics 11 or the equivalent. [3-0-1]

MATH 120 (4) HONOURS DIFFERENTIAL CALCULUS. Limits, derivatives, Mean Value Theorem and applications, elementary functions, optimization, Taylor series, approximation. Credit will be given for only one of MATH 100, 102, 104, 111, 120, 180, or 184. Prerequisite: Principles of Mathematics 12 along with a letter of invitation from the Mathematics Department based on performance in the Euclid Contest or a score of at least 95% on the Provincial Examination in Principles of Mathematics 12. [4-0-0]

MATH 121 (4) HONOURS INTEGRAL CALCULUS. Definite integrals and the Fundamental Theorem of Calculus, techniques and applications of integration, infinite series. Credit will be given for only one of MATH 101, 103, 105, or 121. Prerequisite: : At least 68% in MATH 120, or at least 80% in 1 of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184, or a score of 5 in AP Calculus AB, or 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. 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. Credit will be given for only one of MATH 100, 102, 104, 111, 120, 180, or 184. 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: Math 099 or standing of C+ or higher in 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. Credit will be given for only one of MATH 100, 102, 104, 111, 120, 180, or 184. 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. Credit will be given for only one of MATH 100, 102, 104, 111, 120, 180, or 184. Prerequisite: Math 099 or standing of C+ or higher in principles of Mathematics 12. [4-0-0]

MATH 200 (3) CALCULUS III. Partial derivatives, total differentials. Chain rule and applications. Path integrals and path dependence. Double and triple integrals. Credit will be given for only one of MATH 200, MATH 217. Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121. [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; trajectory analysis of plane nonlinear systems. Applications of these topics will be emphasized. Credit will be given for only one of MATH 215, MATH 255, and MATH 256. Corequisite: One of MATH 200, MATH 217, MATH 226 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. Credit will be given for only one of MATH 200, MATH 217. Prerequisite: 1 of PHYS107, PHYS121, PHYS153, PHYS101 and 1 of PHYS108, PHYS122, PHYS153, PHYS102 and 1 of MATH121, MATH101, MATH103, MATH105. Minimum grade requirements in all courses listed above: 68% [4-0-0]

MATH 220 (3) ANALYSIS. Sequences and induction; convergence of numerical sequences and series, monotone convergence and Cauchy criterion; limits, continuity and differentiability in one variable. Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121, MATH 200. Prerequisite grade requirement: 64% in MATH105, MATH103, MATH101. [3-0-0]

MATH 221 (3) MATRIX ALGEBRA. Systems of linear equations, operations on matrices, determinants, eigenvalues and eigenvectors, diagonalization of symmetric matrices. Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121 or at least 64% in 1 of MATH

100, MATH 102, MATH 104, MATH 120, or advanced credit for MATH 100. [3-0-0]

MATH 223 (3) LINEAR ALGEBRA. Matrices, eigenvectors, diagonalization, orthogonality, linear systems, applications. Intended for Honours students. Credit will be given for only one of MATH 152, 221, or 223. Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121. Prerequisite grade requirement: 68% in MATH105, MATH103, MATH101. [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. Credit will be given for only one of MATH 200, 217, 226, or 253. Prerequisite: At least 68% 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. Credit will be given for only one of MATH 317, MATH 227, MATH 254. Prerequisite: 68% standing 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. Credit will be given for only one of MATH 230 or MATH 335. 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. Prerequisite: MATH 101. [3-0-0]

MATH 255 (3) ORDINARY DIFFERENTIAL EQUATIONS. Review of linear systems; nonlinear equations and applications; phase plane analysis; Laplace transforms; numerical methods. Credit will be given for only one of MATH 215, MATH 255, or MATH 256. Prerequisite: All of MATH 101, MATH 152. Corequisite: MATH 253. [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. Credit will be given for

only one of MATH 215, MATH 255, and MATH 256. Corequisite: MATH 253. [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. Credit will be given for only one of MATH 257 or MATH 316. Prerequisite: MATH 255. [3-0-0]

MATH 266 (3) VECTOR CALCULUS AND COMPLEX VARIABLES. Elementary vector calculus, basic theory of complex variables suitable for applications. Credit will not be given for MATH 266 if credit has already been given for MATH 300 or MATH 301. Prerequisite: MATH 253. [3-0-0]

MATH 278 (3) LINEAR SYSTEMS AND DIFFERENTIAL EQUATIONS. Linear systems and matrices, determinants, eigenvalues and eigenvectors, first and second order differential equations, Laplace transforms. Only for Wood Products Processing students. Prerequisite: One of MATH 101, MATH 103, MATH 105, MATH 121. [3-1*-0]

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. Credit will be given for only one of MATH 300 or MATH 350. Corequisite: One of MATH 317, MATH 217, MATH 254. [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. 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. Prerequisite: MATH 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. [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 221, MATH 223. [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 221, MATH 223. [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. Credit will be given for only one of MATH 312, MATH 437. Prerequisite: 12 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. Credit will be given for only one of MATH 313, MATH 437. 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. Laplace transform; 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. Credit will be given for only one of MATH 257 or MATH 316. Prerequisite: MATH 215. [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. 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. Credit will not be given to students who have taken MATH 302 or MATH 303. 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 MATH 226 with a grade of 68% or higher, or all of MATH 200, MATH 220 with an average grade of 80% or higher. [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 221, MATH 223. Prerequisite grade requirement: 80% in MATH 221; 68% in MATH 223. [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 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. Prerequisite: Principles of Mathematics 11. [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 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. Homework assignments involve the use of computers. Prerequisite: One of MATH 215, MATH 256. A grade of at least 68% in either course is required. [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 1/2 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 1/2 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 grade of at least 68% in one of MATH 320, MATH 301. MATH 402 is recommended. [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: One of MATH 320, MATH 301. A grade of at least 68% in either course is required. 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. Credit will not be given for both MATH 407 and CPSC 402. 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: MATH 322. A grade of at least 68% is required. [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 Mathematics. [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: All of MATH 215, MATH 321. A grade of at least 68% is required. [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: MATH 416 or 68% standing 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: MATH 321. A grade of at least 68% is required. [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: MATH 321. A grade of at least 68% is required. [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: MATH 322. A grade of at least 68% is required. [3-0-0]

MATH 423 (3) TOPICS IN ALGEBRA. Commutative algebra, algebraic geometry, algebraic number theory, Lie theory, homologi-

cal algebra and category theory, or some other advanced topic in algebra. Prerequisite: One of MATH 412, MATH 422. A grade of at least 68% is required. [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: MATH 321. A grade of at least 68% is required. [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: All of MATH 321, MATH 322. A grade of at least 68% is required in these courses. [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; 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. Credit will not be given to students who have taken MATH 312 or MATH 313. 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. [3-0-0]

MATH 441 (3) MODELLING OF 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 six credits of Mathematics courses numbered 300 or above. [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) ALGEBRAIC NUMBER THEORY I.
MATH 538 (3) ALGEBRAIC NUMBER THEORY II.
MATH 539 (3) ANALYTIC NUMBER THEORY I.
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 (2-6) C TOPICS IN ALGEBRA.
MATH 601 (2-6) C TOPICS IN ANALYSIS.
MATH 602 (2-6) C TOPICS IN GEOMETRY.
MATH 603 (2-6) C TOPICS IN TOPOLOGY.
MATH 604 (2-6) C TOPICS IN OPTIMIZATION.
MATH 605 (2-6) C TOPICS IN APPLIED MATHEMATICS.
MATH 606 (2-6) C TOPICS IN DIFFERENTIAL EQUATIONS.
MATH 607 (2-6) C TOPICS IN NUMERICAL ANALYSIS.
MATH 608 (2-6) C TOPICS IN PROBABILITY.
MATH 609 (2-6) C TOPICS IN MATHEMATICAL PHYSICS.
MATH 610 (2-6) C TOPICS IN PURE MATHEMATICS.
MATH 611 (2-6) C TOPICS IN FUNCTIONAL ANALYSIS.
MATH 612 (2-6) C TOPICS IN MATHEMATICAL BIOLOGY.
MATH 620 (2-6) 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 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 201 (3) MECHANICAL ENGINEERING LABORATORIES I. Experiments to illustrate typical applications of fundamental principles in mechanics of materials, dynamics, thermodynamics and fluid dynamics. Instrumentation, data acquisition and data manipulation using modern computational tools. Introduction to the behaviour and applications of common mechanical devices. [1-3-2]

MECH 202 (3) MECHANICAL ENGINEERING LABORATORIES II. Experiments to illustrate typical applications of fundamental principles in mechanics of materials, dynamics, thermodynamics and fluid dynamics. Instrumentation, data acquisition and data manipulation using modern computational tools. Introduction to the behaviour and applications of common mechanical devices. [1-3-2]

MECH 203 (1) MACHINE SHOP PRACTICE. Application of machine tools to the manufacture of mechanical devices. Cutting tool geometry, metrology, turning, milling, drilling operations. This course is taken at the end of Term 2 of second year or prior to Term 1 of third year. [1-2-3]

MECH 250 (1) INTRODUCTION TO ENGINEERING SOFTWARE. Introduction to general applications software used in mechanical engineering: equation solvers, spreadsheets, data base management, computer-aided drafting. Prerequisite: One of APSC 150, APSC 151 and all of MATH 101, MATH 152. [0-3*-0]

MECH 251 (3) INTRODUCTION TO DESIGN METHODOLOGY. The sequence of steps leading from need recognition to a final product. Synthesis as the context of analysis and evaluation of mechanical systems. Case

studies and design projects. Corequisite: MECH 260. [2-0-2]

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 265 (3) RIGID BODY DYNAMICS. Dynamics of systems of particles. Kinematics of rigid bodies. Kinetics of rigid bodies in two dimensions using equations of motion, and energy and momentum principles. Engineering applications. Prerequisite: All of MATH 101, MATH 152, PHYS 170. [3-0-1]

MECH 270 (3) THERMODYNAMICS. Energy resources: renewable and non-renewable. First law of thermodynamics for control masses and control volumes. Thermodynamic properties of working fluids; state relationships for real and ideal fluids. Combustion, heat exchange, air conditioning, energy conservation to steady and unsteady flows. Second law of thermodynamics; concept of entropy as a property and the limits on natural processes. Application to simple power production and refrigeration cycles. Prerequisite: PHYS 170 and Either (a) all of PHYS 101, PHYS 102 or (b) PHYS 153. [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) ELECTRO-MECHANICAL ENGINEERING LABORATORIES. Selected applications of fundamental principles in mechanics of materials and dynamics. Instrumentation, data acquisition and data manipula-

tion using modern computational tools. Behaviour and applications of common mechanical devices. For students in Electro-Mechanical Design option only. [0-2-0; 0-2-0]

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 351 (8) ENGINEERING PRODUCT DESIGN. Product design methodology; fatigue; design/selection of components including springs, bearings, gears, brakes, clutches. Design evaluation and optimization; interaction of materials, processing and design; motion generated by cams and four-bar linkages; design for system dynamics. Major design project. Credit will not be given for both MECH 351 and MECH 353/354. Prerequisite: MECH 260 and MECH 251 or enrolment in Electro-Mechanical Design Engineering. [3-0-3; 3-0-3]

MECH 352 (3) DESIGN OF MECHANICAL COMPONENTS. Design of mechanical components to resist static and fatigue failure. Design of welded, bonded and bolted joints. Computer-aided design tools. Prerequisite: One of PHYS 270, MECH 360. [2-0-2]

MECH 353 (5) ENGINEERING PRODUCT DESIGN I. Product design methodology; fatigue; design/selection of components including springs, bearings, gears, brakes, clutches. Proposal development and initial phases of major design project. Prerequisite: All of MECH 251, MECH 260 and acceptance into the Mechanical Co-operative Education Program option. [3-2*-3]

MECH 354 (5) ENGINEERING PRODUCT DESIGN II. Design evaluation and optimization; interaction of materials processing and design; motion generation by cams and four-bar linkages; design for system dynamics. Completion of major design project and technical report. Prerequisite: All of MECH 251, MECH 260, MECH 353 and acceptance into the Mechanical Co-operative Education Program option. [3-2*-3]

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 357 (6) ENGINEERING DESIGN. Design methodology; fatigue; design/selection of components including springs, bearings, gears, brakes, clutches. Design evaluation and

optimization; interaction of materials, processing and design; motion generated by cams and four-bar linkages; design for system dynamics. For Engineering Physics students who are in the Mechanical Engineering Option. Prerequisite: MECH 260. [3-0-0; 3-0-0]

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: MECH 260. [3-0-1]

MECH 365 (2) MACHINE DYNAMICS AND VIBRATIONS. Vibration analysis of single degree-of-freedom systems, energy methods, harmonic, periodic and transient excitation, application to engineering problems. Three-dimensional kinematics and kinetics of rigid bodies, including gyroscopic effects and balancing. Prerequisite: One of MECH 265, PHYS 270. [2-0-0]

MECH 370 (3) THERMAL SYSTEMS. Second law of thermodynamics for control masses and control volumes. Existence, evaluation and practical use of entropy. Determination of best possible performance of energy conversion devices. Availability, maximum useful work and chemical equilibrium. Application of second law concepts to the analysis and design of compressors, pumps, turbines, heat exchangers, combustors and to Otto, diesel, gas turbine, Sterling and other engine cycles, power plant design. Prerequisite: MECH 270. [3-0-1]

MECH 375 (3) HEAT TRANSFER I. Steady and transient one-, two- and three-dimensional conduction. Analytical and numerical solutions. Application to the design of composite structures, extended surfaces. Radiation heat transfer; blackbody laws, optical properties of surfaces, radiative heat exchange. Convective heat and mass transfer in pipes and from external surfaces; thermal boundary layers, analog between heat, mass and momentum transfer in turbulent flows. Boiling and condensation heat transfer. Application of combined effects to the design of boilers, condensers and heat exchange equipment. Prerequisite: One of MECH 270, CHBE 241 and one of MECH 280, CHBE 251 and one of MATH 255, MATH 256. [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: One of MECH 270, CHBE 241 and one of MECH 280, CHBE 251 and one of MATH 255, MATH 256. [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. [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 430 (3) ENGINEERING DATA ANALYSIS. The treatment of uncertainty in experimental results, error analysis, single-variable and two-variable experiments. [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 360, MECH 365. [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. [1-2-1]

MECH 455 (3) MECHANICAL ENGINEERING DESIGN PROJECT I. Design project under faculty supervision, intended to provide experience in the design/development of mechanical devices. For students in Co-operative Education programs. MECH 455 cannot be taken concurrently with MECH 456. [0-3-0]

MECH 456 (3) MECHANICAL ENGINEERING DESIGN PROJECT II. Design project under faculty supervision, intended to provide experience in the design/development of mechanical devices. For students in Co-operative Education programs. MECH 456 cannot be taken concurrently with MECH 455. [0-3-0]

MECH 457 (6) MECHANICAL ENGINEERING DESIGN PROJECT. Design project under faculty supervision, intended to provide experience in the design/development of mechanical devices. Prerequisite: Third-year Mechanical Engineering. [0-3-0; 0-3-0]

MECH 458 (6) ELECTRO-MECHANICAL DESIGN PROJECT. Design project under faculty supervision, intended to provide experience in the design/development of mechanical and electro-mechanical devices. For students in CAA option only. Credit given for only one of MECH 457 or MECH 458. Prerequisite: Third year standing. [0-6-0]

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. Prerequisite: MECH 492. [3-1-0]

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. [3-2*-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) D 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 475 (2) HEAT TRANSFER II. Conduction of heat in the unsteady state, periodic heat flow. Graphical and numerical solutions. Radiative heat exchange between gray surfaces. Gas radiation. Free convection from plates and cylinders. Boiling regimes and pressure drops. Mass transfer. Simultaneous heat and mass transfer. Heat exchanger design. Counter, parallel and cross flow heat exchangers. Effectiveness, NTU method. Boilers, condensers and cooling towers. Building heat transfer. Prerequisite: MECH 375. [2-0-1]

MECH 479 (4) EXPERIMENTAL AND COMPUTATIONAL THERMOFLUIDS. Methods for measuring velocity, temperature, and pressure in a flow. Experimental design for a thermofluids problem. Computational methods, including an introduction to finite volume and finite difference approaches and turbulence modeling. [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 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. Design principles of CNC machines, digital control of feed drive servos, trajectory generation algorithms, real time linear, circular, and spline interpolator design techniques. Introduction to sensor assisted manufacturing. Supplementary tutorial laboratory experiments. Prerequisite: All of MECH 392, MECH 466. [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 enroll with permission of the instructor.

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 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 six 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 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 567 (2) NONLINEAR ELASTICITY.

Fundamentals of tensor calculus, covariant differentiation of tensors of general order, applications to continuum mechanics. Stress and strain tensors, equations of motion for elastic materials and viscous fluids in general curvilinear coordinate systems. Solution of special problems in finite elasticity.

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 571 (2) TURBOMACHINERY.

Classification and performance of turbomachinery; momentum and energy transfer; 2-D cascade theory and measurements; axial-flow turbines and compressors; radial flow machines; 3-D flow and unsteady flow in turbomachinery.

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 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 577 (3) APPLIED STATISTICAL THERMODYNAMICS.

Application of the concepts of quantum mechanics, statistical mechanics, and kinetic theory to the evaluation of thermodynamic and transport properties and equilibrium constants. Investigation of the combustion phenomena from a microscopic point of view. Use of statistical thermodynamic methods for evaluating the product distribution energy release, temperature and effective properties in high temperature combustion situations.

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. Prerequisite: One of BIOL 334, BIOL 335 and MICB 302. Standing of "B" or better is recommended. Equivalency: MICB 402. [3-0-1]

MEDG 419 (3) HUMAN CYTOGENETICS. A lecture course with laboratory demonstrations dealing with human chromosome variation as it relates to disease. Topics will include chromosome banding techniques, structural and numerical chromosome anomalies, the etiology of chromosome errors and their effect on development, somatic aberrations and population cytogenetics. Prerequisite: BIOL 334. [3-0; 0-0]

MEDG 420 (3) HUMAN BIOCHEMICAL AND MOLECULAR GENETICS. Normal and pathological human variation. Detection, mapping, isolation and analysis of mutant human genes and consequent disruption of normal biochemical processes. Prerequisite: All of BIOL 335, BIOC 300. [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) C 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: All of MEDG 421, 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. Students with different backgrounds will be “matched” in the course to provide an opportunity for students in other disciplines to interact with those involved in genetics research and clinical practice and for clinicians to reflect on their practice from an academic perspective. [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. [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 (2-6) 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: Acceptance into M.Sc. Genetic Counselling program and MEDG 560. [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: Acceptance into M.Sc. Genetic Counselling program and MEDG 570. [0-15; 0-15]

MEDG 649 (0) 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.

MEDH — HISTORY OF MEDICINE AND SCIENCE FACULTY OF MEDICINE

MEDH 400 is an elective course in the Faculty of Medicine but is highly recommended for all Medical students who are enrolled in special programs approved by the Faculty. It is also listed by the Department of History for credit in a History major, and is a recommended humanities elective in the Faculty of Science.

