



**Carleton**  
UNIVERSITY

**Canada's Capital University**

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**Undergraduate Calendar  
for the Academic Year 2011-2012**

**Note:** This is an unofficial edition of the 2011-2012 Undergraduate Calendar. It does not contain any updates or changes issued after March 24, 2011. The most current edition including errata and late changes posted after March 24 and throughout the year can be found at [carleton.ca/cuuc](http://carleton.ca/cuuc) . The online (html) edition of the Undergraduate Calendar is the university's official statement.

This Calendar is issued several months in advance of the beginning of the academic year. The University reserves the right without liability or penalty, and without notice, to make changes in the services and programs it offers, including alteration of the fee schedules and cancellation of particular courses.



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**Carleton**  
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The University

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**The University**



## The Academic Year 2011-2012

### Undergraduate Studies

The following schedule contains the dates prescribed by the University Senate for academic activities. Dates relating to fee payment, cancellation of course selections, late charges, and other fees or charges will be published in the Important Dates and Deadlines section of the Registration website ([carleton.ca/registration](http://carleton.ca/registration)).

The academic year is divided into three terms:

**Summer term:** May - August

**Fall term:** September - December

**Winter term:** January - April

Courses are offered in the following patterns:

**Early summer:** May - June

**Late summer:** July - August

**Full summer:** May - August

**Fall term:** September - December

**Winter term:** December - April

**Fall/winter:** September - April

Courses are offered during the day and the evening.

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### Summer Term 2011

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#### March 1, 2011

- Last day for receipt of applications for admission to an undergraduate degree program for the summer 2011 term.

#### May 1, 2011

- Last day for receipt of applications for undergraduate degree program transfers for the summer 2011 term.

#### May 6, 2011

- Deadline for fee payment or assignment of funding to ensure payment is processed to your account without incurring a late charge.

#### May 9, 2011

- Early summer and full summer classes begin.

#### May 16, 2011

- Last day for registration and course changes for early summer courses.

#### May 20, 2011

- Last day for registration and course changes for full summer courses.

#### May 23, 2011

- Statutory holiday. University closed.

#### May 31, 2011

- Last day to withdraw from early summer courses with full fee adjustment.

#### June 10, 2011

- Last day to withdraw from full summer courses with a full fee adjustment.
- Last day to submit to the Paul Menton Centre for Students with Disabilities, formal Examination Accommodation Forms for June examinations.

#### June 20, 2011

- Last day of early summer classes for non-Engineering students (NOTE: Full summer classes resume July 4).
- Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for courses that end on this day.

#### June 21, 2011

- Last day for academic withdrawal from early summer courses.
- Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for courses that end on this day.
- Last day for Early Summer classes for Engineering students.

#### June 13-23 (may include evenings and Saturdays), 2011

- Fall/winter and winter term deferred final examinations will be held.

#### June 24-29 (including Saturday), 2011

- Early summer examinations will be held. It may be necessary to schedule examinations during the day for classes held in the evening and vice versa.

#### June 30, 2011

- Final deadline for summer term fee payment.

#### July 1, 2011

- Statutory holiday. University closed.

#### July 4, 2011

- Late summer classes begin. Full summer classes resume.

#### July 11, 2011

- Last day for registration and course changes for late summer courses.

#### July 22, 2011

- Last day for withdrawal from late summer courses with full fee adjustment.

#### July 29, 2011

- Last day to submit to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for August examinations.

#### August 1, 2011

- Statutory Holiday. University closed.

#### August 15, 2011

- Last day of late summer and full summer classes for non-Engineering students.
- Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for courses that end on this day.

#### August 16, 2011

- Last day for academic withdrawal from late summer and full summer courses and any other courses that end this term.
- Last day of late summer and full summer classes for Engineering students.
- Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for courses that end on this day.

#### August 18-23 (including Saturday), 2011

- Summer examinations will be held. It may be necessary to schedule examinations during the day for classes held in the evening and vice versa.

#### September 30, 2011

- Last day for receipt of applications for review of final grades for summer term courses.

#### September 30 - October 1, 2011 (including Saturday)

- Summer term deferred final examinations will be held.

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**Fall Term 2011**


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**September 1, 2011**

- Last day for receipt of applications from potential fall (November) graduates.

**September 5, 2011**

- Statutory holiday, University closed.

**September 6, 2011**

- Fall term begins.

**September 6-7, 2011**

- Academic Orientation. All students are expected to be on campus. Class and laboratory preparations, departmental introductions for students, and other academic preparation activities will be held.

**September 7, 2011**

- Orientation for Teaching Assistants.

**September 8, 2011**

- Fall and fall/winter classes begin.

**September 21, 2011**

- Last day for registration.

- Last day to change courses or sections for fall/winter and fall term courses.

**September 30, 2011**

- Last day to withdraw from fall term and fall/winter courses with a full fee adjustment.

- Last day for receipt of applications for review of final grades in summer term courses.

**September 30 - October 1, 2011**

- Summer deferred final examinations to be written.

**October 7, 2011**

- University Day at Carleton. Undergraduate classes suspended.
- December examination schedule (fall term final and fall/winter mid-terms) available online.

**October 10, 2011**

- Statutory holiday, University closed.

**October 15, 2011**

- Last day for receipt of applications for admission to a degree program for the following winter term from applicants whose documents originate from outside Canada or the United States.

**November 11, 2011**

- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for December examinations.

**November 15, 2011**

- Last day for receipt of applications for admission to a degree program for the winter term.

**November 21, 2011**

- Last day for tests or examinations in courses below the 4000-level before the final examination period (see Examination Regulations in the Academic Regulations of the University section of this Calendar).

**December 1, 2011**

- Last day for receipt of applications from potential winter (February) graduates.

**December 5, 2011**

- Fall term ends.

- Last day of fall-term classes.
- Last day for academic withdrawal from fall term courses.
- Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for fall term courses.
- Last day for receipt of applications for degree program transfers for winter term.

**December 6-7, 2011**

- No classes take place.

**December 8-21, 2011**

- Final examinations in fall term courses and mid-term examinations in fall/winter courses will be held. Examinations are normally held in the day and evening during the Monday to Saturday period. In exceptional circumstances it may be necessary to schedule an examination on a Sunday.

**December 16, 2011**

- Fall Co-op Work Term Reports are due.

**December 21, 2011**

- All take home examinations are due.

**December 25 - January 1, 2011**

- University closed.

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**Winter Term 2012**


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**January 4, 2012**

- Winter-term classes begin.

**January 17, 2012**

- Last day for registration for winter term courses.
- Last day to change courses or sections for winter term courses.

**January 31, 2012**

- Last day for withdrawal from winter term and winter portion of fall/winter courses with full fee adjustment.
- Last day for receipt of applications for review of final grades in fall-term courses.

**February 1, 2012**

- Last day for receipt of applications for admission to the Bachelor of Architectural Studies and the Bachelor of Social Work degree programs for the following fall/winter session.

**February 17, 2012**

- April examination schedule available online

**February 17-25, 2012**

- Fall-term deferred examinations will be written. Examinations are normally held in the day and evening during the Monday to Saturday period. In exceptional circumstances it may be necessary to schedule an examination on a Sunday.

**February 20, 2012**

- Statutory holiday. University closed.

**February 20-24, 2012**

- Winter Break, classes suspended.



**March 1, 2012**

- Last day for receipt of applications from potential Spring (June) graduates.
- Last day for receipt of applications to the Bachelor of Humanities, Bachelor of Industrial Design, Bachelor of Information Technology (Interactive Multimedia and Design), Bachelor of Journalism, and the Bachelor of Music degree program for the 2011-2012 fall/winter session.

**March 7, 2012**

- Last day to submit, to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for April examinations.

**March 22, 2012**

- Last day for tests or examinations in courses below the 4000-level before the final examination period (see Examination Regulations in the Academic Regulations of the University section of this Calendar).

**April 1, 2012**

- Last day for receipt of applications for admission for the following fall/winter session to programs, other than those listed above, from candidates whose documents originate outside Canada and the United States.

**April 5, 2012**

- Winter term ends.
- Last day of fall/winter and winter-term classes.
- Last day for academic withdrawal from fall/winter and winter-term courses.
- Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for fall/winter and winter-term courses.

**April 6, 2012**

- Statutory holiday. University closed.

**April 9-10, 2012**

- No classes take place.

**April 11 - 24 (including Saturdays), 2012**

- Final examinations in winter term and fall/winter courses will be held. Examinations are normally held in the day and evening during the Monday to Saturday period. In exceptional circumstances it may be necessary to schedule an examination on a Sunday.

**April 16, 2012**

- Winter Co-op Work Term reports are due.

**April 24, 2012**

- All take home examinations are due.

**May 1, 2012**

- Last day for receipt of applications for admission for the following fall/winter session to the Child Studies program.
- Last day for receipt of applications for internal degree transfers to allow for registration for the following summer session.

**June 1, 2012**

- Last day for receipt of applications for admission for the following fall/winter session to the programs other than those already listed above, from:
  - Mature applicants
  - Those presenting post-secondary education qualifications
  - Those transferring from other universities in

Canada or the United States

- Applicants with high school qualifications from Canada or the United States

**June 11 - 21, 2012 (may include evenings and Saturdays)**

- Fall/winter and winter term deferred final examinations will be held.

**June 15, 2012**

- Last day for receipt of applications for internal degree transfers to allow for registration for the following fall/winter session.

**June 30, 2012**

- Last day for receipt of applications for review of final grades in fall/winter and winter term courses.

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**Summer Term 2012**


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**March 1, 2012**

- Last day for receipt of applications for admission to an undergraduate degree program for the summer term.

**May 1, 2012**

- Last day for receipt of applications for undergraduate internal degree transfers to allow registration for the summer term.

**May 4, 2012**

- Deadline for fee payment or assignment of funding to ensure payment is processed to your account without incurring a late charge.

**May 7, 2012**

- Early summer and full summer classes begin.

**May 14, 2012**

- Last day for registration and course changes for early summer courses.

**May 18, 2012**

- Last day for registration and course changes for full summer courses.

**May 21, 2012**

- Statutory holiday. University closed.

**May 31, 2012**

- Last day to withdraw from early summer courses with full fee adjustment.

**June 8, 2012**

- Last day to withdraw from full summer courses with a full fee adjustment.
- Last day to submit to the Paul Menton Centre for Students with Disabilities, formal Examination Accommodation Forms for June examinations.

**June 11-21, 2012**

- Fall/winter and winter term deferred final examinations will be held. Examinations are normally held in the day and evening during the Monday to Saturday period. In exceptional circumstances it may be necessary to schedule an examination on a Sunday.

**June 12, 2012**

- Last day for tests or examinations in courses below the 4000-level before the final examination period (see Examination Regulations in the Academic Regulations of the University section of this Calendar).

**June 19, 2012**

- Last day of early summer classes for non-Engineering students (NOTE: Full summer classes resume after Canada day).

## The University

- Last day for academic withdrawal from early summer courses.
- Last day for handing in term assignments, subject to any earlier course deadline.

**June 22 - 27, 2012**

- Early summer examinations will be held. Examinations are normally held in the day and evening during the Monday to Saturday period. In exceptional circumstances it may be necessary to schedule an examination on a Sunday.

**June 21, 2012**

- Last day for handing in term work and the last day that can be specified by a course instructor as a due date for term work for courses that end on this day.
- Last day for Early Summer classes for Engineering students.

**June 30, 2012**

- Final deadline for summer term fee payment.

**July 2, 2012**

- Statutory holiday. University closed.

**July 3, 2012**

- Late summer classes begin. Full summer classes resume.

**July 10, 2012**

- Last day for registration and course changes for late summer courses.

**July 20, 2012**

- Last day for withdrawal from late summer courses with full fee adjustment.

**July 27, 2012**

- Last day to submit to the Paul Menton Centre for Students with Disabilities, Formal Examination Accommodation Forms for August examinations.

**August 6, 2012**

- Statutory Holiday. University closed.

**August 8, 2012**

- Last day for tests or examinations in courses below the 4000-level before the final examination period (see Examination Regulations in the Academic Regulations of the University section of this Calendar).

**August 15, 2012**

- Last day of late summer and full summer classes.
- Last day for handing in term assignments, subject to any earlier course deadline.
- Last day for academic withdrawal from late summer and full summer courses and any other courses that end this term.

**August 16, 2012**

- Summer Co-Op Work Term reports are due.

**August 18-23, 2012**

- Summer examinations will be held. Examinations are normally held in the day and evening during the Monday to Saturday period. In exceptional circumstances it may be necessary to schedule an examination on a Sunday.

**September 28 - 29, 2012 (including Saturday)**

- Summer term deferred final examinations will be held. Examinations are normally held in the day

and evening during the Monday to Saturday period. In exceptional circumstances it may be necessary to schedule an examination on a Sunday.

**September 30, 2012**

- Last day for receipt of applications for review of final grades for summer term courses.

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## Accreditation of the University

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Carleton University, a founding member of the Council of Ontario Universities, enjoys full accreditation by the Ministry of Training, Colleges and Universities of the Province of Ontario.

The University is a charter member of the Association of Universities and Colleges of Canada. It is a member of the Association of Commonwealth Universities and participates fully in the Commonwealth Scholarship and Fellowship Plan. It is also a member of the International Association of Universities.

The baccalaureate degree programs in Aerospace, Civil, Communications, Computer Systems, Electrical, Engineering Physics, Environmental, Mechanical and Software Engineering are accredited by the Canadian Engineering Accreditation Board of the Canadian Council of Professional Engineers. The baccalaureate degree program in Biomedical and Electrical Engineering has been designed to meet the requirements of the accreditation process.

The Bachelor of Architecture degree offered by the School of Architecture is recognized by the Canadian Architectural Certification Board as a prerequisite to apply for certification of academic qualifications for registration to practise as an architect in a provincial association.

The Bachelor of Computer Science Honours Degree Program is accredited by the Accreditation Council of the Canadian Information Processing Society and the Computer Science Association.

The School of Industrial Design was established at Carleton on the recommendation of a study prepared by the Association of Canadian Industrial Designers. Initial funding for the school was supplied by Design Canada, Ministry of Industry, Trade and Commerce.

The School of Social Work program has been formally accredited by the Canadian Association of Schools of Social Work.

Carleton University participates in the Ontario Student Assistance Program, other provincial assistance programs and the Canada Student Loans Program and is fully recognized as one of the few participating institutions outside the province of Quebec for bursary assistance through the Quebec Loans and Bursaries Program.

Carleton University's degree programs are recognized in the United States by the Federal Guaranteed Student Loans Program and for student aid to veterans through Veterans Administration.

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## Fees

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### Tuition Fees and Charges

Tuition fees, late charges, and other fees and charges are reviewed in the spring of each year. Details are at [carleton.ca/fees](http://carleton.ca/fees) by May 1 and in the Registration Instructions and Class Schedule booklet which is made available to all incoming and returning students in July. Students are advised to familiarize themselves with this information.

### Dates Relating to Fees and Charges

Dates relating to tuition fee payments, cancellations of course selections, late charges, and other fees or charges are published in the Important Dates and Deadlines section of the Registration Instructions and Class Schedule booklet.

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## Disclosure

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The Ministry of Training, Colleges and Universities and Statistics Canada require that Carleton University provide to them information pertaining to a student's status and other selected personal information. Upon registration as a student, one is deemed to agree to the disclosure by Carleton University of the student's status and other selected personal information pursuant to any such requirement.

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## Copyright Compliance

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Carleton University is committed to compliance in all copyright matters. Noncompliance is a violation of the Canadian Copyright Act. In addition to any actions that might be taken by any copyright owner or its licensing agent, the University will take steps against any breach of this policy.

See [carleton.ca/ims/copyrig1.html](http://carleton.ca/ims/copyrig1.html) for guidelines on copyright compliance.

# Selected Senate Policies

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## Academic Accommodation Policy for Students with Disabilities

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### Principles

Carleton University is committed to providing access to the educational experience and accommodation to the point of undue hardship in order to promote academic accessibility for individuals with identified and duly assessed disabilities. The University encourages applications from students with those disabilities within the meaning of the Ontario Human Rights Code, including visual, hearing, communication and mobility impairments and learning and other non-visible disabilities.

The University affirms its commitment to the physical accessibility of the Carleton campus, and to the assessment of academic accommodation for students with disabilities in order to maintain its leadership among the province's educational institutions in implementing accessibility.

The Paul Menton Centre for Students with Disabilities (PMC) is the designated unit at the University for assisting the Carleton community in integrating persons with disabilities into all aspects of Carleton's academic and community life. The PMC provides assessment of academic accommodation, advises students on strategies to open a dialogue with instructors and acts as consultant, facilitator, coordinator and advocate in this area for all members of the University community.

The University promotes efforts to accommodate students with disabilities so that they can meet the learning objectives of courses they are taking and be fairly evaluated in their performance.

*For more detailed information on the Policy and associated procedures, please consult with the Paul Menton Centre. The entire text of the Policy is available as part of Carleton University's Human Rights Policy, at the Equity Services Web site: [www.carleton.ca/equity/](http://www.carleton.ca/equity/)*

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## Policy on Discrimination and Sexual Harassment

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Carleton University is a community of faculty, staff, and students who are engaged in teaching, learning and research. Its members are part of the community at large and are governed by the law common to all persons. But membership in the academic community also entails certain rights and responsibilities. The University respects the rights of speech, assembly, and dissent; it prohibits discrimination on the basis of race, ancestry, place or origin, colour, ethnic origin, national origin, creed, sex, sexual orientation, age, marital status, family status, political affiliation or belief, or handicap that is defined as such in the Ontario *Human Rights Code*; it requires tolerance and respect for the rights of others; and it promotes an environment conducive to personal and intellectual growth.

*(Please refer to the Offences of Conduct and Academic Standing sections of this Calendar.)*

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## Educational Equity Policy

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### Preamble

This policy supports Carleton University's commitment to Sections 15 and 28 of the Canadian Charter of Rights and Freedoms, Sections 1, 5 and 14 of the Ontario Human Rights Code, and the University's Statement on Conduct and Human Rights.

### Principles

Carleton University is committed to excellence in teaching, scholarship and research and to providing equity in its educational programs and services.

The University Strives to provide the best possible educational experience for all of its students and to encourage and assist all students to succeed academically and as members of the University community.

The commitment to provide educational equity extends to members of disadvantaged groups as outlined in the University's Statement on Conduct and Human Rights, and includes international students within these categories.

### Educational Equity Policy Statement

Carleton University is committed to identifying University policies, programs and services that need to be changed, enhanced or created (subject to the availability of resources) in order to:

Increase the access, retention and graduation of groups of students who have traditionally been under-represented, underserved and/or disadvantaged in University programs; and

Provide and maintain a supportive, hospitable and welcoming educational environment for all students, faculty, staff and associated professionals in the University.

The University is committed to providing accommodation on human rights grounds to students to the point of undue hardship (considering cost, outside sources of funding, if any, and health and safety requirements) and to implementing special measures as required to achieve the University's educational equity goals.

The University undertakes to provide education and training to faculty, staff and students on human rights issues as these relate, inter alia, to curriculum and pedagogy and, through the Office of the Vice-President (Academic), to provide seed funding and/or release time for an initial five-year period to support the development of courses and research within the disciplines reflecting an interest in pluralism and diversity.





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# Regulations

# Regulations

General Admissions Requirements and Procedures

Summary of Admissions Requirements for Undergraduate Degree and Certificate Programs

Enriched Support Program

Academic Regulations of the University

Academic Regulations and Requirements for the Bachelor of Architectural Studies Degree

Academic Regulations and Requirements for the Bachelor of Arts Degree

Academic Regulations and Requirements for the Bachelor of Engineering Degree

Academic Regulations and Requirements for the Bachelor of Industrial Design Degree

Academic Regulations and Requirements for the Bachelor of Information Technology Degree

Academic Regulations and Requirements for the Bachelor of Science Degree

Special Studies (Non-Degree)

Co-operative Education

# General Admission Requirements and Procedures

## 1. General Admission Requirements

Persons wishing to follow programs of study leading to a degree or certificate must be formally admitted to the University.

Persons wishing to register in degree-credit courses without having been formally admitted to the University may do so as Special students. See Section 17 below, Special Studies (Non-Degree), for more information.

An overall average of at least 70% is normally required to be considered for admission. Some programs may also require specific course prerequisites and/or supplementary admission portfolios. Higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. The overall average required for admission is determined each year on a program by program basis. Consult [admissions.carleton.ca/requirements](http://admissions.carleton.ca/requirements) for further details.

Applicants should note that meeting the minimum requirements of a program does not guarantee admission to the University. Applications from students whose grades do not meet the requirements in a given year or program will be considered individually. Students in this category may be asked to provide additional information to assist the University in determining where there are special circumstances that would permit their admission to Carleton.

This publication contains admission requirements for the 2011-2012 academic year only. Students wishing to apply for 2012-2013 should contact Admissions Services for information on requirements and procedures.

Individuals who are in any doubt about their eligibility for admission are encouraged to inquire at Admissions Services.

## 2. Accessibility for Students with Disabilities

Carleton University is committed to making reasonable accommodation to individuals with disabilities, and actively encourages application from students with disabilities. This commitment includes gaining an understanding of the circumstances of an individual's disabilities and adjusting services to all academically qualified individuals to compete on an equitable basis.

Students are encouraged to contact the Paul Menton Centre for Students with Disabilities for further information to enable them to assess the extent to which specialized services will be available.

Academic accessibility is intrinsically linked to physical accessibility. Carleton is committed to continually monitoring and upgrading physical accessibility to whatever extent is possible.

A Senate standing committee monitors the needs and problems of students with disabilities in conjunction with their academic problems and makes recommendation for improvements.

## 3. Multiple Undergraduate Programs

Students who already possess an undergraduate degree, certificate, or diploma from another university or from Carleton University may apply for admission to a second undergraduate program. In such circumstances, to be eligible for graduation with an Honours degree students must present a minimum of 5.0 credits earned at Carleton University including at least 3.0 credits that are both in the Major and at the 3000-level or above. To be eligible for graduation with a General degree students must present a minimum of 5.0 credits earned at Carleton University including at least 3.0 credits that are both in the Major and at the 2000-level or above.

To be eligible for graduation with any degree with a Concentration, Specialization or Minor, students must satisfy the additional requirement that they present a minimum of 2.0 credits earned at Carleton University in each Concentration, Specialization or Minor.

Due to accreditation requirements, the minimum number of Carleton credits for students in the Faculty of Engineering and Design is half of the number of credits required in the program.

To obtain an undergraduate certificate from Carleton University, students must present a minimum of 4.0 credits taken at Carleton including all required courses. For a second or subsequent undergraduate program, the appropriate minimum number of Carleton credits must be met.

## 4. English as a Second Language Requirements (ESLR)

The language of instruction at Carleton University is English. In their own interest, students whose first language is not English must demonstrate that they can cope with the language demands of an English language university, and they can do so by following one of two options:

### Option 1

In order to be eligible for admission to an undergraduate degree program or as a Special student at Carleton University without any English as a Second Language Requirement, all international applicants as well as Canadian citizens and residents whose first language is not English or French are required:

- to present official transcripts to indicate that they have studied for the last three years (full-time) in a high school, college or university in Canada, the United States, the United Kingdom or any other country in which the primary language is English and where the language of instruction in the relevant educational institution was exclusively English, or
- to present an official minimum 70 band score on the Canadian Academic English Language (CAEL) Assessment, or
- to present an official minimum score of 86 overall on the Internet-based (iBT) Test of English as a Foreign Language (TOEFL) with a minimum score in each component of: writing - 22, speaking - 22, reading - 20, listening - 20; or 237 on the computer-based Test of English as a Foreign Language (TOEFL); or 580 on the paper-based Test of English as a Foreign Language (TOEFL), or



- d) to present an official minimum score of 6.5 overall on the International English Language Testing System (IELTS) Academic Version, with a minimum score of 6.0 on each band, or
- e) to present an official minimum score of 85 with a minimum of 80 in each band on the Michigan English Language Assessment Battery (MELAB), or
- f) to have completed ESLA 1900 or ESLA 1905 with a final grade of B- or higher.

Applicants whose first language is French must present transcripts to indicate that they have taken four years of *anglais* (English) in a Canadian secondary school in order to be admitted without an English as a Second Language Requirement.

### Option 2

Applicants whose first language is not English who do not meet the requirements stated in Option 1 may be offered admission to an undergraduate degree program or as a Special student, with an English as a Second Language Requirement (ESLR). These applicants are required to:

- a) present an official overall score between 30 and 69 on the Canadian Academic English Language (CAEL) Assessment (with no band below 30); an overall score of 30 must also have 40 in writing or 50 in reading or listening, or 50 in speaking and 40 in reading or listening, or
- b) present an official overall score between 61 and 85 (with a minimum score in each component of 15) on the Internet-based (iBT) Test of English as a Foreign Language (TOEFL); or between 173 and 236 on the computer-based TOEFL; or between 500 and 579 on the paper-based TOEFL, or
- c) present an official overall score between 5.0 and 6.4 (with a minimum score in each band of 4.5 and a minimum average of 5.0 over writing, reading, and listening) on the International English Language Testing System (IELTS).

Applicants with language scores within the above ranges may be permitted to begin their studies by registering in credit ESLA course(s) and a limited number of credit courses until their ESLR is completed.

Students must be registered in and attending the required credit ESLA course(s) to be permitted to register in any other courses. Students who have not registered appropriately will be deregistered from all credit courses. This includes those students registered in credit courses without the required ESLA course registration and those registered in more non-ESL credits than their results indicate.

Students are expected to complete the ESLR within one calendar year of their initial enrolment in credit courses. In exceptional circumstances, permission to continue in a second fall/winter term registration in ESLA courses may be granted by the University's School of Linguistics and Language Studies (SLALS).

Registration will be denied to students who have not satisfied the ESLR if they do not show continuous registration, attendance or progress in their required ESLA courses (as determined by SLALS).

Students who do not achieve the minimum final grade required to advance to the next level of an ESLA course after three attempts will not be permitted to register in any credit courses for one calendar year. Such students must take a SLALS-approved English language proficiency test before returning to their studies and must register according to their new placement.

Students considering a break in study of three terms or longer should contact SLALS to discuss their ESLR standing. After a break in studies, students may be required to re-take a SLALS-approved English language proficiency test before returning to their studies and register according to their new placement.

To satisfy the ESLR, students must earn a grade of B- or higher in either Advanced English as a Second Language for Academic Purposes (ESLA 1900) or in Advanced English as a Second Language for Engineering Students (ESLA 1905). Students are able to satisfy this requirement at any time during the year by achieving the minimum result required on one of Carleton University's approved English as a Second Language assessments. Refer to Option 1 for details on acceptable English language tests.

For further information regarding the English as a Second Language Requirement and admission, contact Admissions Services. For information on English as a Second Language credit courses and placement, contact the School of Linguistics and Language Studies (SLALS).

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## 5. Dates of Entry

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Students may be admitted to register in January, May and July as well as in September. (See the Academic Year section of this Calendar.) It should be noted however, that a full range of courses is only offered during the fall/winter session, i.e. September to May.

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## 6. Levels of Entry

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When a student is admitted at the first-year level, the degree program is normally four years for an Honours and Major degree and three years for a General degree with a normal course load. Beyond first year, remaining degree requirements are determined by the total number of credits required for that particular degree program less those credits granted on transfer from previous post-secondary studies. Note: residency requirements must also be met (see Section 11).

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## 7. Concurrent Studies

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The Concurrent Studies program enables secondary school students to begin university-level study while completing any outstanding requirements for their high school diploma. The availability of the Concurrent Studies program will be of particular interest to those students in semestered schools who are not taking a full load of high school credits in their final year of study. Students in non-semestered high schools may also wish to take advantage of this opportunity in their final year if they are not taking a full credit load.

Students who wish to take advantage of the Concurrent Studies program will register as Special students. Special students may normally enrol in a maximum of 1.0 credit in each of the fall term, winter term and summer session. With admission to a degree program, program requirements for a degree will be reduced by the number of credits successfully completed as part of the Concurrent Studies program that are appropriate to the degree. Other universities normally grant credit on admission for courses taken at Carleton as a Special student.

## 8. Admission to Certificate and Diploma Programs

In addition to offering nineteen undergraduate degree programs, for which the admission requirements are stated on the following pages, Carleton offers three certificate programs and one diploma program. Please refer to the "Summary of Admission Requirements" for additional information.

## 9. High School Applicants

### Ontario

The minimum admission requirements to be considered are:

- 1) the completion of the OSSD; and
- 2) six 4U/M courses, including specific program prerequisites.

The overall admission average and mix of 4U/M courses required is dependent upon the degree or program for which the student is applying. Detailed admission requirements for each undergraduate degree program can be found in the "Summary of Admission Requirements" following this section.

Holding the minimum admission requirements only establishes eligibility for consideration to Carleton University programs. Admission averages and required marks will vary from year to year and will be determined by the availability of places and by the number of applicants. The overall admission average may be higher than the stated minimum requirements.

Students who feel that their high school grade average does not reflect their potential are encouraged to apply to the Enriched Support Program. For more information, see the Enriched Support Program information following the Admissions section of this Calendar.

Carleton University uses, for admission purposes, the credit system as defined by the Ministry of Education, Universities and Colleges. In calculating averages, the weighting factor assigned to a subject will be directly proportional to the credit value of that subject.

### Quebec

Students from the Province of Québec may apply for admission into first year either upon completion of the Grade 12 program or after completing work towards the Collegial diploma. (See the information on Québec CEGEPs in this section.)

### Other Canadian Provinces

Applicants to degree programs at Carleton must normally be admissible to a university in their own province.

From the Canadian provinces and territories whose pre-university studies culminate in 12 years of schooling, graduates are considered for direct admission into first year. At the present time, graduates from high schools in the following provinces and territories are considered for admission. The overall average required is dependent upon the degree or program for which the students are applying.

### Alberta

### British Columbia and The Yukon

### Manitoba

### New Brunswick

### Newfoundland and Labrador

### Northwest Territories

### Nova Scotia

### Nunavut

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## Prince Edward Island Saskatchewan

It is recognized that the curriculum of some provinces does not include an introductory course in calculus, or that a final-year mathematics course may have only a few weeks of an introduction to calculus, or that only a few schools in a particular province or territory may offer a calculus course to a selected group of students. In instances where no calculus is presented, and there is a requirement for it in the university program to which the student is admitted, adjustments may have to be made to include an extra half-credit beyond the normal degree program requirements.

It should be noted that for some restricted-enrolment programs, preference may be given to applicants who, along with a high academic standing, have completed an introductory course in calculus.

### The United States

1. Applicants who have completed Grade 12 in the United States or in a U.S. overseas school will be considered for admission to first year. The Grade 12 program must include at least four academic units, and a minimum of 16 academic units must have been completed in Grades 9 to 12.
2. An average of B- or higher is required for admission. For Honours programs and some limited enrolment programs, a higher average may be required.
3. Applicants are encouraged to submit SAT or ACT scores to supplement their application for admission to the University.

### Advanced Placement (AP)

Applicants who have completed AP exams with a minimum grade of 4 will be granted appropriate advanced standing credit, subject to the discretion of the appropriate Faculty, to a maximum of 3.0 credits.

### International Baccalaureate (IB)

Students applying on the basis of having completed the IB diploma must possess a minimum score of 28 points. Applicants should have completed the diploma with six subjects: three higher level (HL) and three subsidiary level (SL). Students should also include the specific subject requirements for the program for which they are applying among their higher level and subsidiary level subjects. Usually we expect prerequisite courses to be at the higher level. Students with a minimum score of 28 may be given transfer credit for higher level courses with grades of 5 or higher, to a maximum of 3.0 credits.

### Other High School Systems

Applicants who have completed high school diploma requirements in other than Canadian or American high school systems will be considered for admission at the appropriate level of entry. Individuals from foreign systems of education will be considered for admission to first year only if they are able to present sufficient evidence that their secondary school background is appropriate to this level of entry with respect to academic content and level of achievement.

Generally speaking, such applicants must meet requirements for admission to a university in their own country.

The following certificates may be accepted to meet admission requirements to first year:

*United Kingdom, West Indies, East and West Africa, Hong Kong:* The General Certificate of Education (or the equivalent) with satisfactory standing in five subjects at Ordinary Level (or equivalent) and two suitable subjects at Advanced Level.

*International:* The International Baccalaureate, the French Baccalaureate.

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## 10. Special Requirements for Overseas Students

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### Translation of Documents

The University must be in receipt of all official documents by May 1. Applicants from non-English speaking countries must arrange to submit certified English translations of their academic documents.

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## 11. Transfers from Post-Secondary Institutions: General Information

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### Minimum Number of Carleton Credits

To be eligible for graduation with an Honours degree students must present a minimum of 5.0 credits earned at Carleton University including at least 3.0 credits that are both in the Major and at the 3000-level or above. To be eligible for graduation with a General degree students must present a minimum of 5.0 credits earned at Carleton University including at least 3.0 credits that are both in the Major and at the 2000-level or above.

To be eligible for graduation with any degree with a Concentration, Specialization or Minor, students must satisfy the additional requirement that they present a minimum of 2.0 credits earned at Carleton University in each Concentration, Specialization or Minor.

Due to accreditation requirements, the minimum number of Carleton credits for students in the Faculty of Engineering and Design is half of the number of credits required in the program.

To obtain an undergraduate certificate from Carleton University, students must present a minimum of 4.0 credits taken at Carleton including all required courses.

When a Faculty of the University further specifies "required courses", and detailed departmental requirements, such as Design Project or Honours Thesis, these must also be fulfilled.

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## 12. Transfers from Post-Secondary Institutions: Universities

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Carleton University subscribes to the following General Policy on the Transfer of Course Credits, as adopted by the Council of Ontario Universities:

Acceptance of transfer credits among Ontario universities shall be based on the recognition that, while learning experiences may differ in a variety of ways, their substance may be essentially equivalent in terms of their content and rigour. Insofar as possible, acceptance of transfer should allow for the maximum recognition of previous learning experience in university-level courses.

Subject to degree, grade and program requirements, any course offered for credit by one university shall be accepted for credit by another Ontario university when there is an essential equivalency in course content.

Please contact Carleton's Admissions Services for information about transferring specific courses.

Students applying from other recognized universities may be admitted if they are eligible to continue at the institution from which they wish to transfer and if they present an acceptable average.

An applicant who is attending or has attended institutions of post-secondary education must present:

- a) Official certified transcripts of academic records mailed directly to this University by the registrars of the institutions attended, and
- b) Applicants who have taken only one year of study past the secondary school level may be required to submit an official transcript of high school marks mailed directly to Carleton University by the high school concerned.

Credit may be received for courses taken at other recognized degree-granting institutions if:

- a) courses are relevant to a student's proposed program, and
- b) the appropriate department recommends that such courses be credited to a student's program. Each application will be evaluated on its own merits.

Students who apply for admission to an undergraduate degree program who already possess an undergraduate degree from either Carleton or another university, are required to complete a minimum number of Carleton credits. (See *Multiple Undergraduate Programs* in this section.)