MEDH 400 (3) HISTORY OF MEDICINE TO THE END OF THE NINETEENTH CENTURY. A study of the main ideas in medicine and health care from primitive times to the threshold of scientific medicine. Second term. Prerequisite: One of BIOL 101, BIOL 102. [2-1-0; 0-0-0]

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 520 (6) HEALTH SCIENCES FOR BIOMEDICAL ENGINEERS. Principles of anatomy and physiology as applicable to biomedical engineering.

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.

MEDI 710 (0) NEPHROLOGY ROUNDS.

Discussion of clinical and scientific aspects of educationally important cases six times monthly.

MEDI 711 (0) RENAL BIOPSY ROUNDS.

Weekly correlation between clinical status and pathological findings in several patients. Same as PATH 709.

MEDI 712 (0) NEPHROLOGY SEMINAR.

Formal preparation and presentation of topics in small group discussions 1 hour weekly.

MEDI 713 (0) DIRECTED STUDIES IN NEPHROLOGY.

Supervised investigative or academic work under a designated faculty member.

MEDI 720 (0) CLINICAL GERIATRIC MEDICINE.

Clinical experience under supervision in the assessment and treatment of elderly patients in a Day Hospital setting, an in-patient assessment and treatment unit, and on an acute hospital geriatric consultation service.

MEDI 721 (0) PSYCHIATRIC ASPECTS OF GERIATRICS.

Clinical experience under supervision in the assessment and treatment of psychiatric problems of elderly patients in multiple health settings including inpatient and outpatient consultation services, acute hospital in-patient units, short stay assessment and treatment units and specialty clinics such as the Alzheimer's Clinic.

MEDI 722 (0) LONG TERM CARE (GERIATRIC MEDICINE).

Clinical experience under supervision in the management of long term care of elderly patients emphasizing clinical care, interprofessional relationships, and interaction with care-givers and community groups.

MEDI 723 (0) GERIATRIC GRAND ROUNDS.

Lecture or case presentations of current topics or advances in geriatric medicine followed by discussion. One hour twice monthly.

MEDI 724 (0) GERIATRIC JOURNAL CLUB.

Review and discussion of important problems in the care of the elderly based on review and presentation of important current journal articles. One hour monthly.

MEDI 725 (0) GERIATRIC SEMINAR TOPICS SERIES.

A scientific review of major problems encountered in the care of the elderly including a literature review incorporating the most recent information as a basis for continuing discussion of these topics. Two hours monthly.

MICB — MICROBIOLOGY FACULTY OF SCIENCE

BIOL 112 or MICB 201 is a prerequisite for all MICB courses except MICB 153 and MICB 353. 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. Prerequisite: One of BIOL 112, MICB 201. [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, MICB 346. [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. Equivalency: SOIL 400. [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. [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. Equivalency: MICB 408. [3-0-1]

MICB 318 (3) BIOLOGICAL PROCESS ENGINEERING.

Design and modeling of single and multi-species bioreactors, industrial fermentation and product recovery systems. Prerequisite: BIOL 112 and one of MATH 100, MATH 102, MATH 104, MATH 180, MATH 184. Third or fourth-year standing. Equivalency: CHBE 381. [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 MICB 202, BIOL 200, BIOL 201 and one of BIOL 112, MICB 201 and two of CHEM 203, CHEM 204, CHEM 231, CHEM 232, 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. 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) MICROBIAL ECOLOGY LABORATORY.

Methods of assessment of diversity and abundance of microbes in several habitats. Enrichment, enumeration, biomass determination and gene characterization. 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. Same as MEDG 410. 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. Prerequisite: MICB 306. Equivalency: PATH 437. [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: One of BIOL 112, MICB 201 and two of CHEM 233, CHEM 235, CHEM 231, CHEM 232, CHEM 203, CHEM 204 and BIOL 201. [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 415 (3) PRINCIPLES OF PATHOGENIC MICROBIOLOGY. Basic principles of microbial structure, growth and genetics. Defence mechanisms of the body, pathogenic properties of bacteria and viruses. Microbial diseases with oral manifestations. Antibiotics. Restricted to students in the Faculty of Dentistry. [3-0-0]

MICB 418 (3) PHYSIOLOGY AND GENETIC MANIPULATION OF INDUSTRIAL MICRO-ORGANISMS. The physiological, genetic, developmental and morphological features of micro-organisms and animal cells which make them useful in industrial processes. Corequisite: BIOL 335. [3-0-0]

MICB 419 (3) INDUSTRIAL BIOTECHNOLOGY LABORATORY. Modern bioreactor technology, upstream and downstream processing of biotechnology products. Prerequisite: MICB 318. Equivalency: CHBE 564. [1-4-0]

MICB 421 (3) ADVANCED MICROBIOLOGICAL TECHNIQUES. Techniques used in the identification and characterization of microorganisms of medical and commercial significance. Genetic manipulation of microorganisms. Prerequisite: MICB 323. [0-4-2]

MICB 425 (3) ORAL MICROBIOLOGY. Discussion of the oral microbial flora; characteristics of oral organisms; ecological determinants; pathogenic properties of cariogenic and periodontopathic bacteria. Plaque formation,

metabolism and control of bacteria. Restricted to students in the Faculty of Dentistry. [2-2-0]

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 (three credits) or laboratory (six 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 Immunology. 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. Equivalency: MEDG 510.

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. Equivalency: PLNT 508.

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.

MMAT — METALS AND MATERIALS ENGINEERING FACULTY OF APPLIED SCIENCE

MMAT 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. [3-0-2]

MMAT 252 (4) PYROMETALLURGY I. Process flow sheets for ferrous and non-ferrous metal extraction; mass and energy conservation; roasting and smelting; refractory properties. [2-3*-2]

MMAT 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. [3-0-2]

MMAT 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. [2-0-3]

MMAT 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: MMAT 250. [3-0-2]

MMAT 358 (3) HYDROMETALLURGY I.

Aqueous extraction of metals from ores and concentrates. [3-0-0]

MMAT 359 (1) HYDROMETALLURGY I LABORATORY.

Laboratory exercises on aqueous extraction of metals from ores and concentrates. Corequisite: MMAT 358. [0-3*-0]

MMAT 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. [3-0-2]

MMAT 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: MMAT 263. [2-0-2]

MMAT 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. [3-0-0]

MMAT 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. [3-0-2*]

MMAT 380 (3) STRUCTURE AND PROPERTIES OF MATERIALS.

Strengthening mechanisms; heat treatment and properties of steel and other alloys; metal failures. Prerequisite: APSC 278. [3-0-0]

MMAT 381 (1) STRUCTURE AND PROPERTIES LABORATORY.

Structure and properties of ferrous and non-ferrous metals; heat treatment; hardenability; metallography; age hardening. [0-3*-0]

MMAT 382 (4) CERAMICS I.

Properties and processing of ceramics: crystal structures; sintering; raw materials; application of phase diagrams. [3-3*-0]

MMAT 389 (1) SEMINAR I.

Public speaking and presentation of technical papers. [0-0-1]

MMAT 390 (1) SEMINAR II.

Public speaking and presentation of technical papers. [0-0-1]

MMAT 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. [3-0-2]

MMAT 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.

MMAT 451 (2) 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. [1-3*-0]

MMAT 452 (2) IRON AND STEELMAKING.

Technology and economics of iron and steelmaking; direct reduction, basic oxygen processes; arc furnaces; process sequences; capitalization, structure and economics of the industry. Prerequisite: MMAT 350. [2-0-0]

MMAT 454 (2) REACTIVE METAL PROCESSING.

Extraction and refining of reactive metals; aluminum, titanium, uranium and rare metals; process chemistry, technology and economics. Prerequisite: MMAT 350. [2-0-0]

MMAT 455 (3) ECONOMIC ASPECTS OF METALS AND MATERIALS ENGINEERING.

Time value of money, cash flows, capital and operating cost estimation, financial decision making and relevant case studies. [2-0-2]

MMAT 456 (2) CORROSION ENGINEERING.

Thermodynamics of corrosion (Pourbaix diagrams); kinetics of corrosion (polarization curves); practical aspects of corrosion. [2-0-0]

MMAT 458 (3) HYDROMETALLURGY II.

Leaching, purification, precipitation, regeneration; thermodynamics and kinetics of separation steps; electrochemical applications. Prerequisite: All of MMAT 358, MMAT 456. [3-0-0]

MMAT 460 (3) ELECTRONIC CERAMICS.

Electromagnetic field interaction with electroceramics, mechanisms of conduction and insulation; properties and applications of basic groups of electronic ceramics. [2-0-1]

MMAT 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. [3-0-0]

MMAT 464 (3) ENGINEERING DESIGN I.

Case studies illustrating the process of design in materials engineering. [2-0-2]

MMAT 465 (3) ENGINEERING DESIGN II.

Case studies illustrating the process of design in materials engineering. [2-0-2]

MMAT 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. [1-0-5]

MMAT 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. [1-0-5]

MMAT 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. [2-0-2]

MMAT 472 (3) WELDING AND JOINING.

Principles of fusion welding, solid state welding, brazing, adhesive bonding, and other processes for joining metals. Metallurgy of welding. Stresses and distortion in welding; welding design. Prerequisite: MMAT 380. [2-3*-0]

MMAT 474 (2) 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. [2-0-0]

MMAT 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. [3-0-0]

MMAT 479 (2) FAILURE ANALYSIS.

Case studies of typical failures of engineering systems and components from a perspective of the fundamental properties of the metals and materials used. The importance of proper design and materials selection. Emphasis placed on failures in the pulp/paper, petroleum and marine service industries. Prerequisite: MMAT 380. [2-0-0]

MMAT 482 (3) CERAMICS II.

Crystalline non-metallic solids, silicates, amorphous phases, phase changes, microstructure and properties such as thermal conductivity, thermal expansion coefficient, electrical conductivity. [3-0-0]

MMAT 484 (2) REFRACTORY PRACTICE AND PROBLEMS IN METALLURGY.

Deals with detailed refractory applications in metallurgical furnace requirements, specifications and causes of failure. Examples of problems and their solutions will be illustrated. New developments in refractory practice will be outlined. Prerequisite: MMAT 382. [2-0-0]

MMAT 486 (2) NONDESTRUCTIVE EVALUATION.

Principles of test methods; inspection techniques and equipment; quantitative flaw evaluation; reliability analysis. [2-0-0]

MMAT 489 (1) SEMINAR III.

Training and practice in public speaking and presentation of technical papers. [0-0-1]

MMAT 493 (2) QUALITY ENGINEERING.

Modern quality concepts and trends; application of statistics; quality assurance management systems; ISO 9000 series interpretation; inspection and testing. [2-0-0]

MMAT 494 (3) COMPOSITE MATERIALS.

Understanding the properties and the mechanical behaviour of composite materials with

emphasis on analysis, design, and manufacturing. [2-2*-0]

MMAT 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. [2-0-2]

MMAT 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. [2-0-2]

MMAT 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.

MMAT 550 (2-4) C METALLURGICAL THERMODYNAMICS. Application of advanced thermodynamic principles in metallurgical processes. Prerequisite: MMAT 350.

MMAT 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.

MMAT 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: MMAT 456.

MMAT 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.

MMAT 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.

MMAT 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.

MMAT 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.

MMAT 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.

MMAT 582 (3) ADVANCED CERAMICS. Complex silicate structures; ion exchange in silicates; kinetics of solid state reactions; kinetics of high temperature processes.

MMAT 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.

MMAT 586 (3) ELECTRON METALLOGRAPHY. The principles of advanced research microscopy utilizing electron beams; transmission and scanning electron microscopy, electron diffraction, X-ray microanalysis, electron energy analysis.

MMAT 592 (2-6) D ADVANCED TOPICS IN METALS AND MATERIALS ENGINEERING. A special advanced course may be arranged on approval of the department head.

MMAT 593 (1-6) C DIRECTED STUDIES IN METALS AND MATERIALS ENGINEERING.

MMAT 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.

MMAT 596 (12) M.SC. THESIS.

MMAT 597 (6) M.ENG. PROJECT.

MMAT 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.

MMAT 599 (12) THESIS. For M.A.Sc. Degree. Research studies in chemical metallurgy, physical metallurgy, or ceramics.

MMAT 699 (0) THESIS. For Ph.D.

MMPE — MINING ENGINEERING FACULTY OF APPLIED SCIENCE

MMPE 290 (4) INTRODUCTION TO MINING AND MINERAL PROCESSING. The nature and scope of mining and mineral processing. The course will include one afternoon field trip. [3-2-0]

MMPE 293 (0) SEMINAR. Oral presentation of topics by students. Graded as Pass/Fail. [0-0-1; 0-0-1]

MMPE 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 co-requisite: STAT 151 [2-1-1]

MMPE 301 (3) MINE SERVICES. Introduction to mine services and mine ventilation, drainage, air and water reticulation. Power supply. Noise and lighting. Safety, fire prevention and rescue. Mine maintenance. Prerequisite: MMPE 290. [3-2*-0]

MMPE 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: MMPE 290. [3-2*-0]

MMPE 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 303 or MMPE 305. Prerequisite: MECH 260. MMPE 290 is recommended. [2-2-0]

MMPE 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. [2-3*-0]

MMPE 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 303 or MMPE 305. Prerequisite: MECH 260. MMPE 290 is recommended. [2-4-0]

MMPE 331 (3) UNIT OPERATIONS. Mineral processing unit operations and sampling, crushing, grinding, screening, classification, gravity separation, magnetic separation, electrostatic separation, concentrate dewatering practices. Prerequisite: MMPE 290. [2-3-0]

MMPE 333 (3) FLOTATION. Theory and technology of flotation and ancillary processes. Prerequisite: MMPE 290. [2-3-0]

MMPE 338 (3) PROCESS MINERALOGY. Aspects of mineralogy important for mining, mineral processing and metallurgical engineers, 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. [2-2-0]

MMPE 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]

MMPE 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]

MMPE 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. [3-0-0]

MMPE 397 (3) MINE ECONOMICS. Pricing mechanisms and supply and demand in mineral and metal markets; evaluation of mineral deposits including capital and operating cost estimated, effects of taxation and depreciation, financial models, feasibility studies, marketing methods of mine finance. Introduction to methods of hedging and financial risk management. Case histories will be used to illustrate concepts. Corequisite: MMPE 396. [3-0-0]

MMPE 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: MMPE 290. [3-2*-0]

MMPE 403 (3) ROCK MECHANICS. The design of rock slopes and underground openings with respect to stress, structure and the rock mass. Stabilization and monitoring of rock movement. Prerequisite: MMPE 303. [3-0-0]

MMPE 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. [3-0-0]

MMPE 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. [3-0-0]

MMPE 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. Prerequisite: Fourth-year standing in Mining and Mineral Process Engineering. [3-2-0]

MMPE 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. [2-3-0]

MMPE 434 (3) PROCESSING PRECIOUS METAL ORES. Process alternatives and mineralogical considerations; physical and chemical recovery technologies; environmental protection; flowsheet studies. Prerequisite: MMPE 331. [2-1-0]

MMPE 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: MMPE 331. [3-0-0]

MMPE 461 (2) COAL MINING TECHNOLOGY. Coal mining practice, equipment selection and mining methods; techniques required to prevent hazards and explosions. Prerequisite: MMPE 290. [2-0-0]

MMPE 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: All of MMPE 290, MMPE 331. [2-3-0]

MMPE 480 (2) MINE WASTE MANAGEMENT. Basic geotechnical, hydrological and water management aspects of mine waste management. [2-0-0]

MMPE 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. [3-0-0]

MMPE 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: MMPE 396. Fourth-year standing in Mining and Mineral Process Engineering is required. [1-3-3]

MMPE 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. [0-0-1; 0-0-1]

MMPE 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. [3-0-1]

MMPE 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. [3-0-0]

MMPE 497 (1-3) D DIRECTED STUDIES. Requires approval of the department head.

MMPE 550 (2) MINING METHODS. A more advanced study of some aspects of mining methods.

MMPE 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.

MMPE 552 (3) MINING GEOSTATISTICS. Basic geostatistical concepts. Applications of geostatistical techniques and stochastic simulation to orebody modelling and grade control.

MMPE 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.

MMPE 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.

MMPE 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.

MMPE 557 (3) INTEGRATED MINING AND PROCESSING SYSTEMS. Methods and systems for integrated mining and processing, conceptual model development, simulation, economic and technical evaluation.

MMPE 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.

MMPE 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.

MMPE 562 (2) EQUIPMENT SELECTION. Methods of selecting equipment for underground and surface mining. Case studies and applications.

MMPE 565 (2) ROCK FRAGMENTATION. Theory and practice of drilling and blasting; explosive types and strengths. Blast pattern design for underground and surface operations.

MMPE 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.

MMPE 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-Verwey-Overbeek).

MMPE 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.

MMPE 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.

MMPE 575 (3) MATHEMATICAL MODELLING OF MINERAL PROCESSES. Emphasis on crushing, grinding, screening, classification and flotation.

MMPE 576 (3) SIMULATION AND OPTIMIZATION OF MINERAL PROCESSES. Mineral process simulators including off-line optimization strategies; optimal flow sheet design. Prerequisite: MMPE 575.

MMPE 577 (3) PROCESSING OF PRECIOUS METAL ORES. Advances in science and technology for recovering gold, silver and platinum group elements.

MMPE 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.

MMPE 579 (3) RHEOLOGY OF MINERAL SUSPENSIONS. Rheological measurements, flowcurve modelling, micro-rheology, control of rheological properties. Application to mineral processing unit operations.

MMPE 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.

MMPE 581 (3) ENVIRONMENTAL TECHNOLOGIES AND ISSUES IN MINING. Advanced topics related to mining environment selected in consultation with the instructor.

MMPE 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.

MMPE 583 (3) MINING AND SOCIETY. Discussion of social, political and technical topics concerning mining-related activities.

MMPE 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.

MMPE 597 (6) ENGINEERING PROJECT. A project involving laboratory, pilot plant or field work is to be completed in close collaboration with an academic advisor. For M.Eng. students only.

MMPE 598 (2) SEMINAR. Topics in mining, mineral processing and the environment for M.A.Sc. and M.Eng. students.

MMPE 599 (6-12) C THESIS. For M.A.Sc. Research studies in mining or mineral process engineering.

MMPE 698 (2) SEMINAR. Topics in mining and mineral processing for Ph.D. students.

MMPE 699 (0) THESIS. For Ph.D. Degree.

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 Station. Note: the supervisor may be teaching at the Marine Station; or a member of faculty of WCUMBS whether at the Marine Station as a research investigator or as one of the members of WCUMBS.

MRNE 401 (6) SPECIAL TOPICS IN MARINE BIOLOGY. This course will be offered, as opportunities arise, by distinguished scientists visiting at the Bamfield Marine Station. 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 Station 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 Station, 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 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 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 Station; 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 Barkley 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 Station. 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 Station.

MRNE 501 (6) SPECIAL TOPICS. 6 weeks. Offered, as opportunities arise, by distinguished scientists who are visiting at the Bamfield Marine Station. 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 Station. The course will be of a specialized nature.