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## 13. Transfers from Post-Secondary Institutions: Ontario Colleges of Applied Arts and Technology (CAATs)

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### In-Program Applicants

Students from Ontario Colleges of Applied Arts and Technology who have not completed all requirements in a two- or three-year diploma program or a two-year diploma program and who present a minimum 3.0 grade point average (B standing in the Carleton University grading system) will be considered for admission to a degree program based on the following guidelines:

1. Applicants who present a minimum 3.0 G.P.A. and who have completed all diploma requirements except the last term/semester in a three-year diploma program will be considered for admission with advanced standing to a maximum of 5.0 credits (equivalent to one year). The advanced standing would be granted according to the appropriateness of the diploma program, the admission requirements of the degree program, and the achievement in relevant courses.
2. Applicants who present a minimum 3.0 G.P.A. and who have completed all diploma requirements except the last term/semester in a two-year diploma program will be considered for admission with advanced standing to a maximum of 3.0 credits. The advanced standing would be granted according to the appropriateness of the diploma program, the admission requirements of the degree program and the achievement in relevant courses.
3. Applicants who present a minimum 3.0 G.P.A. and who have completed two years of a three-year diploma program will be considered for admission with advanced standing to a maximum of 4.0 credits. The advanced standing would be granted according to the appropriateness of the diploma program, the admission requirements of the degree program, and the achievement in relevant courses.
4. Applicants who present a minimum 3.0 G.P.A. after the first year of a two- or three-year diploma program will be considered for admission to first year.

**CAAT Graduate Applicants**

Students from Ontario Colleges of Applied Arts and Technology who have successfully graduated in a two- or three-year diploma program and who present a minimum 3.0 grade point average (B standing on the Carleton grading system) will be considered for admission to a degree program based on the following guidelines:

1. Graduates of a two-year diploma program who present a minimum 3.0 G.P.A. will be considered for admission with advanced standing to a maximum of 5.0 credits (equivalent to one year). The advanced standing would be granted according to the appropriateness of the diploma program, the admission requirements of the degree program, and the achievement in relevant courses.
2. Graduates of a three-year diploma program who present a minimum 3.0 G.P.A. will be considered for admission with advanced standing to a maximum of 7.0 credits. The advanced standing would be granted according to the appropriateness of the diploma program, the admission requirements of the B.A. degree program, and the achievement in relevant courses.

Other students presenting an incomplete program normally will not be considered for admission to Carleton University on the basis of that program. Such persons may inquire about possible alternatives if they are desirous of seeking admission to a Carleton University degree program at some future date.

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## 14. Transfers from Post-Secondary Institutions: Quebec CEGEPs

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**Admission Requirements**

1. A CEGEP applicant who has completed successfully 12 "General" or pre-university courses will be considered for admission to first year, without advanced standing. The overall average required and the advanced standing credits are dependent upon the degree or program for which the student is applying.
2. CEGEP applicants who have successfully completed more than 12 "General" or pre-university courses will be considered for admission with advanced standing based on the number of courses in excess of 12 and not to exceed the equivalent in credits of the first year of the program to which they are admitted. The overall average required and the advanced standing credits are dependent upon the degree or program for which the student is applying.

All applicants should note that failures in their CEGEP studies can adversely affect their admissibility.

**Subject Requirements**

Although specific subject requirements have been kept to a minimum, the following are considered necessary prerequisites for the degree program indicated:

**Bachelor of Architectural Studies**

English or *anglais*, mathematics, physics

**Note:** a portfolio is required.

**Bachelor of Arts**

English or *anglais*

**Bachelor of Arts (Biology)**

English or *anglais*, and chemistry

**Bachelor of Arts (Economics or Applied Economics)**

English or *anglais*, mathematics

**Bachelor of Commerce**

English or *anglais*; mathematics

**Bachelor of Computer Science**

Mathematics

**Bachelor of Engineering**

Mathematics, physics, chemistry

**Bachelor of Humanities**

None specified. **Note:** a portfolio may be required.

**Bachelor of Humanities****(Combined Honours with Biology)**

Chemistry

**Bachelor of Industrial Design**

Mathematics, physics

**Note:** a portfolio is required and attending an information session at the School is recommended.

**Bachelor of Information Technology**

English or *anglais*, one experimental science, mathematics.

**Note:** a portfolio is required for Interactive Multimedia and Design.

**Bachelor of International Business**

English or *anglais*; mathematics

**Bachelor of Journalism**

English or *anglais*

**Bachelor of Mathematics (Biostatistics)**

Mathematics, Biology, Chemistry

**Bachelor of Mathematics**

Mathematics

**Bachelor of Music**

None specified.

**Note:** an audition is required.

**Bachelor of Public Affairs and Policy Management**

None specified.

**Bachelor of Science**

Mathematics, two experimental sciences

**Bachelor of Social Work**

None specified.

**Note:** a personal information document is required.

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## 15. Provisional Admission

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Some transfer applicants (those who have attended a Canadian university, an Ontario College of Applied Arts and Technology (CAAT) or a Quebec CEGEP and have demonstrated better than average academic achievement will automatically be considered for provisional admission. The provisional approval will be given prior to the completion of the student's current year, and will provide a detailed statement of the credits to be granted upon transfer. Admission will be confirmed upon presentation of a final transcript that indicates the successful completion of all courses with suitable standing.

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## 16. Mature Applicants

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Mature Applicants are persons who satisfy all of the following requirements;

1. are Canadian citizens or permanent residents of Canada, and
2. do not meet the normal admission requirements as published in this Calendar, and

3. have been away from full-time studies for a minimum of two calendar years, and
4. have not attended a university or college as full-time students.

Applicants who meet the definition of Mature Applicant will be considered for admission to a B.A. program in the Faculty of Arts and Social Sciences or in the Faculty of Public Affairs, or to a degree program in Engineering, Architecture, Computer Science, Humanities, Industrial Design, Mathematics, Science, Information Technology, or Social Work.

These applicants are required to submit biographical information and a transcript of their most recent studies.

#### **Admission to the Faculty of Arts and Social Sciences, or to the Faculty of Public Affairs**

Mature Applicants will normally be admitted to the first year of a B.A. degree program in the Faculties of Arts and Social Sciences or Public Affairs and Management, or the first year of the undergraduate degree program in Social Work if they have:

- a) secondary school graduation in an academic program (the overall average required is dependent upon the degree or program for which the student is applying), or
- b) completed, as a Special student at Carleton University, one appropriate full credit (or two half-credits) with C- or higher standing in the first attempt (or in both of the first two half-credit course attempts), or
- c) other academic or work experience which, in the opinion of the admissions committee, indicates a likelihood of success at university.

Note: Applicants to B.A. Biology must present a 4U (or equivalent) course in chemistry. Applicants to B.A. Economics must present a 4U (or equivalent) course in calculus.

Mature Applicants are not usually considered for admission to programs in Business, Journalism, Music, or Public Affairs and Policy Management. If, however, at the end of their first year in another degree program, they meet the requirements for one of the above-mentioned programs, they can apply to transfer to that program.

#### **Admission to the Schools of Architecture, Computer Science, and Industrial Design**

Mature Applicants can be considered for admission to the first year in the Schools of Architecture, Computer Science, or Industrial Design if they have the prerequisite subjects for the program to which they wish to apply and if they have:

- a) secondary school graduation in an academic program (the overall average required is dependent upon the degree or program for which the student is applying), or
- b) completed, as a Special student at Carleton University, one appropriate full credit (or two half-credits) with C- or higher standing in the first attempt (or in both of the first two half-credit attempts), or
- c) other academic or work experience which, in the opinion of the admissions committee, indicates a likelihood of success at university.

The prerequisite subjects (4U or equivalents) for Architectural Studies, Computer Science, and for Industrial Design are found under Prerequisite Subjects at the end of this section.

Persons applying for admission to these undergraduate degree programs without the prerequisites will not normally be considered until the prerequisite subjects have been successfully completed. All applications are reviewed on an individual basis.

#### **Admission to the Faculty of Engineering**

Mature Applicants can be considered for admission to first year of a degree program in the Faculty of Engineering if they have the prerequisite subjects for the program and if they have:

- a) secondary school graduation in an academic program (the overall average required is dependent upon the degree or program for which the student is applying), or
- b) completed, as a Special student at Carleton University, one appropriate full-credit (or two half-credits) with a C- or higher standing in the first attempt (or in both of the first two half-credit attempts), or
- c) other academic or work experience which in the opinion of the admissions committee, indicates a likelihood of success at university.

The prerequisite subjects (4U or equivalent) for Engineering are found under Prerequisite Subjects at the end of this section. A grade of 60 percent or higher is required in each prerequisite subject.

Persons applying for admission to this undergraduate degree program without the necessary prerequisites will not normally be considered until the prerequisite subjects have been successfully completed. All applications are reviewed on an individual basis.

#### **Admission to the Faculty of Science**

Mature Applicants can be considered for admission to the first year of a program in the Faculty of Science if they have the prerequisite subjects for the program and if they have:

- a) secondary school graduation in an academic program (the overall average required is dependent upon the degree or program for which the student is applying), or
- b) completed, as a Special student at Carleton University, one appropriate full-credit (or two half-credits) with a C- or higher standing in the first attempt (or in both of the first two half-credit attempts), or
- c) other academic or work experience which in the opinion of the admissions committee, indicates a likelihood of success at university.

The prerequisite subjects (4U or equivalent) for Science are found under Prerequisite Subjects at the end of this section.

Persons applying for admission to this undergraduate degree program without the necessary prerequisites will not normally be considered until the prerequisite subjects have been successfully completed. All applications are reviewed on an individual basis.

Mature Applicants are not usually considered for admission to Honours programs in Science. If, however, at the end of the first year of a General program, they meet the requirements for one of the Honours programs, they can apply to transfer to that program.

**Admission to the Bachelor of Information Technology**

Mature Applicants can be considered for admission to first year of the Bachelor of Information Technology if they have the prerequisite subjects for the program and if they have:

- secondary school graduation in an academic program (the overall average is dependent upon the program for which the student is applying, or
- completed, as a Special Student at Carleton University, one appropriate full-credit (or two half-credits) with a C- or higher standing in the first attempt (or in both of the first two half-credit attempts), or
- other academic or work experience which, in the opinion of the admissions committee, indicates a likelihood of success at university.

**Special Students Wishing to Apply as Mature Applicants**

Special students who meet all of the criteria for Mature Applicants can be considered for admission as Mature Applicants if:

- they have completed, as a Special student, at Carleton University, one appropriate full credit (or two half-credits) with a C- or higher standing in the first attempt (or in both of the first two half-credit attempts), and
- they are eligible to continue as Special students at Carleton University, and
- they have completed any additional degree program prerequisite subjects that may be required for a particular program.

Mature Applicants who, as Special students at Carleton University, have not obtained a grade of C- or higher in one full credit (or two half-credits), in the first attempt (or in both of the first two half-credit attempts), can attempt to qualify for subsequent admission through additional courses as a Special student at the University.

Individuals seeking admission under the Mature Applicant status who need further information should inquire at Admissions Services.

**17. Special Studies (Non-Degree)**

Special students may be admitted to a degree program if their academic achievement at Carleton University indicates a reasonable probability of future academic success. Previous post-secondary studies at other institutions will also be taken into consideration at the time the application for admission is evaluated. Students with previous, unsuccessful post-secondary studies should contact the Admissions Services before attempting to qualify for admission on the basis of studies as a Special student.

In the Faculty of Arts and Social Sciences, Faculty of Public Affairs, and Faculty of Science, a Special student can normally be considered for admission to a General degree program after completing 4.0 credits (or the equivalent), and if the student would be in Good Standing if admitted. Students seeking admission are usually not considered for admission until the necessary prerequisites have been successfully completed in addition to the 4.0 approved credits (or the equivalent). The prerequisite subjects (4U/4M courses or equivalents) are found at the end of this section under Prerequisite Subjects.

If fewer than 4.0 credits have been completed, a Special student will be considered for admission after successful completion of:

- 2.0 full credits (or the equivalent) with a CGPA of 8.00 or higher, or
- 2.5 full credits (or the equivalent) with a CGPA of 7.00 or higher, or
- 3.0 full credits (or the equivalent) with a CGPA of 6.00 or higher, or
- 3.5 full credits (or the equivalent) with a CGPA of 5.00 or higher

Special students wishing to apply for admission to the Faculty of Engineering, or the Schools of Architecture, Business, Computer Science, Industrial Design, Information Technology, Journalism, or Social Work, are urged to consult with Admissions Services.

Special students can normally be considered for admission on this basis only if they meet all admission requirements for Mature Applicants.

**18. Prerequisite Subjects**

Certain degree programs require grade 4U courses (prerequisite subjects) or the equivalent as follows:

(See *Summary of Admission Requirements* following this section for specific minimum averages and required marks.)

**Arts***B.A. Biology*

Chemistry

*B.A. Economics or Applied Economics*

Advanced Functions

**Architectural Studies**

English

Physics

Advanced Functions or Calculus and Vectors

Note: a portfolio is required.

**Commerce**

Advanced Functions

Calculus and Vectors or Mathematics for Data

Management

English

**Computer Science**

Advanced Functions or Calculus and Vectors

**Engineering**

Advanced Functions

Chemistry

Physics

And one of: Calculus and Vectors or Biology or Earth and Space Science

**Humanities (combined Honours with Biology)**

Chemistry

**Industrial Design**

Advanced Functions

Physics

Note: a portfolio is required and attending an information session at the School is recommended.

**Information Technology***Interactive Multimedia and Design*

Advanced Functions

English

One science course

Note: a portfolio is required.

**Network Technology**

Advanced Functions  
English  
One science course

**International Business**

English  
Advanced Functions or Calculus and Vectors or  
Mathematics for Data Management

**Journalism**

English

**Mathematics**

Advanced Functions  
Calculus and Vectors

**B.Math (Biostatistics)**

Advanced Functions  
Calculus and Vectors  
Biology  
Chemistry

**Science (Honours)**

Advanced Functions and two of: Biology, Chemistry,  
Earth and Space Science, Physics

**Science (General/Major)**

Advanced Functions and two of: Calculus and  
Vectors, Biology, Chemistry, Earth and Space Science,  
Physics

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## 19. Previous Carleton Degree Students

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All former students who have been formally admitted to a degree or certificate program at the undergraduate level and who are seeking readmission either to that program or to another program are governed by differing regulations, depending upon the faculty or school that offers the program.

Please refer to the relevant program section of this Calendar or, if there is no specific entry dealing with readmission in that section, consult the Registrar's Office to determine whether or not it is necessary to submit a new application for admission. Please note that previous Carleton students applying to limited enrolment programs must apply by the published deadlines. (See section 3 of *How to Apply*, below.)

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## 20. Admission Procedures

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**How to Apply**

Prospective students, when requesting an application directly from the University, should provide a complete outline of their academic background.

1. The following applicants may apply through the Ontario Universities' Application Centre (OUAC):
  - a) Current Ontario high school students should obtain a PIN number from their high school and apply online at [www.ouac.on.ca](http://www.ouac.on.ca). Alternatively, applicants can request a preprinted application form from their high school and arrange to have it submitted to the Application Centre.
  - b) All other applicants can apply online at [www.ouac.on.ca](http://www.ouac.on.ca). Alternatively, applicants can obtain a copy of the OUAC 105 application form designed for them by contacting the Application Centre at 170 Research Lane, Guelph, Ontario, Canada N1G 5E2.
  - c) Overseas applicants can also apply directly online at [admissions.carleton.ca/ia](http://admissions.carleton.ca/ia)

2. All applicants are required to reveal all previous secondary and post-secondary studies (whether they were successfully completed or not) when completing the application for admission.
3. Previous Carleton University students do not apply through the Application Centre unless they also wish to be considered for admission to another Ontario university. If they wish to apply solely to Carleton, applicants can apply directly online at: [admissions.carleton.ca/applicant/cs](http://admissions.carleton.ca/applicant/cs). Applicants who wish to apply to another Ontario university as well as to Carleton should apply online at: [www.ouac.on.ca](http://www.ouac.on.ca)
4. Students presently registered in a degree program at Carleton University applying for a transfer to another degree program do not apply through the Application Centre unless they also wish to be considered for admission to another Ontario university.

Please note: application is made through the Registrar's Office for permission to register in the following cases:

- a) students who wish to change to a different program within the same degree;
- b) students who wish to add a Concentration, Specialization or Minor;
- c) students who have been away from the University less than three consecutive fall/winter and intervening summer sessions and wish to register in the same degree.
5. The following categories of students are required to reapply for admission through Admissions Services:
  - a) currently registered students who wish, or who are required, to change their degree;
  - b) students who have been suspended or debarred and wish to return to their program after the required absence from studies at Carleton;
  - c) students who, after completing their first undergraduate degree, wish to complete an additional undergraduate degree;
  - d) students who have left the University and wish to return to a different degree;
  - e) students who have left the University and, after attending another post-secondary institution (except on a letter of permission or exchange program), wish to return to Carleton University;
  - f) Special Students who wish to be formally admitted to a degree or certificate program at Carleton University; and
  - g) students who have been away from the University for three or more consecutive fall/winter sessions and intervening summer sessions.

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## 21. Application Deadlines

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The following are application dates for the 2011-2012 admission year:

**February 1:** Applicants to the Bachelor of Architectural Studies and the Bachelor of Social Work degree programs.

**March 1:** Applicants to the Bachelor of Humanities, Bachelor of Industrial Design, Bachelor of Information Technology (Interactive Multimedia and Design), Bachelor of Journalism and Bachelor of Music degree programs.

**April 1:** Applicants whose documents originate outside Canada or the United States.

**May 1:** Applicants to the B.A. Child Studies.

**June 1:** All applicants whose documents originate in Canada or the United States, except applicants to Child Studies, the School of Architecture, the College of the Humanities, the School of Industrial Design, the School of Journalism and Communication, Music, Information Technology (Interactive Multimedia and Design) or the School of Social Work.

**June 15:** Students registered in a degree program at Carleton University applying for a transfer to another degree program.

**October 15:** Applicants for January entry whose documents originate outside Canada or the United States.

**November 15:** Applicants for January entry whose documents originate in Canada or the United States.

**Note:** Applications for admission may be received after these dates, but the University cannot guarantee that all late applications will be processed in time for registration in the academic session requested. Applicants to programs with limited enrolment should note that such programs may be filled by this date.

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## 22. Documents

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Documents submitted in support of an application for admission become the property of the University. In some cases, original documents (for example, General Certificate of Education) may be returned to the applicant.

The University may nullify an admission and revoke a registration if it finds that an applicant for admission or registration has, in the process, provided false or incomplete information.

Applicants who are unable to submit documents of previous academic studies as a result of natural disaster, armed conflict, or the securing of refugee status are subject to the following policy:

1. Applicants who are unable to submit supporting documents will not be admitted. They will be encouraged to register as Special students and qualify for admission by taking courses at the University.
2. Applicants who can submit official transcripts but cannot submit course descriptions will be admitted to first year if:
  - i) their academic record meets the standards required by the program for which they are applying, and
  - ii) their high school studies include prerequisite subjects for admission to first year.
3. Applications from candidates who can provide course descriptions based on their recollection of the courses which they have taken will be treated according to the same procedures as those which apply to applicants who cannot submit course descriptions (see 2. above).

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## 23. Early Admission

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Offers of early admission will be based on the previous year final and current year interim marks.

For Ontario high school applicants, offers of admission will be made early February to end of May for the 2011-2012 admissions cycle. The onus is on each student who does not receive an offer of early admission to supply official final marks to Admissions Services.

Out-of-province applicants will receive offers of admission as soon as interim marks are received by the University and the assessment is completed.

Applicants to a restricted enrolment program should note that their acceptance to an offer of admission must be received by Admissions Services within three weeks from the date on the offer of admission or by the date specified on the offer of admission.

Carleton reserves the right to withdraw offers of admission for failure to complete the school year satisfactorily or to meet the admission requirements and/or required averages or grades. In addition, applicants are advised that although they may receive an offer of admission based on interim marks, final marks, when they are received, will become part of the University's admission record.

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## 24. Deferred Admission

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### How Do I Defer (Postpone) My Offer of Admission?

If an applicant is unable to attend Carleton University for the term specified on their Offer of Admission and wishes to postpone their studies they may ask for a deferred admission. A "Request to Defer Admission" form and the non-refundable application fee must be received by Admissions Services within two weeks after the beginning of the term for which they have been admitted. A copy of the "Request to Defer Admission" form is available at: [admissions.carleton.ca/applicant/defer/](http://admissions.carleton.ca/applicant/defer/)

Applicants whose deferrals have been approved will receive a new offer of admission for the appropriate term. The new offer will reflect any changes in their program requirements that may have occurred in the intervening time because of changes in programs and/or regulations. Final grades must be on file before a deferral can be confirmed.

Carleton University will not consider deferred admission for anyone admitted to a limited enrolment program or a program that requires additional materials such as portfolios or auditions in the decision-making process.

It is not possible to defer an offer of admission to Carleton University if the applicant is attending another post-secondary institution. Applicants who have been granted a deferred admission and who register at another post-secondary institution will have their admission withdrawn and will have to submit a new application for admission.

Please contact Admissions Services at 613-520-3609 for any additional information.



# Admission Requirements

## Undergraduate Degree Programs

Admission Requirements are for the 2011-2012 year only, and are based on the Ontario High School System. Holding the minimum admission requirements only establishes eligibility for consideration. The cut-off averages for admission may be considerably higher than the minimum. See also the General Admission and Procedures section of this Calendar. An overall average of at least 70% is normally required to be considered for admission. Some programs may also require specific course prerequisites and prerequisite averages and/or supplementary admission portfolios. Higher averages are required for admission to programs for which the demand for places by qualified applicants exceeds the number of places available. The overall average required for admission is determined each year on a program by program basis. Consult [admissions.carleton.ca/requirements](http://admissions.carleton.ca/requirements) for further details.

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### Architectural Studies

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#### Degree

- Bachelor of Architectural Studies (B.A.S.)

#### Admission Requirements

##### First Year

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include English, Physics and Advanced Functions. Calculus and Vectors is strongly recommended. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

**Note:** a portfolio is required.

##### Advanced Standing

Applications for admission to the second or subsequent years will be assessed on their merits. Advanced standing will be granted only for those courses that are determined to be appropriate. Students will not receive credit for courses graded below C-.

##### Co-op Option

**Direct Admission to the First Year of the Co-op Option**  
Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the B.A.S. program;
- be eligible to work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

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### Arts

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#### Degrees

- Bachelor of Arts (B.A.) (Honours)
- Bachelor of Arts (B.A.) (General)

#### Admission Requirements

##### First Year

*For B.A. (General) and B.A. (Honours)*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include a 4U course in English (or *anglais*). For applicants whose first language is not English, the requirement of English can also be met under the conditions outlined in the section "English Language Requirements" in the Admissions Requirements and Procedures section of this Calendar.

The cut-off average for admission will be set annually and will normally be above the minimum requirement. Applicants falling slightly below the cut-off average will be considered on an individual basis to determine whether there are special circumstances that would permit their admission. Students who feel that their high school grade average does not reflect their potential may apply to the Enriched Support Program (see the Enriched Support Program section of this Calendar).

For the majors in Cognitive Science, Criminology, Geomatics, and Global Politics, the averages for admission may be higher than those for B.A. (Honours) program as a whole.

For the major in Biology in the B.A. program, in addition to the 4U English, a 4U course in Chemistry is required. Advanced Functions and Calculus and Vectors are recommended.

For a major in Economics or Applied Economics, in addition to the 4U English, 4U Advanced Functions is required. Calculus and Vectors is highly recommended. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

##### Articulation Agreements

*For B.A. (Carleton)/Police Foundations (Algonquin)*

To be eligible for admission pursuant to this Articulation Agreement, students must have completed the Diploma in Police Foundations at Algonquin College with an overall B average (CGPA of 3.0). They will then be considered for admission to a B.A. program at Carleton in one of Criminology, Law, Psychology, or Sociology.

*For Child Studies:*

Enrolment into the program is limited. Successful applicants must demonstrate a high level of personal enthusiasm and professionalism, excellent communication skills (oral and written) and evidence of previous academic success. Applications for admission should be made, presenting:

- the diploma in Early Childhood Education (ECE) program from an Ontario College of Applied Arts and Technology (CAAT) or the equivalent;
- a B+ average overall or higher at the college level;
- satisfactory performance in field placements;
- three letters of reference, including at least one letter from a faculty member in the ECE program, and one letter from the director of the child care centre;
- a letter of application, including a statement of professional goals and expectations of the program and a *curriculum vitae*.

**Advanced Standing***B.A. (General and Honours) Program*

Applications for admission to the second or subsequent years will be assessed on their merits. Advanced standing will be granted only for those courses that are determined to be appropriate.

*B.A. Honours Criminology and Criminal Justice*

Admission to Criminology and Criminal Justice with advanced standing and transfer within the B.A. to CCJ by change of major is limited. Students require a minimum overall CGPA of 7.50 and will be admitted to the Honours program. Access to the General degree is limited to CCJ Honours registered students who apply to transfer and to Algonquin College students governed by the Articulation Agreement noted below.

**Articulation Agreements***B.A. (Carleton)/Police Foundations (Algonquin)*

Students who have obtained a Diploma in Police Foundations from Algonquin College with an overall average of B or higher will be granted up to a maximum of 5.0 credits on admission towards the completion of a B.A. in either Criminology, Law, Psychology, or Sociology.

**Child Studies**

Students who have obtained the ECE diploma with a B+ average or higher will be granted up to a maximum of 5.0 credits on admission to the Child Studies program.

**Co-op Option: Anthropology and Sociology**

Please see the Co-operative Education Regulations section of this Calendar for admission requirements.

**Co-op Option: Applied Economics, Cognitive Science, Communication Studies, Economics, French, History, Law, Political Science****Admission Requirements****Direct Admission to the First Year of the Co-op Option**

Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the Bachelor of Arts Honours with one of the majors listed above;
- be eligible to work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option. Students should also note that hiring priority is given to Canadian citizens for co-op positions in the Public Service Commission.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

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**Commerce**

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**Degree**

- Bachelor of Commerce (B.Com.) (Honours)

**Admission Requirements***First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include English, Advanced Functions, one of Calculus and Vectors (recommended) or Mathematics of Data Management. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum. For applicants whose first language is not English, the requirement of 4U English can also be met under the conditions outlined in the English Language Requirements of the Admissions Requirements and Procedures section of this Calendar.

*Advanced Standing*

Applications for admission to the second or subsequent years will be assessed on their merits. Advanced standing will be granted only for those courses that are determined to be appropriate. Students must present a major CGPA of 6.50 (C+/B-) or higher, and an overall CGPA of 8.00 (B) or higher. Students will not receive credit for courses graded below C-.

*Co-op Option***Direct Admission to the first year of the Co-op Option**

Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the Bachelor of Commerce program;
- be eligible to work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option.

In addition, students whose first language is not English who are admitted to Carleton based on CAEL, IELTS, TOEFL or MELAB assessments must take the Spoken English Test for Co-op students and attain a minimum score of 5.0.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

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## Computer Science

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### Degree

- B.C.S. (Major)
- B.C.S. (Honours)

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include one of Advanced Functions or Calculus and Vectors. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

#### *Advanced Standing*

Applications for admission beyond first year will be assessed on their individual merits. Advanced standing will be granted only for those subjects assessed as being appropriate for the program and the stream selected.

### Co-op Option

#### Direct Admission to the First Year of the Co-op Option

Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the Bachelor of Computer Science program;
- be eligible to work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market (and thus the availability of co-op placement) may limit enrolment in the co-op option.

In addition, students whose first language is not English who are admitted to Carleton based on CAEL, IELTS, TOEFL or MELAB assessments are also required to take the Spoken English Test for Co-op students and attain a minimum score of 5.0.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

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## Engineering

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### Degree

- B. Eng.

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include four prerequisite courses (4U courses in Advanced Functions, Chemistry, Physics, and one of Calculus and Vectors (recommended) or Biology or Earth and Space Science). Although it is not an admission requirement, at least one 4U course in either English or français is recommended. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

The overall admission cut-off average and/or the prerequisite course average may be considerably higher than the stated minimum requirements for some Engineering programs.

#### *Advanced Standing*

Applications for admission with advanced standing

to the program leading to the Bachelor of Engineering degree will be evaluated on an individual basis. Successful applicants will have individual academic subjects, completed with grades of C- or higher, evaluated for academic standing, provided the academic work has been completed at another university or degree-granting college or in another degree program at Carleton University. Students must take a minimum of 1.0 credit of complementary studies at Carleton University.

### Co-op Option

#### Direct Admission to the First Year of the Co-op Option

Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the Engineering degree;
- be eligible for work in Canada (for off-campus work placements).

Note that meeting the above entrance requirements only establishes eligibility for admission to the program. Enrolment in the co-op option may be limited at the discretion of the department.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

### Engineering Internship Program

Subject to the availability of positions, qualified students in Aerospace, Communications, Computer Systems, Electrical, Mechanical and Software Engineering may be placed in industry or government, for a period of 12 to 16 months beginning in May following the third year of the program. To be eligible for the internship program, students must be registered as a full-time student in the third year of the Engineering program and have attained a CGPA of 8.0. The program is administered by the Co-op Office. Applications must be submitted through the Co-op web site by October 1 of third year. Students will participate in the co-op job placement process along with the third-year students in Aerospace, Communications, and Mechanical engineering.

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## Humanities

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### Degree

- B. Hum. (Honours)
- B. Hum. and Biology (Honours)

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The Bachelor of Humanities and Biology option must include 4U Chemistry.

#### **Note:**

Prospective students submit a portfolio consisting of:

- a) a one-page statement of why they wish to enter the program;
- b) a 750-word essay based on reflections on a quotation that can be found on the College Web site at: [carleton.ca/chum/bachelor-of-humanities/admissionportfolio-requirements](http://carleton.ca/chum/bachelor-of-humanities/admissionportfolio-requirements);
- c) one sample of written or creative work, such as a high-school essay, poetry, a short story, art, music or photography, and
- d) a personal resumé.

The portfolio should be submitted to the College of the Humanities, Carleton University.

#### *Advanced Standing*

Applications for admission with advanced standing to the program leading to the Bachelor of Humanities will be evaluated individually. On admission, students will not receive credit for courses graded below C-.

## Industrial Design

### Degree

- Bachelor of Industrial Design (B.I.D.)

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include Advanced Functions and Physics. Calculus and Vectors, Design Technology and Visual Arts are strongly recommended. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

Note: candidates must present a portfolio of any kind of work that could demonstrate creativity and aptitude for the study of industrial design. Attending an information session at the School is recommended.

#### *Advanced Standing*

Applications for admission to second or subsequent years will be assessed on their merits and on space availability in the program. Advanced standing will be granted only for those courses that are determined to be appropriate and is subject to space availability.

### Co-op Option

**Direct Admission to the First Year of the Co-op Option**  
Applicants must:

- a) meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- b) be registered as a full-time student in the Industrial Design program;
- c) be eligible for work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

## Information Technology

### Degree

- Bachelor of Information Technology (B.I.T.)

The Bachelor of Information Technology is offered jointly with Algonquin College.

### Admission Requirements

#### *First Year*

To be eligible for admission to the first year of the Bachelor of Information Technology (in Network Technology or in Interactive Multimedia and Design), the applicant must have:

1. The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses.
2. For BIT Network Technology

The six 4U or M courses must include one science course, a 4U course in English, and one of Advanced Functions or Calculus and Vectors or Mathematics of Data Management (Calculus and Vectors and Physics are recommended). Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

3. For BIT Multimedia and Design

The six 4U or M courses must include one science course, a 4U course in English, and one of Advanced Functions or Calculus and Vectors or Mathematics of Data Management (Calculus and Vectors and Physics are recommended). Equivalent courses may be substituted between the old and new Ontario mathematics curriculum. In addition, candidates for BIT in Interactive Multimedia and Design must submit a portfolio of any kind of work that demonstrates the applicant's creativity and aptitude in design work.

#### *Advanced Standing*

Applications for Advanced Standing towards the program leading to the Bachelor of Information Technology will be evaluated on an individual basis upon admission to the program. Students may request that additional courses be considered toward Advanced Standing. Such requests may be made only once and must be received by the BIT Joint Council (comprised of instructors from Carleton University and Algonquin College) by August 30 of the year in which the student is admitted to the program. Requests must follow the submission format outlined on the BIT web site.

Only university- and college-level courses in which a student has achieved a grade of C- or higher are eligible to be considered for Advanced Standing.

### Co-op Option

**Direct Admission to the First Year of the Co-op Option**  
Applicants must:

- a) meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- b) be registered as a full-time student in one of the streams of the Information Technology degree stated in this section;
- c) be eligible for work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing

job market may limit enrolment in the Co-op option.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

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## International Business

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### Degree

- Bachelor of International Business (B.I.B.) (Honours)

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include English, and one of Advanced Functions (recommended), Calculus and Vectors or Mathematics of Data Management. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

For applicants whose first language is not English, the requirement of 4U English can also be met under the conditions outlined in “English Language Requirements” in the Admissions Requirements and Procedures section of this Calendar.

Some knowledge of another language would be beneficial.

#### *Advanced Standing*

Applications for admission to second and subsequent years will be assessed on their merits, subject to available spaces. Advanced standing will be granted only for those courses that are determined to be appropriate for the International Business program. Students must present an Overall CGPA of 8.0 (equivalent to B average) or better.

The program requires 0.5 credit each of Linear Algebra and Calculus at the first year university level. Application for admission will not be considered unless these credits are successfully completed and transferable for the program.

On admission to the Bachelor of International Business program, students will not receive credit for courses with grades below C-. Students with a prior university degree will receive advanced standing where appropriate; however, following admission to the program a minimum of 5.0 credits will be required for the Bachelor of International Business degree. The design of the BIB program is premised on a full year of study abroad (at third year) after the preparations leading to it are successfully completed at Carleton. Some transferred credits (normally electives) may have to be forfeited in order to meet the Third-year Study Abroad Requirement of minimum 4.0 credits completed during year abroad.

Students who are admitted with advanced standing may need to delay the third-year abroad requirements until first and second year curricula are completed and consequently delay graduation.

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## Journalism

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### Degree

- B.J. (Honours)

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include 4U English.

**Note:** Students who already hold an undergraduate degree in another field are not eligible to apply for the B.J. (Honours) program. These students should consult the information on the Master of Journalism or the Master of Arts in Communication in the Faculty of Graduate Studies and Research Calendar.

#### *Advanced Standing*

The School also maintains a number of places in second year for students who wish to transfer from Carleton or elsewhere. Normally, offers are made to students with an overall CGPA of 10.00 (A-) or higher.

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## Mathematics and Statistics

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### Degree

- Bachelor of Mathematics (B. Math.) (Honours)
- Bachelor of Mathematics (B.Math.) (General)

### Admission Requirements

#### Honours Program

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include two prerequisite courses (Advanced Functions and Calculus and Vectors).

The overall admission cut-off average and/or the prerequisite course average may be considerably higher than the stated minimum requirements for admission to the combined B.Math/M.Sc in Mathematics, or Statistics.

#### *Advanced Standing*

For entry to an Honours program after the completion of 5.0 included credits, a student must have a major and core CGPA of 5.50 or higher, an overall CGPA of 4.50 or higher and the recommendation of the Honours department or committee. A student beginning the final 10.0 credits towards an Honours degree must present a major and core CGPA of 6.00 or higher, an overall CGPA of 5.00 or higher and the recommendation of the Honours department or committee. A student beginning the final 5.0 credits towards an Honours degree must present a major and core CGPA of 6.50 or higher and an overall CGPA of 5.00 or higher, as calculated for graduation. Advanced standing will be granted for studies undertaken elsewhere when these are recognized as the equivalent of subjects offered at Carleton University.

#### General Program

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include two prerequisite courses (Advanced Functions and Calculus and Vectors). Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

#### *Advanced Standing*

For entry to a General program after the completion of 5.0 included credits, a student must have a major and core CGPA of 3.50 or higher and an overall CGPA of 3.50 or higher. A student beginning the final 5.0 credits towards a General degree must present a major and core CGPA of 4.00 or higher and an overall CGPA of 4.00 or higher,

as calculated for graduation. Advanced standing will be granted for studies undertaken elsewhere when these are recognized as the equivalent of subjects offered at Carleton University.