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 (6) THEORY AND PRINCIPLES OF MUSIC EDUCATION. Supervision and administration of music education: Individual projects in special interest areas. Prerequisite: A major in 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.

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.

MUSC — MUSIC FACULTY OF ARTS

MUSC 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.

MUSC 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: MUSC 100.

MUSC 102 (2) CLASS STRINGS. Group instruction in music performance. Restricted to B.Mus. students.

MUSC 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.

MUSC 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: MUSC 103 or permission of the instructor.

MUSC 107 (3/6) D COMPOSITION I. An introduction to musical composition.

MUSC 112 (2) CLASS BRASSES AND PERCUSSION. Group instruction in music performance. Restricted to B.Mus. students.

MUSC 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.

MUSC 121 (3) HISTORY OF MUSIC II. The development of Western music from circa 1500 to circa 1750.

MUSC 122 (2) CLASS WOODWINDS. Group instruction in music performance. Restricted to B.Mus. students.

MUSC 131 (2) CLASS VOICE. Group instruction in music performance. Required of all first-time secondary voice students. Restricted to B.Mus. students.

MUSC 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.

MUSC 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.

MUSC 141 (2) CLASS PIANO I. Required of all first-time secondary piano students.

MUSC 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.

MUSC 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.

MUSC 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.

MUSC 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.

MUSC 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.

MUSC 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.

MUSC 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.

MUSC 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.

MUSC 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.

MUSC 160 (2) 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.

MUSC 161 (2) PIANO CHAMBER ENSEMBLES. May be repeated for credit in accordance with program requirements for B.Mus.

MUSC 162 (2) 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.

MUSC 163 (2) 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.

MUSC 164 (2) JAZZ ENSEMBLE. Performance techniques and repertoire.

MUSC 165 (2) 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.

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) . Prerequisite: One of MUSC 172, MUSC 171, MUSC 173.

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 (4) CHORAL CONDUCTING. Choral conducting techniques and practices. For credit towards the B.Mus. and the B.A. in Music; not open to other students. Only one of the courses MUSC 311 and MUSC 312 may be applied for credit towards the B.Mus. and the B.A. in Music. Prerequisite: MUSC 201 and completion of the second-year piano requirement.

MUSC 312 (4) INSTRUMENTAL CONDUCTING. Instrumental conducting techniques and practices. For credit towards the B.Mus. and the B.A. in Music; not open to other students. Only one of the courses MUSC 311 and MUSC 312 may be applied for credit towards the B.Mus. and the B.A. in Music. Prerequisite: MUSC 201 and completion of the second-year piano requirement.

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) 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 but open to students not majoring in music with third-year standing. Non-music students should have some knowledge of music rudiments.

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 121.

MUSC 352 (3) LATE MEDIEVAL AND EARLY RENAISSANCE MUSIC. Sacred and secular music, vocal and instrumental. Prerequisite: 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 220.

MUSC 355 (3) CLASSICAL MUSIC. Prerequisite: MUSC 220.

MUSC 356 (3) ROMANTIC MUSIC. Prerequisite: MUSC 221.

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.

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 (1/4) 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) MODEL-BASED COMPOSITION. Exercises in composition imitating one or more well-documented historical styles, e.g., late-Renaissance counterpoint, late-Baroque counterpoint, Classical homophony, 12-tone music, etc. May be repeated for credit. Prerequisite: MUSC 301 or permission of instructor.

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, e.g., music of China, or Japan, or Korea, or Indone-

sia, or Middle East. Students should consult the School as to which music culture will be covered in a particular year. Prerequisite: MUSC 328.

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: 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 (2/4) D SONG INTERPRETATION AND ACCOMPANIMENT. 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. Restricted to B.Mus. students.

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 six credits.

MUSC 454 (3) HISTORY OF OPERA I. The development of opera between 1600 and 1800. Prerequisite: MUSC 220.

MUSC 455 (3) HISTORY OF OPERA II. The development of opera between 1800 and the present. Prerequisite: 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: At least one of MUSC 410-413.

MUSC 501 (3) READINGS IN SCHENKERIAN THEORY. Prerequisite: MUSC 410.

MUSC 502 (3) THE STRUCTURE AND FUNCTION OF MUSIC THEORIES. Prerequisite: At least one of MUSC 410-412 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 694 (8) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

MUSC 695 (10) MUSIC PERFORMANCE (MAJOR). Private instruction, vocal or instrumental.

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 application 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 the 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 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 310 (3) THE CORE OF NURSING PRACTICE. The study of key concepts and frameworks fundamental to the practice of nursing. Not available for R.N. 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 illness in a member. [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 409 (3/6) C CLINICAL NURSING ELECTIVE. An opportunity to increase knowledge and skills in an identified area of clinical interest in nursing. Students work under the guidance of faculty with expertise in the area. Prerequisite: Completion of third-year nursing courses.

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. [3-0-9]

NURS 415 (3) TRANSITIONS AND FUTURE PERSPECTIVES IN NURSING PRACTICE. Transition to professional roles; perspectives in health care trends shaping the practice of nursing. [3-0]

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. Prerequisite: 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 431 (4) POPULATION-FOCUSED NURSING PRACTICE II. Clinical nursing practice in partnership with selected population groups. [2-0-6]

NURS 450 (3) CRITICAL ENQUIRY AND EVIDENCE-BASED PRACTICE. The research process and scholarship in nursing: principles and processes in conducting and 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 (6/8) D CONSOLIDATION PRACTICE EXPERIENCE. Extended practice in nursing. MEO Upper Division students must take this course for 10 credits; R.N.'s may take this course for 6 credits. [1-0-24]

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) NURSING RESEARCH. Study of processes of research and scholarly inquiry in nursing, research utilization, and knowledge development for evidence-based practice.

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 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 558 (3) ADVANCED CONCEPTS IN QUANTITATIVE RESEARCH METHODS. Prerequisite: NURS 550 or equivalent.

NURS 560 (3) HEALTH POLICY. Study of processes and strategies influencing health policy and the social/political context in which health policy is created. Prerequisite: NURS 502 or permission of instructor.

NURS 577 (3/6) D GRADUATE PRACTICUM IN NURSING. Practicum with a focus on application of theory in education, policy, research, administration of advanced practice. Prerequisite: One of NURS 520, NURS 530, NURS 540, NURS 550, NURS 551, NURS 560.

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 604 (1-3) D SPECIAL TOPICS IN NURSING.

NURS 608 (3) PHILOSOPHY OF NURSING SCIENCE. Constructs and theories in nursing science, focusing on both theoretical analysis and empirical investigation. Prerequisite: All of NURS 501, NURS 503, NURS 504.

NURS 609 (3) PHILOSOPHY OF NURSING SCIENCE II. Advanced constructs and theories in nursing science. Prerequisite: NURS 608.

NURS 623 (3) ADVANCED CONCEPTS IN QUANTITATIVE RESEARCH METHODS. Application of selected quantitative methods to the discipline of nursing. Prerequisite: Either (a) all of NURS 551, EPSE 592 or (b) EPSE 682. Corequisite: EPSE 596.

NURS 624 (3) ADVANCED CONCEPTS IN QUALITATIVE RESEARCH METHODS. Application of selected qualitative methods to the discipline of nursing. Prerequisite: NURS 550.

NURS 690 (3/6) C DIRECTED STUDIES IN NURSING.

NURS 699 (0) PH.D. THESIS.

OBMS — ORAL BIOLOGICAL MEDICAL SCIENCES FACULTY OF DENTISTRY

OBMS 400 (6) CURRENT ISSUES IN ORAL HEALTH SCIENCES. Critical reviews of oral health care delivery, oral disease processes and dental hygiene. [3-0-0; 3-0-0]

OBMS 404 (6) ADVANCED DENTAL HYGIENE CARE. Advanced dental hygiene concepts, processes and skills in community health, educational or institutional settings. [3-0; 3-0]

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 post-partum care. Prerequisite: 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 GRADUATE STUDIES

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 enroll 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 and environmental settings. Industrial processes; occupational exposure standard settings; exposure distributions and evaluation strategies; exposure measurements and control methods. Equivalency: HCEP 512. [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. Prerequisite: OCCH 501. [0-0; 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 environ-

mental hygiene. Prerequisite: All of HCEP 507, OCCH 502. [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, validity, bias, precision in studies of exposure and disease. Prerequisite: One of OCCH 501, HCEP 512 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. [0-0-0; 1.5-0-0]

OCCH 512 (1.5) QUANTITATIVE METHODS FOR THE ASSESSMENT AND ANALYSIS OF EXPOSURE DATA. Prerequisite: One of OCCH 501, HCEP 512 and introductory statistics.

OCCH 530 (2-6) 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]

OPHTH — OPHTHALMOLOGY FACULTY OF MEDICINE

OPHT 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 pediatrics 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 pediatrics. 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 200, BIOL 201, CHEM 205, CHEM 230, MICB 200. [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 (2) 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: One of BIOL 101, BIOL 102 and one of CHEM 110, CHEM 120 and all of CHEM 103, PHYL 301, BIOC 300, ANAT 390, ANAT 501.

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) MICROBIAL INFECTION IN HUMANS. Determinants in host and microbe which affect the course and expression of disease in humans, emphasizing the relative importance of the host. Prerequisite: MICB 403.

PATH 427 (3) BASIC PRINCIPLES OF INFECTION 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. Course content may be viewed at <http://www.chica.org>.

PATH 437 (3) VIRAL INFECTIONS IN HUMANS. Interactions between viruses and humans; pathogenesis; prompt virological diagnosis; rationale for antiviral chemotherapy and prophylaxis. Corequisite: MICB 408. [0-0; 2-4]

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 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. An elective course open to third-year medical students, designed to familiarize the student with various subspecialties of Laboratory Medicine, including Haematology, Clinical Biochemistry, and Nuclear Medicine. This elective may involve attendance at one or more affiliated hospitals. Registration requires consent of the Department and 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. Course content may be viewed at <http://www.chica.org>.

PATH 500 (2/6) D GENERAL PRINCIPLES OF PATHOLOGY. Experimental pathology (2) and general principles of aetiology, 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) RESEARCH TOPICS IN PATHOPHYSIOLOGY. A lecture and laboratory course reviewing current areas of research in Pathophysiology. Registration requires permission of the Department.

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 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 231, CHEM 232 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 advisor 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 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 430 (2) THERAPEUTICS. Practical experience in the science of drug prescribing.

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 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 (0) 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 590 (3) GRADUATING PAPER.

PETE 598 (3/12) D FIELD EXPERIENCES. For those in Master's, Doctoral and Diploma programs.

PETE 599 (6/12) D MASTER'S THESIS.

PHAR — PHARMACEUTICAL SCIENCES FACULTY OF PHARMACEUTICAL SCIENCES

PHAR 100 (4) PROFESSIONAL PRACTICE I. An overview of the profession of pharmacy and contemporary standards of practice, with emphasis on the role of the pharmacist as a provider of drug information. Laboratory work includes development of skills in compounding and dispensing and in interpersonal communications. [2-3*-0; 2-3*-0]

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; 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*; 0-3*3*]

PHAR 211 (8) DRUG DELIVERY SYSTEMS I. Principles of the design, preparation and evaluation of oral drug delivery systems. [4-3*-0; 4-3*-0]

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 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; 2-3*-0]

PHAR 315 (4) PHARMACOKINETICS. Fundamental pharmacokinetic principles underlying the administration, absorption, distribution, metabolism and excretion of drugs administered as pharmaceutical dosage forms. Prerequisite: All of PHAR 211, PHAR 311. [4-0-0]

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 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 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 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 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 (4) 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. [4-0-0]

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; 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 444 (6) PROBLEMS IN PHARMACOLOGY. Individual assignments involving library and laboratory investigation of certain aspects of drug action. Enrolment restricted.

PHAR 448 (4) 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. [4-0-0]

PHAR 450 (2-6) C SELECTED TOPICS. Thesis or Essay.

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 455 (3) PHARMACY IN CANADA'S HEALTH CARE SYSTEM. Issues in health care, community health services and pharmacy practice. [3-0-0]

PHAR 469 (3) PROFESSIONAL PRACTICE CLERKSHIP. A 160-hour clerkship normally completed during a 4-5 week period in the summer immediately prior to entering fourth-year clinical Pharmacy courses.

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 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 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 pharmaceutics with emphasis on biopharmaceutical aspects.

PHAR 512 (2) ADVANCED PHARMACEUTICS III. A study of problems in pharmaceutics with emphasis on aspects of quality evaluation.

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; 3-0-0]

PHAR 521 (3) ADVANCED MEDICINAL CHEMISTRY I. A study of the underlying physical and chemical parameters determining drug action in representative classes of drugs.

PHAR 522 (2) ADVANCED MEDICINAL CHEMISTRY II. A study of the theories and kinetics of drug receptor interactions and recent advances in the molecular properties of drug receptors.

PHAR 525 (4) PHARMACEUTICAL RESEARCH TECHNIQUES I. Spectroscopic, GC, HPLC, LCMS and NMR analytical techniques for drug analysis, pharmacokinetics and metabolism. [2-6-0; 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; 2-6-0]

PHAR 530 (4) ADVANCED PHARMACOGNOSY. A detailed study of selected compounds of biological origin useful in the fields of Pharmacy and Medicine.

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 (2) 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; 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. Equivalency: PATH 542. [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 inter-disciplinary 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 three credits, but may be taken for four 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 booklet or website.

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. Detailed description in Department booklet.

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, CLST 336, 337 and PHIL 310. Equivalency: CLST 211.

PHIL 212 (3/4) D GREEK PHILOSOPHY II. Plato; Aristotle; selections from Hellenistic Philosophy. Recommended as preparation for CLST 336, 337 and 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 signifi-

cance 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 312 (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: 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 logistic 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 335 (3/4) D POWER AND OPPRESSION. Philosophical approaches to historical problems of inequality and social harm, with readings drawn from historical and contemporary 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 six 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: Nine 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 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 (4) 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) PROBLEMS. Same as PHIL 582-589.

PHIL 599 (12) MA THESIS.

PHIL 699 (0) PH.D. THESIS.

PHYL — PHYSIOLOGY FACULTY OF MEDICINE

MATH102 (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 advisor 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, 121, 140, CHEM 233. [3-0; 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; 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; 0-3]

PHYL 422 (3) MAMMALIAN CARDIOVASCULAR 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; 0-0]

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. [0-0; 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. [0-0; 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; 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 121. Students planning to go into Physics or Applied Science (and some other programs) are required to take PHYS 102 (122) in addition to PHYS 101 (121). 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 advisor, may omit PHYS 100 and enroll in PHYS 101. Credit will be given for only one of PHYS 101, 121 and for only one of PHYS 102, 122. The following courses are for students in the Faculty of Applied Science: PHYS 153, PHYS 159, PHYS 170, PHYS 250, PHYS 251, PHYS 270, PHYS 350, PHYS 351, PHYS 352, PHYS 353, PHYS 398, PHYS 452, PHYS 455, PHYS 456, PHYS 458, PHYS 473, PHYS 474, PHYS 475, PHYS 477. 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: Mathematics 12; Physics 11 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: or Physics 12. [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: An "A" in Physics 12 and Mathematics 12 or an "A" in PHYS100. Corequisite: One of MATH 100, MATH 102, MATH 104, MATH 120, MATH 180, MATH 184. [3-0-1]

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: One of PHYS 107, PHYS 101. PHYS 101 requires "A" standing. Corequisite: One of MATH 101, MATH 103, MATH 105, MATH 121. [3-0-1]

PHYS 109 (2) INTRODUCTION TO EXPERIMENTAL PHYSICS. A laboratory course accompanying PHYS107 and PHYS108 with emphasis on data collection and analysis and experimental techniques. Corequisite: PHYS 107. [0-3-0;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 121/122. Prerequisite: Physics 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: PHYS 100 or Physics 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: One of PHYS 102, PHYS 108, PHYS 153 and one of MATH 101, MATH 103, MATH 105, MATH 121. [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: One of PHYS 102, PHYS 108, PHYS 153. At least 68% is required in one of the above courses. 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 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 Science One. Corequisite: MATH 215 and one of MATH 200, MATH 217, MATH 226. [0-3-1*; 0-3-1*]

PHYS 216 (3) MECHANICS. 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 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. [3-0-1]

PHYS 251 (2) INTR INSTR DESIGN. Applications of electricity and magnetism. Maxwell's equations. Prerequisite: One of PHYS 102, PHYS 122, PHYS 153. [3-3-1]

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; refrigera-

tion; change of state; first and second laws of thermodynamics. Prerequisite: Either (a) one of PHYS 102, PHYS 153 or (b) PHYS108 AND PHYS109; and one of MATH 101, MATH 103, MATH 105, MATH 121, MATH 154. [1-3-1]

PHYS 258 (2) PRINCIPLES OF PHOTONICS. Practical aspects of classical and quantum treatments of light; generation, transmission and detection. [2-0-1]

PHYS 259 (2) EXPERIMENTAL TECHNIQUES. Basic experimental techniques in acquisition, analysis and presentation of data. Prerequisite: PHYS 108 and PHYS109 or 1 of PHYS102, PHYS153 or Science One. [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 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 mechanics, 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: One of PHYS 102, PHYS 108, PHYS 153 and one of MATH 215, MATH 255. BIOL121 or BIOL112 recommended. [3-0-0]

PHYS 308 (3) OPTICS. Physical optics: polarization, Fresnel equation coherence,

interference, diffraction, lasers, holography, Fourier optics. Prerequisite: Either (a) one of PHYS 102, PHYS 153 or (b) all of PHYS 108, PHYS 109. [2-3-0]

PHYS 309 (3/6) D 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: MATH 200 and one of PHYS 102, PHYS 108, PHYS 153. [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: One of PHYS 203, PHYS 313. Corequisite: MATH 215. [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 213, 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 351. Other techniques and subjects will also be covered. Corequisite: PHYS 351. [0-3-0]

PHYS 354 (3) ELECTRIC AND MAGNETIC FIELDS. Applications of electricity and magnetism. Maxwell's equations. Prerequisite: One of PHYS 102, PHYS 122, PHYS 153 and one of MATH 215, MATH 255 and one of MATH 217, MATH 227, MATH 317. Equivalency: PHYS 251. [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. Corequisite: One of PHYS 304, PHYS 412. [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 PHYS 304. [3-0-0]

PHYS 404 (3) PHYSICS OF MEDICAL IMAGING. Magnetic resonance imaging, nuclear medicine, ultrasound, computed tomography and optical microscopy. Emphasis on physical principles and the technical aspects of the interpretations. Prerequisite: Third or fourth year standing in science is required. MATH 200 (or MATH 217) 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 six 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 122, CPSC 126, CPSC 152. [3-0-1]

PHYS 412 (3) ATOMIC PHYSICS. The major phenomena in the fields of atomic physics.

Prerequisite: All of PHYS 200, MATH 215. [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. Prerequisite: Permission of the department head.

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. Not for credit towards a B.Sc. in Physics. Prerequisite: One of PHYS 101, PHYS 107. BIOL 325 is recommended. [3-0-0]

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*, 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. Equivalency: PHYS 351. [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 303 and 455. Prerequisite: One of PHYS 257, PHYS 203, PHYS 313 and one of PHYS 452, PHYS 304. [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. Feynman diagrams and renormalization; quantum electrodynamics; calculation of fundamental processes; non-abelian gauge theories. Prerequisite: PHYS 500.

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. PHYS 508 may be taken concurrently.

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 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.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; 0-0]

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 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 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 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 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 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 587 (3/6) C 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 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.

PLNT — PLANT SCIENCE FACULTY OF AGRICULTURAL SCIENCES

Most of the undergraduate courses have been renamed as Agroecology (AGRO). Please see this section. The Faculty of Agricultural Sciences 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.

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 GOVERNMENT AND POLITICS. The political system of China, approached from a number of perspectives: as a continuing development within the framework of Chinese history and culture; as a case study of political modernization; in the context of world Communist movements; as an object of comparison with other political systems.

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 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 brochure issued by the Department.

POLI 344 (3) 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) 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 360 (3/6) D SECURITY STUDIES. National security doctrines and policies of the major powers and Canada, the policies and politics of alliances, and problems of arms control and disarmament.

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. Students enrolling in this course should preferably have taken a second-year course in a subject in the social sciences.

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 ORGANIZATION. 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 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. A seminar which examines political parties, processes, and institutions in the provincial political systems and regional arrangements between provinces. Prerequisite: POLI 101 and one course from POLI 301-308.

POLI 402 (3/6) D LAW AND POLITICS OF THE CANADIAN CONSTITUTION. A 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 course from POLI 301-308.

POLI 403 (3/6) D THE POLITICAL ECONOMY OF CANADA. A seminar devoted 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 course from POLI 301-308.

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 course from POLI 301-308.

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 course from POLI 301-308.

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 three 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: Any two courses from POLI 220, 320-333, 350, 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: Any two courses from POLI 220, 320-333, 350, 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: Any two courses from POLI 220, 320-333, 350, 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: Any two courses from POLI 220, 320-333, 350, 351.

POLI 424 (6) CHINESE POLITICAL THOUGHT AND INSTITUTIONS. See ASIA 411. Equivalency: ASIA 411.

POLI 425 (6) COMMUNIST MOVEMENTS IN EASTERN EUROPE SINCE 1900. See HIST 435. Equivalency: HIST 435.

POLI 426 (3/6) D SEMINAR ON COMPARATIVE PARTIES AND PARTY SYSTEMS. Prerequisite: Any two courses from POLI 220, 320-333, 350, 351.

POLI 429 (3) SEMINAR IN ISSUES IN GENDER AND POLITICS. Prerequisite: Any two courses from POLI 220, 320-333, 345, 350, 351.

POLI 440 (3/6) D CONTEMPORARY POLITICAL THEORY. This seminar examines the political ideas of leading political philosophers of the twentieth century. Prerequisite: Any six credits from POLI 240, 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 six 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 six 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 six 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: Any two courses from POLI 260, 360-370.

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: Any two courses from POLI 260, 360-370.

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: Any two courses from POLI 260, 360-370.

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: Any two courses from POLI 260, 360-370. Six credits of ECON are recommended.

POLI 464 (3/6) D PROBLEMS IN INTERNATIONAL RELATIONS. Content varies from year to year and is described in the brochures issued by the Department and the Program in International Relations. One section (of three 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) CANADIAN GOVERNMENT AND POLITICS.

POLI 502 (3) CANADIAN POLITICAL INSTITUTIONS AND PROCESSES.

POLI 503 (3) CANADIAN POLITICAL PARTIES AND PARTICIPATION.

POLI 504 (3) TOPICS IN CANADIAN POLITICS.

POLI 511 (3) COMPARATIVE GOVERNMENT AND POLITICS.

POLI 512 (3) THEORIES IN COMPARATIVE POLITICS: POLITICAL DEVELOPMENT.

POLI 513 (3) THEORIES IN COMPARATIVE POLITICS: CLEAVAGES AND INTEGRATION.

POLI 514 (3) COMPARATIVE WESTERN GOVERNMENTS.

POLI 515 (3) COMPARATIVE NON-WESTERN GOVERNMENTS.

POLI 516 (3) ISSUES IN COMPARATIVE POLITICS.

POLI 521 (3) POLITICAL THEORY.

POLI 522 (3) TOPICS IN POLITICAL THEORY.

POLI 523 (3) POLITICAL THOUGHT.

POLI 531 (3) PUBLIC ADMINISTRATION.

POLI 532 (3) TOPICS IN PUBLIC ADMINISTRATION.

POLI 533 (3) TOPICS IN PUBLIC POLICY.

POLI 549 (6/12) C MASTER'S THESIS.

POLI 551 (3) POLITICAL BEHAVIOUR.

POLI 552 (3) RESEARCH SEMINAR IN POLITICAL BEHAVIOUR.

POLI 553 (3) TOPICS IN EMPIRICAL THEORY.

POLI 561 (3) INTERNATIONAL RELATIONS.

POLI 562 (3) TOPICS IN INTERNATIONAL RELATIONS.

POLI 563 (3) INTERNATIONAL ORGANIZATION.

POLI 564 (3) RESEARCH SEMINAR IN INTERNATIONAL RELATIONS.

POLI 571 (3) METHODS OF POLITICAL ANALYSIS.

POLI 572 (3) 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 210 (6) SECOND-YEAR POLISH. Intermediate oral practice, grammar, reading, composition. Prerequisite: POLS 110.

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 102 (6) FIRST-YEAR PORTUGUESE. Grammar, composition, translation, oral practice.

PORT 202 (6) SECOND-YEAR PORTUGUESE. Grammar, composition, translation, oral practice, readings. Prerequisite: PORT 102.

PORT 307 (6) INTRODUCTION TO PORTUGUESE FOR SENIOR STUDENTS. Intensive grammar study, translation, and reading of literary texts for senior students with no previous knowledge of Portuguese. Prerequisite: Proficiency in another Romance language or Latin.

PORT 392 (3/6) D STUDIES IN PORTUGUESE AND BRAZILIAN LITERATURE.

PPEN — PULP AND PAPER ENGINEERING FACULTY OF APPLIED SCIENCE

PPEN 501 (3) CHEMICAL PULPING AND BLEACHING ENGINEERING. Wood anatomy; cell wall structure and chemistry. Pulping operations including: cooking chemistry; digester reaction engineering, design, operation and control. Oxygen delignification; pulp washing; bleaching operations, including bleaching chemistry, processes and equipment; generation of bleaching chemicals.

PPEN 502 (3) CHEMICAL RECOVERY ENGINEERING AND SYSTEMS CLOSURE. Kraft chemical recovery processes. Sodium cycle; including black liquor properties, liquor evaporation, oxidation and burning. Recovery furnace equipment, processes, material and energy balances. Calcium cycle; including lime kiln operation, slaking and recausticization.

PPEN 503 (3) MECHANICAL PULPING AND PULP PROCESSING. Measurement of pulp properties; theory and practice of mechanical pulping; screening; cleaning and fractionation; low consistency refining of mechanical and chemical pulps; mixing, fibre suspension hydrodynamics.

PPEN 504 (3) PAPERMAKING AND PAPER PROPERTIES. Papermaking with topics of engineering interest including flow distribution to paper machine headboxes, forming, pressing, drying, calendering, finishing and paper properties; introduction to papermaking chemistry and physics.

PPEN 505 (3) PULP AND PAPER TECHNOLOGY LABORATORY. Pulping and bleaching of kraft pulp; production of mechanical pulp; pulp refining; pulp and paper testing; wet-end paper chemistry, hydrocyclone operation, paper machine diagnostics, corrosion in pulp and paper operations.

PPEN 506 (3) PROJECT FOR M.ENG. PROGRAM IN PULP AND PAPER ENGINEERING. An individual project on a topic related to pulp and paper engineering. This may be a small laboratory research project, a design problem or the collection and analysis of mill data. Results are to be communicated in a written report.

PPEN 507 (3) TOPICS IN ADVANCED PAPERMAKING. Topics in papermaking at an advanced level supplementing the core technology topics in papermaking chemistry and coating; new developments in forming, papermachine diagnostics and basis weight variations, tailoring fibre supply, processing and papermaking to desired paper product properties.

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 six credits of 200-level Psychology courses (but not 205 or 263), or permission of the instructor. Students registered in the BSc 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 201, 260 PSYC 304, 360 PSYC 317, 366 PSYC 318, 366. Students with fewer than 36 previous credits may not take 300-level courses. Third year students may not take 400-level courses, except 417, for which they must obtain permission of the instructor. Not every course is offered every year. For current listings, consult the department 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 to 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, 102. Corequisite: Either (a) PSYC 100 or (b) all of PSYC 101, 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, 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, 102, or (c) six 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, 102, or (c) six 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. Prerequisite: Either (a) PSYC 100, or (b) all of PSYC 101, 102, or (c) six 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, 102, or (c) six credits of 200-level Psychology (but not 205 or 263).

PSYC 306 (6) 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, 102, or (c) six credits of 200-level Psychology (but not 205 or 263).

PSYC 308 (6) 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, 102, or (c) six credits of 200-level Psychology (but not 205 or 263).

PSYC 309 (6) 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, 102, or (c) six 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, 102, or (c) six 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: PSYC 100, or 101 and 102, or six 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, 102, or (c) six 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, 102, or (c) six 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, 102, or (c) six 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) six 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, 102, or (c) six 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, 102, or (c) six 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, 102, or (c) six 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 on-line conversation; animal versus human communication. Prerequisite: Either (a) PSYC 100, or (b) all of PSYC 101, 102, or (c) six credits of 200-level Psychology (but not 205 or 263). Non-PSYC students may substitute ENGL 329, or LING 420, or LING 200 and 201 for the above pre-requisite.

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 (3) 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, 102, or (c) six 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, 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 or permission of the department head.

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: One of 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 or permission of the department head. [3-0-0]

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, 102, or (c) six 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: PSYC 100, or 101 and 102, or six 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 gene regulation, neurogenesis and cell morphology changes in relation to learning and experience. Prerequisite: One of PSYC 304, PSYC 360, PSYC 460.

PSYC 463 (6) RESEARCH IN SENSATION AND PERCEPTION. Vision and audition; physical properties and subjective experience of stimuli. Prerequisite: One of PSYC 217, PSYC 366 and one of PSYC 360, PSYC 365, PSYC 367 or permission of the department head.

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 or permission of department head.

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 and permission of the department head.

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 and permission of the department head.

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) ENVIRONMENTAL PSYCHOLOGY I.

PSYC 571 (3) ENVIRONMENTAL PSYCHOLOGY II.

PSYC 573 (3) INDUSTRIAL PSYCHOLOGY.

PSYC 574 (3) BIOPSYCHOLOGY I.

PSYC 575 (3) BIOPSYCHOLOGY II.

PSYC 578 (3) PERCEPTUAL PROCESSES I.

PSYC 579 (3) PERCEPTUAL PROCESSES II.

PSYC 582 (3) COGNITIVE PROCESSES I.

PSYC 583 (3) COGNITIVE PROCESSES II.

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) PSYCHONEURO-ENDOCRINOLOGY. 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 (8) 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.crns.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.

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 300 (6) ARCHAEOLOGY OF THE ANCIENT NEAR EAST. Equivalency: ARTH 327, FINA 327.

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 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 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 advisor. Prerequisite: One of LATN 200, LATN 300. Equivalency: LATN 305.

RELG 321 (3/6) 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 324 (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. Credit granted for only one of ARTH 330, FINA 331, RELG 324, or former RELG 326 (6). Equivalency: ARTH 330.

RELG 325 (3) ART IN THE EARLY MEDIEVAL WEST. From pagan adornment to Christian devotion to service of Christian or Islamic rule between 500 and 1000. Credit granted for either ARTH 331, FINA 331, RELG 325, or former RELG 326 (6). Equivalency: ARTH 331.

RELG 326 (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. Credit granted for one of ARTH 332, FINA 332, FINA 333, current RELG 326 (3) or former RELG 327 (6). Equivalency: ARTH 333.

RELG 327 (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. Credit granted for only one of ARTH 333, FINA 332, FINA 333 or RELG 327. Equivalency: ARTH 333.

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 Aristo-

tle; 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 354 (6) THE HINDU RELIGIOUS TRADITION. Formation of Hinduism through the various periods of its history in interaction with indigenous movements and foreign religions. An overview of philosophical schools, religious doctrines, rituals, myths, and religious organizations.

RELG 364 (3) BUDDHISM IN INDIA AND EAST ASIA. The historical development and spread of Buddhism in its cultural contexts, from India and Central Asia to China, Korea, and Japan. Attention will be given to the whole scope of Buddhist beliefs and practices, including institutions, leadership, philosophy and popular devotion.

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 367 (3) APPROACHES TO ZEN. A critical examination of the historical and philosophical background of Zen, its contemporary situation, literary and artistic expressions, and recent developments.

RELG 368 (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. Equivalency: ASIA 383.

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 449 (3) SEMINAR IN THE HISTORY OF MUSLIM-CHRISTIAN RELATIONS. Topics in Muslim-Christian relations with special reference to the Middle Ages: e.g., the Crusades (with emphasis on the Muslim point of view); Muslim Spain (with special reference to Christians and Jews as subjects); attitudes of Christians and Muslims towards each other in their literature. Not offered every year. See 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 510 (3/6) C TOPICS IN SELECTED AREAS OF THE RELIGIOUS TEXTS OF EASTERN TRADITIONS. Studies in texts, history, and religious thought of the Hindu or Buddhist tradition. Depending on the area of concentration, a competence is required in Sanskrit, Chinese, Japanese, or Tibetan, usually achieved by not less than two years of study.

RELG 511 (3/12) D READINGS IN CHINESE RELIGIOUS TEXTS. Selected readings from primary texts in Confucianism, Taoism, Buddhism, and popular religion. Prerequisite: CHIN 301. Equivalency: ASIA 511.

RELG 512 (3/6) C TOPICS IN BUDDHISM. Specialized studies in texts, history, and religious thought of the Buddhist traditions. Depending on the area of concentration, language requirements include a knowledge of either Sanskrit, Chinese, Japanese, or Tibetan, usually achieved by not less than two years of study.

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 649 (0) PH.D. THESIS.

RGLA — RELIGION, LITERATURE AND THE ARTS FACULTY OF ARTS

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 201 (2) KINESIOLOGY. Analysis of human movement in terms of the biomechanics, anatomy, and physiology (basis of kinesiology) as a foundation for the study of abnormal performance. [0-2-0]

RHSC 202 (2) HUMAN DEVELOPMENT FOR HABILITATION AND REHABILITATION.

Motor, sensory, cognitive and social development across the life span, as it pertains to rehabilitation therapy interventions. [1-2-0]

RHSC 205 (2) ADAPTIVE EQUIPMENT AND TECHNIQUES. Use of techniques and equipment to facilitate adaptation to disability. [1-2-0]

RHSC 301 (6) MEDICAL AND SURGICAL CONDITIONS. An introduction to medical and surgical conditions for therapists. [6-0-0]

RHSC 302 (3) PSYCHOSOCIAL ASPECTS OF DISABILITY. Examination of cultural, psychological and social components associated with reactions to disability, illness and dying. Study of principles fundamental to effective relations for adjustment, conflict resolution and coping. [3-2-0]

RHSC 311 (1) INTERPERSONAL COMMUNICATION IN REHABILITATION.

Basic theories, principles and skills of interpersonal communication, including interviewing. [.5-1-0]

RHSC 402 (3) RESEARCH METHODOLOGY IN REHABILITATION. Introduction to principles of clinical research design, scientific writing and clinical data analysis. [3-0-0]

RHSC 408 (2) MANAGEMENT AND POLICIES IN HEALTH CARE. Health systems and management concepts for rehabilitation providers. [2-0-0]

RHSC 420 (4) ELEMENTS OF NEUROANATOMY AND NEUROPHYSIOLOGY. An introduction to the structure and function of the human nervous system. [2-3-0]

RHSC 427 (6) SELECTED PROBLEMS IN REHABILITATION. Individual and group study of current problems, topics, and trends in rehabilitation medicine. Includes field analysis, literature review, discussion and student projects.

RHSC 429 (1-6) D REHABILITATION SEMINAR. Topics based on the academic needs of participating students. Not offered each year. Consult the School.

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 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.

RMES — RESOURCE MANAGEMENT AND ENVIRONMENTAL STUDIES GRADUATE STUDIES

RMES 500 (3/12) 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 599 (12) MASTER'S THESIS.

RMES 699 (0) PH.D. THESIS.

RMST — ROMANCE STUDIES FACULTY OF ARTS

RMST 420 (3/6) D STUDIES IN ROMANCE LANGUAGES AND LITERATURE.

RMST 478 (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 478, LING 320.

RMST 520 (6) STUDIES IN ROMANCE LANGUAGES AND LITERATURE.

RMST 548 (0) MAJOR ESSAY.

RSOT — OCCUPATIONAL THERAPY SCHOOL OF REHABILITATION SCIENCES

RSOT 207 (5) THEORY AND PRACTICE.

Introduces students to occupational therapy core concepts, values and beliefs, and their application to occupational therapy practice. [2-1-1; 0-2-2]

RSOT 210 (3) ENABLING OCCUPATION: A PRACTICAL APPROACH. The Canadian model of occupation and the Occupational Performance Process. Model are used to demonstrate how personal strengths and environmental resources enhance occupational performance. [2-2-0]

RSOT 212 (3) DISABILITY AND SOCIETY: SOCIAL SCIENCE CONCEPTS FOR REFLECTIVE PRACTICE. Concepts and theories fundamental to the practice of occupational therapy. [2-0-2]

RSOT 235 (2) INTRODUCTORY FIELDWORK.

RSOT 303 (4) BIOPSYCHOSOCIAL APPROACHES IN MENTAL HEALTH.

Etiology, epidemiology, natural history, management and treatment of psychiatric disorders of childhood, adolescence and adulthood. [4-0-0]

RSOT 307 (4) PSYCHOSOCIAL APPROACHES TO OCCUPATIONAL PERFORMANCE.

Group therapy, theory, and intervention strategies employed in the occupational therapy process in mental health. [2-2-0]

RSOT 312 (2) TESTS AND MEASURES.

Selection, administration, recording and interpretation of tests and measures used in occupational therapy assessment. [1-2-0]

RSOT 322 (3) BIOMECHANICAL TREATMENT APPROACHES.

An introduction to problem-solving using biomechanical principles. Includes theory and treatment strategies for clients of all ages with physical disabilities, as well as the design and fabrication of orthotic and remedial equipment. [2-2-0]

RSOT 323 (3) ENABLING OCCUPATION IN NEUROREHABILITATION.

[2-0-2]

RSOT 335 (6) INTERMEDIATE FIELDWORK.

RSOT 416 (3) ENABLING PRODUCTIVITY.

Enabling client participation in work/productivity through evaluating work values, interests and skills and using community vocational rehabilitation resources to address barriers to finding, entering, maintaining, returning and leaving work/productivity. [3-0-0]

RSOT 418 (2) ASSISTIVE AND REHABILITATION TECHNOLOGY.