### B. Math. (Honours) Degree in Biostatistics

The Ontario Secondary School Diploma (OSSD) or equivalent, including a minimum of six 4U or M courses. The six 4U or M courses must include the four courses: Advanced Functions; Calculus and Vectors; Biology; Chemistry. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

In addition, 4U or M in Physics is highly recommended.

Moreover, although it is not an admission requirement, at least one 4U course in either English or français is recommended.

Entrance after first year and continuation at the end of first year in the program requires Honours standing in each of Mathematics & Statistics and in Biology.

#### *Advanced Standing*

Applicants for admission with advanced standing to the program will be evaluated on an individual basis. Successful applicants will have individual academic subjects, completed with grade of C- or higher, evaluated for academic standing, provided the academic work has been completed at another university or degree-granting college or in another degree program at Carleton University. Students must take a minimum of 1.0 credit of complementary studies at Carleton University.

#### Co-op Option (excluding Biostatistics)

**Direct Admission to the First Year of the Co-op Option**  
Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the Bachelor of Mathematics Honours program;
- be eligible to work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market (and thus the availability of co-op placement) may limit enrolment in the co-op option.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

#### Co-Op Option (Biostatistics)

**Direct Admission to the First Year of the Co-op Option**  
Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements for the B.Math. degree;
- be registered as a full-time student in the program;
- be eligible for work in Canada (for off-campus work placements).

Meeting the above entrance requirements only establishes eligibility for admission to the program. Enrolment in the co-op option may be limited at the discretion of the School.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

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## Music

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### Degree

- B.Mus. (Honours)

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses.

Although it is not an admission requirement, a 4U course in English is recommended.

**Note:** An audition is required.

#### *Advanced Standing*

Students transferring into the Bachelor of Music with First, second or third year standing must have achieved a major CGPA of 6.00 (C+) or higher and an overall CGPA of 5.00 (C) or higher. Students beginning the final 5.0 credits towards the Bachelor of Music degree must have achieved a major CGPA of 6.50 (C+/B-) or higher and an overall CGPA of 5.00 (C) or higher.

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## Public Affairs and Policy Management

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### Degree

- B.P.A.P.M.

### Admission Requirements

#### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses.

#### *Advanced Standing*

Applications for admission with advanced standing to the program will be evaluated individually by the Program Management Committee. Advanced standing will be granted only for those courses deemed to be appropriate to the program. On admission, students will not receive credit for courses graded below C-.

Continuation to second year will be guaranteed only to those students who have an overall CGPA of 7.00 or higher and a grade of B- or higher in PAPM 1000.

#### *Co-op Option*

### Direct Admission to the first year of the Co-op Option

Applicants must:

- meet the required overall admission cut-off average and/or prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the B.P.A.P.M. program;
- be eligible to work in Canada (for off-campus work placements).

Meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are

described in the Co-operative Education Regulations section of this Calendar.

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## Science

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### Degrees

- B.Sc. (Honours)
- B.Sc. (General)
- B.Sc. (Major)

### Admission Requirements

#### Honours Program

##### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. For most programs including Bioinformatics, Biology, Biochemistry, Chemistry, the Computational Sciences (Biology, Chemistry and Geophysics), Neuroscience and Psychology the six 4U or M courses must include Advanced Functions and two of Biology, Chemistry, Earth and Space Sciences or Physics. (Calculus and Vectors is strongly recommended). Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

##### *Specific Honours Admission Requirements*

For the Honours programs in Environmental Science, Geography, Earth Sciences, Integrated Science and for the combined Honours programs in Biology and Physics, Chemistry and Physics, Calculus and Vectors may be substituted for Advanced Functions.

For the Honours programs in Physics and Applied Physics and for Double Honours Mathematics and Physics, Calculus and Vectors is required in addition to Advanced Functions and one of 4U Physics Chemistry, Biology, or Earth and Space Sciences. For all programs in Physics, 4U Physics is strongly recommended.

For the Combined Honours program in Chemistry and Computer Science, 4U Chemistry and Calculus and Vectors are strongly recommended.

For Honours in Psychology, a 4U course in English is recommended.

For Honours in Environmental Science, a 4U course in Biology and Chemistry is recommended.

##### *Advanced Standing*

For entry to an Honours program after the completion of 5.0 included credits, a student must have a major CGPA of 5.50 or higher, an overall CGPA of 4.50 or higher and the recommendation of the Honours department or committee. A student beginning the final 10.0 credits towards an Honours degree must present a major CGPA of 6.00 or higher, an overall CGPA of 5.00 or higher and the recommendation of the Honours department or committee. A student beginning the final 5.0 credits towards an Honours degree must present a major CGPA of 6.50 or higher and an overall CGPA of 5.00 or higher, as calculated for graduation. Advanced standing will be granted for studies undertaken elsewhere when these

are recognized as the equivalent of subjects offered at Carleton University.

### Major Program

#### General Program

##### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include Advanced Functions and two of Calculus and Vectors, Biology, Chemistry, Earth and Space Science or Physics (Calculus and Vectors is strongly recommended). For the B.Sc. Major in Physics, Calculus and Vectors may be substituted for Advanced Functions, and one of 4U Physics, Chemistry, Biology or Earth and Space Sciences is required. 4U Physics is strongly recommended. A Grade 12 U course in Physics is strongly recommended. Equivalent courses may be substituted between the old and new Ontario mathematics curriculum.

##### *Advanced Standing*

For entry to a General or Major program after the completion of 5.0 included credits, a student must have a major and core CGPA of 3.50 or higher and an overall CGPA of 3.50 or higher. A student beginning the final 5.0 credits towards a General or Major degree must present a major and core CGPA of 4.00 or higher and an overall CGPA of 4.00 or higher, as calculated for graduation. Advanced standing will be granted for studies undertaken elsewhere when these are recognized as the equivalent of subjects offered at Carleton University.

### Co-op Option

#### Direct Admission to the First Year of the Co-op Option

Applicants must:

- meet the required overall admission cut-off average and prerequisite course average. These averages may be higher than the stated minimum requirements;
- be registered as a full-time student in the Bachelor of Science Honours program;
- be eligible to work in Canada (for off-campus work placements).

Note that meeting the above requirements only establishes eligibility for admission to the program. The prevailing job market may limit enrolment in the co-op option.

**Note:** continuation requirements for students previously admitted to the co-op option and admission requirements for the co-op option after beginning the program are described in the Co-operative Education Regulations section of this Calendar.

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## Social Work

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### Degree

- B.S.W. (Honours)

### Admission Requirements

##### *First Year*

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses.

Although it is not an admission requirement, a 4U course in English is strongly recommended. Preference will be given to applicants with human service work experience, which may be met by employment and/or volunteer experience. Applicants will be requested to complete a personal information document that will assist in the

evaluation of their suitability for the program.

#### *Advanced Standing*

Students who meet the Faculty Honours continuation standards will be considered for transfer into the second year of the B.S.W. program when spaces are available. Students who have completed an undergraduate degree are normally admitted into the program with Third-year standing.

#### *Community College Applicants*

Articulation agreements between the School of Social Work at Carleton University and several community colleges have been negotiated to facilitate the application of their graduates in their human or social service worker programs to Carleton's Bachelor of Social Work. Agreements have been established with Algonquin College, Sir Sandford Fleming College and St. Lawrence College (Cornwall and Kingston). Contact the School for more details.

Candidates may be admitted with advanced standing, but must take at least 3.0 credits for the Certificate from Carleton University.

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## Certificate in the Teaching of English as a Second Language (CTESL)

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### Admission Requirements

To be eligible for admission to the 5.0 credit CTESL program students must have already obtained a degree and have extensive experience in teaching, or are registered in an Honours degree at Carleton University with an overall CGPA of 7.00 (B-) or higher. Students registered in the concurrent CTESL program who fail to complete their degree cannot receive the CTESL.

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## Certificate in Public Service Studies

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### Admission Requirements

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. Special consideration will be extended to other applicants under Mature Applicant regulations (see Mature and Special Admissions, in the Admissions Regulations and Procedures section of this Calendar).

Candidates may be admitted with advanced standing, but must complete at least 4.0 credits at Carleton, including all required courses, to obtain the Certificate from Carleton University. Students who have completed an undergraduate degree are not eligible for admission to this program.

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## Certificate in Nunavut Public Service Studies (delivered on-site in Nunavut)

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### Admission Requirements

The Ontario Secondary School Diploma (OSSD) or equivalent including a minimum of six 4U or M courses. The six 4U or M courses must include a 4U course in English (or *anglais*) with a grade of 60 percent or higher. For applicants whose first language is not English, the requirement of 4U English can also be met under the conditions outlined in the section "English Language Requirements" in the Admissions Requirements and Procedures section of this Calendar. Special consideration will be extended to other applicants under Mature Applicant regulations (see Mature and Special Admissions, in the Admissions Regulations and Procedures section of this Calendar).



# Enriched Support Program

Centre for Initiatives in Education  
Faculty of Arts and Social Sciences

1516 Dunton Tower  
Telephone: 613-520-2804  
Fax: 613-520-2515  
Office Hours: Monday to Friday, 8:30 - 4:30  
**Director:** Fred Goodwin  
**Associate Director:** Beth Hughes  
**Program Coordinator:** Susan Burhoe  
**Coordinator, Academic Support Programs:**  
Rachelle Thibodeau  
[carleton.ca/cie](http://carleton.ca/cie)

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## General Information

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The Enriched Support Program (ESP) is operated by the Centre for Initiatives in Education (CIE). The ESP is a program for students whose academic potential has not been realized in high school and who do not meet university admission requirements. The program gives these students the opportunity to prove their abilities within the context of university-level courses. ESP students attend three credits with regularly admitted students and are graded according to the same standards. ESP students also enrol in mandatory, content-related workshops designed to provide the academic support these students need to make the transition to university-level work. An Aboriginal Enriched Support Program (AESP) within the ESP offers personalized support to Aboriginal students.

All currently registered and prospective ESP students (see Student Classification, below) should contact the CIE for application and registration information.

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## Admission to the ESP

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Students wishing to apply for admission to the ESP should contact the CIE. For details and an application form, visit: [carleton.ca/cie/ESP/application.htm](http://carleton.ca/cie/ESP/application.htm)

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## ESP Student Classification

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ESP students fall under the Special Student designation at Carleton University. Special students are those who have not been admitted to a degree program but who are taking degree-credit courses to qualify for admission.

### ESP Students

Under the Special Student designation, ESP students enrol in the same courses and meet the same course requirements as students in degree programs. ESP students choose their credits from a specific selection of ESP supported courses.

Registrarial services for ESP students are provided by the Centre for Initiatives in Education and the Registrar's Office. ESP students are also encouraged to consult the appropriate Faculty regulations for information about degree programs they intend to apply for upon successful completion of the ESP.

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## Proficiency in English

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Since the instructional language of the University is English, applicants to the ESP must be able to understand and be understood in English, both written

and oral. See section 4, English Language Requirements, in the General Admissions Requirements and Procedures for the statement of policy governing English language requirements for non-native speakers.

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## Course Load

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Normally, ESP students may enrol in a maximum of 3.0 credits per academic session (fall/winter) and no more than the equivalent of 1.5 credits (e.g. three half-credit courses) in any one term. Course selection is limited to ESP-designated courses, many of which emphasize reading and writing skills. For two of these courses, students also attend regular weekly small-group workshops, where they are given extra support and guidance in dealing with the course material. The workshops are designed to develop the skills and strategies necessary for university-level critical thinking, analysis, reading and writing.

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## ESP-Supported Courses

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ESP students wishing to be admitted eventually to a degree program are advised to note the specific Faculty requirements for course selection and the admission requirements as they are listed in this Calendar. Individuals seeking admission who need further information should inquire at the Admissions Services or the ESP Student Advisory Office.

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## Course Change and Course Withdrawal

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Please consult the *Academic Regulations of the University* section of this Calendar.

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## Deferred Final Examinations

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Please consult the *Academic Regulations of the University* section of this Calendar.

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## Financial Assistance

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ESP students interested in obtaining financial assistance are advised to contact the Student Awards Office at 613-520-3600.

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## Admission to a Degree Program upon Completion of ESP

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ESP students are subject to the same admission requirements as Special Students. These requirements are outlined in the Admissions Requirements section of this Calendar. Normally, ESP students who have successfully completed all 3.0 credits of their program with a C+ average (CGPA of 6.0 or better) can be considered for admission to a three-year degree program in the Faculty of Arts and Social Sciences or the Faculty of Public Affairs and Management. ESP students wishing to apply for admission to the Faculty of Engineering or the Schools of Architecture, Business, Computer Science, Industrial Design, Journalism, or Social Work are urged to consult with Admissions Services or the Centre for Initiatives in Education.

# Academic Regulations of the University

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## A. Registration, Evaluation and Records

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- 1.0 **Course Registration**
  - 1.1 Permission to Register
  - 1.2 Course Selection and Registration
  - 1.3 Payment of Fees
  - 1.4 Withdrawal
  - 1.5 Deregistration
  - 1.6 Auditing Courses
  - 1.7 Credit for Closely Related Courses
  - 1.8 Two-term Courses
  - 1.9 Challenge for Credit
  - 1.10 Academic Petitions and Appeals
- 2.0 **Course Evaluation**
  - 2.1 Credit
  - 2.2 The Course Outline
  - 2.3 Standing in Courses
  - 2.4 Examination Regulations
  - 2.5 Deferred Final Examinations
  - 2.6 Deferred Term Work
  - 2.7 Review of Grades
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  - 2.9 Academic Accommodation for Students with Disabilities
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- 3.0 **Records and Communication**
  - 3.1 Student Record Information
  - 3.2 Record Retention Policy
  - 3.3 Disclosure of Information
  - 3.4 Student Status
  - 3.5 Electronic Communication

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## B. Academic Regulations for Degree Students

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- 4.0 **General Regulations and Definitions**
  - 4.1 The Comprehensive Regulations
  - 4.2 Regulations Governing a Student's Program
  - 4.3 Absence from the University
  - 4.4 Student Categories
  - 4.5 Types of Programs
  - 4.6 Program Structure
  - 4.7 Year Status
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## 5.0 Admission and Residency Regulations

- 5.1 Transfer of Credit Prior to Admission
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- 5.3 Minimum Number of Carleton Credits

## 6.0 Program Regulations

- 6.1 The Cumulative Grade Point Average
- 6.2 Maximum Number of Credits Below the 2000-level
- 6.3 Discredits
- 6.4 Course Load
- 6.5 Restrictions on Program Elements
- 6.6 Maximum Number of Program Elements
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- 6.9 Credit for ESL Courses
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## 7.0 Academic Performance Evaluation

- 7.1 Academic Performance Evaluation for Degree Students
- 7.2 Assessment in Concentrations, Specializations and Minors
- 7.3 Readmission after Suspension or Debarment
- 7.4 Minimum CGPA Requirements
- 7.5 Academic Performance Evaluation for Some Degrees - Additional Information

## 8.0 Graduation

- 8.1 Graduation Requirements
- 8.2 Application for Graduation
- 8.3 Minimum CGPA Requirements for Graduation
- 8.4 Recognition of High Academic Achievement

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## C. Academic Regulations for Special Students

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- 9.0 **Regulations for Special Students**
  - 9.1 Application
  - 9.2 Academic Performance Evaluation for Special Students
  - 9.3 Course Load
  - 9.4 English Language Proficiency
- 10.0 **Registration for Special Students**
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  - 10.2 Special Students Enrolling in Graduate-Level Courses

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**D. Academic Regulations for Certificate and Diploma Students**

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- 11.0 Certificates and Diplomas
- 12.0 Admission to Certificate Programs
  - 12.1 Admission Requirements
  - 12.2 Transfer of Credit
- 13.0 Regulations for Certificates and Diplomas

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**E. Student Conduct**

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- 14.0 Academic Integrity
  - 14.1 Introduction
  - 14.2 The Policy
  - 14.3 Academic Integrity Standards
  - 14.4 Procedures
  - 14.5 Sanctions
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- 15.0 Offences of Conduct: Discrimination and Harassment
  - 15.1 Carleton University's Human Rights Policy
  - 15.2 Unacceptable Conduct
  - 15.3 Enforcement
  - 15.4 Formal Procedures

## A. Registration, Evaluation and Records

### 1.0 Course Registration

#### 1.1 Permission to Register

To be eligible to register for an academic term, students must meet the following requirements:

- a) Students new to Carleton must be formally admitted to a degree or certificate program OR have submitted the required application for Special student studies;
- b) Returning students must be academically eligible to continue in their programs;
- c) There must be no outstanding account with the university;
- d) The student must not have been suspended from the university for disciplinary reasons;
- e) International students must be enrolled in or have received permission for exemption from the University Health Insurance Plan (UHIP).

Registration instructions for the fall and winter terms are mailed to newly admitted and returning students. Information regarding summer term is available from the Registrar's Office normally by February 1 ([carleton.ca/summer](http://carleton.ca/summer)). Information about registration is also available at [carleton.ca/registration](http://carleton.ca/registration).

#### 1.2 Course Selection and Registration

Course selection must be completed according to the requirements of the faculty or school and major department(s) in which the student is registering. Students should seek the advice of their program adviser, academic unit or the Student Academic Success Centre when making course selections.

Students planning to undertake professional training beyond their undergraduate studies should ensure that their undergraduate programs meet the requirements for admission to, or registration in, their intended post-graduate program.

Acceptance by the university of a course registration does not exempt the student from any academic regulations.

All course selection and course change activity (adds, drops, withdrawals, change of section) is normally completed using Carleton Central at [central.carleton.ca](http://central.carleton.ca). These activities are limited by deadlines set out in the Academic Year section of this Calendar. It is the student's responsibility to understand and meet these deadlines.

#### 1.3 Payment of Fees

A student is responsible for all tuition and other fees resulting from registration in any and all courses. The student remains responsible for paying this debt whether or not the student attends or participates in the class or classes.

Student Accounts may be viewed through Carleton Central and are the administrative responsibility of the Business Office.

#### 1.4 Withdrawal

Responsibility for taking all steps necessary for withdrawal from an individual course, from several courses, or from all courses resides with the student. Ceasing to attend classes, or informing an instructor of intent to withdraw does not constitute withdrawal. Withdrawal is normally completed by using Carleton Central at [central.carleton.ca](http://central.carleton.ca). The official date of withdrawal from the course(s) is the date on which the student successfully completes the necessary withdrawal action.

Students must withdraw from courses on or before the appropriate last date for withdrawal as indicated in the Academic Year section of this Calendar. It is not possible to withdraw from a course or courses or from the university after the appropriate designated last date for withdrawal.

Withdrawal activity may affect academic standing as prescribed by regulations governing the program. Consult the Registrar's Office for information and guidance. A student who withdraws from a course retains no academic credit for any part of that course. Withdrawing from a course may have serious consequences for scholarships, OSAP and other student financial support programs. Students are advised to consult the Awards Office for guidance.

Fee adjustments for students who are withdrawing from a course, courses, or entirely from the university will be calculated as of the date of successful completion of withdrawal via Carleton Central.

#### 1.5 Deregistration

The University may cancel a registration under the following circumstances:

- a) if it is determined that the student does not meet all of the requirements for permission to register as set out in 1.1 above;
- b) if it is determined that an applicant for admission has, in the process, provided false or incomplete information;
- c) if the student does not have, or present proof of when requested, the course prerequisite(s);
- d) if it is determined that the student has not met the additional admission requirements including ESL or CAEL or other English language proficiency requirements;
- e) if it is determined that the student has not met the requirements of a conditional offer of admission.

#### 1.6 Auditing Courses

Students may register to audit courses (i.e. attend without receiving credit) in addition to those courses being taken for credit. Although

audited courses receive no academic credit, they are counted as part of the total course load for both academic and fee assessment purposes. Registration to audit requires the permission of the instructor and the department offering the course. Access to courses for purposes of auditing is also limited by demand for credit space in courses. Some courses are not available for audit purposes. The deadline to change a course enrolment from credit to audit or audit to credit is the last day for course changes (see the Academic Year section of this Calendar).

The course outline (see Section 2.2) may specify conditions, such as attendance, that must be satisfied for successful audit. If these conditions are met the notation Audit (AUD) is given. If the conditions are not met the notation Did Not Complete (DNC) is assigned.

### 1.7 Credit for Closely-Related Courses

The university recognizes three distinct close relationships between courses.

Courses *preclude* credit for each other if they contain sufficient content in common that credit may not be earned for more than one of the courses. Should two or more courses be taken that preclude each other, only the most recent attempt will be available for program credit; the remaining earlier attempt(s) will be forfeited. Courses that preclude each other are not necessarily considered equivalent and may or may not be interchangeable in fulfilling degree requirements.

Courses are *equivalent* if the appropriate academic unit(s) consider the content of the courses to be sufficiently similar that either course may be used to fulfil a program requirement. Courses designated as equivalent to each other preclude credit for each other: credit is retained only for the most recent attempt. Examples of equivalent courses arise frequently in advanced standing and when new curriculum is introduced.

Two courses are *cross-listed* if they are the same course listed under two different subject codes, usually by two different academic units.

In all cases, credit will be given for only one of the courses in any equivalent, precluded or cross-listed pair. Students planning to enrol in such courses are advised to consult with their academic adviser in advance of registration to ensure that the course number under which they will be enrolling is appropriate to their program. Changes to resolve incorrect course selection due to equivalence, preclusion or cross-listing may not be made after the last day for course changes in the term (see the Academic Year section of this Calendar).

### 1.8 Two-term Courses

Certain courses may be taught over two academic terms. Students are required to register in such courses twice, once in each term. The student must register in the same section in each term. These courses will be clearly identified in the registration material. The most common example is a 1.0-credit course taught over the fall and winter terms.

In place of a grade, the first term course will be assigned the notation *CTN*. The second term

course will be assigned the final grade for the entire course. Credit will be given only for the complete course taught over two consecutive terms in corresponding sections. No credit will be given for part of the course.

### 1.9 Challenge for Credit

*Challenge for credit* is a Carleton University policy that enables students to gain undergraduate academic credit for their own learning and experience through work and related professional development. It is not intended to overlap in scope with transfer of credits or admission with advanced standing.

This policy gives the student the opportunity to be examined on, and receive credit for, a recognized Carleton course without meeting the normal requirements of registration, attendance, and instruction. Students wishing to challenge for credit should inquire at the Registrar's Office and provide documentation to support the challenge. If the academic department, after an interview, is satisfied that the student has adequate experience and learning related to the course in question, it sets an appropriate examination. If the student is successful in the examination, the course is credited to his or her academic record.

Not all courses offered at the university are open to challenge for credit. Students seeking more information should contact the Registrar's Office.

Challenge for credit is available only to students formally admitted to and registered in a program leading to a degree or certificate. Special students are not eligible to apply for challenge for credit. Students may challenge for credit in a course only if they are in good standing academically. A student may not challenge for credit more than once in the same course.

A successful challenge for credit is denoted on the student's record by the notation CH. An unsuccessful challenge attempt is denoted by UCH. These notations have no impact on the CGPA calculation. Credits obtained by challenge may not be used to satisfy the residency requirement for the student's degree program or major discipline (see Section 5.2).

### 1.10 Academic Petitions and Appeals

#### 1.10.1 Undergraduate Academic Petition

The Senate of the University establishes academic rules, regulations and deadlines, which are designed to ensure that academic standards are upheld and that all students are treated fairly and equitably. However, the University does understand that extenuating circumstances, beyond a student's control, can occur and adversely affect a student's ability to meet academic obligations. In those instances, a student may submit a **petition**, which is a formal request for accommodation with regard to normal rules, regulations and deadlines of the University. The following procedures are concerned with academic regulations and admission decisions. There is a separate review and appeal process for reconsideration of grades in term work and final examinations (See Sections 2.7 and 2.8). Concerns related to the

offering of a particular course are within the jurisdiction of the Dean of the Faculty offering the course.

There are two types of circumstances that might warrant a request for an exception to published rules, regulations, or deadlines. One type of petition concerns personal circumstances such as illness, unanticipated occupational commitments, or other unanticipated serious events. The second type concerns whether a rule or regulation has been properly or fairly applied to a student's record.

A student seeking accommodation with respect to an academic regulation, rule, or deadline submits a petition in writing to the Registrar's Office. Unless subject to an earlier deadline, petitions must be submitted by the following deadlines:

**January 30**

- for petitions arising from the fall term

**June 30**

- for petitions arising from the winter term

**September 30**

- for petitions arising from the summer session

Students can obtain from the Registrar's Office the required Academic Petition form, information about the procedures to be followed, and details regarding the documentation needed to support a petition. Students seeking reconsideration of an admission decision must submit an application in writing to the Admissions Service Office.

**1.10.2. Undergraduate Appeal**

An **appeal** is the process by which a student may challenge, in writing, the decision on a petition. Students may initiate an appeal by submitting an Academic Appeal Form to the Registrar's Office. Such appeals must be submitted within 14 days of receiving the decision on the original petition. It is the student's responsibility to ensure that the appeal submission is complete and includes all relevant matters which the committee should consider in rendering its decision. The Senate Undergraduate Studies Committee makes the final decision on an appeal.

**1.10.3. Procedural Review**

Students may request a **procedural review** of decisions made by the Senate Undergraduate Studies Committee. The review is initiated by a communication, in writing, to the Clerk of Senate. Procedural review is restricted to confirmation by the Clerk that (i) proper procedures have been followed as set out in the appropriate approved policy, (ii) that issues of bias have been properly addressed, and (iii) that the decision reached is within the scope of the delegated authority and is consistent with previous practice. The Clerk will decide either that proper procedures have been followed or that the matter shall be referred to an appropriate committee.

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**2.0 Course Evaluation**

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**2.1 Credit**

To obtain credit in a course, students must meet all the course requirements for attendance, term work and examinations as published in the course outline.

**2.2 The Course Outline**

The instructor is required to provide to the students of each course a formal statement called the course outline. The course outline must be given to the students before the last date for course changes, in a document distributed in class or posted at the class Web site.

The course outline must specify all the elements that will contribute to the final grade, and the weighting of each element.

The course outline may specify requirements that must be satisfied for the student to be eligible to write the final examination or the deferral of the final examination. If no such conditions are explicitly mentioned in the course outline, all students are eligible to write the final examination or, where circumstances warrant, to apply to the Registrar's Office for deferral of the final examination.

The course outline may also specify the requirements imposed on those auditing a course, including attendance, to successfully complete the audit.

**2.2.1 Early Feedback Guideline**

Providing feedback to students on academic work, completed or in progress, is an integral part of teaching and learning in that it allows students to measure their understanding of material, the success of their learning strategies, and their progress on learning objectives. While the nature and frequency of such feedback will vary with the course and level, Carleton University is committed to providing students with appropriate and timely feedback on their work. Accordingly, wherever possible, and especially in first and second year courses, instructors are urged to include academic work that is assigned, evaluated and returned prior to the 25th teaching day of each term. More generally, all instructors are urged to include academic work that is assigned, evaluated and returned prior to the 40th teaching day of each term.

The spirit of this guideline should be followed during the summer term. In particular, all instructors are urged to include academic work that is assigned, evaluated, and returned at least two days prior to the last day to withdraw from the course in Early Late, or Full Summer term.

Course outlines should provide an indication of approximately when the first graded piece of work will be returned to students. In cases where a course does not lend itself to early feedback, this should be clearly noted on the course outline.

### 2.3 Standing in Courses/Grading System

Standing in a course is determined by the course instructor, subject to the approval of the faculty Dean. Standing in courses will be shown by alphabetical grades. The system of grades used, with corresponding grade points is:

A+	12	B+	9
A	11	B	8
A-	10	B-	7
C+	6	D+	3
C	5	D	2
C-	4	D-	1
		F	0

Grade points indicated above are for courses with 1.0 credit value. Where the course credit is greater or less than one credit, the grade points are adjusted proportionately.

The following percentage equivalents apply to all final grades at Carleton:

A+	90-100	B+	77-79
A	85-89	B	73-76
A-	80-84	B-	70-72
C+	67-69	D+	57-59
C	63-66	D	53-56
C-	60-62	D-	50-52
		F	0-49

Other grades and notations in current use by the university are as follows:

- F** Failure. The grade of F is assigned when the student has failed to meet the conditions of "satisfactory performance" defined in the Course Outline. F carries 0.0 grade points.
- FND** Failure with no deferred final examination allowed. The grade FND is assigned only when the student has failed the course on the basis of inadequate term work as specified in the Course Outline. FND carries 0.0 grade points.
- ABS** Absent from a required final examination. ABS is assigned only when the student is absent from the required final examination and has achieved satisfactory performance during the term as specified in the course outline. ABS is equivalent to an F and is carries 0.0 grade points.
- AEG** *Aegrotat*. Pass standing is granted under special circumstances by an academic appeal committee, in response to an application from or on behalf of a student, on the basis of course work when no further assessment is considered feasible. AEG has no impact on the CGPA calculation.
- AUD** Audit. No academic credit. Indicates the course was not taken for academic credit, but that the student has the permission of the instructor to audit the course and has satisfied the conditions for successful audit of the course. AUD has no impact on the CGPA calculation.

- DNC** Did not complete the course. No academic credit or impact on the CGPA calculation.  
  
In credit courses, the notation DNC is assigned by the appropriate appeal committee in the case of a student, who, having achieved satisfactory performance during the term, and has been granted a deferred final examination in the course then is unable to write the deferred examination due to continued and documented personal or medical reasons.  
  
In the case of audited courses, DNC is assigned by the instructor when the student has registered to audit the course and has not satisfied the requirements for successful audit.
- CTN** Continuing. This notation is assigned by the Registrar's Office only to the first half of a course taught as consecutive sections over two terms.
- WDN** Withdrawn. No academic credit. WDN has no impact on the CGPA calculation.
- CH** Credit granted under challenge for credit policy. CH has no impact on the CGPA calculation.
- UCH** Unsuccessful attempt for CH. UCH has no impact on the CGPA calculation.
- SAT** Satisfactory performance in an ungraded program requirement or option. SAT has no impact on the CGPA calculation.
- UNS** Unsatisfactory performance in an ungraded program requirement or option or course taken on a Letter of Permission. UNS has no impact on the CGPA calculation.
- CUR** Current registration. This interim notation is assigned only by the Registrar's Office, and indicates that the student is currently registered in this course.
- GNA** Grade not available. This interim notation is assigned only by the Registrar's Office, and indicates that the grade for this course is not available. GNA is replaced with the appropriate grade for the course as soon as it is available.  
  
The following are interim notations that are, after due process, replaced with one of the grades above.
- DEF** Final grade deferred for documented personal or medical conditions. DEF is an interim notation assigned by the Registrar's Office. DEF must be replaced by a grade within the prescribed time or it is replaced with an F. (See 2.5, Deferred Final Examinations.)
- IP** In Progress. This interim notation is assigned only with the permission of the Registrar's Office when the final grade in a research thesis or project is not available before the deadline for grade submission. IP must be replaced by a grade within the prescribed time or re-registration in the course will be required, or the IP is replaced with an F.  
  
**The following notations are no longer in use by the University:**
- FNS** Failure without access to a supplemental examination because of incomplete term work or unacceptably low standing. No academic credit.
- FWS** Failure with access to supplemental examinations.

- 2.3.1 A course is considered to be *completed* when the course registration results in a notation or grade other than WDN, DNC, IP, CTN or AUD.
- 2.3.2 A course is considered to be *successfully completed* if the course is completed with a passing grade, SAT, CH, or AEG.

## 2.4 Examination Regulations

Students writing tests and examinations should be aware of the rules governing examination conduct. These rules include those listed in the Academic Integrity section of this Calendar as well as those printed on the back cover of official examination booklets. Students may find the latter at [carleton.ca/cu/programs/exam/](http://carleton.ca/cu/programs/exam/) and section 14.0 of these Academic Regulations of the University.

For examinations scheduled during the official examination period, it may be necessary to schedule examinations during the day for classes held in the evening and vice versa or on Saturday.

All tests and examinations, except laboratory examinations, oral and slide tests and other particular tests, are subject to the following rules:

- a) Tests or examinations given in class may not exceed the time allotted for the class;
- b) Final examinations in the summer term will be held in official examination periods;
- c) In courses numbered below the 2000-level, if there is a final examination or an end of term examination in a multi-term course, this examination will be held in the official examination periods;
- d) In courses numbered below the 4000-level, no tests or examinations may be held during the last two weeks of fall, winter or summer terms, or between the end of classes in a term and the beginning of formally scheduled examinations;
- e) In courses below the 4000-level, take-home examinations may not be assigned before the last day of classes and are due on the last day of the official examination period;
- f) In courses at the 4000-level, arrangements for examinations outside the official examination period are at the instructor's discretion but must be announced at least three weeks in advance.

## 2.5 Deferred Final Examinations

Students who do not write or complete a final examination because of illness or other circumstances beyond their control may apply to write a deferred examination.

If a student becomes ill or receives word of an emergency during an examination and cannot complete the examination, he or she must hand in their answer books immediately to the proctor and request that their examination be cancelled. The examination must be cancelled by the proctor in order for the student to be eligible to apply for a deferral.

In both cases, the application for a deferral must:

- a) be made in writing to the Registrar's Office no later than five working days after the original final examination or the due date of the take-home examination; and
- b) be fully supported by appropriate documentation and in cases of illness by a medical certificate dated no later than one working day after the examination or by appropriate documents in other cases. Medical documents must specify the date of the onset of the illness, the (expected) date of recovery, and the extent to which the student was/is incapacitated during the time of the examination. The university's preferred medical form can be found at: [carleton.ca/registrar/forms/Med\\_Cert\\_Carleton\\_University.pdf](http://carleton.ca/registrar/forms/Med_Cert_Carleton_University.pdf)

The granting of a deferral also requires that the student has performed satisfactorily in the course according to the evaluation scheme established in the Course Outline, excluding the final examination for which deferral privileges are requested. Reasons for denial of a deferral may include, among other conditions, a failure to (i) achieve a minimum score in the course before the final examination; (ii) attend a minimum number of classes; (iii) successfully complete a specific task (e.g. term paper, critical report, group project, computer or other assignment); (iv) complete laboratory work; (v) successfully complete one or more midterms; or (vi) meet other reasonable conditions of successful performance.

*Aegrotat* standing may be considered for applicants for deferred finals but will be granted only if a substantial proportion of the term work has been completed and is of high quality.

Students will not be given a deferral of a deferred examination. Students granted a deferred final examination who are then unable to write the deferred final examination due to properly documented personal or medical conditions will receive one of the notations *Aegrotat* (AEG), *Did Not Complete* (DNC) or the grade F for the course as assigned by the appropriate appeal committee. AEG denotes a pass standing and is assigned only in cases where a substantial proportion of the term work has been completed and is at a high academic standard.

DNC denotes that the course has been neither passed nor failed and is assigned when satisfactory performance has been achieved during the term. In all other cases, the grade F is assigned. (see **Standing in Courses, Section 2.3**).

Students who have obtained approval for a deferred examination in a CUTV course will not have access to tapes for the course after the end of the academic term of the original course.

Deferred final examinations are scheduled in the time period approved by Senate, unless alternate arrangements are made with the instructor. Except for the special cases described below, deferred final examinations are held in February for fall term courses, in June for fall/winter and winter term courses and in October for summer term courses, except where such a delay will delay graduation.