Application of technology to enable independent living by persons with disability. [1-2-0]

RSOT 424 (3) PROGRAM DESIGN.

[1.5-0-3]

RSOT 425 (1) SOCIAL AND PROFESSIONAL ISSUES.

A seminar addressing current sociopolitical, cultural and ethical issues influencing occupational therapy practice. [1-0-0]

RSOT 426 (3) DIRECTED STUDIES.

RSOT 434 (3) CLINICAL REASONING: ADVANCED APPLICATIONS TO CLIENT-CENTRED PRACTICE.

[2-0-2]

RSOT 435 (7) ADVANCED FIELDWORK.

RSOT 436 (2) ERGONOMICS AND ORGANIZATION OF ACTIVITY.

Application of theory and principles of ergonomics, task analysis and environmental adaptations for fulfillment of occupational, educational or vocational roles. [1-1-1]

RSPT — PHYSICAL THERAPY SCHOOL OF REHABILITATION SCIENCES

RSPT 203 (2) MULTISYSTEM MANAGEMENT OF THE PATIENT IN AN ACUTE ORTHOPAEDIC SETTING.

An introduction to the principles and practice of assessment and treatment techniques for the musculoskeletal, cardiovascular and respiratory systems of the medically stable, acute orthopaedic patient. [1-2-0]

RSPT 206 (3) INTRODUCTION TO PHYSICAL THERAPY PROCEDURES. The theory and practice of basic therapeutic exercise, massage techniques, introduction to patient handling and body mechanics. [1-4-0]

RSPT 208 (3) PHYSICAL ASSESSMENT OF THE MUSCULO-SKELETAL SYSTEM.

The theory and practice of basic methods of physical assessment as applied to the musculoskeletal system. [1-4-0]

RSPT 230 (2) CLINICAL FIELDWORK.

RSPT 304 (2) MANAGEMENT OF THE MUSCULOSKELETAL SYSTEM. The application of assessment and treatment skills to problems as a result of musculoskeletal dysfunction. [0-4-0]

RSPT 305 (3) ELECTRO AND HYDROTHERAPY.

The clinical use of electrotherapy, hydrotherapy, biofeedback and electrodiagnostic procedures. [2-3-0]

RSPT 308 (2) MANAGEMENT OF MUSCULOSKELETAL AND NEUROMUSCULAR DYSFUNCTION.

The clinical application of principles of management to musculoskeletal and neuromuscular dysfunction in children and adults. [1-2-0]

RSPT 313 (2) MANAGEMENT OF THE RESPIRATORY SYSTEM.

Assessment and treatment of common disorders of the respiratory system affecting individuals of all ages. [1-2-0]

RSPT 314 (3) MANAGEMENT OF THE NEUROMUSCULAR SYSTEM.

The assessment and treatment of common disorders of the neuromuscular system affecting individuals of all ages. [1.5-3]

RSPT 330 (9) CLINICAL FIELDWORK.

RSPT 411 (2) SELECTED TOPICS IN PHYSICAL THERAPY. The application of physical therapy management of selected conditions. [1-2-0]

RSPT 412 (4) CRITICAL CARE. The principles and practice of physical therapy management of the high-risk, unstable, critically ill patient with special reference to the patient with cardiorespiratory dysfunction. [2-4-0]

RSPT 413 (6) COMPREHENSIVE PATIENT MANAGEMENT.

A problem-solving approach to the comprehensive management of physical impairment, disability and maintenance of fitness of the child and adult. [6-0-0]

RSPT 414 (1) SOCIAL AND PROFESSIONAL ISSUES.

The political, social, and cultural issues in the development of physical therapy as a profession. [1-0-0]

RSPT 415 (1-3) C INDEPENDENT STUDY.

Content to be determined and credit value assigned in consultation with a faculty member.

RSPT 419 (3) EXERCISE PHYSIOLOGY IN HEALTH AND DISEASE.

The response, control and adaptation of the human body to exercise. Nutrition, energy transfer, systemic and cellular response to exercise, and concepts of testing and training with special reference to different patient populations. [3-0-0]

RSPT 430 (6) CLINICAL FIELDWORK.

RSPT 441 (1) A MANUAL THERAPY APPROACH TO THE ASSESSMENT AND TREATMENT OF INDIVIDUALS WITH MUSCULOSKELETAL DYSFUNCTIONS OF THE LUMBAR SPINE AND PELVIS.

An introduction to the field of manual physical therapy as applied to musculoskeletal dysfunction in the lumbar spine and pelvis. [0-2-0]

RSPT 442 (1) SPINAL CORD INJURY: ISSUES OF REHABILITATION.

A comprehensive overview of the physiotherapy management of persons with disabilities resulting from a spinal cord injury. [1-0-0]

RSPT 443 (1) SPORTS PHYSICAL THERAPY.

An introduction to the prevention, evaluation and rehabilitation of common sports injuries. Lectures and practical sessions will emphasize “on-site” emergency management of athletes, as well as ongoing clinical concerns related to sports physical therapy. [0.5-1-0]

RUSS 445 (1) THE MANAGEMENT OF CHILDREN WITH DEVELOPMENTAL DISABILITIES.

Physical Therapy assessment and management of the child with a developmental disability. Emphasis on family involvement in goal-setting and treatment planning will be stressed. [1-0-0]

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) SCANDINAVIAN DRAMA AND FILM IN TRANSLATION. Traces the explosive development of a provincial theatre into one of the seminal forces of twentieth-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) 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 six-credit course, students may elect to take the first term only, "Introduction to Old Icelandic," for three 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. Prerequisite: All of CSED 402, CSED 420. Previous computer experience is also acceptable. [3-2]

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 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.

SCED 598 (3/12) C FIELD EXPERIENCES. For those in master's, doctoral and diploma programs.

SCED 599 (6/12) C MASTER'S THESIS.

SCED 699 (0) DOCTORAL THESIS.

SCIE — SCIENCE ONE FACULTY OF SCIENCE

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) KHICHRI: 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 or 300 is prerequisite to all third- and fourth-year courses, except SOCI 360, unless permission of the instructor is obtained.

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 300 (6) PRINCIPLES OF SOCIAL ORGANIZATION. The scope of this course is similar to that of Sociology 100, but it deals with fewer topics in greater depth. They may include, for example, socialization, stratification, leadership, deviance, social control, conformity, obedience to authority, legitimation of norms, as well as research methods and theoretical trends. Credit may be obtained for only one of SOCI 100 or 300. Prerequisite: Third-year or fourth-year standing.

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.

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: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300. 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. Equivalency: ANTH 315.

SOCI 328 (3/6) D SOCIOLOGICAL DATA ANALYSIS. The testing of sociological theories using quantitative data analysis techniques. Students will use microcomputer programs on numerical data from social surveys, experiments, and official statistics. Prerequisite: STAT 203 and one of SOCI 100, SOCI 300.

SOCI 330 (3/6) D THE STUDY OF POPULATION. Basic concepts, techniques, and theories in the analysis of population structure, change, and problems.

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: One of SOCI 100, SOCI 300.

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.

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: One of SOCI 100, SOCI 300.

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 communi-

ties. May also include examination of social aspects of resource development in the Third World. Prerequisite: One of SOCI 100, SOCI 300 or three 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: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

SOCI 380 (3) SOCIOLOGICAL METHODS: SURVEY RESEARCH. Questionnaire design, interviewing, sampling, and analysis of survey data. Prerequisite: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

SOCI 382 (3) SOCIOLOGICAL METHODS: ETHNOGRAPHIC RESEARCH. Methods for studying the procedures by which people in everyday life achieve accountable results. Prerequisite: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

SOCI 400 (3/6) D THEORETICAL AND METHODOLOGICAL ISSUES. Sociological theories and their relationship to methodological issues in the discipline. Prerequisite: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

SOCI 411 (3) APPLIED SOCIOLOGY. The application of sociology by individuals, groups, or organizations for purposes of understanding, management and control, and identifying reactions to both proposed changes and

consequences of change. Prerequisite: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300. 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: One of SOCI 100, SOCI 300.

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 one of SOCI 100, SOCI 300. Permission of the instructor is also acceptable. Equivalency: ANTH 416.

SOCI 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 and one of SOCI 100, SOCI 300. 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: One of SOCI 100, SOCI 300.

SOCI 425 (3/6) D URBAN SOCIOLOGY. Demographic, behavioural, and organizational aspects of urban structures and of urbanization in different societies and periods.

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: One of SOCI 100, SOCI 300.

SOCI 449 (6) HONOURS TUTORIAL. Requires the presentation of at least one research paper.

SOCI 460 (3/6) D SOCIOLOGY OF SPECIAL GEOGRAPHICAL AREAS. The description of areas to be covered will be announced each year. Prerequisite: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

SOCI 462 (3/6) D SOCIAL CHANGE. The interrelationships between modernization,

political thought, and social structure; comparative survey of current trends in the institutional foundations of organized human activities; theories of social change. Prerequisite: One of SOCI 100, SOCI 300.

SOCI 464 (3/6) D SOCIAL MOVEMENTS. A study of the sources, stages, and effects of social movements in developing and modernized societies. Prerequisite: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

SOCI 481 (3/6) D INTERACTION IN SMALL GROUPS. Analysis and discussion of small group research (laboratory and field studies, experimental and non-experimental work). Topics include status, leadership, group cohesiveness, coalition formation, interpersonal evaluations, and reactions to deviant behaviour. Prerequisite: SOCI 381 and one of SOCI 100, SOCI 300.

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: One of SOCI 100, SOCI 300.

SOCI 495 (3/6) D ADVANCED STUDIES IN SOCIOLOGY. An intensive examination of selected topics in Sociology. Consult the depart-

ment for this year's offerings. Prerequisite: One of SOCI 100, SOCI 300.

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, 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 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 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 AGRICULTURAL SCIENCES

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: Physics, chemistry, and biology at Grade 12 or first-year university level. [3-2; 3-2]

SOIL 500 (2) GRADUATE SEMINAR.

SOIL 503 (6) FOREST SOILS AND TREE NUTRITION. Offered in alternate years.

SOIL 504 (3/6) C TOPICS IN SOIL CHEMISTRY AND PEDOLOGY.

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 515 (3/6) C TOPICS IN SOIL FERTILITY. Discussions on special topics in soil fertility with emphasis on soil factors influencing nutrient availability and uptake. 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. Prerequisite: SOWK 336.

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 (3-9) 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 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 PRACTIS.

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 551 (3/6) D PROGRAM EVALUATION IN SOCIAL WORK. Prerequisite: SOWK 420.

SOWK 552 (3/6) D CLINICAL RESEARCH AND SOCIAL WORK. Prerequisite: SOWK 420.

SOWK 553 (3/6) D QUANTITATIVE METHODS IN SOCIAL WORK RESEARCH. Prerequisite: SOWK 420.

SOWK 554 (3/6) D QUALITATIVE METHODS IN SOCIAL WORK RESEARCH. Prerequisite: SOWK 420.

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 advisor.

SPAN 100 (6) BEGINNERS' SPANISH.

Grammar, composition, translation, oral practice. Not available for credit to students with Spanish 11.

SPAN 105 (12) INTENSIVE SPANISH. An accelerated course. Grammar, reading, composition, with special emphasis on the spoken language. This course is equivalent to SPAN 100 and 200. Not available for credit to students with Spanish 11. This course completes the Language Requirement for the Faculty of Arts.

SPAN 200 (6) SECOND-YEAR SPANISH.

Grammar, composition, translation, oral practice, readings. Not available for credit to students with Spanish 12. Prerequisite: SPAN 100. Spanish 11 and assessment based on a departmental placement test.

SPAN 205 (6) INTERMEDIATE SPANISH.

Conversation, translation, and readings. Students with 68% or better in SPAN 100 may take this course concurrently with SPAN 200. Prerequisite: One of SPAN 105, SPAN 200, Spanish 12.

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 300 (6) ADVANCED GRAMMAR AND COMPOSITION. Composition, translation, and oral practice. The course places special emphasis on pronunciation and syntax.

SPAN 305 (12) SPANISH LANGUAGE.

Intensive grammar study, translation, and reading of literary texts, for senior students with no previous knowledge of Spanish. Not open to first- or second-year students. Not available for credit to students with Spanish 11. This course completes the Language Requirement for the Faculty of Arts. Prerequisite: Proficiency in another Romance language or Latin.

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 320 (6) INTRODUCTION TO HISPANIC CIVILIZATION. History and culture of Spain and Hispanic America. In English.

SPAN 356 (6) SURVEY OF PENINSULAR LITERATURE.

SPAN 363 (6) SURVEY OF SPANISH-AMERICAN LITERATURE.

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 300.

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) WOMEN 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 (3/6) D 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 449 (6/12) C HONOURS ESSAY.

SPAN 450 (3) PENINSULAR AND LATIN-AMERICAN LANGUAGES AND LITERATURES. Selected topics. An introduction to some problems of dialectology and/or other Romance languages spoken in the Hispanic world.

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 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. 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 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.

SSED 441 (3) SPECIAL STUDY IN SUBJECT-MATTER FIELD: GEOGRAPHY. 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.

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.

SSED 598 (3/12) C FIELD EXPERIENCES. For those in 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. Credit will be given for only one of STAT 200 and 203. 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 in Faculty of Science. Credit will be given for only one of STAT 200 and 203. Students with MATH 100 or 102 or 104 should take STAT 200 rather than STAT 203. Prerequisite: Mathematics 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. Credit will be given for only one of STAT 241, 251 and MATH/STAT 302. 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. Credit will be given for only one of STAT 241, 251, and MATH/STAT 302. 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. Credit will be given for only one of STAT 300, 306 and COMM 411. Prerequisite: STAT 200. [3-1-0]

STAT 302 (3) INTRODUCTION TO PROBABILITY. Basic notions of probability, random variables, expectation and conditional expectation, limit theorems. Same as Math 302. Credit given for only one of STAT 241, 251 and MATH/STAT 302. 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: STAT 200 and one of MATH 302, STAT 302. A grade of 65% or greater in MATH 302. STAT 302 eliminates STAT 200 prerequisite. STAT 200 is recommended. [3-0-1]

STAT 306 (3) APPLIED REGRESSION ANALYSIS. Theory and application of regression analysis including residual analysis, diagnostics, transformations, model selection and checking, weighted least squares and nonlinear models. Additional topics may include inverse, robust, ridge and logistic regression. Credit will not be given for both STAT 300 and 306. Prerequisite: All of STAT 200, MATH 221. [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) STATISTIC LAB 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. [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: STAT 200 and MATH/STAT 302, or 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. Prerequisite: STAT 305. Corequisite: STAT 306. [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 321. 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 testing, 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 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 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 T², 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 as it has been developed 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. Prerequisite: Registration in Statistics M.Sc. program.

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.

THTR — THEATRE FACULTY OF ARTS

THTR 120 (3) INTRODUCTION TO THEATRE. Theory and practice of the theatrical arts; the development of Western theatre; reading of representative plays. The plays presented by Theatre at UBC during the term will be studied in this course; students must obtain season tickets.

THTR 150 (3) INTRODUCTION TO TECHNICAL THEATRE. Foundation study of the technical aspects of theatre production. Participation in departmental productions.

THTR 160 (3) THE ACTOR'S PROCESS: FROM IMPROVISATION TO TEXT. Entrance by successful interview. Prerequisite: THTR 120. Corequisite: THTR 120.

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 250 (6) TECHNICAL THEATRE 1A. The planning and execution of scenery, costumes, properties, lighting, and sound for the stage.

THTR 251 (6) TECHNICAL THEATRE 1B. The operation and running of scenery, costumes, lighting, and sound for the stage. Participation in departmental productions is required.

THTR 260 (3) SCENE STUDY I. Study of the actor's rehearsal process. Entrance by successful audition or interview. Prerequisite: THTR 160.

THTR 261 (6) BEGINNING B.F.A. ACTING. A study of the actor's basic technique through improvisation and textual analysis. The plays presented by Theatre at UBC during its Winter season will be studied in this course; students must obtain season tickets. Open only to B.F.A. (Acting) students. Audition required. Prerequisite: THTR 160. Corequisite: THTR 262.

THTR 262 (6) BEGINNING SPEECH AND MOVEMENT. Development of the student's awareness of the voice and body as communicative instruments, and the beginning of the technical control of both. Open only to B.F.A. (Acting) students. An audition is required. Corequisite: THTR 261.

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 305 (3) DESIGN GRAPHICS I. Graphic skills and principles involved in Design for Production: emphasis on technical drawings, plans, and basic maquettes. Prerequisite: THTR 120.

THTR 320 (3) HISTORY OF THEATRE TO 1500. The development of Western theatre to 1500.

THTR 321 (3) HISTORY OF THEATRE FROM 1500 TO 1700. The development of Western theatre from 1500-1700.

THTR 325 (3/6) D HISTORY OF CANADIAN THEATRE.

THTR 340 (3/6) D STUDIES IN NON-WESTERN THEATRE. Open to all students in third year and above.

THTR 345 (3) THEATRICAL PRODUCTION. Practical aspects of theatre production. The plays presented by Theatre at UBC will be studied in this course. Not open to Theatre B.F.A. students. Prerequisite: THTR 120.

THTR 350 (3) SCENERY. Scenery construction, rigging, and systems.

THTR 351 (3) STAGE LIGHTING. The principles and history of the optical, distribution, and control systems used in stage lighting.

THTR 352 (3) SCENE PAINTING. Media, techniques, and textural treatments used in scene painting.

THTR 353 (3) COSTUME. The construction and history of theatrical costume and accessories.

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 360 (3) SCENE STUDY II: CHARACTER AND STRUCTURE. Prerequisite: THTR 260.

THTR 361 (6) INTERMEDIATE B.F.A. ACTING. Character and styles in acting. To be taken in conjunction with THTR 362 and 370. Open only to B.F.A. (Acting) students. Prerequisite: All of THTR 261, THTR 262. Corequisite: All of THTR 362, THTR 370.

THTR 362 (6) INTERMEDIATE SPEECH AND MOVEMENT. Development of vocal and physical skills for the actor. Must be taken in conjunction with THTR 361 and 370. Open only to B.F.A. Acting students. Prerequisite: All of THTR 261, THTR 262. Corequisite: All of THTR 361, THTR 370.

THTR 369 (3) CREATING PERFORMANCE. Study and practice of processes and forms used to create theatre performances from scratch. Prerequisite: THTR 160. Corequisite: One 300-level theatre design, technical or acting course is required.

THTR 370 (6) TUTORIAL IN ACTING. Application of actor training to rehearsal and performance. Must be taken in conjunction with THTR 361 and 362. Open only to B.F.A. Acting students. Corequisite: All of THTR 361, THTR 362.

THTR 399 (1-3) D THEATRE PRACTICUM. Participation in various aspects of theatre productions, selected from one or more of production, design, technical, direction, dramaturgy and acting. Open only to Theatre Majors. Pass/Fail.

THTR 400 (6) DIRECTION AND STAGING. Prerequisite: All of THTR 260, THTR 354. Permission of the instructor is required.

THTR 405 (3) DESIGN GRAPHICS II. Graphic skills and principles involved in Design for Production: emphasis on painting, sketching, and rendering techniques. Prerequisite: THTR 305.

THTR 410 (3/6) D STUDIES 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: Six credits of THTR at the 300-level or above.

THTR 415 (3/6) D STUDIES IN WOMEN AND THEATRE/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.

THTR 420 (3) HISTORY OF THEATRE FROM 1700-1900. The development of Western theatre from 1700-1900.

THTR 421 (3) HISTORY OF THEATRE FROM 1900 TO THE PRESENT. The development of Western Theatre from 1900 to the present

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 448 (3/6) C DIRECTED STUDIES IN THEATRE THEORY AND PRACTICE.

THTR 449 (6) SUPERVISED STUDY AND HONOURS ESSAY.

THTR 450 (3) ADVANCED SCENERY. Technical direction; complex techniques and problems in scenery production. Prerequisite: THTR 350.

THTR 451 (3) ADVANCED STAGE LIGHTING. Aesthetic principles, organizational methods, and graphic skills involved in lighting design for the stage. Prerequisite: THTR 351.

THTR 452 (3) ADVANCED SCENE PAINTING. Scenic art; emphasis on trompe l'oeil, selected historic styles, and large-scale drops. Prerequisite: THTR 352.

THTR 453 (3) ADVANCED COSTUME. Complex problems and selected historical studies in theatrical costume design and construction. Prerequisite: THTR 353.

THTR 454 (3) ADVANCED STAGE MANAGEMENT. Complex problems in stage and production management: script analysis, crew supervision, management procedures. Prerequisite: THTR 354.

THTR 456 (3) COSTUME PATTERN DEVELOPMENT. Pattern development and cutting for costume for stage and screen using the methods of flat pattern and draping. Prerequisite: All of THTR 353, THTR 356, THTR 453. May be taken as corequisites.

THTR 459 (6) ADVANCED TECHNICAL PRACTICE. Directed advanced work in actual production. May involve production internships at other theatres. Open only to fourth-year Design/Technical B.F.A. students.

THTR 461 (6) ADVANCED B.F.A. ACTING. Performance and characterization in contemporary media and in leading and supporting roles in full-length plays. Open only to B.F.A. (Acting) students. Prerequisite: All of THTR 361, THTR 362. Corequisite: All of THTR 462, THTR 470.

THTR 462 (6) ADVANCED SPEECH AND MOVEMENT. Detailed examination of the actor's vocal and physical process for performance. Must be taken in conjunction with THTR 461 and 470. Open only to B.F.A. Acting students. Prerequisite: All of THTR 361, THTR 362, THTR 370. Corequisite: All of THTR 461, THTR 470.

THTR 470 (6) ADVANCED TUTORIAL IN ACTING. Application of actor training to rehearsal and performance. Must be taken in conjunction with THTR 461 and 462. Open only to B.F.A. Acting students. Prerequisite: All of THTR 361, THTR 362, THTR 370. Corequisite: All of THTR 461, THTR 462.

THTR 490 (6) PRODUCING THEATRE. Students select, research, stage, produce and perform a play. Prerequisite: One of THTR 310, THTR 320. Six other THTR credits at the 300 level or above.

THTR 499 (1-3) D ADVANCED THEATRE PRACTICUM. Participation in various aspects of theatre productions, selected from one or more of: theatre production, design, technical, direction, dramaturgy and acting. Open only to Theatre Majors. Pass/Fail.

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 320 (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.

TSED 598 (3/12) C FIELD EXPERIENCES. For those in 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.

URST — URBAN STUDIES FACULTY OF ARTS

URST 200 (6) CITIES. An introduction to urban patterns and processes from the perspectives of various disciplines. Guest lectures, discussion groups, field trips.

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.

VGRD — VISITING GRADUATE STUDENT GRADUATE STUDIES

VGRD 500 (0) .

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 FINA equivalent.

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. Formerly part of FINA 181.

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. Formerly part of FINA 181.

VISA 183 (3) STUDIO TWO. Introductory visual art, emphasizing basic colour, painting and other art media. Formerly part of FINA 181. Prerequisite: Either (a) VISA 180 or (b) VISA 182.

VISA 281 (3) DRAWING. Development of skills in drawing including life drawing. Introduction to the development of personal style and concepts. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 281.

VISA 282 (3) PAINTING. Development of concepts and ideas in painting. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 282.

VISA 283 (3) ETCHING. Introduction to etching (including hand-drawn intaglio) and relief printmaking. Digital and photographic imageries are included. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 283.

VISA 284 (3) SILKSCREEN. Introduction to screen printing techniques combining traditional processes with basic digital and photographic print procedures. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 284.

VISA 285 (3) SCULPTURE I. The use of malleable materials to explore ideas of sculptural volume, mass, and shape. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 285.

VISA 286 (3) SCULPTURE II. Composing with rigid or pre-formed materials. The application of machine technology to sculpture. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 286.

VISA 287 (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: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 287.

VISA 288 (3) SPECIAL STUDIES. Introduction to various aspects of contemporary studio practice. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 288.

VISA 289 (3) PHOTOGRAPHY. An introduction to photographic techniques and picture-making. Emphasis on camera and lighting techniques with some darkroom instruction. Prerequisite: Either (a) all of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 289.

VISA 290 (3) LITHOGRAPHY. Introduction to photo-lithographic printing incorporating hand-drawn, photo-copied, digital, and photographic imagery. Prerequisite: Either (a) one of VISA 180, VISA 182 and VISA 183; or (b) FINA 181. Six credits of art history taken as pre- or co-requisite. Equivalency: FINA 290.

VISA 380 (6) STUDIO THEORY. A seminar in problems in contemporary art practice and related theory. Preference given to Visual Arts students. Equivalency: FINA 380.

VISA 381 (6) INTERMEDIATE DRAWING. Drawing as a concentrated study including analytical drawing. The relationship of drawing to concept development will be stressed. Preference given to Visual Arts students. Prerequisite: One of VISA 281, FINA 281. Equivalency: FINA 381.

VISA 382 (6) INTERMEDIATE PAINTING. Further development of personal style in painting. Integration of painting practice and concept will be encouraged. Preference given to Visual Arts students. Prerequisite: One of VISA 282, FINA 282. Equivalency: FINA 382.

VISA 383 (6) INTERMEDIATE PRINTMAKING. Intermediate Printmaking Traditional and non-traditional printmaking in a variety of media and formats including photographic and digital imagery. Discussion of contemporary print culture. Students will participate in a final exhibition. Preference given to Visual Arts Students. Prerequisite: One of VISA 283, VISA 284, VISA 290, FINA 283, FINA 284, FINA 290. Equivalency: FINA 383.

VISA 384 (6) INTERMEDIATE SCULPTURE. Investigations of three-dimensional form through both plastic and structural means. Wood, metal, and other materials will be utilized. Preference given to Visual Arts students. Prerequisite: One of VISA 285, VISA 286, FINA 285, FINA 286. Equivalency: FINA 384.

VISA 385 (6) SPECIAL STUDIES. Intermediate tutorial. Preference given to Visual Arts students. Prerequisite: 1 of VISA/FINA 281-290. Equivalency: FINA 385.

VISA 386 (6) INTERMEDIATE PHOTOGRAPHY. An investigation of approaches to photography and its meaning in the context of contemporary art. Preference given to Visual Arts students. Prerequisite: One of VISA 289, FINA 289. Equivalency: FINA 386.

VISA 387 (6) INTERMEDIATE DIGITAL ARTS. Topics in digital media and visual culture including applications. Prerequisite: One of VISA 287, FINA 287. Equivalency: FINA 387.

VISA 480 (6) ADVANCED SEMINAR. Readings in art theory and criticism. Prerequisite: One of VISA 380, FINA 380. Equivalency: FINA 480.

VISA 481 (6) ADVANCED DRAWING AND PAINTING. Advanced Drawing and Painting Studies in interdisciplinary approaches to drawing and painting and other related media. Prerequisite: One of VISA 381, VISA 382, FINA 381, FINA 382. Equivalency: FINA 481.

VISA 482 (6) ADVANCED PRINT, SCULPTURE, AND INSTALLATION. Studies in contemporary trends in studio practice. Interdisciplinary work will be pursued along with more traditional approaches. Prerequisite: One of VISA 383, VISA 384, FINA 383, FINA 384. Equivalency: FINA 482.

VISA 483 (6) ADVANCED PHOTOGRAPHY. Advanced work involving photography as an artistic medium. Interdisciplinary connections to other media will be encouraged. Prerequisite: One of VISA 386, FINA 386. Equivalency: FINA 483.

VISA 484 (6) ADVANCED TUTORIAL IN STUDIO. Advanced work in contemporary and historical aspects of studio practice. Prerequisite: 1 of VISA/FINA 381-386. Equivalency: FINA 484.

VISA 487 (6) ADVANCED DIGITAL ARTS. Advanced photography, digital and computer-based imagery. Prerequisite: One of VISA 387, FINA 387. Equivalency: FINA 487.

VISA 580 (0) MAJOR ESSAY. M.F.A. only. Equivalency: FINA 580.

VISA 581 (12) STUDIO V. Special course for students enrolled in the first year of the M.F.A. program. Equivalency: FINA 581.

VISA 582 (12) STUDIO VI. Special course for students enrolled in the second year of the M.F.A. program. Equivalency: FINA 582.

VRHC — VOCATIONAL REHABILITATION COUNSELLING GRADUATE STUDIES

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 (8) INTERNSHIP.

VRHC 510 (8) VOCATIONAL EVALUATION INTERNSHIP.

VRHC 511 (3) CASE AND DISABILITY MANAGEMENT. Prerequisite: All of VRHC501(3), VRHC502(3), VRHC511(3).

VRHC 512 (3) CASE AND DISABILITY MANAGEMENT. Prerequisite: All of VRHC501(3), VRHC502(3), VRHC511(3).

VRHC 590 (0) MAJOR PAPER.

VRHC 599 (6-12) THESIS.

VURS — VISITING UNDERGRADUATE RESEARCH STUDENTS FACULTY OF APPLIED SCIENCE

VURS 499 (0) VISITING UNDERGRADUATE STUDENTS.

WMST — WOMEN'S STUDIES AND GENDER RELATIONS FACULTY OF ARTS

For other acceptable courses, see "Women's Studies" in the Arts section.

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. Not offered every year.

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 322 (6) RESEARCHING BODIES, FAMILIES AND NATION-MAKING. Methods of deconstructing "truth," "facts," and objectivity with emphasis on constructing new research practices for field work. Prerequisite: WMST 100.

WMST 324 (6) FEMINIST THEORIES OF REPRESENTATION AND DIFFERENCE. Historical and current examination of feminist scholarship with emphasis on languages and processes of representation and the construction of difference in cultural discourses and institutions. Prerequisite: WMST 100.

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. 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 422 (3) ADVANCED RESEARCH SEMINAR IN WOMEN'S STUDIES. Critical theories, methodologies, ethics and practices appropriate for advanced feminist research. Prerequisite: WMST 100 and one of WMST 322, WMST 324.

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: One of WMST 322, WMST 324. 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) PHD 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 241 (3) PROBLEM SOLVING. A practical introduction to business communication, computer and problem solving skills. Students will exercise these skills using problem cases taken from industrial applications. Prerequisite: One of MATH 100, MATH 102, MATH 104, MATH 120. [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 (3) WOOD PRODUCTS CHEMISTRY I. Introduction to the chemistry relating to wood and wood products. Chemistry of lignin, cellulose, hemicelluloses, extractives, and biological degradation of lignocelluloses. Prerequisite: WOOD 280 and one of CHEM 113, CHEM 123. [3-2]

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-DRYING AND PRESERVATION. An introduction to wood-moisture relationships, transport phenomena, acoustical and electrical properties of wood, wood drying methods and wood pressure impregnation procedures. Prerequisite: WOOD 280. [3-2]

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. Methods of analyzing wood processing facilities including work process analysis, time and motion studies, capacity determination and coordination, and plant optimization. Prerequisite: All of WOOD 242, WOOD 243. [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: WOOD 242. [3-1]

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 in order to cost jobs and evaluate equipment purchases in an industrial operation. Introduction to project management. 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) WOOD PRODUCTS MARKETING. Industry structure, competitive environment and strategic options of major segments of the North American wood products industry; examination of major North American companies. Prerequisite: WOOD 243. [3-2]

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 (2) 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: All of WOOD 273, WOOD 290. [2-2]

WOOD 465 (3) WOOD INDUSTRY BUSINESS MANAGEMENT. Business management concepts common in the forest products industry including marketing, customer research, product development and design. [3-0-1]

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 (1) WOOD PRODUCTS MANUFACTURING. Manufacturing processes for major forest products. Prerequisite: Fourth year standing in the B.S.F. program. [1-0-0]

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. Corequisite: WOOD 490. [3-1-0]

WOOD 487 (3) 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. Prerequisite: WOOD 273. [2-3]

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) MACHINE AND PLANT OPTIMIZATION. Customize machine optimization systems to meet operational specifications, including scanning and other systems used in primary and secondary processing. Develop dynamic programming routines. [3-3]

WOOD 493 (3) PROJECT IN PROGRAM MAJOR. A major project in the student's major field on a topic developed and approved by the faculty project supervisor.

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.

**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.

2003-04

Appendix I: Enrolment 2002/03

The following figures reflect enrolment as of November 1, 2002 including Distance Education and Technology students.

FACULTY OF AGRICULTURAL SCIENCES

| | M | F | Total |
|-----------------------|----------|-----------|-----------|
| Home Economics | | | |
| First Year | 0 | 0 | 0 |
| Second Year | 0 | 16 | 16 |
| Third Year | 1 | 6 | 7 |
| Fourth Year | 2 | 19 | 21 |
| Total | 3 | 41 | 44 |

Landscape Architecture

| | M | F | Total |
|--------------|----------|----------|----------|
| Fourth Year | 0 | 0 | 0 |
| Total | 0 | 0 | 0 |

Agroecology

| | M | F | Total |
|------------------------|-----------|------------|------------|
| First Year | 50 | 50 | 100 |
| Second Year | 26 | 34 | 60 |
| Third Year | 7 | 19 | 26 |
| Fourth Year | 16 | 24 | 40 |
| Away on Exchange (EAP) | 0 | 2 | 2 |
| Total | 99 | 129 | 228 |

Agriculture

| | M | F | Total |
|--------------|----------|----------|----------|
| Third Year | 0 | 1 | 1 |
| Fourth Year | 3 | 1 | 4 |
| Total | 3 | 2 | 5 |

Dietetics

| | M | F | Total |
|--------------|----------|----------|----------|
| Fourth Year | 0 | 0 | 0 |
| Total | 0 | 0 | 0 |

Food, Nutrition and Health

| | M | F | Total |
|------------------------|-----------|------------|------------|
| First Year | 41 | 154 | 195 |
| Second Year | 18 | 135 | 153 |
| Third Year | 6 | 74 | 80 |
| Fourth Year | 18 | 71 | 89 |
| Away on Exchange (EAP) | 0 | 1 | 1 |
| Total | 83 | 435 | 518 |

Global Resource Systems

| | M | F | Total |
|------------------------|---|----|-------|
| Second Year | 6 | 25 | 31 |
| Third Year | 2 | 12 | 14 |
| Fourth Year | 3 | 7 | 10 |
| Away on Exchange (EAP) | 2 | 6 | 8 |

| | M | F | Total |
|-------------------------|------------|------------|------------|
| Total | 13 | 50 | 63 |
| Total in Faculty | 201 | 657 | 858 |

FACULTY OF APPLIED SCIENCE

| | M | F | Total |
|------------------------|--------------|------------|--------------|
| First Year | 465 | 120 | 585 |
| Second Year | 551 | 105 | 656 |
| Third Year | 598 | 130 | 728 |
| Fourth Year | 477 | 120 | 597 |
| Fifth Year | 35 | 10 | 45 |
| Away on Exchange (EAP) | 4 | 1 | 5 |
| Total | 2,130 | 486 | 2,616 |

School of Nursing

| | M | F | Total |
|-------------------------|--------------|--------------|--------------|
| First Year | 1 | 52 | 53 |
| Second Year | 4 | 63 | 67 |
| Third Year | 11 | 169 | 180 |
| Fourth Year | 8 | 239 | 247 |
| Away on Exchange (EAP) | 0 | 0 | 0 |
| Total | 24 | 523 | 547 |
| Total in Faculty | 2,154 | 1,009 | 3,163 |

FACULTY OF ARTS

| | M | F | Total |
|------------------------|--------------|--------------|---------------|
| Arts | | | |
| First Year | 1,073 | 1,637 | 2,710 |
| Second Year | 839 | 1,516 | 2,355 |
| Third Year | 1,009 | 1,905 | 2,914 |
| Fourth Year | 818 | 1,566 | 2,384 |
| Away on Exchange (EAP) | 39 | 103 | 142 |
| Total | 3,778 | 6,727 | 10,505 |

Fine Arts

| | M | F | Total |
|------------------------|-----------|------------|------------|
| Second Year | 4 | 13 | 17 |
| Third Year | 19 | 34 | 53 |
| Fourth Year | 12 | 58 | 70 |
| Away on Exchange (EAP) | 0 | 2 | 2 |
| Total | 35 | 107 | 142 |

School of Music

| | M | F | Total |
|-------------|----|----|-------|
| First Year | 15 | 27 | 42 |
| Second Year | 15 | 39 | 54 |
| Third Year | 35 | 45 | 80 |

| | M | F | Total |
|------------------------|------------|------------|------------|
| Fourth Year | 38 | 56 | 94 |
| Away on Exchange (EAP) | 1 | 0 | 1 |
| Total | 104 | 167 | 271 |

School of Social Work and Family Studies

| | M | F | Total |
|--------------------|-----------|-----------|-----------|
| Social Work | | | |
| First Year | 4 | 45 | 49 |
| Second Year | 7 | 43 | 50 |
| Total | 11 | 88 | 99 |

Diploma Programs

| | M | F | Total |
|---|--------------|--------------|---------------|
| Applied Creative Non-fiction | 0 | 2 | 2 |
| Applied Linguistics | 0 | 1 | 1 |
| Art History | 6 | 15 | 21 |
| Collaborative Piano Studies | 0 | 4 | 4 |
| Film Studies | 2 | 0 | 2 |
| Linguistics | 0 | 3 | 3 |
| Voice | 0 | 1 | 1 |
| Certificate of Advanced Study | 0 | 1 | 1 |
| Certificate in Theatre (Advanced Tech.) | 0 | 1 | 1 |
| Total Diplomas | 8 | 28 | 36 |
| Total in Faculty | 3,936 | 7,117 | 11,053 |

FACULTY OF COMMERCE AND BUSINESS ADMINISTRATION

| | M | F | Total |
|---------------------------|------------|------------|--------------|
| First Year | 125 | 154 | 279 |
| Second Year | 188 | 243 | 431 |
| Third Year | 253 | 267 | 520 |
| Fourth Year | 236 | 310 | 546 |
| Away on Exchange (EAP) | 0 | 0 | 0 |
| Away on Commerce Exchange | 3 | 2 | 5 |
| Total | 805 | 976 | 1,781 |