The deferred examination schedule is altered for certain courses:

MATH 0007, MATH 0107, MATH 1005, MATH 1007, MATH 1107, MATH 1009, MATH 1119, MATH 2004, MATH 2007, MATH 2008, MATH 2009, MATH 2107, STAT 2507, STAT 2509, STAT 2605

For these courses, when the course is offered again the next term, the deferred final examinations are held in April for fall term courses, in December for summer term courses and, with the other deferred examinations, in June for winter term courses.

## 2.6 Deferred Term Work

In some situations, students are unable to complete a significant term assignment because of illness or other circumstances beyond their control, which forces them to delay submission of the work. If this happens late in the term, it may be necessary for the due date to be delayed beyond the deadline for reporting the course grades. The student should, in the first instance, consult with the course instructor. If a student is unable to submit an essential piece of term work in time for the determination of the final grade, the student may apply for a deferral of the assignment deadline. The application for deferred assignment must:

- a) be made in writing to the Registrar's Office no later than five working days after the last day of classes; and
- b) be fully supported in cases of illness by a medical certificate or by appropriate documents in other cases. Medical documents must specify the date seen, date of the onset of the illness, the (expected) date of recovery, and the extent to which the student was/is incapacitated during the time the assignment was to be prepared.
- c) Be supported by official confirmation of the assignment due date; for example, a copy of the course outline specifying the due date and any documented extensions from the course instructor.

If the deferral of the assignment is approved, the student will receive the interim notation DEF, which will be replaced when the assignment been submitted and graded. The final dates for submission of deferred term assignments are the following, unless alternate arrangements are made with the instructor:

Fall-term courses: January 15

Fall/winter- and winter-term courses: May 15

Summer-term courses ending in June: July 15

Summer term courses ending in August: September 1

## 2.7 Review of Grades

Whenever possible, both during the term and after, concerns about the grading of student work should be settled informally between the student and the instructor. The protocols described here are the procedures to follow when this informal process cannot be followed.

The outcome of a review may raise, lower or leave unchanged the original grade.

### 2.7.1 Definitions

Term work consists of any assigned course work that is returned to the student on or before the date when the term ends, as stated in the university's official schedule, provided in the Academic Year section of this Calendar. This date often differs from the last day of classes.

Final work is any assessed work received back later than this date. Final work includes, but is not limited to, final examinations.

### 2.7.2 Review of Grade for Term Work

A request for Review of Grade for Term Work is made to the instructor assigned to the course and the request can apply to any or all assignments, tests and other evaluations. The request must be made within 14 days of the day the grade is available to the student.

### 2.7.3 Review of Grade for Final Work

Students may request a Review of Grade for Final Work at the Registrar's Office. The course instructor conducts the Review of Grade for Final Work, or, if the instructor is not available, an alternate qualified reader designated by the chair or director. Check the Academic Year section of this Calendar for the application deadlines.

## 2.8 Appeal of a Grade

If the process of Review of Grade for Term Work or Final Work has not resolved the concerns, or if review is not appropriate, and where reasonable grounds exist which suggest error in the grade assigned by an instructor, then an appeal of the grade may be made to the dean of the faculty offering the course. The appeal is specific to the grade on a given piece of work, and more than one such grade may be appealed.

The dean, designated chair or director will, when reasonable grounds exist, assign assessment of the written or equivalent course work to at least one qualified reader other than the instructor. After due consultation, the dean, as chief academic officer of the faculty, will assign the grade. The outcome of the appeal may raise, lower or leave unchanged the original grade.

The appeal must be submitted to the Registrar's Office with full supporting documentation within 14 days of the completion of the review, or, if there was no review, within 14 days of receipt of the original grade.

## 2.9 Academic Accommodation for Students with Disabilities

Carleton University is strongly committed to providing access and accommodation for all individuals with identified and duly assessed disabilities. The university has a Senate-approved policy on academic accommodation that forms part of its Human Rights Policy. This policy should be consulted for further information and is available at: [carleton.ca/equity](http://carleton.ca/equity). The policy promotes efforts to accommodate students with disabilities so that they will have the opportunity to meet learning objectives and be fairly evaluated in

their performance. In no case, however, does academic accommodation negotiate away, lower, or remove the academic standards and learning objectives of any course or program, rule, regulation, or policy at the university.

The Paul Menton Centre for Students with Disabilities is the designated unit at the university for assisting the Carleton community in integrating persons with disabilities into all aspects of Carleton's academic and community life. The Paul Menton Centre provides assessment of academic accommodation, advises students on strategies to open a dialogue with instructors and acts as consultant, facilitator, coordinator and advocate in this area for all members of the university community.

The Paul Menton Centre provides individualized support services, based on appropriate and up to date documentation, to persons who are deaf or hard of hearing, with learning disabilities, attention deficit disorder (ADD), visual impairments, head injuries, physical disabilities including mobility impairments, or who have psychiatric, other medical or non-visible disabilities.

Students are responsible for applying for special services by making an appointment with the appropriate coordinator at the Paul Menton Centre. All requests will be considered on the basis of individual need. Students are advised to come to the Centre early in the term to discuss service requests.

Examination accommodations for all tests and examinations (in-class, CUTV, or formally scheduled) must be arranged by specific deadline dates. Please consult the Paul Menton Centre for a list of deadlines for all examinations. Accommodation requests not made prior to the specified deadlines will not be fulfilled.

## 2.10 Academic Accommodation for Students with Religious Obligations

Carleton University accommodates students who, due to religious obligation, must miss an examination, test, assignment deadline, laboratory, or other compulsory event. The University has a Senate-approved policy on religious accommodation that forms part of its Human Rights Policy, available at: [carleton.ca/equity](http://carleton.ca/equity).

Accommodation will be worked out directly and on an individual basis between the student and the instructor(s) involved. Students should make a formal written request to the instructor(s) for alternative dates and/or means of satisfying requirements. Such requests should be made during the first two weeks of any given academic term\*, or as soon as possible after a need for accommodation is known to exist, but in no case later than the penultimate week of classes in that term. Instructors will make reasonable accommodation in a way that shall avoid academic disadvantage to the student.

Students unable to reach a satisfactory arrangement with their instructor(s) should contact the Director of Equity Services. Instructors who have questions or wish to verify the nature of the religious event or

practice involved should also contact this officer.

\*When a student's presence is required prior to the date on which classes begin (e.g. for field trips or orientation activities), any student who cannot meet this expectation of attendance for reasons of religious accommodation should notify the Registrar's Office in advance.

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## 3.0 Records and Communication

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### 3.1 Student Record Information

#### 3.1.1 Names

As the university is committed to the integrity of its student records, students are required to provide either on application for admission or on personal data forms required for registration, their complete, legal name. Any requests to change a name, by means of alteration, deletion, substitution or addition, must be accompanied by appropriate supporting documentation. Upon making application for graduation, students may be asked to provide proof of their name.

#### 3.1.2 Addresses

Students are responsible for keeping their address and phone number information current. Address and phone number changes are done via Carleton Central. Incorrect address information will delay the receipt of important academic information.

### 3.2 Records Retention Policy

The University's records retention policy provides for the destruction of physical student file folders and their contents after five years have elapsed since the last registration. Carleton University student academic history information is retained electronically in perpetuity. This policy applies to all students who are formally admitted and registered at the university. Students who go through the admissions process but do not accept our offer of admission will have their files destroyed at the end of the admissions cycle. Further information on the policy can be obtained by contacting the Registrar's Office.

### 3.3 Disclosure of Information

The Ministry of Colleges and Universities and Statistics Canada require that Carleton University provide to them information pertaining to a student's status and other personal information. Upon registration as a student, one is deemed to have agreed to the disclosure by Carleton University of the student's status and other selected personal information pursuant to any such requirement.

In accordance with the Freedom of Information and Protection of Privacy Act (FIPPA), all personal and academic information is considered confidential and will not be disclosed to a third party without the authorization of the person to whom the information pertains. In addition, the university will disclose at the time of collection

of personal information the purpose for which that information will be used. For further information, please see [fippa.carleton.ca](http://fippa.carleton.ca)

### 3.4 Student Status

When responding to a legitimate request from an external agency that has not supplied its own definition, the following definitions are used:

- a) a *full-time undergraduate student* is one who is registered in at least 1.5 credits per term.
- b) a *full course load* is the normal maximum course load as defined by the student's program and evaluated term by term.

### 3.5 Electronic Communication

The University uses electronic mail communication through its MyCarleton (Connect) system as an official channel of communication with students. A message sent to a student's MyCarleton email account constitutes an official communication with the student. Students are responsible for monitoring their University email account on a regular basis for as long as they are active in the academic affairs of the university. Requests from students regarding academic or administrative issues must be sent from the student's MyCarleton account.

## B. Academic Regulations for Degree Students

### 4.0 General Regulations and Definitions

#### 4.1 The Comprehensive Regulations

- 4.1.1 The Senate of Carleton University may at any time require a student to withdraw from the university if his or her conduct, attendance, work or progress is deemed unsatisfactory.
- 4.1.2 Acceptance by the university of a registration does not exempt the student from any academic regulation.

#### 4.2 Regulations Governing a Student's Program

Curriculum and regulations are subject to change as the university updates and improves its undergraduate program. These changes may include alterations to course offerings, program requirements and academic regulations. In establishing transition policies that determine how these changes will impact in-program students, the university is guided by the intent that students retain the same or improved overall opportunities to succeed.

The following policies are in effect:

- 4.2.1 A degree student who has been admitted to a program continues, in subsequent years, to be governed by the regulations in the Undergraduate Calendar of the year of admission. An exception is made for the requirements for a Minor, which may be taken from a subsequent Calendar. A Degree

Audit report illustrating the requirements is available through Carleton Central.

- 4.2.2 If, in subsequent years, the student is readmitted to or reinstated in the same program or another program for any reason, the student will be governed by the regulations of the Undergraduate Calendar of the year of readmission or reinstatement. An exception is made for the requirements for a Minor, which may be taken from a subsequent Calendar.

- 4.2.3 As changes are made, students may choose to complete their studies under new regulations that are introduced in subsequent years, provided they meet the requirements of these regulations. In such cases, students will be governed by both the regulations and program requirements of a single Undergraduate Calendar, dated the year of, or subsequent to, admission or readmission. An exception is made for the requirements for a Minor, which may be taken from a different, single Calendar.

- 4.2.4 Notwithstanding 4.2.1, when circumstances prevent continued application of regulations, program requirements or courses of a previous Calendar, appropriate replacement policies guiding students in adapting to the new situation will be developed and communicated to students.

- 4.2.5 The web version of the Calendar is the official version. Changes approved after the print date will be posted on the Calendar website.

#### 4.3 Absence from the University

Degree students who have been away from the university for more than nine consecutive terms must apply for readmission through Admission Services.

#### 4.4 Student Categories

Undergraduate students are grouped in four broad categories: Degree Students, Certificate Students, Special Students, and Non-credit Students.

Within the Degree Students category, a further subdivision is defined as Degree Students Admitted with Additional Requirements. This subdivision includes:

- a) students admitted with a deficiency
- b) students readmitted with conditions
- c) credit ESL students

Students admitted with Additional Requirements who fail to meet these condition may not continue at the university for a period of one year and must then apply for re-admission if they wish to return.

The category of Certificate Students includes all students registered in the certificate and diploma programs identified in 11.0 Certificates and Diplomas. Those registered in other non-credit professional or development certificates offered by the university are not included. A student may be simultaneously both a Degree Student and a Certificate Student.

#### 4.5 Types of Programs

The undergraduate programs of the university are divided into three categories.

##### Honours Programs

Honours programs require 20.0 credits (and in a few cases more than 20.0 credits). With full time study and a normal course load, Honours programs are completed in four years. The Honours programs demand a higher academic standard than general and major programs.

##### General Programs

General programs require 15.0 credits. With full time study and a normal course load, general programs are completed in three years.

##### Major Programs

Major programs require 20.0 credits. With full time study and a normal course load, major programs are completed in four years.

##### Engineering and Design programs

These accredited programs offered by the Faculty of Engineering and Design are in Engineering, in Industrial Design and in Architecture. These programs require at least 20.0 credits and with a normal course load and full time study require four years for completion.

All of the above programs may include additional elements.

#### 4.6 Program Structure

##### Program Elements

The courses that make up a program are separated into certain standard categories that give the program its structure, allow effective assessment of the student's progress and permit the inclusion of additional notations on the transcript and diploma.

##### Major

In most programs certain course credits are identified as constituting the Major. The Major specifies the required course credits in one or more defined disciplines, themes, or fields that are the principal focus of a student's program. The Academic Performance Evaluation described below makes use of this distinction by calculating a Major average as well as an Overall average. A Combined Honours program may be structured with two Majors, one in each contributing discipline or, in some cases, as a single Major. A multidisciplinary program is structured as a single Major drawing together courses from several disciplines.

Note that the use of the term Major as a program element, above, is distinct from the degree program called Major (e.g. B.Sc.Major).

##### Core

Some programs specify a limited set of credits that constitute a Core. These are courses of special importance to the program and are subject to specific CGPA requirements.

##### Concentration or Specialization

A Concentration or Specialization is a defined set of courses which provides a student with specific expertise, knowledge and/or practice and so further distinguishes the program in a recognizable way. The credits in the concentration or specialization may or may not be part of the Major. Successful completion of a

concentration or specialization is recorded on the diploma.

##### Stream

A Stream is a pattern of courses within the program that guides the student's studies and is distinctive from other patterns, but does not result in a designation on the diploma.

##### Additions to a Program

##### Option

An Option is an addition to a program, the pursuit of which does not affect eligibility for the degree without the Option. Registration in the Option does not change the degree requirements. An example is the Co-operative Education Option.

Other additions to a program that do interact with program requirements include: *Mention : français* (see the Academic Regulations for the Bachelor of Arts), concurrent certificates and concurrent diplomas.

##### Minor

A Minor is a defined set of courses in a discipline or field that either introduces or extends knowledge of that discipline or field. A Minor may have its own admission requirements. Minors are only available to students already registered as Carleton degree students. Each Minor requires at least 4.0 and at most 5.0 credits. In some circumstances, credits in excess of those required for the main degree may be required to complete the Minor. A maximum of two credits may count toward both the Minor and the Major or Majors of a student's program.

#### 4.7 University Year Standing

Students in degree programs are given a Year Standing according to the number of credits completed with passing grades and counting towards the degree. The categories are as follows:

##### First Year:

Fewer than 4.0 credits completed successfully and counting towards the degree.

##### Second Year:

4.0 through 8.5 credits completed successfully and counting towards the degree.

##### Third Year:

9.0 through 13.5 credits completed successfully and counting towards the degree.

##### Fourth Year:

14.0 or more credits completed successfully and counting towards the degree and in a program requiring more than 15.0 credits.

Programs in the Faculty of Engineering and Design identify specific courses that must be completed for a particular year status in that program, which does not necessarily conform to the above formula. Refer to the Engineering and Design section of this Calendar for details.

Year standing assessment occurs at the end of each term, once all final grades are received; January, June, August and October.

#### 4.8 Undeclared Students

Degree students are considered "Undeclared" if they have been admitted to the degree but are not yet accepted into a program within that degree. The status "Undeclared" is available only in the B.A. and B.Sc. degrees. See the Undeclared section in the Programs section of this Calendar for recommended registration information. Normally, Undeclared students are required to be eligible to enter a program within their degree before reaching second year standing. Undeclared students should consult the Student Academic Success Centre for guidance in planning their studies prior to registration.

## 4.9 Changes of Degree and Program

### 4.9.1 Application through Registrar's Office

Application is made through Carleton Central (Change of Program Element application) for change of program applications in the following cases:

- a) students who wish to change to a different major within the same degree;
- b) students who wish to add or drop a Concentration, Specialization or Minor;
- c) students who wish to change from a general BSc or BCS Major to honours or vice versa.

### 4.9.2 Application through Career Development and Cooperative Education Office

Application is made through the Career Development and Cooperative Education Office for admission to and withdrawal from the Co-op Option.

### 4.9.3 Application through Admissions Services

The following categories of students are required to reapply for admission through Admissions Services:

- a) currently registered students who wish, or who are required, to change their degree;
- b) students who have been suspended or debarred and wish to return to their original program after the required absence from studies at Carleton University (see Section 7.3 of the Academic Regulations of the University);
- c) students who, after completing an undergraduate degree, wish to complete an additional undergraduate degree or certificate;
- d) students who have left the university and wish to return to a different degree;
- e) students who have left the university and, after attending another post-secondary institution (except on a letter of permission or exchange program), wish to return to Carleton University;
- f) Special Students who wish to be formally admitted to a degree or certificate program at Carleton University (see Section 17 of the General Admissions Requirements and Procedures); and
- g) students who have been away from the university for nine or more consecutive terms.

## 4.10 Types of Courses

### 4.10.1 Course Categories

The requirements for a degree or program may include specific named categories of courses. These categories are defined either in the main degree section of the calendar or within the program description. In addition most degrees prohibit credit for some particular set of courses. Such courses can not be used even as "free electives." Students should refer to the regulations and course categories for their degree for details.

### 4.10.2 Courses Set Aside

Three categories of courses that do not contribute to the fulfilment of graduation requirements may appear on a student's degree audit report:

#### Extra to the Degree (ETD)

Passed credits that could have counted towards the degree but are in excess of the credits required for graduation are *Extra to Degree*. These credits may be considered for advanced standing in a subsequent degree. This category includes, for example, passed credits at the 1000-level in excess of the 7.0-credit limit.

#### No Credit for Degree (NCD)

Passed credits that are ineligible for credit in the student's program are *No Credit for Degree*. These credits may be considered for advanced standing in a subsequent degree. This category includes, for example, courses specifically prohibited from credit in a particular degree.

#### Forfeit

Courses that cannot be used for credit in this or any subsequent program. This category includes:

- a) repeated courses;
- b) failed courses replaced in the program requirements by a different course;
- c) courses considered equivalent to courses used to fulfil program requirements;
- d) courses precluded for credit by courses used to fulfil degree requirements;
- e) courses placed in this category by an academic standing decision.
- f) courses placed in this category by an appeal committee.

## 5.0 Admission and Residency Regulations

### 5.1 Transfer of Credit Prior to Admission

When a student is considered for admission, credit may be granted for individual courses successfully completed at other recognized, degree-granting institutions, if:

- a) the individual courses are relevant to a student's proposed program; and
- b) the appropriate academic department recommends such action.

Each application is evaluated on its own merits.

## 5.2 Transfer of Credit Subsequent to Admission

### Letter of Permission

Students who have been formally admitted to a degree or certificate program may take courses at other universities on Letters of Permission, and have the credits transferred to their Carleton programs. The following conditions must be met:

- the student must have completed successfully at least 4.0 credits at Carleton University;
- the student must meet the minimum CGPA requirements for graduation in his or her degree;
- the student must obtain formal approval from the Registrar's Office prior to commencing each course.

Grades for successfully completed courses taken on Letters of Permission and Exchange (not including the University of Ottawa Exchange) will not be transferred. A course taken on Letter of Permission and failed is counted as a discredit and is recorded with the grade *Uns* (Unsatisfactory). A higher level of performance may be required in a course that would have contributed to any programmatic CGPA had the grade been transferred. Such a course with a passing grade below the minimum required will not count towards the degree, but will be counted as discredit.

### University of Ottawa Exchange Agreement

Degree Students may register to take courses at the University of Ottawa to be credited to their Carleton University degree. The following regulations apply:

- Students must be registered in a degree program and must be in *Good Standing*. In the case of first-year studies, a maximum of two half-credit courses may be taken at the University of Ottawa that year.
- Only courses to be credited as part of the current degree requirements at Carleton may be taken under the terms of the exchange.
- At any registration, the cumulative total number of credits taken at Carleton and counting towards the degree must be greater than the total number of credits taken and/or proposed to be taken at the University of Ottawa.
- Courses taken under the Exchange Agreement shall not count as courses taken at Carleton under regulations requiring a minimum number of Carleton credits.
- Grades for courses taken on the Exchange Agreement will be reported on the Carleton transcript and will be included in the calculation of the CGPAs. Applications and information about deadlines and registration procedures are available at the Registrar's Office. Students should note that space in courses may be limited and therefore applications should be filed well in advance of registration.

Students should consult the Registrar's Office for application forms and information on procedures and deadlines.

Students withdrawing from exchange agreement courses must notify the Registrar's Office by the appropriate deadlines, or a grade of Abs

or F may be recorded. There may be financial implications.

### International Exchange Agreements

Undergraduate students may be eligible to take advantage of other exchange agreements with universities throughout the world. Unless otherwise specified in a specific exchange agreement or Senate-approved program regulation, the minimum academic requirement is second-year standing or higher, and a minimum overall CGPA of 7.0. For details on these exchanges, students should consult the International Student Services Office at least one year in advance of the proposed exchange.

## 5.3 Minimum Number of Carleton Credits (Residency and Advanced credits)

### 5.3.1 Residency Credits

To be eligible for graduation with a Carleton degree, certificate or diploma, each student must present a certain number of credits earned at Carleton University which have not been presented to fulfill any degree that has been previously awarded including a degree or degrees at Carleton University. These are referred to as residency credits. Courses taken under the University of Ottawa Exchange Agreement do not count as residency credits.

All degree students must present a minimum of 5.0 residency credits at graduation, with the following exceptions:

The minimum number of residency credits for students in the B.Eng., B.I.D, B.I.T. and B.A.S. Design program is half of the total number of credits required for the program. The residency requirement for B.A.S. students **not** in Design is the standard minimum of 5.0 residency credits at graduation.

To obtain a minor, a student must present at least 2.0 residency credits counting toward that minor.

To obtain an undergraduate certificate from Carleton University, students must present residency credits including a minimum of 4.0 credits taken at Carleton. The residency for certificates taken concurrently with a Carleton degree may be satisfied with credits used also to satisfy the degree residency requirement.

### 5.3.2 Advanced Credits

The credits presented at graduation that are credits completed at Carleton after admission, credits completed at Carleton within the last ten years for which advanced standing has been granted and credits completed as part of the University of Ottawa Exchange or another formal domestic or international Exchange, must include:

- For Honours degrees, at least 3.0 credits in the major and at the 3000-level or above;
- For Combined Honours degrees, at least 1.5 credits in each major and at the 3000-level or above;
- For Major degrees, at least 3.0 credits in the major and at the 2000-level or above;
- For General degrees, at least 3.0 credits in the major and at the 2000-level or above;

## 6.0 Program Regulations

### 6.1 The Cumulative Grade Point Average

The Cumulative Grade Point Average (CGPA) is the key assessment tool for performance evaluation. The CGPA is the ratio of the grade points earned on a set of courses to the total credit value of these courses. In calculating the CGPA the grade points contributed by each course are multiplied by the credit value of the course. So, for example, an A+ in a 0.5 credit course contributes  $12.00 * 0.5 = 6.00$  grade points. The CGPA is truncated to two decimal places (with no rounding).

The overall CGPA includes all courses that satisfy requirements of the student's program or would have satisfied such requirements if a passing grade had been obtained. In particular, an F grade is included in the calculation until it is removed through course repetition or replacement. When a course is repeated, the most recent grade is used. All Carleton credits counting toward advanced standing in the degree program are included in the CGPA calculation. All credits obtained through the University of Ottawa Exchange agreement are included in the CGPA calculation.

Courses Extra to the Degree (ETD), No Credit for the Degree (NCD) or Forfeit are not included in the calculation of the CGPA.

A CGPA calculated for a program element, such as Major or Core, is calculated in the same way using only the courses in the program element.

### 6.2 Maximum Number of Credits Below the 2000-level

A student may count a maximum of 7.0 credits below the 2000-level toward fulfilment of graduation requirements.

Credits in excess of this limit will be set aside as Extra to the Degree (ETD), No Credit for the Degree (NCD) or Forfeit. This allows students to increase their CGPA by pushing out low grades below the 2000-level through replacement by higher grades at the same level.

### 6.3 Discredits

A *discredit* is a course registration that results in a grade of F, FND, ABS, UNS.

The discredit has the same credit weight as the course. This definition includes courses taken on a Letter of Permission or on exchange.

A degree student is allowed a maximum of 5.0 credits of discredits after admission to the degree. Students admitted with advanced standing will have the maximum number of discredits adjusted on a *pro-rata* basis. Students in 5.0- or 6.0-credit certificate or diploma programs are allowed 2.0 credits of discredits.

If a student exceeds the maximum number of discredits before graduation they are *suspended or debarred* from the degree, certificate or diploma. The student is Ineligible to Return if the degree uses this decision

### 6.4 Course Load

In most undergraduate programs, the normal course load is the equivalent of 2.5 credits in each of the fall and winter terms and the equivalent of 1.0 credit in each of the early and late periods of the summer term. In some degree programs, the normal load is as much as 3.0 credits in each of the fall and winter terms and up to the equivalent of 1.5 credits in each period of the summer term. Multi-term courses are considered to have their credit weight evenly distributed over the terms. For example, a two-term 1.0 credit course is considered to contribute 0.5 credit to course load in each term.

A student is registered in a course overload if the student is registered in more credit equivalents per term than the normal load for his or her program. Students with an Overall CGPA of 7.00 who have completed a minimum of 4.0 credits at Carleton may choose to register in a course overload, to a maximum of 0.5 credit above the normal course load for their program in each of the fall and winter terms and in either the early or late period of the summer term. Students requiring permission for course overloads beyond these limits should contact the Registrar's Office.

### 6.5 Restrictions on Program Elements

A course is considered to be *double-counted* if it is used to satisfy both the requirements for:

- a) the Major (or Majors) and a Minor (See Note 1, below);
- or
- b) a Minor, Concentration, or Specialization and any other Minor, Concentration or Specialization (See Note2, below)

At most, 2.0 credits in double-counted courses may be included in the credits offered to fulfil requirements at graduation.

#### Notes:

1. In this regulation, the Major consists of the credits counting toward the Major CGPA. If the program uses only the Overall CGPA for assessment, then all credits are considered to be in the Major.
2. Item **b)** refers to specializations and concentrations that constitute optional choices. In these cases the Major (s) can be completed with or without a concentration or specialization.

In other cases, a Concentration or Specialization is contained within the Major and constitutes a required choice for that Major. These Concentrations and Specializations are not included in Item **b)** above.

### 6.6 Maximum Number of Program Elements

In addition to the student's Major or Majors, the maximum allowed combined number of Minors, Concentrations and Specializations for any student is two. Note that this restriction does

not apply to the Co-op Option or to *Mention : Français*.

### 6.7 Combined Honours Programs

In some cases Combined Honours programs are defined with a single unified Major incorporating the credits from both disciplines. In other cases, for example in the B.A. Honours degree, requirements are established separately by each discipline and combined according to the registration of the student in a particular Combined Honours pattern. In the latter case, when a particular course satisfies the requirements for both Majors, the course will be used to fulfil the requirements for one Major and a different course at the same level will be required to satisfy the other Major.

### 6.8 Simultaneous and Subsequent Degrees

- a) A student who has graduated with a Carleton University degree in a particular program will not be subsequently admitted to the same degree and program. Specifically, students who have graduated with a:
  - i) B.A., B.A.S., B.Sc. or B.Math. degree may apply subsequently for admission to the same degree if they apply for a different major or, if they graduated with a General or Major degree, they apply for an Honours degree with the same major.
  - ii) B.Eng. or B.I.T. degree may apply subsequently for admission to the same degree only if they apply for a significantly different program. A program with distinct streams constitutes a single program for this rule.
  - iii) B.I.D., B.Com., B.I.B., B.C.S., B.Mus., B.Hum., B.S.W., B.J. or B.P.A.P.M. may not apply subsequently for admission to the same degree.
- b) A student who has graduated with a Carleton University degree that includes a minor will not be subsequently admitted to the same minor.
- c) A student who has successfully completed a university degree in a given discipline will not be admitted to a minor in the same discipline in conjunction with subsequent degree studies.
- d) A student will only be admitted to one degree and program at a time. The student's record will show only one active degree and program in any given term. Note that certain Certificates and Diplomas do allow concurrent degree studies.
- e) A Carleton University degree student is not allowed simultaneously to be registered in degree studies at another post-secondary institution without the permission of Carleton University.

### 6.9 Credit for ESL courses

A student in a degree program may receive credit for previously completed English as a Second Language courses from the sequence ESLA 1300, ESLA 1500, ESLA 1900, ESLA 1905, with the following restrictions:

- a) for students in degrees offered by the Faculty of Arts and Social Sciences or the Faculty of Public Affairs, up to 2.0 credits will be counted toward the degree;

- b) for students in degrees offered by the Sproull School of Business, credit will be allowed only for ESLA 1900 (or ESLA 1905);
- c) for students in degrees offered by the Faculty of Science, credit will be allowed only for ESLA 1900 (or ESLA 1905);
- d) for students in the Bachelor of Engineering degree, no credits from this sequence will be counted toward the degree;
- e) for students in the Bachelor of Industrial Design degree or the Bachelor of Architectural Studies degree, credit will be allowed only for ESLA 1900 (or ESLA 1905).

### 6.10 Restrictions on Credit for Certain Courses

Some courses may not be used for credit in certain programs. Restrictions may be listed in the course descriptions, the academic regulations for certain degree programs, and/or in this section.

- 6.10.1 Co-operative Education (Co-op) work term and report courses do not count for credit in any degree.
- 6.10.2 In addition, B.A. students in Economics will not receive credit for MATH courses below the 1000-level.
- 6.10.3 Students in the B.Mus. degree will not receive credit for MUSI 1106 or MUSI 1107.
- 6.10.4 Students in the B.Com. or the B.I.B. degree will not receive credit for BIT 2001, BIT 2002 or any 0000-level mathematics course.
- 6.10.5 Students in the B.Com. degree will not receive credit for BUSI 3602 or COMP 1001.
- 6.10.6 Students admitted with advanced standing to the B.Com., B.I.B., B.Hum., B.P.A.P.M., B.I.T. or B.Eng. degree will not receive credit on admission for courses with a grade below C-taken earlier.
- 6.10.7 For courses excluded from the B.Sc. see the Academic Regulations for the Bachelor of Science Degree section of this Calendar. For courses excluded from the B.Math. see the Mathematics programs section of this Calendar.

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## 7.0 Academic Performance Evaluation

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### 7.1 Academic Performance Evaluation for Degree Students

Academic Performance Evaluation as described in this section applies to Degree and Certificate Students. The corresponding process for Special Students is described in Section 9, below.

*Note:* in addition to the regulations listed below, a number of programs specify additional requirements that must be fulfilled. Consult 7.5 below for additional information regarding: B.A.S., B.Com., B.Hum., B.I.B., B.I.D., B.I.T. B.J., B.Math., B.Mus., B.P.A.P.M., B.Sc. Double Hons. Mathematics and Physics, B.S.W.

The Academic Performance Evaluation is the annual assessment of the student's status in his or her degree. The first evaluation is made, at the end of the winter term, for all students



who have completed at least 4.0 credits at Carleton University or on the University of Ottawa Exchange once all final grades are available. Subsequent evaluations occur at the end of the winter term following the completion of a minimum of 4.0 additional credits. A completed course is any course registration, including repeated courses, that results in a grade or notation other than WDN, IP, CTN, AUD or DNC. The basis of the evaluation is the student's Overall CGPA, Major CGPA and, where appropriate, Core CGPA. For students in combined programs Major CGPAs are calculated for each major where possible. The evaluation is made by comparing CGPAs to the minima required by the student's degree at the time of the evaluation. The possible outcomes of an Academic Performance Evaluation are: *Good Standing*, *Academic Warning*, *Suspension*, *Continue in Alternate*, *Continue in General*, *Dismissed from Program*, or *Debarment*.

The status *Good Standing* signifies that a Performance Evaluation has found that the student fully meets the academic standards prescribed for the student's program and is eligible to continue in that degree.

The status *Academic Warning* signifies that the student's performance with respect to the academic standards of the degree is deficient. The student may continue in the degree but must clear the *Academic Warning* by achieving a *Good Standing* assessment at the next Academic Performance Evaluation.

The status *Suspension* signifies that the student must leave his or her degree for at least one year. See also Section 7.1.1 and Section 7.3. *Suspension* occurs if at least one of the following conditions applies:

- a) the student has an Overall CGPA that is less than 1.00;
- b) while on *Academic Warning*, the student has failed to achieve a *Good Standing* assessment at the next Academic Performance Evaluation;
- c) the student has exceeded the maximum allowable number of discredits for the program;
- d) the student was Admitted with Additional Requirements and has failed to satisfy those requirements.

The status *Continue in General* is applied at an academic performance evaluation (APE) if the student (i) is in an Honours B.A., B.C.S., B.Sc., or B.Math. program, (ii) would be suspended at this APE due to a low CGPA, and (iii) meets or exceeds the minimum requirements for *Good Standing* in a general program. The student will have his or her program changed to the corresponding or other general program within the same degree and may apply to change this program within the degree, as long as the student would be in *Good Standing* in the subsequent program.

The statuses *Continue in Alternate (CA)* and *Dismissed from Program (DP)* indicate that the student's performance has fallen below a minimum standard for the program and in consequence the student is removed from the program, and is not readmissible to this program. These APE statuses are restricted to some professional and limited enrolment programs where there is high demand for the program and limited space in its required

courses. The degrees and programs that use these statuses are: BEng, BAS Design, BHum, BJ, BCom, BIB, BID, BPAPM. The status CA or DP is assigned if any of the conditions for Suspension apply, in addition to any conditions set by the program. The status CA is assigned if, in addition, the student's Overall CGPA is at least 1.00. A student with status CA is eligible to continue at the university and may apply through Admissions Services for admission to another degree or to Special studies. In the case of BAS Design, a student required to leave this program with status CA may apply immediately for admission, through the Registrar's Office, to one of the other BAS programs. The status DP is assigned if the Overall CGPA is less than 1.00. A student with status DP may apply for admission to Special studies only.

If a student satisfies the conditions for *Suspended*, *Dismissed from Program* or *Ineligible to Return (no longer in use)* at a performance evaluation in the student's current degree and the student has a previous decision of *Suspended*, *Dismissed from Program* or *Ineligible to Return* on the record in this or another degree or Special studies, then the student will be removed from the current degree with the standing *Debarred*. A *Debarred* student is not eligible for any studies at the university for at least three years. See Section 7.3, *Readmission after Suspension or Debarment*.

#### 7.1.1 Discredits

If a course registration in any term results in a student exceeding the allowed number of discredits for the program, then the student will be *Suspended*, *Continue in Alternate*, *Dismissed from Program*, or *Debarred* as of the end of that term. This action is part of the Academic Performance Evaluation at the end of the winter term, but is not part of a general Academic Performance Evaluation after the summer or fall terms.

#### 7.1.2 Three Failures of a Course (Engineering)

A student in the Bachelor of Engineering degree must leave the degree with the status *Continue in Alternate* or *Dismissed from Program* if the student fails one course on three occasions.

#### 7.2 Assessment in Concentrations, Specializations and Minors

In conjunction with the Academic Performance Evaluation, additional averages are calculated for program elements. A CGPA is calculated over the courses contributing to any minor, concentration, specialization. These CGPA results are available for decisions on satisfactory or unsatisfactory performance in the program element. Students with a CGPA that is below the minimum required for a Concentration, Specialization or Minor may be removed from that Concentration, Specialization or Minor.

#### 7.3 Readmission after Suspension or Debarment

*Suspension* is from a particular degree, not the university. Upon receiving notice of *Suspension* from one degree, students may register immediately as Special students, seek

admission, through Admissions Services, to other degrees of the university. Degree programs may accept such students in *Good Standing* if the student meets those requirements or on *Academic Warning*.

Students who have been Suspended will be inadmissible to their original degree for one year. Students who have been suspended and wish subsequently to be re-admitted to their original degree must petition through the Admission Services, providing an explanation of the circumstances leading up to the *Suspension*, what has occurred during the period of suspension, and what the student's goals now are. See also 4.9.1 (d) for certain special cases.

Debarment is from all studies at the university. After debarment, students wishing to be considered for readmission to a degree or certificate program, must wait three years and then make an appeal to the Senate Undergraduate Studies Committee. On readmission after debarment, students may be required to complete certain specific courses and to forfeit certain previously completed credits in order to provide a reasonable expectation of success. The CGPA will be based upon those credits, successful and unsuccessful, accepted upon readmission.

Students returning to the university after suspension or debarment will not have their CGPA re-started. At the point of re-admission, they may be allowed a pro-rated maximum number of discredits.

### 7.4 Minimum CGPA Requirements

The standard CGPA requirements used in Academic Performance Evaluation are presented in Table 1. The minimum required CGPA increases with the number of program credits (See Note 1) at the time of the Academic Performance Evaluation. Students with a CGPA close to the minimum at their first assessment will have to improve their academic achievement significantly in order to maintain the Good Standing status through to graduation.

The Standard Minimum CGPA Requirements for Minors, Concentrations, and Specializations are presented in Table 2. These are not used in the Academic Performance Evaluation but are used to determine continuation status in the program element.

**Table 1: Minimum CGPA Requirements for Good Standing Status**

Program credits completed	Honours	Architecture B.I.D., B.I.T. programs	Engineering programs	15.0 credit General	20.0 credit Major
0.0 to 5.0	Overall 4.00	Overall 3.00	Overall 4.00	Overall 3.00	Overall 3.00
5.5 to 10.0	Overall 4.50 Major 5.50	Overall 3.50	Overall 4.50	Overall 3.50 Major 3.50	Overall 3.50 Major 3.50

10.5 to 15.0	Overall 5.00 Major 6.00	Overall 3.50	Overall 5.00	Overall 4.00 Major 4.00	Overall 3.50 Major 3.50
15.5 or more	Overall 5.00 Major 6.50	Overall 4.00	Overall 5.00		Overall 4.00 Major 4.00
Graduation	Overall 5.00 Major 6.50	Overall 4.00	Overall 5.00	Overall 4.00 Major 4.00	Overall 4.00 Major 4.00

**Notes:**

1. The Program Credits are the course credits earned by the courses the student has completed, with either a passing or a failing grade, that would contribute to the credits required for graduation in the student's program had they been passed. The program credits include credits obtained through transfer, advanced standing, letters of permission or exchange. The program credits do not include courses from which the student has withdrawn.
2. Certain Honours programs may have different minimum Overall or Major CGPA requirements from those indicated above.

**Table 2: Standard Minimum Requirements for Minors, Concentrations and Specializations**

Program credits completed	All students in Hons. programs	All students in Architecture B.I.D., B.I.T.	All students in Engineering	All students in Major programs	All students in General
0.0 to 5.0	5.00	3.00	4.00	3.00	3.00
5.5 to 10.0	5.50	3.50	4.50	3.50	3.50
10.5 to 15.0	6.00	3.50	4.50	3.50	4.00
15.5 or more	6.50	4.00	5.00	4.00	

### 7.5 Additional Information Concerning Academic Performance Evaluation for Some Degrees

The standard regulations for Academic Performance Evaluation are modified for certain degrees and programs as presented in this section.

**Bachelor of Architectural Studies (B.A.S.)**

**B.A.S. Conservation and Sustainability • Philosophy and Criticism • Urbanism**

These programs follow the academic performance evaluation regulations governing Honours programs as described within sections 7.1 – 7.4 of the Academic Regulations of the University.

The B.A.S. Design follows the academic performance evaluation regulations for Engineering and Design programs as described in section 7.0 of the of the Academic Regulations of the University, with the following additions and amendments:

1. To be eligible to proceed into second year in B.A.S. Design, students must meet the following conditions:
  - a) Minimum grade point average of 8.00 taken over the following courses: ARCS 1005, ARCS 1105 [1.0], ARCN 2106;
  - b) An overall CGPA of 6.00 or higher.
2. Students required to leave the B.A.S. Design program under item 1 are eligible to apply immediately for transfer to any of the other B.A.S. programs or any other degree.
3. Students are assessed at each Academic Performance Evaluation using their Overall CGPA and the Core minimum as described below.
4. With the exception of ARCS 1005 and ARCS 1105 [1.0] for which requirements are outlined in item 1 above, Good Standing requires a minimum grade of C- in each Design Core course.
5. The Design Core consists of the following courses: ARCS 1005, ARCS 1105 [1.0], ARCS 2105 [1.5], ARCS 2106 [1.5], ARCS 3105 [1.5], ARCS 3106 [1.5], ARCS 4105 [1.5], ARCS 4106 [1.5]
6. B.A.S. Design students continue either in Good Standing or on Academic Warning.
7. Students whose academic performance evaluation results in Suspension or who are required to leave the program under the rules Item 1 above, and who are not subsequently accepted into a different B.A.S. program, must leave the B.A.S. degree. Application for readmission to Design is not permitted, but application may be made to other B.A.S. programs after one year.

### Bachelor of Commerce

Students in B.Com. are Honours students.

B.Com. students are in *Good Standing (GS)* if they meet the minimum requirement schedule provided in Regulation 7.4.

A B.Com. student not in *Good Standing (GS)* due to a deficiency of 1.0 grade point or less in one or both, Overall and Major CGPA requirements, is on Academic Warning (AW).

A B.Com. student is required to leave the program with the status *Continue in Alternate (CA)* or the status *Dismissed from Program (DP)* if:

- a) they are not in *Good Standing* due to a deficiency of more than 1.0 grade point in both of Overall and Major CGPA requirements, at any Academic Performance Evaluation, or
- b) the student was on *Academic Warning* and does not achieve *Good Standing* at the next Academic Performance Evaluation.

### Bachelor of Humanities

The Bachelor of Humanities degree does not distinguish a set of courses forming a Major. Students are evaluated on the basis of their Overall CGPA and their Core CGPA.

Students are in *Good Standing* if the Overall CGPA at least 7.00 and the Core CGPA at least 7.00.

A student who is not in Good Standing but has Overall CGPA at least 6.00 and Core CGPA at least 6.00 is on *Academic Warning*.

A student is required to leave the program with the status *Continue in Alternate (CA)* or the status *Dismissed from Program (DP)* if:

- a) the student was on *Academic Warning* and does not achieve *Good Standing* at the next Academic Performance Evaluation,

or

- b) the student has Overall CGPA less than 6.00 or Core CGPA less than 6.00 at any Academic Performance Evaluation.

### The Humanities Core

HUMS 1000 [1.0], HUMS 2000 [1.0]  
HUMS 3000 [1.0], HUMS 4000 [1.0]

### Bachelor of Industrial Design

1. Students in the Bachelor of Industrial Design degree are assessed at each Academic Performance Evaluation using their Overall CGPA and the Industrial Design Core courses. (The Industrial Design program does not distinguish a set of courses forming a Major).

The following evaluation criteria apply:

- a) students are subject to an evaluation at the end of the winter term if they have completed 4.0 credits since admission or since the preceding evaluation;
- b) in addition, students will receive an evaluation of their Industrial Design Core courses at the end of each Winter term as long as they have completed a Core course in the preceding summer, fall or winter terms.

### Industrial Design Core Courses

IDES 1300, IDES 1301, IDES 2203, IDES 2300  
IDES 2302, IDES 3300 [1.0], IDES 3302  
IDES 4301, IDES 4310 [1.5], IDES 4302

2. *Good Standing - Good Standing* requires a grade of C- or better in each of the Industrial Design Core courses as well as an Overall CGPA at or above the minimum given in Table 1 of Section 7.4.
3. *Academic Warning* - Students who are not assigned the status *Good Standing* or *Ineligible to Return* will be on *Academic Warning*. The following conditions apply:
  - a) a student who is on *Academic Warning* due to a grade less than C- in a Core course, but with an Overall CGPA high enough for Good Standing will be given permission to repeat this Core course and must achieve a grade of C- or better before the next evaluation.
  - b) a student who is on *Academic Warning*

due to an Overall CGPA less than the minimum required for Good Standing, and who also has a grade less than C- in a Core course must raise both the Overall CGPA and pass the Core course with a grade of C- or better before the next evaluation. This student must first raise his or her Overall CGPA to a level sufficient to achieve Good Standing, if an evaluation were made, before permission will be given to re-register in the Core course.

4. *Continue in Alternate or Dismissed from Program* - Students satisfying any of the following conditions must leave the Industrial Design program with the status *Continue in Alternate (CA)* or *Dismissed from Program (DP)*:
- have an Overall CGPA that is less than 1.00,
  - have failed to achieve a *Good Standing* assessment at the next Academic Performance Evaluation while on Academic Warning,
  - have exceeded the maximum allowable number of discredits for the program,
  - have failed to satisfy any additional course requirements received on admission,
  - have received a grade of less than C- in the same Core course twice,
  - have not completed the program within seven years.

#### Bachelor of Information Technology

For purposes of Academic Performance Evaluation B.I.T. students are considered General students. In addition to the requirements for *Good Standing* specified in the Academic Regulations of the University, students in the Interactive Multimedia and Design program of the B.I.T. must present a Core CGPA of at least 4.5 in the following:

IMD 1000, IMD 1001, IMD 1002,  
IMD 1003, IMD 1004, IMD 1005,  
IMD 2900, IMD 3900, IMD 3901  
IMD 4901, IMD 4902

#### Bachelor of International Business

Students in B.I.B. are Honours students.

B.I.B. Students are in *Good Standing (GS)* if they meet the minimum requirement schedule provided below:

The B.I.B. defines a Language Core consisting of the required 4.0 credits in the language of specialization.

Good Standing in BIB requires:

At the first APE:

- Overall CGPA at least 4.50
- Major CGPA at least 6.00
- Language Core CGPA at least 6.00

At all subsequent APEs and at graduation:

- Overall CGPA at least 5.00
- Major CGPA at least 6.50
- Language Core CGPA at least 6.50

A B.I.B. student who is not in *Good Standing (GS)* due to a deficiency of 1.0 grade point or less in any of the Overall, Major, or Language Core

CGPA requirements, is on *Academic Warning*.

A B.I.B. student is required to leave the program with either the status *Continue in Alternate (CA)* or the status *Dismissed from Program (DP)* if:

- they are not in *Good Standing (GS)* due to a deficiency of more than one grade point in all of the Overall, Major or Language Core CGPA requirements at any Academic Performance Evaluation, or
- the student is on *Academic Warning* and does not achieve *Good Standing* at the next Academic Performance Evaluation.

#### Bachelor of Journalism

A student who is not in *Good Standing* in the Bachelor of Journalism degree must leave the program with the status *Continue in Alternate (CA)* or the status *Dismissed from Program (DP)*.

##### *Continuation to Second Year*

Continuation in *Good Standing* after the first Academic Performance Evaluation will be guaranteed only to First-year Journalism students who achieve a B+ or better in JOUR 1000 [1.0] and an Overall CGPA of at least 8.00 in first year on 5.0 full credits. The School also maintains a number of places in second year for students who wish to transfer from Carleton or elsewhere. Normally, offers are made to students with an overall CGPA equivalent to 10.00 (A-) or better.

Continuation in *Good Standing* at subsequent Academic Performance Evaluations requires the standard minimum Major CGPA of 6.50 and Overall CGPA of at least 5.00.

##### *General Prerequisite*

Students may not continue into 3000-level or higher courses unless the following three minimum requirements are met:

- at least C standing in JOUR 2201 [1.0];
- a CGPA of at least 6.50 over the courses JOUR 1000 [1.0], JOUR 2201 [1.0], JOUR 2205 and JOUR 2501;
- an Overall CGPA of at least 5.00.

##### *Graduation*

In addition to the graduation requirements of the Faculty, a candidate for the degree of Bachelor of Journalism with Honours must have:

- a Major CGPA of at least 6.50,
- a grade of C or better each reporting course,
- a grade of C- or better in each other Journalism course,
- an Overall CGPA of at least 5.00, and
- be recommended for graduation by the School.

#### Bachelor of Mathematics

The standard procedures for Academic

Performance Evaluation are followed with the following additions:

*Good Standing* at any Academic Performance Evaluation requires that the CGPA over the courses MATH1007 or MATH 1004; MATH1107 or MATH 1104; MATH 2007 or MATH 1005; MATH2107 be at least 7.00 for Honours programs and at least 5.00 for General programs.

**Bachelor of Music**

For purposes of Academic Performance Evaluation, students in the Bachelor of Music program are subject to the standard rules for Honours students with the following additional requirement for Good Standing:

In addition to other requirements, *Good Standing* in Bachelor of Music requires that the Performance CGPA be at least 6.00.

The Performance CGPA is the cumulative grade point average calculated over all courses in the Performance Core in the same manner as other CGPA calculations.

The courses in the Performance Core are MUSI 1900, MUSI 1901, MUSI 2900, MUSI 2901, MUSI 3900, MUSI 3901.

**Bachelor of Public Affairs and Policy Management**

Students in the B.P.A.P.M. are subject to the standard Academic Performance Evaluation (APE) process with the following additions and amendments:

1. Students are in *Good Standing* at the first APE if they have a Major CGPA of a least 7.0 and an Overall CGPA of at least 7.0. A student who is not in *Good Standing* but has a Major CGPA of at least 6.0 and an Overall CGPA of at least 6.0 is on *Academic Warning*. Students with a Major CGPA of less than 6.0 or an Overall CGPA of less than 6.0 are required to leave the program with the status of *Continue in Alternate (CA)* or the status *Dismissed from Program (DP)*.
2. Students are in *Good Standing* at any subsequent APE and at graduation if they have a Major CGPA of at least 6.5 and an Overall CGPA of at least 6.5.
3. Students who do not receive *Good Standing* at any subsequent Academic Performance Evaluation will be required to withdraw from the program with the status *Continue in Alternate (CA)* or the status *Dismissed from Program (DP)*.

**Bachelor of Social Work**

Students in the Bachelor of Social Work program are assessed by the standard process of Academic Performance Evaluation, with the following exception.

*Good Standing* requires:

1. If the number of credits included in the Overall CGPA is at most 15.0, the Overall CGPA is at least 6.00 and the Major CGPA is at least 6.00.
2. If the number of credits included in the Overall CGPA is at least 15.5, the Overall CGPA is at least 6.00 and the Major CGPA is at least 6.50.

**8.0 Graduation**

**8.1 Graduation Requirements**

In order for students to receive their degree, they must fulfil:

- a) all the requirements of the department(s), school(s) or institute(s) in which they are taking the degree;
- b) all Faculty regulations;
- c) all University regulations;
- d) all financial obligations to the university.

The student is responsible for meeting graduation requirements and is strongly encouraged to discuss their degree requirements with the Undergraduate Adviser for their program. The degree audit report (available on Carleton Central) is a guide to be used in consultation with the Undergraduate Adviser to discuss the student's academic progress.

**8.2 Application for Graduation**

Students must apply online for graduation via Carleton Central. Online applications must be completed by the following deadlines:

- for Spring Graduation (June): March 1
- for Fall Graduation (November): September 1
- for Winter Graduation (February): December 1

Visit [carleton.ca/registrar](http://carleton.ca/registrar) for further information regarding graduation.

**8.3 Minimum CGPA Requirements for Graduation**

Table 3: Standard Minimum CGPA Requirements for Graduation

	Overall	Major(s)	Concentration or Specialization	Minor
Honours Degrees	5.00	6.50	6.50	6.50
Engineering Degrees	5.00	not used	5.00	5.00
Architecture B.I.T. B.I.D.	4.00	not used	n/a	4.00
Major and General Degrees	4.00	4.00	4.00	4.00

Note: some programs have higher requirements.

**8.4 Recognition of High Academic Achievement**

Graduating students in any undergraduate degree will have exceptional academic achievement recognized if the student:

1. Has completed at least 10.0 credits toward the degree at Carleton University, and
2. For the designation High Distinction, has an Overall CGPA equal to or greater than to 10.40.

3. For the designation Distinction, has an Overall CGPA less than 10.40 and equal to or greater than 9.80.

These recognitions of exceptional merit will be recorded on the student's transcript and diploma.

## 8.5 Recognition of Study Abroad

Undergraduate students who successfully complete 2.0 to 3.5 credits at a non-Canadian university in an approved pattern under a recognized International Exchange program will have the notation "with Study Term Abroad" added to their transcript and diploma. If more than 4.0 credits are successfully completed in these terms, the notation will be "with Study Year Abroad"

### Notes:

1. The notation will appear for students who have been admitted to a degree, preapproved for an International Exchange program and have completed the appropriate number of credits as outlined above.
2. Students approved for international study via Letter of Permission or who have completed earlier studies outside Canada will not be eligible for either of the above notations unless they complete as well an International Exchange program as described in the rule.

## C. Academic Regulations for Special Students

### 9.0 Regulations

#### 9.1 Application

Applications to study as a Special student are available from the Registrar's Office or the Registrar's Office website ([carleton.ca/registrar](http://carleton.ca/registrar)) and must be completed in full before being processed. Applications must include transcripts of all previous study (high school, post-secondary) as well as a processing fee.

#### 9.2 Academic Performance Evaluation for Special Students

Academic Performance Evaluation for Special students is carried out at the same time as for Degree Students. Special students receive their first Academic Performance Evaluation when the student has completed 2.0 credits since the most recent admission to Special studies when final grades are available. Subsequent evaluations occur when the student has completed an additional 2.0 or more credits. The result of an Academic Performance Evaluation is that the student is in Good Standing, on Academic Warning or is Suspended.

A Special student is considered to be in Good Standing at an Academic Performance Evaluation if their CGPA is at least 3.00.

A Special student is considered to be on Academic Warning at an Academic Performance Evaluation if their CGPA is less than 3.00 and at least 1.00 and they were in Good Standing before the evaluation.

Special students are *Suspended* if

- a) they are on *Academic Warning* at the time of a subsequent Academic Performance Evaluation and do not achieve *Good Standing* at that Academic Performance Evaluation, or
- b) their CGPA is less than 1.00 at the time of any Academic Performance Evaluation.

A *Suspended* Special student may not return to Special studies for one year.

#### 9.3 Course Load

Special students normally may enrol in a maximum of 1.0 credit in each of the summer, fall and winter terms.

Students who enrol as Special after suspension from a degree or certificate program do not qualify for course overload.

Special students who have completed at least 1.0 credit taken at Carleton University and have a CGPA of at least 7.00 may petition to the Registrar's Office to register in a maximum of 1.5 credits in each of the summer, fall and winter terms. Permission from the Registrar's Office is required.

Special students may enrol in 2.5 credits in each of the fall and winter terms and in 2.0 credits in the summer term under either of the following conditions:

- a) The student is enrolled full time in a degree program at another institution and can present a Letter of Permission authorized by an appropriate official of the institution; or
- b) The student holds an undergraduate degree from a recognized institution and wishes to pursue further study for professional development or in preparation for entry into graduate study.

#### 9.4 English Language Proficiency

Special students must satisfy the university English language proficiency requirement.

### 10.0 Registration for Special Students

#### 10.1 Course Selection

Anyone wishing to be admitted eventually to a degree program is advised to note the specific Faculty requirements for course selection and the admission requirements for Special and Mature entrants as listed in this Calendar. Special students who have not completed an OSSD or equivalent may need to upgrade their qualifications by enrolling in courses at the 0000-level. Individuals seeking admission who need further information should inquire at Admissions Services.

#### 10.2 Special Students Enrolling in Graduate-Level Courses

Anyone wishing to enrol in a graduate-level course as a Special student must obtain a letter of authorization from the Chair or Supervisor of Graduate Studies of the appropriate department. Forms may be obtained from the Registrar's Office, or downloaded for printing at [carleton.ca/registrar/forms.htm](http://carleton.ca/registrar/forms.htm). Anyone considering

pursuing a graduate degree is urged to contact the Faculty of Graduate Studies and Research prior to registration as a Special student.

## D. Academic Regulations for Certificate and Diploma Students

### 11. Certificates and Diplomas

This section presents the academic regulations governing the following certificates and diplomas:

- Certificate in Teaching of English as a Second Language
- Certificate in Nunavut Public Service Studies
- Certificate in Public Service Studies

Other non-credit professional and development certificate programs are offered by units of the university; these are not within the scope of this Calendar.

### 12.0 Admission to Certificate Programs

#### 12.1 Admission Requirements

The admission requirements for the various certificates and diplomas are listed in the Admissions Requirements section of this Calendar.

#### 12.2 Transfer of Credit

In each certificate and diploma, at least 4.0 credits must be taken at Carleton, including all required credits. See also 5.2: Minimum Number of Carleton Credits.

### 13.0 Regulations for Certificates and Diplomas

#### Certificate in Teaching of English as a Second Language

- Offered by the School of Linguistics and Applied Language Studies
- The course requirements (5.0 credits) may be found in the Linguistics and Applied Language Studies program section of this Calendar.
- Students must pass an English proficiency test.
- Successful completion requires grades of C or better in all courses
- May be taken following successful completion of any undergraduate degree or concurrently with an Honours degree provided the Major CGPA in the Honours program is at least 7.00.

#### Certificate in Public Service Studies

- Offered by the School of Public Policy and

Academic Regulations of the University Administration

- The course requirements (6.0 credits) may be found in the School's program section of this Calendar.
- Successful completion requires a C or better in at least half of the credits taken at Carleton.
- May not be taken concurrently with any undergraduate degree.
- Students who have already completed a degree are ineligible.

## E. Student Conduct

### 14.0 Academic Integrity

#### 14.1 Introduction

Carleton University is a community of scholars dedicated to teaching, learning and research. Sound scholarship rests on a commitment to a code of academic integrity that stresses principles of honesty, trust, respect, fairness and responsibility. The University demands integrity of scholarship from all of its members including students. The quality and integrity of academic work is paramount in achieving student success.

The University states unequivocally that it demands academic integrity from all its members. Academic dishonesty, in whatever form is ultimately destructive to the values of the university. Furthermore, it is unfair and discouraging to those students who pursue their studies honestly. The integrity of university academic life and the degrees conferred by the university is dependent upon the honesty and soundness of scholarship. Conduct by any person that adversely affects this process is a serious matter. Students who violate the principles of academic integrity through dishonest practices undermine the value of the Carleton degree. Dishonesty in scholarly activity cannot be tolerated. Any student who violates the standards of academic integrity will be subject to appropriate sanctions.

#### 14.2 The Policy

The University has adopted a policy to deal with allegations of academic misconduct. This policy is expressed in the document *Carleton University Academic Integrity Policy*, effective July 1, 2006. The policy describes in detail its scope of application, principles, definitions, rights and responsibilities, academic integrity standards, procedures, sanctions, transcript notations, appeal process, and records implications.

The complete policy is available at: [carleton.ca/studentaffairs/academic-integrity](http://carleton.ca/studentaffairs/academic-integrity)

#### 14.3 Academic Integrity Standards

*From the Academic Integrity Policy (Section VI)*

Effective adherence to academic integrity requires that students understand the meaning of academic dishonesty. The following list describes conduct that violates standards of academic integrity which may lead to the imposition of sanctions pursuant to this policy. It is important to note that this is not a comprehensive list and should not be viewed as exhaustive.

### 1. Plagiarism

Plagiarism is presenting, whether intentional or not, the ideas, expression of ideas or work of others as one's own. Plagiarism includes reproducing or paraphrasing portions of someone else's published or unpublished material, regardless of the source, and presenting these as one's own without proper citation or reference to the original source. Examples of sources from which the ideas, expressions of ideas or works of others may be drawn from include but are not limited to: books, articles, papers, literary compositions and phrases, performance compositions, chemical compounds, art works, laboratory reports, research results, calculations and the results of calculations, diagrams, constructions, computer reports, computer code/software, and material on the Internet.

Examples of plagiarism include, but are not limited to:

- submitting a takehome examination, essay, laboratory report or other assignment written, in whole or in part, by someone else;
- using ideas or direct, verbatim quotations, paraphrased material, algorithms, formulae, scientific or mathematical concepts, or ideas without appropriate acknowledgment in any academic assignment;
- using another's data or research findings;
- submitting a computer program developed in whole or in part by someone else, with or without modifications, as one's own;
- failing to acknowledge sources through the use of proper citations when using another's works and/or failing to use quotation marks.

### 2. Unauthorized Resubmission of Work

A student shall not submit substantially the same piece of work for academic credit more than once without prior written permission of the course instructor in which the submission occurs. Minor modifications and amendments, such as phraseology in an essay or paper do not constitute significant and acceptable reworking of an assignment.

### 3. Unauthorized Cooperation or Collaboration

An important and valuable component of the learning process is the progress a student can make as result of interacting with other students. In struggling together to master similar concepts and problems and in being exposed to each other's views and approaches, group of students can enhance and speed the learning process. Carleton University encourages students to benefit from these activities. However, it is also critically important that each individual student's abilities and achievements form the basis of the evaluation of that student's progress. As result, while collaboration is supported as being beneficial for various components of course and is

generally encouraged, instructors typically limit the amount of collaboration allowed and communicate this to students in the course outlines. To ensure fairness and equity in assessment of term work, students shall not cooperate or collaborate in the completion of an academic assignment, in whole or in part, when the instructor has indicated that the assignment is to be completed on an individual basis. Failure to follow the instructor's directions regarding which assignments, or parts of assignments, should be completed by the individual alone will be considered violation of the standards of academic integrity.

### 4. Misrepresentation

Students shall not submit or present false assignments, research, credentials, or other documents or misrepresent material facts for any academic purpose. Examples of misrepresentation include but are not limited to:

- research or lab results and data;
- concocted facts or references;
- medical or compassionate certificates;
- admission documents;
- letters of support or other letters of reference;
- academic records, transcripts, diplomas or other registrarial records;
- misrepresenting the date or time of submission;
- changing a score or record of an examination result and/or
- altering graded work for resubmission.

### 5. Impersonation

It is a violation of the standards of academic integrity to impersonate another person or enter into an arrangement with another to be impersonated by any means for the purposes of gaining academic advantage including in the taking of examinations, tests, or the carrying out of laboratory or other assignments.

### 6. Withholding

It is a violation of the standards of academic integrity to withhold records, transcripts or other academic documents to mislead or gain unfair academic advantage.

### 7. Obstruction and Interference

It is a violation of the standards of academic integrity to obstruct or otherwise interfere with the scholarly activities of another in order to gain unfair academic advantage. This includes but is not limited to interfering or tampering with data or files, with human or animal research subjects, with a written or other creation (e.g. painting, sculpture, file), with a chemical used for research, with any other object or study or research device or with library, electronic or other materials intended for academic use.

### 8. Disruption of Classroom Activities or Periods of Instruction

Carleton University has a commitment to provide a safe environment for learning. It is a violation of the standards of academic integrity for



student registered in class to disrupt the class or other period of instruction with any action or behaviour reasonably judged by the instructor, lab assistant or tutorial assistant to be detrimental to the class. Normally disruption of activities outside of the classroom or outside of periods of instruction or by a student not registered in the class is dealt with under the *Student Rights and Responsibilities Policy*, but in particular cases may be subject also to this Policy.

**9. Improper Access**

It is a violation of the standards of academic integrity to improperly obtain access to confidential information such as examinations or test questions or to gain undue academic advantage as result of such behaviour.

**10. Improper Dissemination**

It is a violation of the standards of academic integrity to publish, disseminate or otherwise make public to third party without prior written consent, confidential information. Confidential information includes but is not limited to academic information, data or documents which are not otherwise publicly available and which have been gathered or held with reasonable expectation of confidentiality. In particular, students are expected to follow the Carleton University Policies and Procedures for the Ethical Conduct of Research.

**11. Assisting in the Violation of the Standards of Academic Integrity**

To assist anyone in violating the standards of academic integrity is itself violation of academic integrity standards and subject to this policy. For example, giving another student an assignment that you have submitted for another class and allowing that student to copy parts of the assignment and submit it as his/her own work would be a violation of this policy.

**12. Tests and Examinations**

The University is committed to ensuring fairness and consistency in the completion of examinations. As part of this commitment, students are required to follow proper examinations procedures. A student who commits a violation of this policy on an examination, test, or takehome examination, or obtains or produces an answer or unfair advantage by deceit, fraud, or trickery, or by an act contrary to the rules of the examination are subject to the sanction under this Policy.

These rules include but are not limited to:

- bringing to the examination/test room any textbook, notebook, memorandum, other written material or mechanical or electronic device not authorized by the examiner
- writing an examination or part of it, or consulting any person or materials outside the confines of the examination room without permission to do so
- leaving answer papers exposed to view
- attempts to read other students' examination papers and/or speak to or communicate with another student (even if the subject matter is irrelevant to the test).

A violation of this policy may also occur by breaching one of the formal examination rules included on the back of the examination booklet. (These rules are outlined in Appendix A of the Policy, and in Section 14.6 of these Regulations.)

**14.4 Procedures**

Instructors, advisors and/or supervisors must report all suspected cases of violation of the *Academic Integrity Policy* to the Faculty Dean. Details of the procedures to be followed in the event of a suspected violation can be found in Section VII, Procedures, of the *Carleton University Academic Integrity Policy* at [carleton.ca/studentsupport](http://carleton.ca/studentsupport)

**14.5 Sanctions**

In cases where an investigation determines that a violation of the *Academic Integrity Policy* has occurred, sanctions may be applied by the Faculty Dean, the Provost and Vice President (Academic), or by Senate Executive.

Sanctions may include but are not limited to completion of a remediation process, a written reprimand, assignment of a failing grade, withdrawal from a course, suspension from a program, suspension or expulsion from the university. Sanctions may be used independently or in combination for any single violation. This list is not exhaustive and intended only as a guide. For a complete description of possible sanctions, consult Section IX, Sanctions, of the *Carleton University Academic Integrity Policy*, available at: [carleton.ca/studentsupport](http://carleton.ca/studentsupport)

**14.6 Examination Regulations**

The University is committed to ensuring fairness and consistency in the completion of examinations. As part of this commitment, students are required to follow proper examinations procedures. An instructional Offence may occur by breaking one of the following formal examination rules that are also included on the back of the examination booklet. Students who believe they qualify for an equity exemption from any of these rules should register with the appropriate department within the required notice period prior to each examination period: Equity Services for Family Status or Religious Observance ([carleton.ca/equity](http://carleton.ca/equity)); or Paul Menton Centre for Students with Disabilities ([carleton.ca/pmc](http://carleton.ca/pmc)).

Only authorized individuals, registered support persons, service animals and adaptive devices will be permitted into Examination Sites. For the purpose of this Regulation authorized individuals are students registered in the course being examined, instructors and their assistants, and staff of the University. Any student who requires a support person, service animal or adaptive device during an examination is required to register with the Paul Menton Centre for Students with Disabilities ([carleton.ca/pmc](http://carleton.ca/pmc)), and only registered support persons, service animals or adaptive devices will be permitted into examination sites as arranged in advance of the examination date.

- a) You may not bring to your seat in the Examination Room, or during the

examination refer to, any books, papers, audio or electronic devices or other aids unless the use of such material/equipment is authorized by the examiner on the examination paper.

- b) You may not communicate in any manner with anyone except proctors or instructors from the time your examination begins until your completed examination has been collected by a proctor.
- c) You must provide your own printed name, student number, and signature on the Examination Signing Sheet, and you may not leave the Examination Room until this has been done. You must also provide official identification in the form of your Carleton University Campus Card or equivalent.
- d) You may not enter the Examination Room after the first half-hour of the examination.
- e) You may not leave the Examination Room during the first half-hour of the examination, except under circumstances described in Rule f below, and you must sign the Examination Signing Sheet, as in Rule c above, before leaving.
- f) If you become ill or receive word of a domestic emergency during an examination, hand in your answer books at once to a proctor and request that your examination be cancelled. In addition to appropriate supporting documentation, a "Cancellation of Centrally Scheduled Exam" form completed at the exam site is required in order to apply for a deferral. In the case of illness, arrange immediately for a medical examination so that you will have a medical certificate to support any request for a deferred examination. Applications for deferred final examinations must be made in writing at the Registrar's Office by the deadlines published in the Undergraduate Calendar.
- g) The only time you may leave the Examination Room with the intention of returning is to use the washroom. You must sign out, and back in, on the sheet provided.
- h) If you are still in the Examination Room during the last ten minutes of the examination, you must remain seated until your examination materials have been collected and accounted for by a proctor.
- i) You must leave all unauthorized items in a place specified by a proctor.
- j) You may not bring any food or drink into the Examination Room, except water in a sealed, transparent, non-breakable, unlabeled container.
- k) When you have completed your examination, give a proctor all used and unused answer books and/or answer sheets and the question paper (if required) before leaving the Examination Room. Ensure that all answer books and/or answer sheets have your name and student number on them and are collected and accounted for.
- l) If you have doubts about the meaning or

completeness of a question, supply the material you believe you need to answer the question and state your assumption at the beginning of your answer.

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## 15.0 Offenses of Conduct: Discrimination and Harassment

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### 15.1 Carleton University's Human Rights Policy

The University has in place policies and procedures to deal with allegations of discrimination and harassment, including sexual harassment. These are outlined in detail in the Carleton University Human Rights Policies and Procedures, effective May 1, 2001. The policy is available at: [carleton.ca/equity](http://carleton.ca/equity).

### 15.2 Unacceptable Conduct

Unacceptable conduct is outlined in the policy and includes discrimination or harassment based on race, ancestry, place of origin, colour, ethnic origin, citizenship, creed, political affiliation or belief, sex, sexual orientation, gender identity, age, marital status, family status, or disability/handicap within the meaning of the Ontario Human Rights Code. Unacceptable conduct also includes threatening, stalking and unwelcome communication either in person or through electronic or other means. For the three policy sections below, the definition of prohibited behaviour is described in the italicized section that follows.

From the *Anti-Racism and Ethnocultural Relations Policy*

6. The University prohibits discrimination and harassment, including conduct on the basis of race, ancestry, place of origin, colour, ethnic origin and citizenship that:"

From the *Gender Equality Policy*

6. The University prohibits discrimination and harassment, including conduct on the basis of sex, gender or gender identity that:"

From the *Sexual Orientation Equality Policy*

5. The University prohibits discrimination and harassment, including conduct on the basis of sexual orientation or perceived sexual orientation that:
  - 5.1 Is abusive, demeaning or threatening including behaviour such as name calling; derogatory remarks, gestures and physical attacks; or display of derogatory or belittling pictures and graffiti; or
  - 5.2 Biases administrative and appointment decisions, employment and workplace practices, tenure, promotion, appointment, leave and salary determinations; or
  - 5.3 Biases academic decisions such as admissions, grading, the application of Regulations and scheduling of academic activities; or
  - 5.4 Misuses power, authority or influence; or
  - 5.5 *Discriminates in the provision of goods and services, or access to premises, accommodation*

*and other facilities.”*

From the *Sexual Harassment Prevention Policy*

6. Sexual harassment occurs when an individual engages in sexually harassing behaviour or inappropriate conduct of a sexual nature that is known, or ought reasonably be known, to be unwelcome, and that:
  - 6.1 Interferes with the academic or employment performance or participation in a University-related activity for the person harassed; and/or
  - 6.2 Is associated with an expressed or implied promise of employment-related or academic-related consequence for the person harassed (including reward, reprisal or condition of study or employment); and/or
  - 6.3 Provides a basis for academic or employment decisions affecting the person harassed; and/or
  - 6.4 Creates an abusive, demeaning, or threatening study, work or living environment for the person harassed; and/or
  - 6.5 Excludes the person harassed from rights and/or privileges to which they are entitled.
7. Sexually harassing behaviour may be physical, verbal or psychological. It may be conveyed directly or by telephone, writing or electronic means. Examples of inappropriate sexual conduct include:
  - 7.1 Unwelcome sexual solicitations, flirtations or advances; sexually suggestive comments, gestures, threats or verbal abuse;
  - 7.2 Unwarranted touching or physical contact of a sexual nature, coerced consent to sexual contact, or sexual assault;
  - 7.3 Inappropriate display or transmission of sexually suggestive or explicit pictures, posters, objects or graffiti;
  - 7.4 Leering, compromising invitations, or demands for sexual favours;
  - 7.5 Degrading, demeaning or insulting sexual comment or content, including unwelcome remarks, taunting, jokes or innuendo about a person's body, sexuality, sexual orientation or sexual conduct;
  - 7.6 Misuse of position or authority to secure sexual favours;
  - 7.7 Persistent, unwanted attention or requests for sexual contact after a consensual relationship has ended; or
  - 7.8 A course of sexualized comment or conduct that interferes with the dignity or privacy of an individual or group.”