Diploma Programs

| | M | F | Total |
|---------------------------------|--------------|--------------|--------------|
| Diploma in Accounting | 80 | 87 | 167 |
| Diploma in Urban Land Economics | 383 | 229 | 612 |
| Total in Faculty | 1,268 | 1,292 | 2,560 |

FACULTY OF DENTISTRY

| | M | F | Total |
|-------------------------|------------|------------|------------|
| Dentistry | | | |
| First Year | 15 | 25 | 40 |
| Second Year | 29 | 13 | 42 |
| Third Year | 29 | 22 | 51 |
| Fourth Year | 27 | 21 | 48 |
| Total | 100 | 81 | 181 |
| Dental Science | | | |
| First Year | 3 | 9 | 12 |
| Second Year | 0 | 0 | 0 |
| Third Year | 1 | 2 | 3 |
| Fourth Year | 0 | 19 | 19 |
| Total | 4 | 30 | 34 |
| Dental Residents | 8 | 4 | 12 |
| Total in Faculty | 112 | 115 | 227 |

FACULTY OF EDUCATION

| | M | F | Total |
|---|------------|--------------|--------------|
| Elementary | | | |
| First Year | 94 | 403 | 497 |
| Second Year | 27 | 100 | 127 |
| Third Year | 2 | 6 | 8 |
| Fourth Year | 6 | 11 | 17 |
| Fifth Year | 1 | 8 | 9 |
| Total | 130 | 528 | 658 |
| Middle | | | |
| First Year | 35 | 39 | 74 |
| Total | 35 | 39 | 74 |
| Secondary | | | |
| First Year | 195 | 277 | 472 |
| Second Year | 6 | 7 | 13 |
| Third Year | 0 | 0 | 0 |
| Fourth Year | 0 | 1 | 1 |
| Total | 201 | 285 | 486 |
| Diploma in Education | 79 | 391 | 470 |
| Certificate in Tech-Based Distr. Learning | 14 | 10 | 24 |
| Certificate in Tech-Based Learning for Schools | 0 | 1 | 1 |
| School of Human Kinetics | | | |
| First Year | 33 | 78 | 111 |
| Second Year | 57 | 84 | 141 |
| Third Year | 124 | 123 | 247 |
| Fourth Year | 138 | 153 | 291 |
| Away on Exchange (EAP) | 1 | 0 | 1 |
| Total | 353 | 438 | 791 |
| Total in Faculty | 812 | 1,692 | 2,504 |

FACULTY OF FORESTRY

| | M | F | Total |
|--|------------|------------|------------|
| Science (Forestry) and Science in Forestry | | | |
| First Year | 85 | 43 | 128 |
| Second Year | 30 | 8 | 38 |
| Third Year | 14 | 8 | 22 |
| Fourth Year | 44 | 22 | 66 |
| Away on Exchange (EAP) | 1 | 0 | 1 |
| Total | 174 | 81 | 255 |
| Natural Resource Conservation | | | |
| First Year | 23 | 17 | 40 |
| Second Year | 9 | 10 | 19 |
| Third Year | 5 | 10 | 15 |
| Fourth Year | 6 | 14 | 20 |
| Away on Exchange (EAP) | 1 | 0 | 1 |
| Total | 44 | 51 | 95 |
| Wood Products Processing | | | |
| First Year | 31 | 5 | 36 |
| Second Year | 9 | 4 | 13 |
| Third Year | 8 | 2 | 10 |
| Fourth Year | 29 | 6 | 35 |
| Total | 77 | 17 | 94 |
| Diploma in Forestry (Advanced Silviculture) | 11 | 4 | 15 |
| Diploma in Forest Engineering | 0 | 0 | 0 |
| Total in Faculty | 306 | 153 | 459 |

FACULTY OF GRADUATE STUDIES

| | M | F | Total |
|--------------------------------------|--------------|--------------|--------------|
| Ph.D. | | | |
| Agricultural Sciences | 25 | 37 | 62 |
| Applied Science | 210 | 81 | 291 |
| Arts | 204 | 251 | 455 |
| Combined Ph.D./M.D. | 7 | 4 | 11 |
| Commerce and Business Administration | 48 | 20 | 68 |
| Dentistry | 3 | 3 | 6 |
| Education | 100 | 241 | 341 |
| Forestry | 46 | 29 | 75 |
| Graduate Studies | 81 | 97 | 178 |
| Law | 9 | 5 | 14 |
| Medicine | 108 | 107 | 215 |
| Pharmaceutical Sciences | 12 | 5 | 17 |
| Science | 286 | 148 | 434 |
| Away on Exchange (EAP) | 0 | 1 | 1 |
| Total | 1,139 | 1,029 | 2,168 |
| Ed.D. | 17 | 22 | 39 |
| Pharm.D. | 3 | 9 | 12 |
| D.M.A. | 12 | 17 | 29 |

| | M | F | Total |
|--------------------------------------|------------|------------|--------------|
| M.A. | | | |
| Arts | 159 | 316 | 475 |
| Community and Regional Planning | 28 | 54 | 82 |
| Education | 75 | 256 | 331 |
| Graduate Studies | 10 | 44 | 54 |
| Science | 0 | 1 | 1 |
| Total | 272 | 671 | 943 |
| M.Sc. | | | |
| Agricultural Sciences | 24 | 65 | 89 |
| Applied Science | 1 | 2 | 3 |
| Arts | 10 | 8 | 18 |
| Commerce and Business Administration | 54 | 31 | 85 |
| Community and Regional Planning | 13 | 18 | 31 |
| Dentistry | 7 | 11 | 18 |
| Education | 11 | 12 | 23 |
| Forestry | 47 | 52 | 99 |
| Graduate Studies | 52 | 73 | 125 |
| Medicine | 85 | 172 | 257 |
| Pharmaceutical Sciences | 13 | 8 | 21 |
| Science | 249 | 161 | 410 |
| Total | 566 | 613 | 1,179 |
| LL.M. | 23 | 31 | 54 |
| M.A.A.P. | 12 | 24 | 36 |
| M.A.Sc. | 323 | 113 | 436 |
| M.A.S.A. | 5 | 13 | 18 |
| M.A.S.L.A. | 1 | 1 | 2 |
| M.A.S. | 6 | 25 | 31 |
| M.A.S./M.L.I.S. | 4 | 12 | 16 |
| M.Arch. | 85 | 67 | 152 |
| M.B.A. | 138 | 78 | 216 |
| I.M.B.A. | 20 | 3 | 23 |
| M.B.A/LL.B. | 2 | 0 | 2 |
| M.Ed. | 183 | 498 | 681 |
| M.Eng. | 107 | 28 | 135 |
| M.E.T. | 17 | 21 | 38 |
| M.Eng./B.A.Sc. | 6 | 1 | 7 |
| M.F. | 6 | 1 | 7 |
| M.F.A. | 26 | 45 | 71 |
| M.H.A. | 22 | 34 | 56 |
| M.H.K. | 12 | 6 | 18 |
| M.H.Sc. | 20 | 16 | 36 |
| M.J. | 19 | 22 | 41 |
| M.L.A. | 13 | 49 | 62 |
| M.L.I.S. | 26 | 113 | 139 |
| M.Mus. | 15 | 38 | 53 |
| M.Sc./Dip. Periodontics | 4 | 6 | 10 |
| M.S.N. | 12 | 165 | 177 |
| M.S.S. | 27 | 8 | 35 |

| | M | F | Total |
|-------------------------|--------------|--------------|--------------|
| M.S.W. | 21 | 103 | 124 |
| Total in Faculty | 3,164 | 3,882 | 7,046 |

FACULTY OF LAW

| | M | F | Total |
|-------------------------|------------|------------|------------|
| First Year | 86 | 120 | 206 |
| Second Year | 95 | 113 | 208 |
| Third Year | 81 | 119 | 200 |
| Away on Exchange (EAP) | 0 | 0 | 0 |
| Total in Faculty | 262 | 352 | 614 |

FACULTY OF MEDICINE

| | M | F | Total |
|--------------|------------|------------|------------|
| First Year | 57 | 71 | 128 |
| Second Year | 52 | 75 | 127 |
| Third Year | 53 | 68 | 121 |
| Fourth Year | 41 | 73 | 114 |
| Total | 203 | 287 | 490 |

| | | | |
|--------------------------|-----|-----|-----|
| Medical Residents | 379 | 286 | 665 |
|--------------------------|-----|-----|-----|

| | | | |
|---------------------|----|----|----|
| Post Degree Trainee | 37 | 24 | 61 |
|---------------------|----|----|----|

Medical Laboratory Science

| | | | |
|--------------|-----------|-----------|-----------|
| Third Year | 4 | 13 | 17 |
| Fourth Year | 11 | 12 | 23 |
| Total | 15 | 25 | 40 |

Bachelor of Midwifery

| | | | |
|--------------|----------|-----------|-----------|
| First Year | 0 | 10 | 10 |
| Second Year | 0 | 10 | 10 |
| Total | 0 | 20 | 20 |

School of Rehabilitation Sciences

| | | | |
|-------------------------|------------|------------|--------------|
| Second Year | 15 | 57 | 72 |
| Third Year | 12 | 59 | 71 |
| Fourth Year | 12 | 57 | 69 |
| Away on Exchange (EAP) | 0 | 2 | 2 |
| Total | 39 | 175 | 214 |
| Total in Faculty | 673 | 817 | 1,490 |

FACULTY OF PHARMACEUTICAL SCIENCES

| | M | F | Total |
|---------------------------|------------|------------|------------|
| First Year | 52 | 92 | 144 |
| Second Year | 45 | 100 | 145 |
| Third Year | 41 | 93 | 134 |
| Fourth Year | 54 | 75 | 129 |
| Total | 192 | 360 | 552 |
| Pharmacy Residents | 1 | 13 | 14 |
| Total in Faculty | 193 | 373 | 566 |

FACULTY OF SCIENCE

| | M | F | Total |
|------------------------|--------------|--------------|--------------|
| First Year | 641 | 888 | 1,529 |
| Second Year | 811 | 881 | 1,692 |
| Third Year | 734 | 794 | 1,528 |
| Fourth Year | 873 | 829 | 1,702 |
| Away on Exchange (EAP) | 6 | 12 | 18 |
| Total | 3,065 | 3,404 | 6,469 |

Diploma Programs

| | | | |
|-----------------------------|--------------|--------------|--------------|
| Diploma in Computer Science | 18 | 23 | 41 |
| Diploma in Meteorology | 0 | 1 | 1 |
| Total in Faculty | 3,083 | 3,428 | 6,511 |

OTHER

| | M | F | Total |
|--------------------------------|---------------|---------------|---------------|
| Concurrent Studies | 6 | 1 | 7 |
| Exchange Programs | | | |
| CSAE (Commerce Study Abroad) | 18 | 24 | 42 |
| SEP (Student Exchange Program) | 136 | 216 | 352 |
| CANEX | 0 | 2 | 2 |
| Total in Exchange | 154 | 242 | 396 |
| Auditor | 0 | 0 | 0 |
| Pre-Degree Aboriginal | 0 | 1 | 1 |
| Qualifying Year | 6 | 5 | 11 |
| Transition School | 20 | 11 | 31 |
| Unclassified | 505 | 964 | 1,469 |
| Visiting | 189 | 266 | 455 |
| Total in Other | 880 | 1,490 | 2,370 |
| Total Winter Session | 17,044 | 22,377 | 39,421 |
| Summer Session 2002 | 8,523 | 11,790 | 20,313 |
| Grand Total 2002/03 | 25,567 | 34,167 | 59,734 |

2003-04

Appendix II: Degrees & Diplomas 2002

| Degrees Conferred | Spring | Fall | Total | Degrees Conferred | Spring | Fall | Total |
|---------------------|--------|------|-------|--------------------------------------|---------------|--------------|--------------|
| Ph.D. | 150 | 141 | 291 | B.F.A. | 52 | 13 | 65 |
| D.M.A. | 4 | 1 | 5 | B.H.E. | 21 | 7 | 28 |
| Ed.D. | 7 | 1 | 8 | B.H.K. | 145 | 34 | 179 |
| Pharm.D. | 6 | 0 | 6 | LL.B. | 166 | 35 | 201 |
| M.A.S.L.A. | 1 | 1 | 2 | LL.B./M.B.A. | 1 | 0 | 1 |
| M.A.S.A. | 3 | 0 | 3 | M.D. | 116 | 1 | 117 |
| M.A.Sc. | 56 | 48 | 104 | B.M.L.Sc. | 9 | 1 | 10 |
| M.A. | 105 | 138 | 243 | B.Mus. | 48 | 6 | 54 |
| M.A.A.P. | 2 | 8 | 10 | B.S.F. | 28 | 11 | 39 |
| M.A.(Plan) | 12 | 7 | 19 | B.S.N. | 132 | 28 | 160 |
| M.Arch. | 34 | 10 | 44 | B.Sc. | 1,016 | 107 | 1,123 |
| M.A.S. | 7 | 1 | 8 | B.Sc.(Agr.) | 21 | 2 | 23 |
| M.A.S.L.I.S. | 4 | 1 | 5 | B.Sc.(Agroecology) | 15 | 3 | 18 |
| M.B.A. | 102 | 1 | 103 | B.Sc.(Dietet.) | 6 | 0 | 6 |
| M.Ed. | 135 | 143 | 278 | B.Sc.(Food, Nutrition & Health) | 57 | 8 | 65 |
| M.Eng. | 24 | 14 | 38 | B.Sc.(For.) | 6 | 0 | 6 |
| M.F.A. | 12 | 16 | 28 | B.Sc.(Global Resources) | 3 | 2 | 5 |
| M.F. | 0 | 2 | 2 | B.Sc.(Natural Resource Conservation) | 18 | 3 | 21 |
| M.H.A. | 5 | 8 | 13 | B.Sc.(O.T.) | 36 | 2 | 38 |
| M.H.K. | 3 | 3 | 6 | B.Sc.(Pharm.) | 140 | 1 | 141 |
| M.H.Sc. | 4 | 10 | 14 | B.Sc.(P.T.) | 32 | 0 | 32 |
| M.J. | 12 | 0 | 12 | B.Sc.(Wood Products) | 10 | 0 | 10 |
| M.L.A. | 3 | 3 | 6 | B.S.W. | 29 | 4 | 33 |
| LL.M. | 10 | 8 | 18 | TOTAL | 5,623 | 2,312 | 7,935 |
| M.L.I.S. | 29 | 7 | 36 | Diplomas Granted | Spring | Fall | Total |
| M.Mus. | 16 | 4 | 20 | Accounting | 6 | 32 | 38 |
| M.Sc. | 145 | 118 | 263 | Art History | 4 | 0 | 4 |
| M.Sc.(Bus. Admin.) | 14 | 10 | 24 | Computer Science | 2 | 2 | 4 |
| M.Sc.(Plan) | 3 | 4 | 7 | Education | 72 | 83 | 155 |
| M.Sc./DPDT | | | | Forest Engineering | 1 | 0 | 1 |
| M.S.N. | 19 | 14 | 33 | Forestry Advanced Silviculture | 12 | 1 | 13 |
| M.S.W. | 20 | 46 | 66 | Linguistics | 2 | 0 | 2 |
| M.S.S. | 28 | 0 | 28 | Meteorology | 1 | 1 | 2 |
| B.A.Sc. | 437 | 28 | 465 | Piano Studies | 2 | 0 | 2 |
| B.A.Sc./M.Eng. | 10 | 0 | 10 | Urban Land Economics | 7 | 1 | 8 |
| B.A. | 1,450 | 355 | 1,805 | TOTAL | 103 | 88 | 191 |
| B.Com. | 456 | 26 | 482 | | | | |
| D.M.D. | 49 | 0 | 49 | | | | |
| B.D.Sc. | 0 | 2 | 2 | | | | |
| B.Ed.(Elementary) | 112 | 369 | 481 | | | | |
| B.Ed.(Middle Years) | 2 | 52 | 54 | | | | |
| B.Ed.(Secondary) | 25 | 444 | 469 | | | | |

2003-04

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)

DEANS EMERITI

D. R. Birch, Vice-President Emeritus, Academic and Provost (1999)
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)

DIRECTOR EMERITUS

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); **I. McT. Cowan**, Dean Emeritus of Graduate Studies (1975); **G. F. Curtis**, Q. C., Dean Emeritus of Law (1971); **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); **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

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); **P. Thom**, Program Director Emerita (1990); **K. C. Woodsworth**, Program Director Emeritus (1990)

LIBRARIANS EMERITI

F. Bailey, Librarian Emerita (1987); **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. 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); **M. Dutton**, Librarian Emerita (1985); **M. J. Dwyer**, Librarian Emerita (1985); **S. Dykstra**, General Librarian Emerita (2000); **G. Elliston**, Administrative Librarian Emeritus (1994); **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); **J. C. Gray**, Librarian Emeritus (1978); **M. E. Guarnaschelli**, General Librarian Emerita; **R. M. Hamilton**, Assistant Librarian Emeritus (1977); **W. Harrington**, Librarian Emeritus (1981); **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); **S. Johnson**, Librarian Emeritus (1985); **L. Karpinsky**, General Librarian Emeritus (1996); **R. G. Kaye**, Librarian Emeritus (1989); **D. Kent**, General Librarian Emerita (1996); **R. Lanning**, Librarian Emeritus (1979); **M. Leighton**, Librarian Emerita (1985); **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); **D. McInnes**, University Librarian Emeritus (1991); **J. D. McIntosh**, General Librarian Emeritus (2001); **E. Mercer**, Assistant Librarian Emerita (1988); **A. M. Nelson**, Administrative Librarian Emerita (1991); **E. Neufeld**, General Librarian Emeritus (1991); **T.-K. Ng**, Librarian Emerita (1987); **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); **A. E. Rowley**, General Librarian Emerita (1999); **J. Selby**, Librarian Emerita (1987); **J. Sharpe**, General Librarian Emeritus (1994); **D. Shields**, Librarian Emerita (1985); **T. J. Shorthouse**, Administrative Librarian Emeritus (1998); **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); **M. Wilson**, Librarian Emerita (1989); **E. Wollaston**, Administrative Librarian Emerita (1999); **A. Yandle**, Administrative Librarian Emerita (1992)