### 15.3 Enforcement

Enforcement of this policy is carried out according to the procedures established in the policy. The procedures include the provision of advice and information to complainants and respondents and allow for various methods of informal resolution, including mediation.

Students with concerns regarding discrimination, harassment, stalking, sexist or racist behaviour, or any other prohibited action as outlined in the Human Rights Policy, should call or meet with

a member of Equity Services for advice and guidance on how to handle the situation. This service is confidential and does not compel the student to take any further action.

Formal complaints must be made in writing and directed to the Dean or Vice President responsible for the area where the complaint took place. Staff in Equity Services are available to assist with the preparation of a formal complaint. Complaints must be made within 12 months after the last alleged incident of discrimination or harassment unless exceptional circumstances apply in which case the University Secretary may grant an extension of up to an additional 12 months.

### 15.4 Formal Procedures

The procedure for formal complaints is outlined below:

1. An allegation shall be made in writing to the Dean of the Faculty in which the program to which the respondent has been admitted belongs or, in the circumstances where the respondent has not been admitted to a program, to the Dean of the Faculty where the majority of courses in which the respondent has registered are administered. An allegation against a student in residence when made by another student in residence which involves the complainant's enjoyment of her/his accommodation shall be made to the Vice-President (Academic). The Dean, or the Vice-President (Academic), as the case may be, shall cause to have an investigation conducted and, upon receipt of the report of the investigation, shall either 1) dismiss the allegation on the grounds of insufficient evidence or lack of jurisdiction by the university, or 2) accept that the allegation is founded and seek the agreement of the respondent to a remedy, or 3) refer the matter to the President. A Dean's dismissal of the allegation may be appealed, within ten working days, to the Vice-President (Academic) who may, in turn, either 1) again dismiss the allegation, or 2) accept that the allegation is founded and propose a remedy to the respondent, or 3) refer the matter to the President. In the case of students in residence, where the original allegation has been made to the Vice-President (Academic) and is dismissed, appeal shall be directly to the President who may either 1) again dismiss the allegation, or 2) accept that the allegation is founded and propose a remedy to the respondent, or 3) refer the matter to a tribunal appointed by the Senate.
2. In the instance where the matter has been referred to the President, the latter shall decide whether the university shall conduct a hearing before a tribunal appointed by the Senate.

If the allegation is proven, the tribunal shall decide upon one of the following sanctions:

The student may be:

- a) expelled;
  - b) suspended for a period of time from all studies at the university;
  - c) restricted in his/her use of University facilities;
- and/or**
- d) given a reprimand.

Should the President decide not to conduct a hearing before a tribunal, the allegation shall be deemed to have been dismissed, but the President shall give written reasons for such a decision, and these reasons shall be communicated to the parties involved.

3. In the instance where the complainant wants redress from the university without the involvement of the respondent, or where the respondent is unknown or is not a member of the university community, and/or where there is a claim that the university has failed or has been negligent in providing a safe, non-hostile environment, the allegation of an offence shall be made in writing to the President, who shall cause an investigation to be conducted. Upon receipt of the report of the investigation, the President may order any relief he/she deems fit, and shall give written reasons for the decision; which reasons shall be communicated to the complainant.

Information about procedure governing tribunals is available from the Clerk of Senate, [senate@carleton.ca](mailto:senate@carleton.ca).

## Academic Regulations and Requirements for the Bachelor of Architectural Studies Degree

The regulations presented in this section apply to all students in the Bachelor of Architectural Studies Honours program.

In addition to these requirements, students must satisfy the University regulations common to all undergraduate students, including the process of Academic Performance Evaluation (consult the Academic Regulations section of this Calendar)

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### Year Status and General Prerequisites

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#### B.A.S. Hons.

Conservation and Sustainability  
Philosophy and Criticism  
Urbanism

Students in these programs are governed by the year standing regulations described in section 4.7 of the Academic Regulations of the University section of this Calendar.

#### B.A.S. Hons.

Design

Year standing for the B.A.S. Design program is defined as follows:

1st year: Admission to the program.

2nd year: Successful completion of ARCS 1105.

3rd year: Successful completion of ARCS 2105  
ARCS 2106, ARCS 1005, ARTH 1100  
ARCH 1000, IDES 2106, ARTH 1101  
CIVE 1005, ARCH 2300, ARCC 1202  
ARCC 2202, ARCC 2203, ARCN 2105.

4th year: Successful completion of ARCS 3105 and ARCS 3106.

## Academic Regulations and Requirements for the Bachelor of Arts Degree

The regulations presented in this section apply to all Bachelor of Arts programs.

In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Performance Evaluation (consult the *Academic Regulations of the University* section of this Calendar).

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### First-Year Seminars

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B.A. degree students are strongly encouraged to include a First-Year Seminar (FYSM) during their first 4.0 credits of registration. Students are limited to one FYSM and can only register in a FYSM while they have first-year standing in their B.A. program. Students who have completed the Enriched Support Program (ESP) or who are required to take a minimum of one English as a Second Language (ESLA) credit are not permitted to register in a FYSM.

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### Breadth Requirement for the B.A. Degree

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Among the credits presented at graduation, students in both the B.A. General and the B.A. Honours degrees are required to include 3.0 breadth credits, including 1.0 credit from each of three of the four Breadth Areas identified below. Credits that fulfil requirements in the Major, Minor, Concentration or Specialization may be used to fulfil the Breadth Requirement.

Students admitted with a completed university degree are exempt from breadth requirements.

Students in the following interdisciplinary programs are exempt from the B.A. breadth requirement:

- Criminology and Criminal Justice
- Directed Interdisciplinary Studies
- Environmental Studies
- Cognitive Sciences
- Classics, Religion and Humanities
- Child Studies
- Human Rights

#### Breadth Area 1: Culture and Communication

Art History, Art and Culture, Communication Studies, Comparative Literary Studies, English, Film Studies, French, Journalism, Music, and Languages (Arabic, English as a Second Language, German, Greek, Hebrew, Indigenous Languages, Italian, Japanese, Korean, Latin, Mandarin, Portuguese, Russian, Sign Language, Spanish)

Subject codes: ACUL, ALSS, ARAB, ARTH, CHIN, CLST, COMM, ENGL, ESLA, FILM, FINS, FREN, GERM, GREK, HEBR, ITAL, JAPA, JOUR, LANG, LATN, MCOM, MUSI, PORT, RUSS, SPAN

#### Breadth Area 2: Humanities

African Studies, Canadian Studies, Child Studies, Classical Civilization, Directed Interdisciplinary Studies, European and Russian Studies, History,

Human Rights, Humanities, Indigenous Studies, Linguistics, Philosophy, Religion, and Women's and Gender Studies.

Subject codes: AFRI, CDNS, CHST, CLCV, DIST, EARR, HIST, HUMR, HUMS, INDG, LALS, PHIL, RELI, WGST, WOMN

### Breadth Area 3: Science, Engineering, and Design

Architecture, Biology, Chemistry, Computer Science, Earth Sciences, Engineering, Environmental Science, Food Science and Nutrition, Industrial Design, Mathematics, Statistics, Physics, and Technology, Society, Environment.

Subject codes: AERO, ARCC, ARCH, ARCN, ARCS, ARCU, BIOC, BIOL, CHEM, CIVE, CMPS, COMP, ECOR, ELEC, ENGM, ENSC, ENVE, EARTH, FOOD, IDES, ISCI, ISCS, ISYS, MAAE, MATH, MECH, NSCI, PHYS, SREE, STAT, SYSC, TSES

### Breadth Area 4: Social Sciences

Anthropology, Business, Cognitive Science, Criminology and Criminal Justice, Economics, Environmental Studies, Geography, Geomatics, Global Politics, International Affairs, Law, Political Science, Psychology, Public Administration, Public Affairs and Policy Management, Social Work, Sociology/ Anthropology, Sociology

Subject codes: ANTH, BUSI, CGSC, CRCJ, ECON, ENST, GEOG, GEOM, GPOL, INAF, LAWS, PADM, PADM, PSCI, PSYC, SOCI, SOWK

## Declared and Undeclared Students

Students who are registered in a program within the degree are called Declared students. Most students designate a program of study when they first apply for admission and so begin their studies as Declared students. Students may also choose to begin their studies within the B.A. degree without being registered in a program. These students are referred to as Undeclared. The recommended course pattern for Undeclared students is outlined under *Undeclared* in the **Programs** section of this Calendar. Undeclared students must apply to enter a program before beginning their second year of study. The Student Academic Success Centre offers support to Undeclared students in making this decision.

## Change of Program Within the B.A. Degree

Students may transfer to a program within the B.A. degree, if upon entry to the new program they would be in *Good Standing*. Other applications for change of program will be considered on their merits; students may be admitted to the new program in *Good Standing* or on Academic Warning. Students may apply to declare or change their program within the B.A. Degree at the Registrar's Office according to the published deadlines. Acceptance into a program or into a program element or option is subject to any enrolment limitations, specific program, program element or option requirements, as published in the relevant Calendar entry.

## Minors, Concentrations and Specializations

Students may apply to the Registrar's Office to be admitted to a minor, concentration or specialization during their first or subsequent years of study. Acceptance into a minor, concentration or specialization requires that the student be in *Good Standing* and is

subject to any specific requirements of the intended Minor, Concentration or Specialization as published in the relevant Calendar entry.

## Courses from Other Faculties and Schools

Students must consult the Registrar's Office about registering in courses in Engineering, Industrial Design, and Architecture. Science and interdisciplinary courses are generally acceptable. Professional courses in Engineering, Industrial Design and Architecture are generally not acceptable. Performance courses in Music are open only to students in certain Music programs. Professional courses in Journalism are not acceptable electives in B.A. programs. A limited number of Architecture courses are permitted in certain programs. Students wishing to take courses in Engineering, Industrial Design, or Architecture that are not part of their program or which are not listed as being open to students in the Faculty of Arts and Social Sciences and the Faculty of Public Affairs and Management must obtain prior permission from the Department(s) of their Major, and from the unit offering the course.

## Mention : Français

Students registered in certain B.A. programs may earn the notation *Mention : Français* by completing part of their requirements in French and by demonstrating a knowledge of the history and culture of French Canada. The general requirements are listed below. For more specific details consult the departmental program entries.

Students in a B.A. Honours program must present:

1. 1.0 credit in French language;
2. 1.0 credit devoted to the history and culture of French Canada;
3. 1.0 credit at the 2000- or 3000-level and 1.0 credit at the 4000-level in the Honours discipline taken in French.

Students in a B.A. General program must present:

1. 1.0 credit in advanced French;
2. 1.0 credit devoted to the history and culture of French Canada;
3. 1.0 credit at the 2000- or 3000-level in the Major discipline taken in French.

Students in Combined Honours programs must fulfil the *Mention : Français* requirement in both disciplines.

Courses taught in French (**Item 3**, above) may be taken at Carleton, at the University of Ottawa on the Exchange Agreement, or at a francophone university on a Letter of Permission. Students planning to take courses on exchange or on a Letter of Permission should take careful note of the residence requirement for a minimum number of Carleton courses in their programs. Consult the *Academic Regulations of the University* section of this Calendar for information regarding study on Exchange or Letter of Permission.

## Academic Regulations and Requirements for the Bachelor of Engineering Degree

The regulations presented in this section apply to all Bachelor of Engineering programs.

### Academic Performance Evaluation for Engineering

In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar), with the following additions and amendments:

1. In Engineering programs, all credits are included in the Major CGPA, making it identical to the Overall CGPA.
2. Students who are not assigned the status *Good Standing* or Academic Warning will be required to leave the degree with the status *Ineligible to Return (ITR)* to the Faculty of Engineering.

### Graduation

Students in Engineering programs are covered by the common University regulations regarding graduation, with the following additions and amendments.

1. Students entering an Engineering program with Advanced Standing will receive transfer credit for at most ten of the credits required for their program.
2. Students must take a minimum of 1.0 credit of complementary studies at Carleton University.

### Course Load

Regulations regarding Course Load and Overload can be found in the *Academic Regulations of the University* section of this Calendar. The normal course load in Engineering is defined as the number of credits required in the student's program for the current year status of the students. Since the programs in Engineering require more than 20.0 credits in total, the normal course load is more than 5.0 credits in some years of the program. Registration in more than this number of credits constitutes an overload.

### Co-operative Education Programs

All Engineering programs are available with or without participation in the Co-operative Education option.

### Year Status for Engineering

In the Bachelor of Engineering Degree program, Year Status is defined as follows.

- 1st year: Admission to the program.
- 2nd year: Successful completion of all Engineering, Science and Mathematics course requirements in the first year of the program, all English as a Second Language Requirements, and any additional requirements as determined in the admissions process.
- 3rd year: Successful completion of 4.0 credits from the second year requirements of the program.
- 4th year: Successful completion of all second year requirements and 3.5 credits from the third year requirements of the program.

### Year Status Prerequisites

Year Status in Engineering is used in some course prerequisites to limit access to only those students who have sufficient preparation. In particular students will not have access to second, third or fourth year engineering, science or mathematics courses until they have achieved second year status. Similarly, to take some specific engineering, science and mathematics courses in third or fourth year, that year status must be achieved. For additional information on prerequisites, see the individual course descriptions.

#### Time Limit

The Bachelor of Engineering degree must be completed within eight calendar years of initial registration. Students who do not complete their program requirements within this limit will be Ineligible to Return.

#### Academic Appeals

The Engineering Committee on Admission and Studies handles all academic appeals.

## Academic Regulations and Requirements for the Bachelor of Industrial Design

The regulations presented in this section apply to all students in the Bachelor of Industrial Design program.

In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Performance Evaluation (consult the Academic Regulations of the University section of this Calendar).

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### Year Status and General Prerequisites

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In the Bachelor of Industrial Design degree program, year status is defined as follows:

- 1st year: Admission to the program.
- 2nd year: Successful completion of IDES 1001, IDES 1301 and must not be deficient in any more than one of the other first year courses.
- 3rd year: Successful completion of of IDES 2203, IDES 2302 and all first and second year course requirements.
- 4th year: Successful completion of IDES 3301 and all third year course requirements.

## Academic Regulations and Requirements for the Bachelor of Information Technology

The regulations presented in this section apply to all students in the Bachelor of Information Technology program.

In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Performance Evaluation (consult the Academic Regulations of the University section of this Calendar).

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### Joint Status

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A student registered in the BIT degree has student status at both Algonquin College and Carleton University. At Algonquin College the student is considered to be a post-secondary student; at Carleton University, the student is considered to be a degree student. Students registered in the BIT degree have access to all student services on the Carleton University campus and selected services on the Algonquin College campus.

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### Academic Regulations

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The academic regulations governing the B.I.T. are the academic regulations of Carleton University. These regulations are defined in full in the Academic Regulations of the University section of this Calendar and apply to B.I.T. students on both campuses. Within the context of these regulations, B.I.T. is considered to be a General degree with a defined Major CGPA and requires 20.0 credits. Courses with the designations BIT, NET or IMD are not normally transferable to Engineering, Computer Science or other programs at Carleton University.

Students should note that there are significant differences between the academic regulations of Carleton University and Algonquin College; it is the regulations of Carleton University that apply in all cases as related both to course registrations and program rules.

At Carleton University, the chief examination officer of the BIT is the Dean of Engineering and Design. At Algonquin College, grades are approved by the Dean of the respective School.

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### Graduation

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In order to graduate with the Bachelor of Information Technology Degree and the Advanced Diploma of Technology or Advanced Diploma of Applied Arts, the student must:

1. satisfy all requirements for the program of study;
2. be recommended for graduation by Bachelor of Information Technology Academic Council;
3. be approved for graduation by the Senate of Carleton University;
4. be approved for graduation by the Registrar of Algonquin College.



Students with an overall CGPA of at least 9.0 may be recommended to graduate with both:

1. Bachelor of Information Technology with Distinction
- and**
2. Advanced Diploma of Technology - Network Technology with Honours or Advanced Diploma of Applied Arts - Interactive Multimedia and Design with Honours.

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### **Discipline**

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The regulations, procedures and sanctions that apply to student discipline on either campus, both concerning Instructional Offences and Offences of Conduct are those of Carleton University and are described in the Carleton University Undergraduate Calendar. However, while students are on Algonquin's campus, they are expected to follow Algonquin's Directives regarding Student Misconduct and Use of Electronic Devices.

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### **Academic Performance Evaluation**

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Students in the BIT programs are degree students at Carleton University as defined in the Academic Regulations of the University section of this Calendar. The BIT programs are considered to be General programs with 20.0 credits.

## Academic Regulations and Requirements for the Bachelor of Science Degree

The regulations presented in this section apply to all Bachelor of Science programs.

In addition to the requirements presented here, students must satisfy the University regulations common to all undergraduate students including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar).

### Breadth Requirement for the B.Sc.

Students in Bachelor of Science Honours or General programs must present the following credits at graduation:

1. 2.0 credits in Science Continuation courses not in the major discipline or disciplines;
2. 1.5 credits in Approved Arts or Social Sciences
3. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences.

In most cases, the requirements for individual B.Sc. programs, as stated in this Calendar, contain these requirements, explicitly or implicitly.

Students admitted to B.Sc. programs by transfer from another institution must present at graduation (whether taken at Carleton or elsewhere):

1. 2.0 credits in Approved Arts or Social Sciences electives if on transfer the student received credit for fewer than 10.0 credits;
2. 1.0 credit of Approved Arts or Social Sciences electives if on transfer the student received credit for 10.0 or more credits;

### Declared and Undeclared Students

Students who are registered in a program within the degree are called Declared students. Most students designate a program of study when they first apply for admission and so begin their studies as Declared students. Students may also choose to begin their studies within the B.Sc. degree without being registered in a program. These students are referred to as Undeclared. The recommended course pattern for Undeclared students is provided in the Undeclared entry of the Programs section of this Calendar. Undeclared students normally must apply to enter a program before beginning their second year of study. The Student Academic Success Centre offers support to Undeclared students in making this decision.

### Change of Program within the B.Sc. Degree

Students may transfer to a program within the B.Sc. degree if upon entry to the new program they would be in good academic standing.

Other applications for change of program will be considered on their merits; students may be accepted in the new program in *Good Standing* or on Academic Warning.

Applications to declare or change their program within the B.Sc. Degree must be made online through Carleton Central by completing a Change of Program Elements (COPE) application form within the published deadlines. Acceptance into a program or into a program element or option is subject to any enrolment, and/or specific program, program element or option requirements as published in the relevant Calendar entry.

### Minors, Concentrations and Specializations

Students may online through Carleton Central by completing a Change of Program Elements (COPE) application form to be admitted to a minor, concentration or specialization during their first or subsequent years of study. Acceptance into a minor, concentration or specialization requires that the student be in *Good Standing* and is subject to any specific requirements of the intended Minor, Concentration or Specialization as published in the relevant Calendar entry.

### Experimental Science Requirement

Students in B.Sc. Honours or General degree programs must present at graduation at least two full credits of experimental science chosen from two different departments: Biology, Chemistry, Earth Sciences, Geography, or Physics.

Approved experimental science courses:

#### Biochemistry

BIOC 2200, BIOC 3006, BIOC 4001, BIOC 4201

#### Biology

BIOL 1003, BIOL 1004, BIOL 1103, BIOL 1104, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200

#### Chemistry

CHEM 1001, CHEM 1002, CHEM 1005, CHEM 1006, CHEM 2103, CHEM 2203, CHEM 2204, CHEM 2206, CHEM 2302, CHEM 2303, CHEM 2800

#### Earth Sciences

ERTH 1006, ERTH 1009, ERTH 2102, ERTH 2404, ERTH 2802, ERTH 3111, ERTH 3112, ERTH 3204, ERTH 3205, ERTH 3806

#### Geography

GEOG 1010

#### Physics

PHYS 1001, PHYS 1002, PHYS 1003, PHYS 1004, PHYS 1007, PHYS1008, PHYS 2202, PHYS 2604, PHYS 3007, PHYS 3606, PHYS 3608

### Course Categories For B.Sc. Programs

#### Science Geography Courses

GEOG 1010, GEOG 2006, GEOG 2013, GEOG 2014, GEOG 3003, GEOG 3010, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4000, GEOG 4005, GEOG 4013, GEOG 4017, GEOG 4101, GEOG 4103, GEOG 4104, GEOG 4108

#### Science Geomatics Courses

GEOM 2004, GEOM 2007, GEOM 3002, GEOM 3005, GEOM 3007, GEOM 4003, GEOM 4007, GEOM 4008, GEOM 4009, GEOM 4406, GEOM 4408

**Science Psychology Courses**

PSYC 2001, PSYC 2002, PSYC 2200, PSYC 2700, PSYC 3000 [1.0], PSYC 3207, PSYC 3506, PSYC 3700[1.0], PSYC 3702, PSYC 3800[1.0]

**Science Continuation Courses**

A course at the 2000-level or above may be used as a Science Continuation credit in a B.Sc. program if it is not in the students' major discipline and is chosen from the following:

- Biology (BIOL) except BIOL 2106
- Biochemistry (BIOC)
- Computer Science (COMP) except COMP 1001. (A maximum of two half-credits at the 1000-level in Computer Science, excluding COMP 1001, may be used as Science Continuation credits.)
- Earth Sciences (ERTH), except ERTH 2415, which may be used only as a free elective for any B.Sc. program. Students in Earth Sciences programs may use ERTH 2401, ERTH 2402 and ERTH 2403 only as free electives.
- Engineering (students wishing to register in Engineering courses must obtain the permission of the Faculty of Engineering and Design.)
- Environmental Science (ENSC)
- Food Science and Nutrition (FOOD)
- Mathematics (MATH) or Statistics (STAT)
- Neuroscience (NEUR)
- Physics (PHYS) except PHYS 2903.
- Science Geography courses (see list above)
- Science Psychology courses (see list above)
- Technology, Society, Environment Studies (TSES) courses except TSES 2305 [1.0]. (Biology General and Honours students may use these courses only as free electives. Integrated Science and Environmental Science students may include these courses in their programs but may not count them as part of the Science Sequence.)

**Science Faculty Electives**

Science Faculty Electives are courses at the 1000 – 4000 levels chosen from the following:

- Biochemistry (BIOC)
- Biology (BIOL) except BIOL 2106
- Chemistry (CHEM) except CHEM 1003 and CHEM 1004
- Chemistry students may use BIOL 1902 and BIOL 1903 only as free electives
- Computer Science (COMP) except COMP 1000, COMP 1001, COMP 1805
- Earth Sciences (ERTH) except ERTH 1010, ERTH 1011 and ERTH 2415.
- Earth Science students may use ERTH 2401, ERTH 2402 and ERTH 2403 only as free electives.
- Engineering
- Environmental Science ENSC 2001
- Food Science and Nutrition (FOOD)
- Geomatics (GEOM) - see Science Geomatics Courses above.

- Mathematics (MATH) or Statistics (STAT) except MATH 1805
- Neuroscience (NEUR)
- Physics (PHYS) except PHYS 1901, PHYS 1902 and PHYS 2903.
- Science Geography (GEOG) (see list above)
- Science Psychology (PSYC) (see list above)
- Technology, Society, Environment (TSES) (Biology General and Honours students may use these courses only as a free elective)

**Advanced Science Faculty Electives**

Advanced Science Faculty Electives are courses at the 2000 – 4000 levels chosen from the Science Faculty Electives list above.

**Approved Arts or Social Sciences Electives**

All courses offered by the Faculty of Arts and Social Sciences and the Faculty of Public Affairs are approved as Arts or Social Sciences courses except for the following:

*Business*

BUSI 1001, BUSI 1002, BUSI 1004, BUSI 1005, BUSI 1402, BUSI 2001, BUSI 2002, BUSI 2300, BUSI 3001, BUSI 3008, BUSI 4000, BUSI 4002

*Economics*

ECON 2201, ECON 2202, ECON 2400, ECON 4004, ECON 4005, ECON 4706, ECON 4707

*Geography*

All Science Geography courses (see list above)

*Geomatics*

All Geomatics courses (GEOM)

*Psychology*

All Science Psychology courses (see list above)

**Free Electives**

Any course is allowable as a Free Elective providing it is not prohibited (see below) or enrolment restricted (consult this Calendar and/or the registration instructions at [carleton.ca/registration](http://carleton.ca/registration)). Students are expected to comply with prerequisite requirements for all courses as published in this Calendar.

**Courses Allowable Only as Free Electives in Any B.Sc. Program**

BIOL 2106, CHEM 1003, CHEM 1004, ERTH 1003 (no longer offered), ERTH 1010, ERTH 1011, ERTH 2415, MATH 1805, COMP 1805, PHYS 1901, PHYS 1902, PHYS 2903, ISCI 2002

**Note:** MATH 0107 and CHEM 0100 may be counted as free electives, providing:

- a) they have not been completed previously and
- b) the course is required as a prerequisite for the current program of study.

**Prohibited Courses**

The following courses are not acceptable for credit in any B.Sc. program: ISCI 1001, ISCI 1002, ISCI 2000, COMP 1001, ISSC 3000, MATH 0005, MATH 0006, MATH 0007.

# Special Studies (Non-Degree)

300 Tory Building  
1125 Colonel By Drive  
Ottawa, Ontario, Canada K1S 5B6  
Tel.: 613-520-3500  
Fax: 613-520-3502  
[carleton.ca/registrar](http://carleton.ca/registrar)

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## Special Students

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Any eligible person interested in pursuing learning opportunities as a non-degree student may apply for special student studies. Registration in credit courses is subject to course enrolment limits, prerequisite courses and/or departmental approval.

Registrarial services for special students are provided through the Registrar's Office.

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## Proficiency in English

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Special students are required to meet the University English Language Proficiency Requirements.

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## Course Load

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Special students may normally enrol in a maximum of 1.0 credit in each of the summer, fall and winter terms.

Special students who have completed at least 1.0 credit taken at Carleton University and have a CGPA of at least 7.00 may register in a maximum of 1.5 credits in each of the summer, fall, and winter terms.

Special students may enrol in 5.0 credits during the fall/winter session and in 2.0 credits in the summer session under either of the following conditions:

1. The student is enrolled full-time in a degree program at another institution and can present a Letter of Permission authorized by an appropriate official of the institution, *or*
2. The student holds an undergraduate degree from a recognized institution and wishes to pursue further study for professional development or in preparation for entry into graduate study.

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## Special Students Enrolling in Graduate-Level Courses

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Anyone wishing to enrol in a graduate-level course as a Special student must obtain a letter of authorization from the Chair or Supervisor of Graduate Studies of the appropriate department. Anyone considering a graduate degree is urged to contact the Faculty of Graduate Studies and Research prior to registration as a Special student. Special students enrolled in graduate-level courses are subject to Special student regulations and English language proficiency requirements outlined in the *Undergraduate Calendar*.

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## Academic Performance Evaluation

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Academic Performance Evaluation for Special students is carried out at the same time as for Degree students. Special students receive their first Academic Performance Evaluation when the student has accumulated 2.0 credits worth of attempts. Subsequent evaluations occur when the student has completed an additional 2.0 credits worth of attempts or more.

Special students who have completed at least 2.0 credits of attempts and at most 3.5 credits at the time of the Academic Performance Evaluation are considered to be in *Good Standing* if their CGPA is at least 3.0. Otherwise they will receive a status of *Academic Warning*.

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## Visiting Students

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Students who wish to attend Carleton to receive credits toward a degree program taken elsewhere are eligible to register at Carleton as Special students. Students must provide Continuing Education with a Letter of Permission from their home university well in advance of the session for which they plan to register.

# Co-operative Education

carleton.ca/co-op

Co-operative Education is based on the principle that academic study combined with alternating work periods is an effective method of professional preparation. Work periods at various points in the academic program allow students to acquire experience within their discipline. The Co-operative Education program is a complement to the students' academic studies.

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## Application Requirements

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Students not admitted to Carleton University with the co-op option on their degree can apply for admission via the co-operative education program website. To view application deadlines, visit [carleton.ca/co-op](http://carleton.ca/co-op).

Admission to the co-op option is generally based on the CGPA requirement for the students' academic program. The articulated CGPA for each program is the normal standard for assessment. Please see the specific degree program sections for the unique admission and continuation requirements for each academic program.

### English Language Proficiency

Students admitted to Carleton based on CAEL, IELTS or TOEFL assessments and who are required to take an ESL course must take and pass the Oral Proficiency in Communicative Settings (OPECS) Test before admission to the co-op program can be confirmed. A minimum score of 5.0 must be attained.

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## Participation Requirements

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### COOP 1000

Once a student has been given admission or continuation confirmation to the co-op option of the degree program s/he must complete and pass COOP 1000. Students will have access to this course two terms prior to their first work term and will be notified when to register.

### Communication with the Co-op Program Office

Students must maintain contact with the co-op program office during their job search and while on a work term. All email communication will be conducted via the students' Carleton email account.

### Graduation with the Co-op Designation

In order to graduate with the co-op designation, students must satisfy all requirements for their degree program in addition to the graduation requirements according to each co-op program (i.e. successful completion of three or four work terms).

Note: Participation in the co-op option will add up to one additional year for a student to complete their degree program.

### Employment

Although every effort is made to ensure a sufficient number of job postings for all students enrolled in the co-op option of their degree program, no guarantee of employment can be made. Carleton's co-op program operates a competitive job search process and is dependent upon current market conditions. Academic performance, skills, motivation, maturity, attitude and potential will determine whether a student is offered a job. It is the student's responsibility to conduct a self-directed job search in addition to participation in the job search process operated by the co-op program

office. Students that do not successfully obtain a co-op work term placement are expected to continue with their academic studies. The summer term is the exception to this rule. Students should also note that hiring priority is given to Canadian citizens for co-op positions in the Public Service Commission.

### Work Term Assessment and Evaluation

To obtain a Satisfactory grade for the co-op work term students must have:

1. A satisfactory work term evaluation by the co-op employer;
2. A satisfactory grade on the work term report.

Students must submit a work term report at the completion of each four-month work term. Reports are due on the 16th of April, August, and December and students are notified of due dates through their Carleton email account.

Workplace performance will be assessed by the workplace supervisor. Should a student receive an unsatisfactory rating from their co-op employer, an investigation by the co-op program manager will be undertaken. An unsatisfactory employer evaluation does not preclude a student from achieving an overall satisfactory rating for the work term.

### Voluntary Withdrawal from the co-op option

Students may withdraw from the co-op option of their degree program during a study term ONLY. Students at work may not withdraw from the work term or the co-op option until s/he has returned to a study term.

Students are eligible to continue in their regular academic program provided that they meet the academic standards required for continuation.

### Involuntary or Required Withdrawal from the Co-op option

Students may be required to withdraw from the co-op option of their degree program for one or any of the following reasons:

1. Failure to register in a co-op work term report course;
2. Receipt of an unsatisfactory work term evaluation;
3. Submission of an unsatisfactory work term report;
4. Leaving a work term without approval by the Co-op Manager;
5. Dismissal from a work term by the co-op employer;
6. Failure to attend all interviews for positions to which the student has applied;
7. Failure to achieve a grade of SAT in COOP 1000;
8. Continuing a job search after accepting a co-op position;
9. Declining more than one job offer during the job search process;
10. Failure to pay all co-op related fees;
11. Failure to actively participate in the job search process.
12. Decline in CGPA minimum requirement.

### Standing and Appeals

The Co-operative Education Program office administers the regulations and procedures that are applicable to the all co-op program options. All instances of a student's failure during a work term or other issues directly related to their participation in the co-op option will be reported to the academic department.

Any decision made by the co-operative education administrators can be appealed via the normal appeal process within the University.

### Registering in Co-op Courses

Students must register in a co-op work term report course while at work. The number of work term report courses that a student registers in is dependent upon the number of work terms that a student accepts in the employment contract.

Students must be registered as full-time students before they begin their co-op job search (2.0 credits). All co-op work terms must be completed before the beginning of the final academic term. Students may not finish their degree on a co-op work term.

## Requirements According to Degree Program

### Bachelor of Architecture

Students in the Bachelor of Architecture must complete three (3) work terms to obtain the co-op designation.

Co-op Admission and Continuation Requirements for students in the Bachelor of Architectural Studies

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

In addition to the following:

- a) Registered as a full-time student in the B.A.S. program;
- b) Obtained and maintained an overall CGPA of 7.00 or higher;
- c) Successfully completed an interview with the School.

### Work Term Report Courses

ARCN 1001, ARCN 2001, ARCN 3001, ARCN 4001, ARCN 4901

### Work/Study Patterns

A table of work/study patterns can be found at the end of this section.

### Bachelor of Arts (B.A.) Program

The following Bachelor of Arts programs offer a co-operative education option:

Anthropology, Cognitive Science, Communication Studies, Applied Economics and Economics, French, History, Law (including concentrations in Business Law and Law, Policy and Government), Political Science and Sociology

To obtain the co-op designation in these programs students must successfully complete three (3) work terms.

### B.A. General Co-op Admission and Continuation Requirements

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

### B.A. Program-Specific Admission and Continuation Requirements

#### Anthropology and Sociology

- a) Registered in either the B.A. Honours Sociology or B.A. Honours Anthropology Program;
- b) Have a minimum CGPA of 9.0 (B+) in the first two years of academic study;
- c) Successfully completed, by the start-date of the first work term, the required first-year courses, second-year courses, and SOCI 3003 (for undergraduate sociology majors) or ANTH 3005 and ANTH 3006 (for undergraduate anthropology majors).

#### Cognitive Science

- a) Registered as a full-time in the Bachelor of Arts, Cognitive Science program;
- b) Obtained and maintained an overall CGPA of 8.50 or higher;
- c) Successfully completed CGSC 2001.

#### Communication Studies

- a) Registered as a full-time student in the Bachelor of Arts Mass Communication program;
- b) Obtained and maintained an overall CGPA of 9.00 or higher.

#### Applied Economics and Economics

- a) Registered as a full-time student in the second year of a Bachelor of Arts Honours Economics or Applied Economics program;
- b) A major CGPA of 8.00 or higher and an overall CGPA of 8.00 or higher;
- c) Successfully completed all required first- and second-year courses before beginning the first work placement.