PROFESSORS EMERITI

N. Abu-Zahra, Assistant Professor Emerita of Anthropology and Sociology (2002); **M. E. Ace**, Associate Professor Emeritus of Commerce and Business Administration (2000); **L. Adamovich**, Professor Emeritus of Forestry (1984); **R. A. Adams**, Professor Emeritus of Mathematics (2000); **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); **B. M. Alfred**, Associate Professor Emeritus of Anthropology and Sociology (1998); **J. A. B. Allan**, Professor Emeritus of Counselling Psychology (1997); **B. Allardyce**, 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); **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); **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); **G. J. Ankenman**, Clinical Professor Emeritus of Surgery (1993); **A. Anzarut**, Clinical Professor Emeritus of Medicine (2000); **D.A. Applegarth**, Professor Emeritus of Paediatrics (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 Paediatrics (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); **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); **B. Z. Ayward**, 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); **R. J. Bandoni**, Professor Emeritus of Botany (1989); **D. Bankson**, Professor Emeritus of Creative Writing (1985); **R. Barman**, Professor Emeritus of History (2002); **J. Barnard**, Professor Emeritus of Physics (1994); **W. Barnes**, Associate Professor Emeritus of Earth & Ocean Sciences (1999); **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); **D. M. Beach**, Associate Professor Emeritus of English (1997); **R. M. Beames**, Professor Emeritus of Animal Science (1997); **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); **L. P. Belluce**, Associate Professor Emeritus of Mathematics (1988); **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); **F. G. Berry**, Senior Instructor Emeritus of Electrical Engineering (1993); **J. C. Berry**, Professor Emeritus of Animal Science (1970); **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. Bezeredi**, Clinical Professor Emeritus of Psychiatry (1997); **W. F. Bie**, Clinical Professor Emeritus of Obstetrics and Gynaecology (1982); **E. A. Bird**, Associate Professor Emeritus of French (1981); **A. G. Birkett**, Professor Emerita of Education (1974); **T. Bisalputra**, Professor Emeritus of Botany (1989); **J. E. Bismanis**, Professor Emeritus of Medical Microbiology (1977); **C. Blackorby**, Professor Emeritus of Economics (2002); **R. E. Blaine**, Associate Professor Emeritus of Commerce and Business Administration (1997); **N. Blair**, Clinical Professor Emeritus of Surgery (1987); **R. Blair**, Professor Emeritus of Animal Science (1998); **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); **T. E. Blom**, Associate Professor Emeritus of English (1997); **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); **W. B. Boldt**, Professor Emeritus of Educational Psychology and Special Education (1993); **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. Boulby**, Professor Emeritus of Germanic Studies (1988); **C. B. Bourne**, Professor Emeritus of Law (1986); **C. P. Bouygues**, Professor Emeritus of French (1994); **F. Bowers**, Associate Professor Emeritus of English (1989); **J. Boyd**, Assistant Professor Emeritus of Economics (2002); **M. Boyd**, Professor Emerita of Oral Health Sciences (2001); **R. W. Boyd**, Clinical Associate Professor Emeritus of Diagnostic Radiology (1976); **D. A. Boyes**, Clinical Professor Emeritus of Obstetrics and Gynaecology (1990); **S. M. Boyle**, Professor Emerita of Education (1971); **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); **I. Brenzinger**, Senior Instructor Emerita of Linguistics (1995); **V. C. Brink**, Professor Emeritus of Plant Science (1978); **C. Brion**, Professor Emeritus of Chemistry (2002); **J. Brockington**, Associate Professor Emeritus of Theatre (1994); **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); **S. R. Brown**, Professor Emeritus of Physical Education (1988); **T. H. Brown**, Associate Professor Emeritus of Pharmaceutical Sciences (1987); **S. L. Brumelle**, Professor Emeritus of Commerce and Business Administration (2000); **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 Paediatrics (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); **K. O. Burrige**, Professor Emeritus of Anthropology 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); **A. M. Butler**, Assistant Professor Emerita of Nursing (1988); **S. J. Butler**, Assistant Professor Emeritus of Language Education (1995); **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); **U. Callegarini**, Clinical Associate Professor Emeritus of Paediatrics (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); **R. G. Campanella**, Professor Emeritus of Civil Engineering (1997); **D. J. Campbell**, Professor Emeritus of Pathology (1990); **J. J. Campbell**, Professor Emeritus of Microbiology (1983); **R. W. Carlisle**, Associate Professor Emeritus of Curriculum Studies (1997); **B. Carter**, Assistant Professor Emerita of Social Work (1998); **W. E. 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; **A. D. Chambers**, Associate professor Emeritus of Forest Resources Management (1997); **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); **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); **M. Chiarenza**, Professor Emerita of French, Hispanic and Italian Studies (2000); **D. H. Chitty**, Professor Emeritus of Zoology (1978); **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); **F. B. St. Clair**, Assistant Professor Emeritus of French (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); **D. B. Clement**, Professor Emeritus of Family Practice (1999); **A. E. Clingman**, Professor Emeritus of Visual and Performing Arts in Education (1992); **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); **K. Cole**, Professor Emerita of Botany (1987); **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 (1979); **M. G. R. Coope**, Associate Professor Emerita of Hispanic and Italian Studies (1996); **H. G. Cooper**, Clinical Assistant Professor Emeritus of Surgery (1996); **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); **J. A. Crane**, Professor Emeritus of Social Work (1990); **A. O. Crichton**, Professor Emerita of Health Care and Epidemiology (1985); **E. P. Crichton**, Clinical Associate Professor Emerita of Pathology (1989); **D. Crockett**, Associate Professor Emeritus of Psychiatry (1997); **L. G. Crouch**, Professor Emeritus of Mineral Engineering (1978); **M. Crowhurst**, Professor Emerita of Language Education (1999); **M. Csapo**, Professor Emerita of Educational Psychology and Special Education (1994); **W. R. Cullen**, Professor Emeritus of

Chemistry (1998); **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); **E. 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 Paediatrics (2002); **J. E. Davies**, Professor Emeritus of Microbiology (1997); **L. E. Davies**, Clinical Instructor Emerita of Anaesthesia (1988); **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); **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); **J. D. Dennison**, Professor Emeritus of Administrative, Adult and Higher Education (1994); **D. Der**, Assistant Professor Emeritus of Counselling Psychology (1997); **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 & Business Administration (2001); **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); **N. J. Divinsky**, Professor Emeritus of Mathematics (1991); **J. R. Doheeny**, Assistant Professor Emeritus of English (1993); **W. Doll**, Clinical Associate Professor Emeritus of Anaesthesia (1993); **H. W. Dommel**, Professor Emeritus of Electrical Engineering (1999); **D. J. Donaldson**, Professor Emeritus of Economics (1998); **K. R. Donnelly**, Associate Professor Emeritus of Anatomy (1994); **P. J. Dooling**, Associate Professor Emeritus of Forest Resources Management (1995); **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. Doyley**, Professor Emeritus of Social and Educational Studies (1993); **S. Drance**, Professor Emeritus of Ophthalmology (1990); **J. P. Duncan**, Professor Emeritus of Mechanical Engineering (1985); **B. A. Dunell**, Professor Emeritus of Chemistry (1985); **H. G. Dunn**, Professor Emeritus of Paediatrics (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); **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); **S. A. Egoff**, Professor Emerita of Librarianship (1983); **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); **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. Ericksen**, Assistant Professor Emerita of Nursing (2002); **D. L. Evans**, Associate Professor Emeritus of English (1999); **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); **G. Feaver**, Professor Emeritus of Political Science (2002); **J. Ferguson**, Assistant Professor Emerita of Education (1977); **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); **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); **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); **E. Gautschi**, Senior Instructor Emeritus of Physical Education and Recreation (1984); **A. Gerein**, Clinical Professor Emeritus of Surgery (1994); **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); **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. Gornel**, 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); **H. G. Goodwin**, Assistant Professor Emeritus of Social Work (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); **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); **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); **A. E. Hall**, Associate Professor Emeritus of Mining & Mineral Process Engineering (2001); **N. A. Hall**, Professor Emeritus of Commerce and Business Administration (1996); **R. J. Hall**, Professor Emeritus of Theatre, Film & Creative Writing (1997); **H. J. Hann**, Assistant Professor Emeritus of Clinical Dental Sciences (1993); **D. H. Harder**, Clinical Professor Emeritus of Orthopaedics (1999); **M. E. Hardman**, Senior Instructor Emerita of English (1992); **D. F. Hardwick**, Professor Emeritus of Pathology/Paediatrics (1999); **W. G. Hardwick**, Professor Emeritus of Geography (1997); **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); **B. Harrison**, Professor Emeritus of History (1974); **L. G.**

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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); **F. R. Johnstone**, Professor Emeritus of Surgery (1984); **D. P. Jones**, Clinical Associate Professor Emeritus of Medicine (1985); **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. E. Kassis**, Professor Emeritus of Classical, Near Eastern and Religious Studies (1997); **D. Kavanagh-Gray**, Clinical Professor Emerita of Medicine (1998); **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); **J. M. Kennedy**, Professor Emeritus of Computer Science (1993); **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); **M. D. Kinkade**, Professor Emeritus of Linguistics (1999); **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. Kliman**, Clinical Associate Professor Emeritus of Surgery (1990); **C. Kline**, Clinical Associate Professor Emeritus of Psychiatry (1983); **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); **Y. Koga**, Senior Instructor Emeritus of Chemistry (2001); **G. W. Korn**, Clinical Professor Emeritus of Obstetrics and Gynaecology (1990); **A. Kozak**, Professor Emeritus of Forest Resources Management (2001); **L. Kraintz**, Professor Emeritus of Oral Biology (1987); **R. Krell**, Professor Emeritus of Psychiatry (1996); **C. R. Krishnamurti**, Professor Emeritus of Animal Science (1991); **H. Krivel**, Clinical Professor Emeritus of Paediatrics (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); **H. Laimon**, Clinical Associate Professor Emeritus of Surgery (1991); **R. Lakowski**, Professor Emeritus of Psychology (1992); **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); **T. M. Lau**, Clinical Professor Emeritus of Anaesthesia (2002); **D. P. Lavender**, Professor Emeritus of Forest Science (1992); **C. S. Lear**, Professor Emeritus of Clinical Dental Sciences (1990); **P. H. LeBlond**, Professor Emeritus of Earth and Ocean Sciences

(1997); **J. R. Ledsoe**, 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); **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); **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); **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); **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); **L. Lythgoe**, Lecturer Emeritus of Language Education (1997); **H. S. Maas**, Professor Emeritus of Social Work (1984); **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); **W. Macdonald**, Associate Professor Emeritus of Medicine (1996); **D. J. MacDougall**, Professor Emeritus of Law (1999); **R. N. MacGregor**, Professor Emeritus of Curriculum Studies (1997); **James 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); **D. Manson**, Clinical Professor Emeritus of Surgery (2002); **M. A. Manzalouei**, 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. Margets**, 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. Martin**, Professor Emeritus of Physics (1998); **D. Matheson**, Associate Professor Emeritus of Paediatrics (2000); **W. H. Mathews**, Professor Emeritus of Geological Sciences (1984); **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); **G. A. Maxwell**, Associate Professor Emeritus of Mathematics (2001); **J. R. Maze**, Professor Emeritus of Botany (1997); **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); **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); **H. McLennan**, Professor Emeritus of Physiology (1990); **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); **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); **W. E. Messenger**, Associate Professor Emeritus of English (1988); **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); **F. Mirhady**, Clinical Professor Emeritus of Paediatrics (1988); **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); **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); **V. J. Modi**, Professor Emeritus of Mechanical Engineering (1995); **J. Mogan**, Assistant Professor Emerita of Nursing (1990); **J. G. Moir**, Assistant Professor Emeritus of Pharmaceutical Sciences (1988); **P. J. Moloney**, Associate Professor Emeritus of Surgery (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); **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 Paediatrics (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. Moys**, Professor Emeritus of Mathematics (1984); **A. Mular**, Professor Emeritus of Mining and Mineral Process Engineering (1996); **M. Mullinger**, Associate Professor Emerita of Paediatrics (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); **B. 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 Paediatrics (1992); **D. Murray**, Professor Emeritus of Medicine (2000); **F. E. Murray**, Professor Emeritus of Chemical Engineering (1984); **J. S. Murray**, Associate Professor Emeritus of Visual and Performing Arts (1987); **K. Nagatani**, Professor Emeritus of Economics (1997); **S. Nakai**, Professor Emeritus of Food Science (1992); **S. D. Naleyvkin**, Assistant Professor Emerita of Education (1987); **G. Namkoong**, Professor Emeritus of Forest Sciences (1999); **N. D. Nathan**, Professor Emeritus of Civil Engineering (1991); **P. A. Neher**, Professor Emeritus of Economics (1997); **R. D. Nemsler**, Associate Professor Emerita of English (1990); **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); **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); **H. Nichol**, Associate Professor Emeritus of Psychiatry (1990); **W. Nicholls**, Professor Emeritus of Social Work (1986); **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); **R. A. Nodwell**, Professor Emeritus of Physics (1984); **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); **J. R. O'Connor**, Senior Instructor Emeritus of Anthropology and Sociology (1995); **A. L. Ogilvie**, Professor Emeritus of Oral

Medicine (1986); **E. A. Ogrzylo**, Professor Emeritus of Chemistry (1999); **A. H. Ohanjanian**, 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); **M. D. Olson**, Professor Emeritus of Civil Engineering (1995); **J. Orr**, Associate Professor Emeritus of Pharmaceutical Sciences (1999); **R. F. Osborne**, Professor Emeritus of Physical Education (1978); **D. L. Overmeyer**, Professor Emeritus of Asian Studies (2000); **B. D. Owen**, Professor Emeritus of Animal Science (1991); **A. Pacheco**, Professor Emeritus of Hispanic and Italian Studies (1997); **N. L. Paddock**, Professor Emeritus of Chemistry (1983); **H. Palfitt**, Clinical Professor Emeritus of Psychiatry (2000); **S. S. Page**, Professor Emeritus of Mathematics (1999); **B. F. Paige**, Clinical Professor Emeritus of Medicine (1987); **V. Palaty**, Professor Emeritus of Anatomy (1999); **J. Panter**, Assistant Professor Emeritus of French (1994); **D. Parker**, Associate Professor Emerita of Nursing (2000); **C. Parkin**, Senior Instructor Emerita of English (1999); **G. V. Parkinson**, Professor Emeritus of Mechanical Engineering (1990); **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); **W. J. Patterson**, Clinical Associate Professor Emeritus of Surgery (1991); **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); **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); **J. E. Phillips**, Professor Emeritus of Zoology (1999); **R. J. Phillips**, Senior Instructor Emeritus of Physical Education and Recreation (1980); **G. L. Pickard**, Professor Emeritus of Oceanography and Physics (1979); **F. Pieronek**, Associate Professor Emerita of Language Education (1996); **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 Paediatrics (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. Poult**, 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); **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); **M. H. Pryce**, Professor Emeritus of Physics (1984); **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); **M. C. Quick**, Professor Emeritus of Civil Engineering (1996); **J. K. 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. P. Rapanos**, Assistant Professor Emeritus of Architecture (1997); **P. Rastall**, Professor Emeritus of Physics and Astronomy (1997); **H. Ratzlaff**, Assistant Professor Emeritus of Educational Psychology and Special Education (1994); **S. E. Read**, Professor Emeritus of English (1966); **P. M. Rebbeck**, Clinical Associate Professor Emerita of Surgery (1994); **I. Rebrin**, Senior Instructor Emerita of Slavonic Studies (1992); **R. Ree**, Professor Emeritus of Mathematics (1988); **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); **G. Reith**, Assistant Professor Emeritus of Psychiatry (1996); **M. Reitzik**, Associate Professor Emeritus of Oral, Medical and Surgical Sciences (1990); **P. Rennant**, Professor Emeritus of Philosophy (1988); **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); **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 Paediatrics (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 Paediatrics (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); **G. Rosenbluth**, Professor Emeritus of Economics (1986); **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); **C. Roy**, Clinical Professor Emeritus of Psychiatry (2000); **R. H. Roydhouse**, Professor Emeritus of Oral Biology (1989); **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); **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. Schell**, Associate Professor Emeritus of Music (1999); **N. Schmidt**, Clinical Professor Emeritus of Surgery (2002); **R. Schofer**, Clinical Associate Professor Emeritus of Anaesthesia (1997); **W. B. Schofield**, Professor Emeritus of Botany (1993); **G. F. Schrack**, Professor Emeritus of Electrical Engineering (1996); **B. Schrodtt**, Associate Professor Emerita of Human Kinetics (1994); **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); **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); **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); **H. Shore**, Associate Professor Emerita of Nursing (1990); **R. Shulman**, Associate Professor Emeritus of Psychiatry (1988); **B. Shuman**, Clinical Associate Professor Emeritus of Paediatrics (1982); **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); **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); **N. R. Sinclair**, Associate Professor Emerita of Education (1981); **M. Sion**, Professor Emeritus of Mathematics (1989); **J. P. Skala**, Professor Emeritus of Paediatrics (1997); **K. Slade**, Associate Professor Emeritus of Language Education (1999); **J. Sladen**, Clinical Professor Emeritus of Surgery (2000); **L. H. Slind**, Professor Emeritus of Music Education (1975); **G. Slobin**, Senior Instructor Emeritus of Pharmaceutical Sciences (1994); **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); **R. F. Snider**, Professor Emeritus of Chemistry (1997); **G. Snyder**, Assistant Professor Emerita of Language Education (1993); **L. Sobrino**, Professor Emeritus of Physics (1995); **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. 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); **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 (1998); **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); **D. G. Stephens**, Professor Emeritus of English (1988); **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); **J. P. Stewart**, Assistant Professor Emeritus of Philosophy (1995); **R. Stewart**, Professor Emeritus of Zoology (1989); **H. F. Stich**, Professor Emeritus of Chemistry

(1991); **C. W. Stocker**, Associate Professor Emeritus of History (1999); **F. E. Stockholder**, Assistant Professor Emeritus of English (1996); **G. E. Stolar**, Professor Emerita of Social Work (1999); **S. N. Stordy**, Clinical Professor Emeritus of Medicine (1996); **S. Straker**, Assistant Professor Emeritus of History (2002); **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); **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); **C. A. Swanson**, Professor Emeritus of Mathematics (1995); **D. Swanson**, Lecturer Emerita of Teacher Education (1998); **V. P. Sweeney**, Professor Emeritus of Medicine (1995); **D. Syeklocha**, Assistant Professor Emerita of Microbiology (1991); **P. J. Sykes**, Assistant Professor Emeritus of Physics (1984); **B. Sylvestre**, 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); **D. E. Talney**, Associate Professor Emeritus of Music (1994); **P. Taylor**, Assistant Professor Emeritus of English (1999); **P. Taylor**, Professor Emeritus of Obstetrics & Gynaecology (2001); **J. M. Teasdale**, Associate Professor Emerita of Paediatrics (1990); **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); **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); **L. A. Thomas**, Associate Professor Emeritus of Fine Arts (1980); **D. W. Thompson**, Professor Emeritus of Chemical and Bio-Resource Engineering (1998); **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); **W. J. Thompson**, Clinical Professor Emeritus of Surgery (1983); **J. E. Thornton**, Associate Professor Emeritus of Administrative, Adult and Higher Education (1993); **S. C. Thorson**, Associate Professor Emeritus of Medicine (1990); **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. Tischler**, Clinical Professor Emeritus of Paediatrics (1989); **E. C. Todd**, Professor Emeritus of Law (1993); **M. E. Todd**, Professor Emerita of Anatomy (2002); **M. Tormie**, 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 Paediatrics (1997); **G. Tougas**, Professor Emeritus of French (1984); **A. Toupin**, Clinical Associate Professor Emerita of Health Care & Epidemiology (2001); **G. H. Towers**, Professor

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