#### French

- a) Registered in the B.A. Honours in French;
- b) An 8.0 CGPA overall with a major CGPA of 9.0
- c) Successfully completed, by the start-date of the first work term, the required language courses and others listed hereafter: FREN 2100 (or any substitute course) or FREN 2110; FREN 2401; FREN 2201 and must be registered in FREN 3050 and one of FREN 3251 or FREN 3451 during the fall of the third year (students will be allowed to take this course while at work in the winter term outside of work hours);
- d) have completed the Departmental *Examen oral de français*;
- e) be registered as full-time student in the term before the work term;
- f) have obtained third-year status.

#### History

- a) Registered in the B.A. History (Honours);
- b) An overall minimum CGPA of 8.0 at the end of second year of academic study;
- c) 2nd year standing;
- d) be registered as a full-time student. (For the co-op program they must be registered in 2.0 credits in the term before the work session begins, not including the summer term.)

#### Law

- a) Registered as a full-time student in the Bachelor of Arts Honours - Law (Business law Concentration or Laws, Policy and Government Concentration) program; Obtained an overall CGPA of 8.00 at the end of the first three terms of study if applying to do their first work term in the summer following the second year of study;
- b) Obtained and maintained an overall CGPA of 6.5 and a major CGPA of 8.0 at the end of the first five terms of study, for the purposes of entry to any work term following completion of the third year of study;

- c) Completed 3.5 credits in law, including LAWS 2908, prior to their first work term. It is strongly recommended that students complete all first and second year law requirements prior to entering their first work term.

#### Political Science

- a) Registered as a full-time student in the second year of the Bachelor of Arts - Political Science program;  
b) Obtained and maintained an overall CGPA of 9.00.

#### Work/Study Patterns

A table of work/study patterns can be found at the end of this section.

#### Work Term Report Courses

##### Anthropology and Sociology

SOCI/ANTH 3901, SOCI/ANTH 3902, SOCI/ANTH 3903, SOCI/ANTH 3904

##### Cognitive Science

CGSC 3100, CGSC 4100, CGSC 4101

##### Communication Studies

COMM 3200, COMM 3201, COMM 3202

##### Economics

ECON 3981, ECON 3982, ECON 3983, ECON 3984

##### French

FREN 3000, FREN 4000, FREN 4001

##### History

HIST 3910, HIST 3911, HIST 3912, HIST 3913

##### Business Law and Law, Policy and Government

LAWS 3806, LAWS 3807, LAWS 3808, LAWS 3809

##### Political Science

PSCI 3901, PSCI 3902, PSCI 3903, PSCI 3904

### Bachelor of Commerce

The following concentrations in the Bachelor of Commerce offer a co-operative education option:

Accounting, Finance, Information Systems, International Business, Managing People and Organizations, Marketing, Supply Chain Management, and students without a concentration.

**To obtain the co-op designation in these concentrations students must successfully complete three (3) work terms.**

Co-op Admission and Continuation Requirements for students in the Bachelor of Commerce

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

In addition to the following:

- a) Have a major CGPA of 8.00 or higher and an overall CGPA of 6.50 or higher;
- b) Successfully completed 6.0 credits in the major and have at least 6.0 credits remaining for completion of the B.Com. program (in addition to 2.0 Work Term Report credits);
- c) Registered as a full-time student in the Bachelor of Commerce program.

#### Work/Study Patterns

A table of work/study patterns can be found at the end of this section.

#### Work Term Report Courses

BUSI 3901, BUSI 3902, BUSI 3903, BUSI 3904, BUSI 3905

### Bachelor of Computer Science

The following streams in the Bachelor of Computer Science offer a co-operative education option:

Biomedical Computing, Computer and Internet Security, Computer Game Development, Law, Management and Business Systems, Network Computing, Psychology, Software and Computing, Software Engineering.

Students in the Bachelor of Computer Science must successfully complete four (4) work terms to obtain the co-op designation.

Co-op Admission and Continuation Requirements for students in the Bachelor of Computer Science

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

In addition to the following:

- a) A major CGPA of 8.00 or higher and an overall CGPA of 8.00 or higher;
- b) Successfully completed 3.0 required credits in Computer Science, including one of COMP 2402 or COMP 2404; Registered as a full-time student in the Bachelor of Computer Science program.

#### Work/Study Patterns

A table of work/study patterns can be found at the end of this section.

#### Work Term Report Courses

COMP 3200, COMP 3201, COMP 3202, COMP 4200, COMP 4201

### Bachelor of Engineering

The following concentrations in the Bachelor of Engineering offer a co-operative education option:

Aerospace Engineering, Biomedical and Electrical Engineering, Biomedical and Mechanical Engineering, Civil Engineering, Communications Engineering, Computer Systems Engineering, Electrical Engineering, Environmental Engineering, Mechanical Engineering, Software Engineering, Sustainable and Renewable Energy (SREE) Engineering, Engineering Physics.

Students in all Bachelor of Engineering concentrations must successfully complete four (4) work terms to obtain the co-op designation.

**Co-op Admission and Continuation Requirements for students in the Bachelor of Engineering**

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

In addition to the following:

- a) Registered as a full-time student in the Engineering program;
- b) An overall CGPA of 8.00 or higher;

## Regulations - Co-operative Education

- c) Successfully completed all required first year courses including CCDP 2100 before beginning the first work placement;
- d) Obtained permission of the Co-op Faculty Advisor.
- e) Students must be eligible for third-year standing when they return for a study term after their first work placement.

**Work/Study Patterns**

A table of work/study patterns can be found at the end of this section.

**Co-op Courses****Aerospace Engineering and Mechanical Engineering, Biomedical and Mechanical Engineering**

MAAE 1901, MAAE 2902, MAAE 3903, MAAE 3904, MAAE 3905, MAAE 3906

**Civil Engineering**

CIVE 1901, CIVE 2901, CIVE 2902, CIVE 3901, CIVE 3902, CIVE 3903

**Communications Engineering, Computer Systems Engineering and Software Engineering**

SYSC 1901, SYSC 2901, SYSC 3901, SYSC 3902, SYSC 3903

**Biomedical and Electrical Engineering, Electrical Engineering and Physics Engineering**

ELEC 1901, ELEC 2901, ELEC 2902, ELEC 3901, ELEC 3902, ELEC 3903

**Environmental Engineering**

ENVE 1901, ENVE 2902, ENVE 3903, ENVE 3904, ENVE 3905, ENVE 3906

**Sustainable and Renewable Energy Engineering**

SREE 1901, SREE 2902, SREE 3903, SREE 3904, SREE 3905, SREE 3906

**Bachelor of Industrial Design**

The Bachelor of Industrial Design offers a co-operative education option.

Students in the Bachelor of Industrial Design must complete three (3) work terms to obtain the co-op designation.

**Co-op Admission and Continuation Requirements for students in the Bachelor of Industrial Design**

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

In addition to the following:

- a) Registered as a full-time student in the Industrial Design program;
- b) Obtained a CGPA of 8.00 or higher in industrial design core courses and an overall CGPA of 6.50 or higher;
- c) Successfully completed an interview with the School. The School's interview is an essential component of the admission process and students must demonstrate a mature, professional attitude to successfully enter the co-op option.

**Work/Study Patterns**

A table of work/study patterns can be found at the end of this section.

**Co-op Courses**

IDES 2401, IDES 3402, IDES 3403, IDES 3404, IDES 3405

**Bachelor of Information Technology**

The Bachelor of Information Technology (IMD and NT) offers a co-operative education option.

Students in the Bachelor of Information Technology must complete three (3) work terms to obtain the co-op designation.

**Co-op Admission and Continuation Requirements for students in the Bachelor of Information Technology**

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

In addition to the following:

- a) Obtained and maintained a Major CGPA of 8.0;
- b) Successfully completed all required first-year courses, and
- c) Registered as a full-time student in the Bachelor of Information Technology program, and
- d) Obtained the permission of the Faculty Co-op Advisor.

**Work/Study Patterns**

A table of work/study patterns can be found at the end of this section.

**Co-op Courses**

BIT 2200, BIT 2201, BIT 3300, BIT 3301, BIT 3302

**Bachelor of Mathematics**

The following streams in the Bachelor of Mathematics offer a co-operative education option:

Biostatistics, Computer Mathematics, Computer Mathematics (IT), Computer Science and Mathematics, and Computer Statistics

Students in the Bachelor of Mathematics must successfully complete four (4) work terms to obtain the co-op designation.

**Co-op Admission and Continuation Requirements for students in the Bachelor of Mathematics (excluding Biostatistics)**

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

In addition to the following:

- a) Completion of 5.0 or more included credits (at least 2.0 in Mathematics/Statistics) at Carleton in any Honours program offered by the School of Mathematics and Statistics, students must;
- b) A major CGPA of 8.00 or higher and an overall CGPA of 6.50 or higher;
- c) Completion of at least one of Computer Science COMP 2002 or COMP 2004 or COMP 2404 or COMP 2404 to be eligible for placement in the regular (i.e. not preliminary) co-op work term placement;

**Co-op Admission and Continuation Requirements for students in the Bachelor of Mathematics (Biostatistics only)**



For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

**In addition to the following:**

- a) Full-time student in the B.Math. Biostatistics program;
- b) An overall CGPA of 8.00 or higher;
- c) Successfully completed all required first year courses before beginning the first work placement;
- d) Obtained permission of the Co-op Faculty Advisor.
- e) Students must be eligible for third-year standing when they return for a study term after their first work placement.

#### Work/Study Patterns

A table of work/study patterns can be found at the end of this section.

#### Co-op Courses

MATH 2200, MATH 3200, MATH 3201, MATH 4200, MATH 4201

### Bachelor of Public Affairs and Policy Management

The following streams in the Bachelor of Public Affairs and Policy Management offer a co-operative education option:

Public Policy and Administration, Human Rights, Development Studies, International Studies, Communication and IT Policy, Strategic Opinion and Policy Analysis and Social Policy.

Students in the Bachelor of Public Affairs and Policy Management must successfully complete three (3) work terms to obtain the co-op designation.

#### Co-op Admission and Continuation Requirements for students in the Bachelor of Public Affairs and Administration

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

**In addition to the following:**

- a) Registered as a full-time in the B.P.A.P.M. program;
- b) Obtained an overall CGPA of 9.00 or higher calculated on at least 5.0 credits.

#### Work/Study Patterns

A table of work/study patterns can be found at the end of this section.

#### Work Term Report Courses

PAPM 3100, PAPM 3101, PAPM 3102

### Bachelor of Science

The following programs in the Bachelor of Science offer a co-operative education option:

Applied Physics, Biochemistry (including computational), Bioinformatics, Biology, Biotechnology, Chemistry

(including computational), Earth Sciences, Environmental Science, Nanoscience, and Physics.

Students in all streams of the Bachelor of Science must successfully complete three (3) work terms to obtain the co-op designation.

#### Co-op Admission and Continuation Requirements for students in the Bachelor of Science

For admission to and continuation in the co-op option, all students must:

- Maintain full-time status in each study term (2.0 credits);
- Be eligible to work in Canada (for off-campus work placements)
- Have successfully completed COOP 1000

**In addition to the following:**

- a) Completion of 5.0 or more credits at Carleton University;
- b) Registered as a full-time student in the Bachelor of Science program;
- c) A major CGPA of 8.00 or higher and an overall CGPA of 6.50 or higher.

#### Work/Study Patterns

A table of work/study patterns can be found at the end of this section.

#### Co-op Courses

#### Applied Physics, Mathematics and Physics, Physics, Biology and Physics, Chemistry and Physics, Mathematics and Physics

PHYS 2906, PHYS 3904, PHYS 3905, PHYS 3906, PHYS 4905, PHYS 4906

#### Biochemistry and Computational Biochemistry

BIOC 2909, BIOC 3909, BIOC 4909

#### Biochemistry and Biotechnology, Bioinformatics, Biology, Biotechnology, and Computational Biology, Biology and Physics, Neuroscience

BIOL 2909, BIOL 3909, BIOL 4909

#### Chemistry, Chemistry and Physics, and Computational Chemistry

CHEM 2909, CHEM 3909, CHEM 4909

#### Earth Sciences

ERTH 2001, ERTH 3001, ERTH 4001

#### Environmental Science

ENSC 2909, ENSC 3909, ENSC 4909

## Work-Study Sequences

### Bachelor of Architectural Studies (B.A.S.)

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W	S	S	W	W	W	W	S	S

### Bachelor of Arts (B.A.)

#### Anthropology, Sociology

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S		S	S	W	W/S	W/S	W	W/S	S

#### Cognitive Science

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	S	Fall	Winter	S	Fall	Winter
Pattern	S	S		S	S		S	S	W	S	W	W	S	

#### Applied Economics, Economics

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S		W	S	W	S	W	W	S	S

#### French

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	S	Fall	Winter	S	Fall	Winter
Pattern	S	S		S	S		S	W1	W2	S	S	W3	W4(O)	

#### History

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	S	Fall	Winter	S	Fall	Winter
Pattern	S	S		S	S		W1	S	W2	S	W3	W4(O)	S	S

#### Law: Concentration in Business Law and Concentration in Law, Policy and Government

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W	S	S	W	S	W	W	S	

#### Communication Studies

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W	S	S	W	W/S	W/S	S	S	

#### Legend

- S = Study W = Work O = Optional  
 \* indicates recommended work study pattern  
 \*\* student finds own employer for this work-term

**Political Science**

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W/S	W	S	W/S	W/S	W	S		

**Bachelor of Commerce (B.Com.)****Accounting**

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W/S	S	S	W	S	W*	S	S	

**Finance, International Business, Marketing, Operations Management, and students without a concentration**

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W	S	W	W	S	S	W*	S	

**Information Systems, Managing People and Organizations**

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W/S	S	W	W	S	S	W*	W*	S

**Bachelor of Computer Science (B.C.S.)**

Computer Science, Streams: Software and Computing, Management and Business Systems, Software Engineering, Network Computing, Computer and Internet Security, Computer Games Development, Biomedical Computing, Psychology, Law, B.C.S. Major

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	W
Pattern	S	S	O	S	S	W	W	S	W	S	W	W	S	S

**Bachelor of Engineering (B.Eng.)**

Aerospace, Biomedical and Mechanical, Civil, Communications, Environmental, Mechanical Engineering, Sustainable and Renewable Energy Engineering

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S	**O	S	S	O/W	S	S	W	W	W	W	S	S

**Computer Systems, Electrical, Engineering Physics**

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S	**O	S	S	W	W	S	S	W	W	W	S	S

**Biomedical and Electrical Engineering, Software, Sustainable and Renewable Energy**

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W	S	W	W	W	S	W	S	S

**Legend**

S = Study W = Work O = Optional

\* indicates recommended work study pattern

\*\* student finds own employer for this work-term

**Bachelor of Industrial Design (B.I.D.)**

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W	S	S	W	W	W	W	S	S

**Bachelor of Information Technology (B.I.T.)**  
 Interactive Multimedia and Design, Network  
 Technology

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	Summer	Fall	Winter	Summer	Fall	Winter	S	Fall	Winter	Summer	Fall	Winter
Pattern	S	S		S	S	W	S	W	W	W	S	W	S	S

**Bachelor of Mathematics (B.Math.)**  
 Biostatistics, Computer Mathematics, Computer  
 Mathematics (IT), Computer Science and Mathematics,  
 Computer Statistics

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	Fall	Winter	S	Fall	Winter	S	Fall	Winter	S	Fall	Winter	S	Fall	Winter
Pattern	S	S	**O/W	S	S	*W	S	S	O/W	*W/S	*W/S	O/W	S	S

**Bachelor of Public Affairs and Policy  
 Management (B.P.A.P.M.)**  
 Public Policy and Administration, Human Rights,  
 Development Studies, International Studies,  
 Communication and IT Policy, Strategic Opinion and  
 Policy Analysis, Social Policy

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	F	W	S	F	W	S	F	W	S	F	W	S	F	W
Pattern	S	S		S	S	W	S	S	W	W/S	W/S	S	S	

**Bachelor of Science (B.Sc.)**  
 Applied Physics, Biochemistry, Bioinformatics,  
 Biology, Biotechnology, Chemistry, Computational  
 Biochemistry, Computational Biology, Computational  
 Chemistry, Earth Sciences, Environmental Science,  
 Physics

Year	Year 1			Year 2			Year 3			Year 4			Year 5	
Term	F	W	S	F	W	S	F	W	S	F	W	S	F	W
Pattern	S	S	**O/W	S	S	*W	S	S	O/W	*W/S	*W/S	O/W	S	S

**Legend**

S = Study W = Work O = Optional

\* indicates recommended work study pattern

\*\* student finds own employer for this work-term

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Programs



## African Studies

### Institute of African Studies (Faculty of Arts and Social Sciences and Faculty of Public Affairs)

This section presents the requirements for:

- African Studies - B.A. Combined Honours
- Minor in African Studies

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### Graduation Requirements

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In addition to the program requirements listed below, students must satisfy:

- the University regulations (see the Academic Regulations of the University section of this Calendar),
- the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree* in this Calendar).

Students should consult the Institute when selecting courses and planning their program.

Some of the courses listed have prerequisites that are not explicitly included in the program. Students should note that it is their responsibility to ensure that they have completed the prerequisites for any courses that they wish to take.

Other courses with relevant subject matter such as special topics or courses taken on exchange at the University of Ottawa may be substituted, with permission of the Institute.

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### Institute Language Requirement

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The Institute requires Honours students to demonstrate proficiency in at least one language relevant to Africa other than English. The Institute will maintain a list of those languages suitable for meeting this requirement. Students may demonstrate proficiency either through the completion of any first-year course (or its approved equivalent) in a relevant language offered at Carleton or through passing a language proficiency test administered by the Institute. In the case of the language proficiency test, availability of the test in a given language will depend upon faculty resource availability.

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### Program Requirements

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#### African Studies

#### B.A. Combined Honours (20.0 credits)

- Credits included in the African Studies Major CGPA (7.0 credits):**
  - 1.0 credit in AFRI 1001 and AFRI 1002;
  - 1.0 credit from HIST 2706, HIST 2707, HIST 3702, HIST 3711, HIST 3906;
  - 0.5 credit from PSCI 3100, PSCI 3101, PSCI 4203, PSCI 4207, PSCI 4802;
  - 0.5 credit from ANTH 2620, ANTH 2660, ANTH 4620;
  - 1.0 credit from ENGL 2956, ENGL 2957, HIST 2704 [1.0], HIST 3403, HIST 3406, HIST 3710;
  - 0.5 credit from ENGL 2926, ENGL 2927, FREN 4212;
  - 1.0 credit from (AFRI 3100 or AFRI 3900), ANTH 2850, ANTH 3025, ANTH 3800, ANTH 4800, ECON 3508, ECON 3509, ECON 3510, ECON 4507, ECON 4508, GEOG 2200, GEOG 3209, HIST 3111, HUMR 4501, LAWS 3602, LAWS 4603, PSCI 2102, PSCI 3302, PSCI 3404, PSCI 3502, PSCI 4104, PSCI 4105, PSCI 4409, PSCI 4505, SOWK 3206, SOWK 3207, TSES 4011;
  - 0.5 credit from (AFRI 3100 or AFRI 3900 not used in Item 6 above), ANTH 2020, SOCI 2020, ANTH 3020, SOCI 3020, ANTH 4020, SOCI 4020, ENGL 4802, HIST 3406, HUMR 3301, HUMR 3401, MUSI 2008, MUSI 3106, PSCI 3805, WGST 2800;
  - 0.5 credit from AFRI 4050, ANTH 4620, PSCI 4203, PSCI 4207, PSCI 4802;
  - 0.5 credit in AFRI 4000;
- Credits Not Included in the Major CGPA (13.0 credits):**
  - The requirements of the other discipline must be satisfied;
  - The Institute language requirement must be met;
  - Sufficient free electives to make 20.0 credits for the degree.

#### Minor in African Studies (4.0 credits)

##### Requirements:

- 1.0 credit in AFRI 1001 and AFRI 1002;
- 1.0 credit from HIST 2706, HIST 2707, HIST 3702, HIST 3711, HIST 3906;
- 0.5 credit from PSCI 3100, PSCI 3101;
- 0.5 credit from ANTH 2620, ANTH 2660;
- 1.0 credit from ENGL 2926, ENGL 2927, ENGL 2956, ENGL 2957, HIST 2704 [1.0], HIST 3403, HIST 3406, HIST 3710;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

## Architectural Studies

**Azrieli School of Architecture and Urbanism  
(Faculty of Engineering and Design)  
202 Architecture Bldg.  
613-520-2855  
arch.carleton.ca**

This section presents the requirements for:

- Design - B.A.S. Honours
- Urbanism - B.A.S. Honours
- Conservation and Sustainability - B.A.S. Honours
- Philosophy and Criticism - B.A.S. Honours

The Co-operative Education Option is available with the Bachelor of Architectural Studies.

The Azrieli School of Architecture and Urbanism cooperates with the School for Studies in Art and Culture in offering the B.A. Honours and B.A. General programs in History and Theory of Architecture (see the Art History program section of this Calendar for details).

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy the University regulations (see the *Academic Regulations of the University* section of this Calendar), and the *Academic Regulations of the Bachelor of Architectural Studies*.

Students should consult the School when planning their program and selecting courses.

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### Residency Requirement

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#### B.A.S. Hons.

Conservation and Sustainability  
Philosophy and Criticism  
Urbanism

To be eligible to graduate, students in these programs must present a minimum of 5.0 residency credits in their degree program.

#### B.A.S. Hons.

Design

To be eligible to graduate, students in this program must present a minimum of half the total number of credits required in their program as residency credits.

For more information, consult section 5.3 Minimum Number of Carleton Credits (Residency and Advanced Credits), in the *Academic Regulations of the University* section of this Calendar.

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### Academic Performance Evaluation

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#### B.A.S. Hons.

Conservation and Sustainability  
Philosophy and Criticism  
Urbanism

These programs follow the academic performance evaluation regulations governing Honours programs as described within sections 7.1 - 7.4 of the *Academic Regulations of the University*, and section 7.5 regarding the B.A.S. specifically.

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### Common First Year Course Sequence

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All B.A.S. students follow the following common first-year course sequence:

ARCH 1000, ARTH 1100, ARCN 2106, ARCS 1005, ARTH 1101, ARCC 1202, ARCS 1105 [1.0], and 1.0 credit in free electives.

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### Course Categories

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#### Urbanism Core Electives

CDNS 2300, CDNS 2400, CDNS 4400, GEOG 3021, GEOG 3023, GEOG 3305, GEOG 3600, GEOG 4021, GEOG 4303, GEOG 4304, GEOM 2004, GEOM 2007, HIST 3209, SOCI 2020, SOCI 2030, SOCI 3030, SOCI 3038, SOCI 3045, SOCI 3730, SOCI 4030, SOCI 4038

#### Conservation and Sustainability Core Electives

ARCC 4103, ARCC 4300, ARCC 4400, ARCC 4801, CDNS 2300, CDNS 4400, CIVE 3203, CLCV 2300, CLCV 2305, CLCV 3300, ENVE 4106, GEOG 2200, GEOG 2300, GEOG 3021, GEOG 3023, GEOG 4021, GEOG 4303, GEOM 2004, MATH 1004

#### Philosophy and Criticism Core Electives

ACUL 4001, ANTH 3570, ANTH 3580, ARTH 3301, ARTH 3603, ARTH 4700, CDNS 1000, CLCV 2000, HIST 1001, HIST 1300, HIST 3811, PHIL 1550, PHIL 2005, PHIL 2010, PHIL 2807, PHIL 3301, PHIL 3380, SOCI 1001, SOCI 1002, SOCI 2200

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### Retention of Work

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Keeping a good portfolio is a most important part of architectural education. A portfolio represents a record of the student's progress and design experience over the years, and is an indispensable requirement for any future job application. A portfolio is started in first year and continues to expand until graduation. The School, therefore, requires that each student produce reproductions (normally 8 1/2 x 11 inch reproductions, colour or black and white, slides, and/or digital format CD) of his or her work at the end of each term. One copy of the work should be put in the student's portfolio and the other turned in to the instructor for retention in the School's archives. (This facilitates retrospective exhibitions of work, accreditation, publications and any future references for pedagogic purposes.) Original work is the property of the students, but the School retains the right to keep work of merit for up to two years after the date of submission. The School will make every effort to preserve the work in good condition, and will give authorship credit and take care of its proper use.

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### Program Requirements

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#### Design

#### B.A.S. Honours (20.0 credits)

#### Requirements:

1. 4.0 credits in ARCS 1005, ARCS 1105 [1.0], ARCN 2106, ARCH 1000, ARTH 1100, ARTH 1101, ARCC 1202;
2. 1.0 credit in free electives;



3. 4.0 credits in ARCH 2300, ARCC 2202, CIVE 2005, ARCN 2105, ARCC 2203, ARCU 3100, ARCC 3202, ARCC 4500;
4. 9.0 credits in ARCS 2105 [1.5], ARCS 2106 [1.5], ARCS 3105 [1.5], ARCS 3106 [1.5], ARCS 4105 [1.5], ARCS 4106 [1.5]
5. 1.0 credit in approved history/theory elective;
6. 1.0 credit in a workshop or free elective.

**Note:** in the first and second year of the B.A.S. Design program, studios must be taken in sequence. In the third and fourth years, studios may be taken out of sequence, with the permission of the CSPA.

### Urbanism

#### B.A.S. Honours (20.0 credits)

##### A. Credits Included in the Major (12.0 credits):

1. 2.0 credits in ARCH 1000, ARTH 1100, ARTH 1101, ARCC 1202;
2. 7.5 credits in ARCC 4500, ARCH 2300, ARCH 4201, ARCU 3301 [1.0], ARCU 3302 [1.0], ARCU 3100, ARCU 4300, ARCU 4400, ARCU 4600, ARCU 4700, ARCU 4801, ARCU 4909 [1.0];
3. 2.5 credits in GEOG 1020, GEOG 2200, GEOG 2300, SOCI 1001, SOCI 1002;

##### B. Credits not included in the Major (8.0 credits):

4. 2.0 credits in ARCN 2106, ARCS 1005, ARCS 1105;
5. 0.5 credit in ARCN 2105;
6. 3.0 credits in Urbanism core electives;
7. 1.0 credit in history/theory electives;
8. 1.5 credits in free electives.

**Note:** no more than 1.5 credits in directed readings and/or the honours research project may be used to fulfil B.A.S. Urbanism program requirements, except by permission of the School.

### Conservation and Sustainability

#### B.A.S. Honours (20.0 credits)

##### A. Credits Included in the Major (12.0 credits):

1. 2.0 credits in ARCH 1000, ARTH 1100, ARTH 1101, ARCC 1202;
2. 6.5 credits in ARCH 2300, ARCH 3100, ARCH 4206, ARCC 2202, ARCC 2203, ARCC 3202, ARCC 4500, ARCC 4900, ARCC 4909 [1.0], ARCU 3100, ARCN 3100, ARCN 4200;
3. 3.5 credits in CIVE 2005, CIVE 2700, CIVE 2200, CIVE 3204, ENVE 4105, CDNS 2400, ENVE 1001;

##### B. Credits Not Included in the Major (8.0 credits):

4. 2.0 credits in ARCN 2106, ARCS 1005, ARCS 1105 [1.0];
5. 0.5 credit in ARCN 2105;
6. 1.0 credit in history/theory electives from approved list;
7. 1.5 credits from Conservation and Sustainability core electives;

8. 3.0 credits in free electives.

**Note:** no more than 1.5 credits in directed readings and/or the honours research project may be used to fulfil B.A.S. Conservation and Sustainability program requirements, except by permission of the School.

### Philosophy and Criticism

#### B.A.S. Honours (20.0 credits)

##### A. Credits Included in the Major (10.0 credits):

1. 2.0 credits in ARCH 1000, ARTH 1100, ARTH 1101, ARCC 1202;
2. 6.5 credits in ARCH 1001, ARCH 2300, ARCH 4002, ARCH 2001, ARCU 3100, ARCH 4009, ARCH 3001, ARCH 4004, ARCH 4304, ARCH 4502, ARCH 4900, ARCH 4909 [1.0];
3. 1.5 credits in Philosophy and Criticism core electives;

##### B. Credits Not Included in the Major (10.0 credits):

4. 2.0 credits in ARCN 2106, ARCS 1005, ARCS 1105;
5. 0.5 credit in ARCN 2105;
6. 3.0 credits in philosophy and/or history/theory electives;
7. 2.0 credits in Philosophy and Criticism core electives;
8. 2.5 credits in free electives.

**Note:** no more than 1.5 credits in directed readings and/or the honours research project may be used to fulfil B.A.S. Philosophy and Criticism program requirements, except by permission of the School. ARCH 4004 and ARCH 4304 will be offered in alternating years.

## Art History

School for Studies in Art and Culture  
(Faculty of Arts and Social Sciences)  
423 St. Patrick's Building  
613-520-5606  
carleton.ca/ssac/arhistory

This section presents the requirements for:

- Art History – B.A. Honours
- Art History – B.A. Combined Honours
- Art History – B.A. General
- Minor in Art History

and, offered in cooperation with the Azrieli School of Architecture and Urbanism:

- History and Theory of Architecture – B.A. Honours
- History and Theory of Architecture – B.A. General

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see *the Academic Regulations of the University* in this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see *the Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the School when planning their program and selecting courses.

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### Program Requirements

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#### Art History

##### B.A. Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (10.0 credits):

1. 1.0 credit in ARTH 1100 and ARTH 1101 (to be completed by the end of second year, that is, normally within the first ten credits);
2. 1.0 credit from ARTH 2100, ARTH 2202, ARTH 2300, ARTH 2403;
3. 1.0 credit from ARTH 2502, ARTH 2600, ARTH 2601, ARTH 2608;
4. 0.5 credit from ARTH 2002, ARTH 2003;
5. 0.5 credit from ARTH 2005, ARTH 2006, ARTH 2007, ARTH 2008;
6. 1.0 credit in ARTH 3106;
7. 1.5 additional credits in ARTH at the 3000-level;
8. 2.5 credits in ARTH at the 4000-level, collectively satisfying:
  - a) 1.5 credit ARTH at the 4000-level excluding ARTH 4900, ARTH 4901, ARTH 4902, ARTH 4909;
  - b) 1.0 credit;
9. 1.0 credit in ARTH;

###### B. Credits Not Included in the Major CGPA (10.0 credits):

10. 8.0 credits in electives not in ARTH;

11. 2.0 credits in free electives.

#### Art History

##### B.A. Combined Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (6.5 credits):

1. 1.0 credit in ARTH 1100 and ARTH 1101;
2. 0.5 credit from ARTH 2100, ARTH 2202, ARTH 2300, ARTH 2403;
3. 0.5 credit from ARTH 2502, ARTH 2600, ARTH 2601, ARTH 2608;
4. 0.5 credit from ARTH 2002, ARTH 2003;
5. 0.5 credit from ARTH 2005, ARTH 2006, ARTH 2007, ARTH 2008;
6. 2.0 credits at the 2000-level or above;
7. 1.5 credits at the 4000-level collectively satisfying:
  - a) 0.5 credit, excluding ARTH 4900, ARTH 4901, ARTH 4902, ARTH 4909;
  - b) 1.0 credit;

###### B. Additional Requirements:

8. The requirements of the other discipline must be satisfied;
9. 5.0 credits in electives not in ARTH or the other discipline;
10. Sufficient free electives to make 20.0 credits in total for the program.

#### Art History

##### B.A. General (15.0 credits)

###### A. Credits Included in the Major CGPA (6.5 credits):

1. 1.0 credit in ARTH 1100 and ARTH 1101;
2. 1.0 credit from ARTH 2100, ARTH 2202, ARTH 2300, ARTH 2403;
3. 1.0 credit from ARTH 2502, ARTH 2600, ARTH 2601, ARTH 2608;
4. 0.5 credit from ARTH 2002, ARTH 2003, ARTH 2005, ARTH 2006, ARTH 2007, ARTH 2008;
5. 2.0 credits at the 3000- or 4000-level;
6. 1.0 credit in ARTH;

###### B. Credits Not Included in the Major CGPA (8.5 credits):

7. 7.0 credits in electives not in ARTH;
8. 1.5 credits in free electives.

#### Minor in Art History

This minor is open to all undergraduate degree students not in Art History programs.

##### Requirements (4.0 credits):

1. 1.0 credit in ARTH 1100 and ARTH 1101;
2. 1.5 credits in ARTH at the 2000-level;
3. 1.5 credits in ARTH at the 3000- or 4000-level;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

## History and Theory of Architecture B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.0 credits):**
- 2.0 credits in ARTH 1100, ARTH 1101, ARTH 1200, ARTH 2608;
  - 3.0 credits in ARTH including at least 2.0 credits from:  
ARTH 2005, ARTH 2006, ARTH 2202, ARTH 2300, ARTH 2403, ARTH 2806, ARTH 2807, ARTH 3002, ARTH 3005, ARTH 3101, ARTH 3201, ARTH 3207, ARTH 3609, ARTH 3900, ARTH 3901, ARTH 3902, ARTH 3903, ARTH 4202, ARTH 4203, ARTH 4601, ARTH 4603, ARTH 4800, ARTH 4900, ARTH 4901, ARTH 4902, ARTH 4909 [1.0];
  - 3.0 credits in ARTH or architecture;
  - 2.0 credits in architecture and/or from the following list: FYSM 1504, CLCV 43300 [1.0], CLCV 4300 [1.0], SOCI 3038, COMP 1001, COMP 1004;
  - These 10.0 credits required in the Major CGPA must include:
    - at least 2.0 credits at the 2000-level or above;
    - at least 1.0 credit at the 4000-level;
- B. Credits Not Included in the Major CGPA (10.0 credits):**
- 8.0 credits in electives not in ARTH or architecture;
  - 2.0 credits in free electives.

## History and Theory of Architecture B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (7.0 credits):**
- 2.0 credits in ARTH 1100, ARTH 1101, ARTH 1200, ARTH 2608;
  - 2.0 credits in ARTH including at least 1.0 credit from:  
ARTH 2005, ARTH 2006, ARTH 2100, ARTH 2202, ARTH 2300, ARTH 2403, ARTH 2806, ARTH 2807, ARTH 3002, ARTH 3005, ARTH 3101, ARTH 3201, ARTH 3207, ARTH 3609, ARTH 3900, ARTH 3901, ARTH 3902, ARTH 3903, ARTH 4202, ARTH 4203, ARTH 4305, ARTH 4601, ARTH 4603, ARTH 4800, ARTH 4900, ARTH 4901, ARTH 4902, ARTH 4909 [1.0]
  - 2.0 credits in ARTH or architecture;
  - 1.0 credit in architecture and/or from:  
FYSM 1504, CLCV 3300 [1.0], CLCV 4300 [1.0], SOCI 3038, COMP 1001, COMP 1004;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
- 7.0 credits in electives not in ARTH or architecture;
  - 1.0 credit in free electives.

## Notes for programs in History and Theory of Architecture:

- No more than 1.5 credits may be taken as directed readings and/or the Honours Research essay.
- Architecture courses which are workshops or studio-based may not be taken for credit in these programs.
- Architecture courses taken to fulfil the requirements of these programs are not transferable to other programs in the Faculty of Arts and Social Sciences.

## Biochemistry

### Institute of Biochemistry

(Faculty of Science)

209 H. H. J. Nesbitt Bldg.

613-520-2478

carleton.ca/biochem

This section presents the requirements for the B.Sc. programs in:

- Biochemistry – B.Sc. Honours
- Computational Biochemistry – B.Sc. Honours
- Biochemistry – B.Sc. Major

Requirements for the program Biochemistry and Biotechnology are presented in the Biotechnology program section of this Calendar.

Co-operative Education Option is available (see the Co-operative Education section of this Calendar).

### Graduation Requirements

In addition to the requirements listed below, students must satisfy:

1. the University regulations (see the Academic Regulations of the University, and the Academic Regulations for the Bachelor of Arts Degree),
2. the Faculty regulations applying to all B.Sc. students including those relating to Science Continuation and Breadth requirements (see the Academic Regulations for the Bachelor of Science).

Students should consult with the Institute when planning their program and selecting courses.

### Course Categories for Biochemistry

The program descriptions below make use of the following course categories that are defined in the Faculty of Science Regulations section of this Calendar.

- Approved Arts or Social Sciences
- Free Electives

### Program Requirements

#### Biochemistry

##### B.Sc. Honours (20.0 credits)

- A. Credits included in the Major CGPA (13.5 credits):
1. 2.0 credits in BIOL 1103, BIOL 1104, BIOL 2104, BIOL 3104;
  2. 0.5 credit from BIOL 2001 or BIOL 2002;
  3. 0.5 credit from BIOL 3205 or BIOL 3305;
  4. 1.0 credit from: BIOL 2303, BIOL 3102, BIOL 3201, BIOL 3202, BIOL 3205, BIOL 3303, BIOL 3305, BIOL 4008, BIOL 4103, BIOL 4106, BIOL 4109, BIOL 4200, BIOL 4201, BIOL 4202, BIOL 4209, BIOL 4300, BIOL 4301, BIOL 4306, BIOL 4400;
  5. 4.0 credits in: CHEM 1001 and CHEM 1002, CHEM 2103 or BIOC 2300, CHEM 2203, CHEM 2204, CHEM 2303, CHEM 2501, CHEM 3201;
  6. 0.5 credit from: CHEM 3202, CHEM 3205;
  7. 3.5 credits in: BIOC 2200, BIOC 3006 [1.0], BIOC 3101, BIOC 3102, BIOC 3202; BIOC 4001;
  8. 0.5 credit from: BIOC 3008, BIOC 4004, BIOC 4005, BIOC 4007, BIOC 4009, BIOC 4200, BIOC 4201, BIOC 4202, BIOC 4203, BIOC 4204, BIOC 4400, BIOC 4708, BIOC 4901;
  9. 1.0 credit in BIOC 4906 [1.0] or BIOC 4907 [1.0] or BIOC 4908 [1.0];
- B. Credits Not Included in the Major CGPA (6.5 credits):
10. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
  11. 1.5 credits in MATH 1007, MATH 1107, and STAT 2507;
  12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
  13. 1.5 credits in Approved Arts or Social Sciences;
  14. 1.5 credits from: BIOC courses listed in but not used to fulfil **Item 8** above, one of (BIOC 2400, BIOC 3400 or BIOC 4901), BIOC 4008; BIOL courses listed in but not used to fulfil **Item 4** above; CHEM courses listed in but not used to fulfil **Item 6** above; CHEM 3100, CHEM 3101, CHEM 3102, CHEM 3504, CHEM 3700, CHEM 3800, CHEM 4202, CHEM 4203, CHEM 4406, PHYS 2202, PHYS 2604, MATH 2007, MATH 2008, MATH 2107, COMP 1005, COMP 1007;
  15. 0.5 credit in free electives.

#### Computational Biochemistry

##### B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major (13.5 credits):
1. 2.0 credits in BIOL 1103, BIOL 1104, BIOL 2104, BIOL 3104;
  2. 3.0 credits in CHEM 1001 and CHEM 1002, CHEM 2103 or BIOC 2300, CHEM 2203, CHEM 2303, CHEM 2501;

3. 0.5 credit in CHEM 2204 or CHEM 2206;
  4. 4.0 credits in: BIOC 2200, BIOC 3006 [1.0], BIOC 3101, BIOC 3102, BIOC 3202, BIOC 3008, BIOC 4008;
  5. 1.5 credits in COMP 1005, COMP 1006, COMP 2001;
  6. 1.5 credits in MATH 1805, MATH 2007, MATH 2107, STAT 2509, MATH 2800, MATH 3800, BIOC 2400, BIOC 3400, BIOC 4202;
  7. 1.0 credit in BIOC 4906 [1.0] or BIOC 4908 [1.0];
- B. Credits Not Included in the Major (6.5 credits):**
8. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
  9. 2.0 credits in MATH 1007, MATH 1107, MATH 2007 and STAT 2507;
  10. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
  11. 1.5 credits in Approved Arts or Social Sciences;
  12. 1.0 credit in COMP 2002, and COMP at the 2000-level or above;
  13. 0.5 credit in free electives.

## Biochemistry

### B.Sc. Major (20.0 credits)

- A. Credits included in the Major CGPA (12.0 credits):**
1. 2.0 credits in BIOL 1003, BIOL 1004, BIOL 2104, BIOL 3104;
  2. 0.5 credit from BIOL 2001 or BIOL 2002;
  3. 0.5 credit from BIOL 3205 or BIOL 3305;
  4. 1.0 credit from: 1.0 credit from: BIOL 2303, BIOL 3102, BIOL 3201, BIOL 3202, BIOL 3205, BIOL 3303, BIOL 3305, BIOL 4008, BIOL 4103, BIOL 4106, BIOL 4109, BIOL 4200, BIOL 4201, BIOL 4202, BIOL 4209, BIOL 4300, BIOL 4301, BIOL 4306, BIOL 4400;
  5. 2.5 credits in: BIOC 2200, BIOC 3006 [1.0], BIOC 3101, BIOC 3102;
  6. 1.0 credit from: BIOC 3008, BIOC 3202, BIOC at the 4000-level;
  7. 4.0 credits from: CHEM 1001 and CHEM 1002, CHEM 2103 or BIOC 2300, CHEM 2203, CHEM 2204, CHEM 2303, CHEM 2501, CHEM 3201;
  8. 0.5 credit from CHEM 3202 or CHEM 3205;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
9. 1.0 credit from (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
  10. 1.5 credits in MATH 1007, MATH 1107, and STAT 2507;
  11. 0.5 credit in NSCI 1000 or an Approved Arts or Social Sciences;
  12. 1.5 credits in Approved Arts or Social Sciences;

13. 3.0 credits from: biochemistry courses listed in but not used to fulfil **Item 6** above, BIOC 4901, biology courses listed in but not used to fulfil **Item 4** above, CHEM 3100, CHEM 3101, CHEM 3102, CHEM 3202, CHEM 3205, CHEM 3504, CHEM 3700, CHEM 3800, CHEM 4202, CHEM 4203, PHYS 2202, PHYS 2604, MATH 2007, MATH 2008, MATH 2107, COMP 1007;
14. 0.5 credit in free electives.

## Biology

### Department of Biology (Faculty of Science)

209 Nesbitt Bldg.

613-520-2478

carleton.ca/biology

This section presents the requirements for programs in:

- Bioinformatics – B.Sc. Honours
- Computational Biology – B.Sc. Honours
- Biology – B.Sc. Honours
- Biology with Concentration in Ecology, Evolution and Behaviour – B.Sc. Honours
- Biology with Concentration in Health Science – B.Sc. Honours
- Biology with Concentration in Molecular and Cellular Biology – B.Sc. Honours
- Biology with Concentration in Physiology – B.Sc. Honours
- Biology – B.Sc. Major
- Biology – B.Sc. General
- Biology and Physical Geography – B.Sc. Combined Honours
- Biology and Earth Sciences – B.Sc. Combined Honours
- Biology and Physics – B.Sc. Combined Honours
- Neuroscience – B.Sc. Combined Honours
- Biology – B.A. Honours
- Biology – B.A. General
- Biology – B.A. Combined Honours
- Minor in Biology

Requirements for the program Biology and Biotechnology are presented in the Biotechnology program section of this Calendar.

Co-operative Education Option is available (see the Co-operative Education section of this Calendar).

### Graduation Requirements

In addition to the requirements listed below, students must satisfy:

1. the University regulations (see the Academic Regulations of the University in this Calendar),
2. for B.Sc. programs, the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see the Academic Regulations for the Bachelor of Science Degree),
3. for B.A. programs, the common regulations applying to all B.A. programs including those relating to First-Year Seminars and Breadth requirements (see the Academic Regulations for the Bachelor of Arts Degree).

Students should consult with the Department when planning their program and selecting courses.

### Course Categories for Biology programs

The program descriptions below make use of the following course categories that are defined in the Bachelor of Science Regulations in this Calendar.

- Science Faculty Electives
- Advanced Science Faculty Electives
- Science Continuation
- Science Geography
- Science Psychology
- Approved Arts or Social Sciences
- Free Electives
- **Restricted Courses:** Biology General and Honours students (except students in the B.A. General, B.A. Honours and Combined Honours programs) may use Technology, Society, Environment courses TSES 3001, TSES 3002, TSES 3500, TSES 4001, TSES 4002, TSES 4003, TSES 4005, TSES 4006, TSES 4007 to fulfil degree requirements, but only as free electives.

### Program Requirements

#### General Note on Programs

If the Department of Biology cannot find a supervisor for a student who has applied to register for BIOL 4908, then BIOL 4907 will be accepted as a replacement. Under such an exceptional circumstance the Department Chair will direct the student to replace BIOL 4908 with BIOL 4907.

#### Bioinformatics

##### B.Sc. Honours (20.0 credits)

##### A. Credits included in the Major CGPA (12.5 credits):

1. 4.0 credits in BIOL 1103, BIOL 1104, BIOL 2104, BIOL 2200, BIOL 3104, BIOL 4106, and BIOL 4908 [1.0];
2. 0.5 credit from BIOL 2001, BIOL 2002, BIOL 2303 or BIOL 3102;
3. 4.0 credits in BIOC 2300, BIOC 3008, BIOC 3101, BIOC 3102, BIOC 3202, BIOC 4008, BIOC 4202 and BIOC 4906;
4. 1.0 credit in BIOL or BIOC or COMP or MATH or STAT at the 3000-level or higher;
5. 3.0 credits in COMP 2001, COMP 1005, COMP 1006, COMP 2002, COMP 2004, and COMP 2005;

##### B. Credits not included in the Major CGPA (7.5 credits):

6. 2.0 credit in (CHEM 1001 and CHEM 1002), CHEM 2203, and CHEM 2204 (see Note 2, below);
7. 1.0 credit in PHYS 1007 and PHYS 1008, or PHYS 1003 and PHYS 1004;
8. 2.0 credits in MATH 1007, MATH 1107, STAT 2507, STAT 2509;
9. 2.0 credits in NSCI 1000 or Approved Arts or Social Sciences;
10. 0.5 credit in free electives.

#### Note:

For **Item 6** above, students in this program without the prerequisites for CHEM 1001 and CHEM 1002 may substitute CHEM 1005 and CHEM 1006 with permission from the Biology Department, but will be required to

obtain a grade of B- or higher in CHEM 1006 to advance to second year CHEM courses.

### Computational Biology B.Sc. Honours (20.0 credits)

#### A. Credits included in the Major CGPA (12.0 credits):

1. 6.0 credits in BIOL 1103, BIOL 1104, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2600, BIOL 3604, BIOL 3612, BIOL 4103, and BIOL 4908 [1.0];
2. 2.0 credits in BIOL or BIOC at the 3000-level or higher;
3. 2.0 credits in COMP 2001, COMP 1005, COMP 1006, and COMP 2002;
4. 2.0 credits in COMP at the 2000-level or higher;

#### B. Credits not included in the Major CGPA (8.0 credits):

5. 2.0 credits in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006), CHEM 2203, and CHEM 2204 (see Note, below);
6. 1.0 credit in PHYS 1007 and PHYS 1008, or PHYS 1003 and PHYS 1004;
7. 3.0 credits in MATH 1007, MATH 1107, MATH 2007, STAT 2507, STAT 2509 and MATH 3800;
8. 2.0 credits in NSCI 1000 or Approved Arts or Social Sciences.

#### Note:

Students in this program normally take CHEM 1005 and 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

### Biology B.Sc. Honours (20.0 credits)

#### A. Credits included in the Major CGPA (11.0 credits):

1. 2.5 credits in BIOL 1103, BIOL 1104, BIOL 4901, and BIOL 4908 [1.0];
2. 2.5 credits from BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 2600;
3. 0.5 credit from BIOL 3205 or BIOL 3305;
4. 1.0 credit in BIOL at the 2000-level or higher;
5. 3.5 credits in BIOL or BIOC at the 3000-level or higher;
6. 1.0 credit in Advanced Science Faculty Electives;

#### B. Credits not included in the Major CGPA (9.0 credits):

7. 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See **Note 2**, below);
8. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
9. 1.0 credit in MATH 1007 and (BIOL 1005 or MATH 1107 or STAT 2507);
10. 1.0 credit in Science Faculty Electives;
11. 2.0 credits in Science Continuation credits (not in BIOL);

12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
13. 1.5 credits in Approved Arts or Social Sciences;
14. 1.0 credit in free electives.

#### Notes:

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.
2. For **Item 7** above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.
3. Students in the B.Sc. Honours Biology program may elect to focus their studies in one of the following concentrations: 1) Ecology, Evolution and Behaviour; 2) Health Science; 3) Molecular and Cellular Biology; or 4) Physiology.

### Biology with Concentration in Ecology, Evolution and Behaviour B.Sc. Honours (20.0 credits)

#### A. Credits included in the Major CGPA (11.0 credits):

1. 2.5 credits in BIOL 1103, BIOL 1104, BIOL 4901, BIOL 4908 [1.0];
2. 2.5 credits in BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2600;
3. 0.5 credit from BIOL 3205 or BIOL 3305;
4. 1.0 credit from BIOL 3609, BIOL 3611, BIOL 3802;
5. 2.0 credits from BIOL 3104, BIOL 3601, BIOL 3602, BIOL 3604, BIOL 3605, BIOL 3609, BIOL 3608, BIOL 3611, BIOL 3612, BIOL 3801, BIOL 3802, BIOL 3804;
6. 2.0 credits from BIOL 4102, BIOL 4103, BIOL 4104, BIOL 4203, BIOL 4317, BIOL 4318, BIOL 4500, BIOL 4501, BIOL 4503, BIOL 4604, BIOL 4802;
7. 0.5 credit in BIOL at the 2000-level or higher;

#### B. Credits not included in the Major CGPA (9.0 credits):

8. 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See **Note 2**, below);
9. 1.0 credit in MATH 1007 and (BIOL 1005 or MATH 1107 or STAT 2507);
10. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
11. 1.0 credit in Science Faculty Electives;
12. 2.0 credits in Science Continuation courses (not in BIOL);

13. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
14. 1.5 credits in Approved Arts or Social Sciences;
15. 1.0 credit in free electives.

**Notes:**

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.
2. For **Item 8** above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

**Biology with Concentration in Health Science**

**B.Sc. Honours (20.0 credits)**

**A. Credits included in the Major CGPA (11.0 credits):**

1. 2.5 credits in BIOL 1103, BIOL 1104, BIOL 4901, BIOL 4908 [1.0];
2. 2.0 credits in BIOL 2001, BIOL 2104, BIOL 2200, BIOL 2303;
3. 1.0 credit in BIOL 3305 and BIOL 3307;
4. 1.0 credit in BIOC 3101 and BIOC 3102;
5. 1.0 credit from BIOL 3104, BIOL 3201, BIOL 3202, BIOL 3303, BIOL 3501, BIOL 4318, BIOL 4201;
6. 1.0 credit from BIOC 4009, BIOC 4708, BIOL 4200, BIOL 4202, BIOL 4306;
7. 1.0 credit from BIOL or BIOC at the 3000-level or higher;
8. 1.0 credit from PSYC 2200, PSYC 2301, PSYC 3204;
9. 0.5 credit from PHIL 2408, GEOG 3206, ANTH 3310, SOCI 3050, SOCI 3056;

**B. Credits not included in the Major CGPA (9.0 credits):**

10. 2.0 credits in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006), (CHEM 2203 and CHEM 2204), or (CHEM 2207 and CHEM 2208) (See **Note 2**, below);
11. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
12. 1.0 credit in MATH 1007 and (BIOL 1005 or MATH 1107 or STAT 2507);
13. 1.0 credit in PSYC 1001 and PSYC 1002;
14. 1.0 credit in Science Faculty Electives;
15. 1.0 credit in Science Continuation courses (not in BIOL);
16. 0.5 credit in NSCI 1000 or Approved Arts and Social Sciences;
17. 0.5 credit in Approved Arts and Social Sciences;
18. 1.0 credit in free electives.

**Notes:**

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.
2. For **Item 10** above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.
3. In order to meet the prerequisite requirements for courses in **Items 8** and **9**, students should ensure that they have chosen appropriate courses in **Items 15, 16, 17** and **18**.
4. Students intending to apply to medical schools should be aware of the requirements of different medical schools for chemistry courses with laboratories, and for English courses. This may influence the choice of courses chosen to meet the requirements in **Items 10, 16, 17**, and **18**.

**Biology with Concentration in Molecular and Cellular Biology**

**B.Sc. Honours (20.0 credits)**

**A. Credits included in the Major CGPA (11.0 credits):**

1. 2.5 credits in BIOL 1103, BIOL 1104, BIOL 4901, BIOL 4908 [1.0];
2. 2.5 credits in BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303;
3. 0.5 credit from BIOL 3205, BIOL 3303, BIOL 3305;
4. 1.0 credit in BIOC 3101, BIOC 3102;
5. 1.0 credit in BIOL 3104, BIOL 3201;
6. 2.0 credits from BIOL 4106, BIOL 4109, BIOL 4200, BIOL 4202, BIOL 4201, BIOL 4400;
7. 0.5 credit in BIOL or BIOC at the 2000-level or higher;
8. 1.0 credit in BIOL or BIOC at the 3000-level or higher;

**B. Credits not included in the Major CGPA (9.0 credits)**

9. 2.0 credits in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006), (CHEM 2203 and CHEM 2204) (See **Note 2**, below);
10. 1.0 credit in MATH 1007 and (BIOL 1005 or MATH 1107 or STAT 2507);
11. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
12. 1.0 credit in Science Faculty Electives;
13. 1.0 credit in Science Continuation courses (not in BIOL);
14. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
15. 1.5 credits in Approved Arts or Social Sciences;
16. 1.0 credit in free electives.

**Notes:**

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.



- For Item 9 above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

### **Biology with Concentration in Physiology B.Sc. Honours (20.0 credits)**

#### **A. Credits Included in the Major CGPA (11.0 credits):**

- 2.5 credits in BIOL 1103, BIOL 1104, BIOL 4901, and BIOL 4908 [1.0];
- 2.0 credits in BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200;
- 1.5 credits in BIOL 3205, BIOL 3305, BIOL 3307;
- 1.5 credits in BIOC 2300, BIOC 3101, BIOC 3102;
- 2.0 credits from BIOL 3201, BIOL 3202, BIOL 3501, BIOL 3802, BIOL 4317, BIOL 4318, BIOL 4201, BIOL 4008, BIOC 4203, BIOL 4209, BIOL 4306;
- 1.0 credit in BIOL at the 2000-level or higher;
- 0.5 credit in BIOL or BIOC at the 3000-level or higher;

#### **B. Credits not included in the Major CGPA (9.0 credits):**

- 2.0 credits in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006), and (CHEM 2203 and CHEM 2204) or (CHEM 2207 and CHEM 2208) (See **Note 2**, below);
- 1.0 credit in MATH 1007 and (BIOL 1005 or MATH 1107 or STAT 2507);
- 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
- 1.0 credit in Science Faculty electives;
- 1.0 credit in Science Continuation courses (not in BIOL)
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
- 1.5 credits in Approved Arts or Social Sciences;
- 1.0 credit in free electives.

#### **Notes:**

- Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.
- For Item 8 above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

### **Biology B.Sc. Major (20.0 credits)**

#### **A. Credits included in the Major CGPA (9.0 credits):**

- 1.0 credit in BIOL 1003 and BIOL 1004;
- 2.5 credits from BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 2600;

- 0.5 credit from BIOL 3205 or BIOL 3306;
- 3.0 credits in BIOL at the 3000-level or higher;
- 2.0 credits in Advanced Science Faculty electives;

#### **B. Credits not included in the Major CGPA (11.0 credits):**

- 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See **Note 2**, below);
- 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
- 1.0 credit in MATH 1007 and (BIOL 1005 or MATH 1107 or STAT 2507);
- 1.0 credit in Science Faculty Electives;
- 2.0 credits in Advanced Science Faculty Electives;
- 2.0 credits in Science Continuation courses (not in BIOL);
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
- 1.5 credits in Approved Arts or Social Sciences;
- 1.0 credit in free electives.

#### **Notes:**

- Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.
- For **Item 6** above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

### **Biology B.Sc. General (15.0 credits)**

#### **A. Credits included in the Major CGPA (6.0 credits):**

- 1.0 credit in BIOL 1003 and BIOL 1004;
- 2.0 credits from BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 2600;
- 0.5 credit from BIOL 3205 or BIOL 3306;
- 2.5 credits from BIOL at the 2000-level, 3000-level or higher;

#### **B. Credits not included in the Major CGPA (9.0 credits):**

- 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See **Note 2**, below);
- 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
- 1.0 credit in MATH 1007 and (MATH 1107 or STAT 2507);
- 2.0 credits in Science Continuation (not in BIOL);
- 1.0 credit in Science Faculty Electives;
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;

## Programs - Biology

11. 1.5 credits in Approved Arts or Social Sciences;
12. 1.0 credit free elective.

### Notes:

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.
2. For **Item 5** above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take course in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

### Biology and Physical Geography B.Sc. Combined Honours (20.0 credits)

#### A. Credits included in the Major CGPA (13.0 credits):

1. 2.0 credits in BIOL 1103, BIOL 1104, GEOG 2013, and GEOG 2014;
2. 10.0 credits in BIOL (or BIOC) and Science Geography at the 2000-level or higher satisfying collectively:
  - a) 0.5 credit from BIOL 3605, BIOL 3606, GEOG 3000, or GEOG 4000;
  - b) at least 4.0 credits in BIOL or BIOC;
  - c) at least 4.0 credits in GEOG or GEOM;
  - d) at least 4.0 credits are at the 3000-level or higher;
3. 1.0 credit in BIOL 4908 [1.0] or GEOG 4906 [1.0];

#### B. Credits not included in the Major CGPA (7.0 credits):

4. 1.5 credits in MATH 1007 and (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (see **Note 2**, below);
5. 0.5 credit from MATH 1107 or STAT 2507;
6. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
7. 1.5 credits in Approved Arts or Social Sciences (See **Note 3**, below);
8. 1.0 credit in Science Faculty Electives (see **Note 4**, below);
9. 1.0 credit in Science Faculty Electives or COMP at the 2000-level or higher, not in BIOL or GEOG or GEOM.
10. 1.0 credit free elective.

### Notes:

1. Courses in Physical Geography are listed in the *Academic Regulations for the Bachelor of Science Degree* section of this Calendar as Science Geography courses.
2. For **Item 4** above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take CHEM courses beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.
3. For **Item 7** above, 1.0 credit in GEOG, other than the Physical Geography, is recommended;

4. For **Item 8** above, either (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008) is required unless OAC Physics is presented on admission.

### Biology and Earth Sciences B.Sc. Combined Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (13.0 credits):

1. 1.0 credit in BIOL 1103 and BIOL 1104;
2. 1.0 credit in EARTH 1006 and EARTH 1009;
3. 10.0 credits in BIOL (or BIOC) and EARTH at the 2000-level or higher, collectively satisfying:
  - a) 1.0 credit in BIOL 3605 and (ERTH 2314 or EARTH 3206);
  - b) at least 4.0 credits in BIOC;
  - c) at least 4.0 credits in EARTH;
  - d) at least 4.0 credits at the 3000-level or above;
4. 1.0 credit in BIOL 4908 [1.0] or EARTH 4908 [1.0] or (ERTH 4909 and 0.5 credit in EARTH at the 4000-level);

#### B. Credits Not Included in the Major CGPA (7.0 credits):

5. 1.0 credit in MATH 1007 and MATH 1107;
6. 1.0 credit from (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) or (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008). The omitted subject, i.e. Chemistry or Physics, must have been taken at the 4U/M level;
7. 0.5 credit in STAT (STAT 2507 is recommended);
8. 0.5 credit in COMP (COMP 1004 is recommended);
9. 1.0 credit in Science Faculty Electives;
10. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
11. 1.5 credits in Approved Arts or Social Sciences;
12. 1.0 credit in free electives.

### Biology and Physics B.Sc. Combined Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (12.5 credits):

1. 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
2. 2.5 credits in PHYS 2604, PHYS 2202, PHYS 3308, PHYS 4409, and ECOR 2606;
3. 2.0 credits in PHYS 3007, PHYS 3207, PHYS 3606, and PHYS 3701;
4. 1.0 credit from PHYS 3802, PHYS 4008, PHYS 4203, PHYS 4508, or PHYS 4707;
5. 4.0 credits in BIOL 1103, BIOL 1104, BIOL 2200, BIOL 2104, BIOL 2001, BIOL 3201, BIOL 3104, and BIOL 3305;
6. 1.0 credit from BIOL 4106, BIOL 4109, BIOL 4202, BIOL 4301, BIOL 4302, or BIOL 4306;

7. 1.0 credit in one of:
  - a) BIOL 4908 [1.0];
  - b) PHYS 4909 [1.0];
  - c) PHYS 4907 plus 0.5 credit in PHYS at the 4000-level;
  - d) PHYS 4908 plus 0.5 credit in PHYS at the 4000-level;

**B. Credits Not Included in the Major CGPA (7.5 credits):**

8. 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (see Note, below);
9. 0.5 credit from MATH 1004 or MATH 1007;
10. 0.5 credit from MATH 1104 or MATH 1107;
11. 2.0 credits in STAT 2507, MATH 1005, MATH 2004, and MATH 3705;
12. 0.5 credit from COMP 1005 or COMP 1007;
13. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Elective;
14. 1.5 credits in Approved Arts or Social Sciences;
15. 1.0 credit in free electives.

**Note:**

Students in this program normally take CHEM 1005 and 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

**Neuroscience  
B.Sc. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (12.5 credits):**

1. 3.0 credits in BIOL 1103, BIOL 1104, BIOL 2001, BIOL 2200, BIOL 2104, and BIOL 3305;
2. 1.0 credit in BIOL, BIOC or CHEM;
3. 1.5 credits in BIOL, BIOC or CHEM at the 3000-level or higher;
4. 5.0 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2002, PSYC 2200, PSYC 2700, PSYC 3200 [1.0] and PSYC 4200;
5. 1.0 credit from PSYC 3202, PSYC 3203 (BIOL 3605), PSYC 3204, PSYC 3205, PSYC 3207, PSYC 3700 [1.0], PSYC 4001 (with permission), PSYC 4207;
6. 0.5 credit from BIOL 3802, BIOL 4317 or BIOC 4007;
7. 1.0 credit in NEUR 4908 [1.0] or BIOL 4908 [1.0];

**B. Credits Not Included in the Major CGPA (7.5 credits):**

8. 1.0 credit in MATH 1007 and MATH 1107;
9. 1.0 credit in PSYC 3000 [1.0];
10. 1.5 credits in (CHEM 1001 and CHEM 1002) and CHEM 2203 (see Note 2, below);
11. 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1001 and PHYS 1002);
12. 0.5 credit in NSCI 1000 or in the Faculty of Arts and Social Sciences or Faculty of Public Affairs, not in Psychology;

13. 1.5 credits in Approved Arts or Social Sciences, not in PSYC or BIOL;
14. 1.0 credit in free electives.

**Notes:**

1. The topic for **Item 7** above must be in neurophysiology, animal behaviour, neuropsychology or a related topic.
2. For **Item 10** above, students in this program without the prerequisites for CHEM 1001 and CHEM 1002 may substitute CHEM 1005 and CHEM 1006, but will be required to obtain a grade of B- or higher in CHEM 1006 to advance to second year CHEM courses.

**Biology  
B.A. Honours (20.0 credits)**

**A. Credits included in the Major CGPA (8.0 credits):**

1. 1.0 credit in BIOL 1003 and BIOL 1004;
2. 2.5 credits from BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 2600;
3. 0.5 credit from BIOL 3205, BIOL 3303, BIOL 3305, BIOL 3306;
4. 1.0 credit in BIOL at the 3000-level or higher;
5. 2.0 credits in BIOL;
6. 1.0 credit in BIOL 4907 [1.0] or BIOL 4908 [1.0];

**B. Credits not included in the Major CGPA (12.0 credits):**

7. 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See Note 2, below);
8. 1.0 credit in Science Faculty Electives at the 2000-level or higher, not in BIOL;
9. 1.0 credit in Science Faculty Electives not in BIOL;
10. 2.0 credits in Approved Arts or Social Sciences at the 2000-level or higher;
11. 4.0 credits in Approved Arts or Social Sciences;
12. 1.0 credit at the 3000- or 4000-level;
13. 2.0 credits in free electives.

**Notes:**

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology
2. Students in this program normally take CHEM 1005 and 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

**Biology  
B.A. General (15.0 credits)**

**A. Credits included in the Major CGPA (6.0 credits):**

1. 1.0 credit in BIOL 1003 and BIOL 1004;
2. 2.0 credits from BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 2600;
3. 3.0 credits in BIOL;

**B. Credits not included in the Major CGPA (9.0 credits):**

4. 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See **Note 2**, below);
5. 1.0 credit in Science Faculty Electives, not in BIOL;
6. 4.0 credits in Approved Arts or Social Sciences;
7. 1.0 credit at the 2000-level or higher;
8. 1.0 credit in electives not in BIOL;
9. 1.0 credit in free electives.

**Notes:**

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.
2. For **Item 4** above, students in this program normally take CHEM 1005 and 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

**Biology**

**B.A. Combined Honours (20.0 credits)**

**A. Credits included in the Biology Major CGPA (6.0 credits):**

1. 1.0 credit in BIOL 1003, BIOL 1004;
2. 2.5 credits from BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 2600;
3. 1.0 credit in BIOL at the 3000-level or higher;
4. 1.5 credits from BIOL;

**B. Additional Requirements (14.0 credits):**

5. 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See **Note 2**, below);
6. 1.0 credit in BIOL 4907 [1.0] or BIOL 4908 [1.0], or equivalent from the other Honours department;
7. 1.0 credit in Science Faculty Electives, not in BIOL, at the 2000-level or higher;
8. 1.0 credit in Science Faculty Electives not in BIOL;
9. 7.0 credits in Approved Arts or Social Sciences to include the requirements for the other discipline;
10. 2.0 credits in free electives not in BIOL or the other discipline;
11. 1.0 credit in free electives.

**Notes:**

1. Students should choose their second year courses carefully to ensure that they have the necessary prerequisites for upper year courses in Biology.

2. For **Item 5** above, students in this program normally take CHEM 1005 and CHEM 1006, but those who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or complete CHEM 1005 and CHEM 1006 and obtain a grade of B- or higher in CHEM 1006.

**Minor in Biology**

The Minor in Biology is available to students registered in degree programs other than those offered by the Department of Biology. Consultation with the undergraduate advisor is required.

**Requirements (4.0 credits):**

1. 1.0 credit in BIOL 1003 and BIOL 1004;
2. 1.5 credits from BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 2600;
3. 0.5 credit in BIOL at the 2000-level or higher;
4. 1.0 credit in BIOL at the 3000-level or higher;

**Note:** at least 2.0 of these credits must be taken at Carleton University.

## Biotechnology

Department of Biology  
Institute of Biochemistry  
(Faculty of Science)

209 Nesbitt Bldg.  
613-520-2478  
carleton.ca/biology

This section presents the requirements for programs in:

- Biochemistry and Biotechnology - B.Sc. Honours
- Biology and Biotechnology - B.Sc. Honours

Co-operative Education Option is available (see the Co-op section of this Calendar for details.)

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- the Faculty regulations applying to all B.Sc. students including those relating to Science Continuation and Breadth requirements (see the *Academic Regulations for the Bachelor of Science* section of this Calendar).

Students should consult with the Department or Institute responsible for their program when planning their program and selecting courses.

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### Program Requirements

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#### Biochemistry and Biotechnology B.Sc. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (14.5 credits):

- 2.5 credits in BIOL 1103, BIOL 1104, BIOL 2104, BIOL 2303, and BIOL 3104;
- 0.5 credit from BIOL 2001 or BIOL 2002;
- 0.5 credit from BIOL 3205 or BIOL 3305;
- 1.0 credit from BIOL 3201, BIOL 3303, BIOL 4106, BIOL 4109, BIOL 4201, BIOL 4300, or BIOL 4301;
- 3.0 credits in BIOC 2200 or equivalent, BIOC 3006 [1.0], BIOC 3101, BIOC 3102 and BIOC 3202;
- 1.0 credit from BIOC 4907 [1.0] or BIOC 4908 [1.0];
- 1.0 credit from BIOC 4004, BIOC 4005, BIOC 4007, BIOC 4009, BIOC 4200, BIOC 4201, BIOC 4202, BIOC 4203, BIOC 4204, or BIOC 4400;
- 4.0 credits in CHEM 1001, CHEM 1002, CHEM 2103 or BIOC 2300, CHEM 2203, CHEM 2204, CHEM 2303, CHEM 2501 and CHEM 3201;
- 0.5 credit from CHEM 3202 or CHEM 3205;

- 0.5 credit in BIOC chosen from **Item 7** above, BIOC 2400, BIOC 3400, BIOC 3008, BIOC 4001, BIOC 4008, BIOC 4708, BIOC 4901, BIOL 2001, BIOL 2002, BIOL 3102, BIOL 3201, BIOL 3202, BIOL 3205, BIOL 3303, BIOL 3305, BIOL 4106, BIOL 4109, BIOL 4201, BIOL 4209, BIOL 4300, BIOL 4301, CHEM 3100, CHEM 3202, CHEM 3205, CHEM 3700, CHEM 3800, CHEM 4406;

##### B. Credits Not Included in the Major CGPA (5.5 credits):

- 1.0 credit from (PHYS 1007 and PHYS 1008), or (PHYS 1003 and PHYS 1004);
- 1.5 credits in MATH 1007, MATH 1107, STAT 2507;
- 0.5 credit in NSCI 1000 or an Approved Arts or Social Sciences elective;
- 1.5 credits in Approved Arts or Social Sciences electives;
- 1.0 credit free elective.

#### Biology and Biotechnology B.Sc. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (12.5 credits):

- 5.0 credits in BIOL 1103, BIOL 1104, BIOL 2001, BIOL 2002, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 3104, BIOL 3201, and BIOL 4301;
- 0.5 credit from BIOL 3205 or BIOL 3305;
- 1.5 credits in BIOC 3101, BIOC 3102, and BIOC 4004;
- 1.0 credit from BIOL 4106, BIOL 4109, BIOL 4200, or BIOL 4201;
- 3.5 credits from BIOL 3102, BIOC 3202, BIOL 3303, BIOL 4106, BIOL 4109, BIOL 4200, BIOL 4201, BIOL 4202, (BIOC 2300 or CHEM 2101), BIOC 3006 [1.0], BIOC 3008, BIOC 4001, BIOC 4005, BIOC 4007, BIOC 4008, CHEM 3700, CHEM 3800, TSES 4001, TSES 4002;
- 1.0 credit in BIOL 4908 [1.0] in an area approved by the Biotechnology Co-ordinator;

##### B. Credits Not Included in the Major CGPA (7.5 credits):

- 2.0 credits in (CHEM 1001 and CHEM 1002), CHEM 2203 and CHEM 2204 (see **Note**, below);
- 1.0 credit from (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
- 1.5 credits in MATH 1007, MATH 1107, and STAT 2507;
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
- 1.5 credits in Approved Arts or Social Sciences;
- 1.0 credit free elective.

**Note:** Students in this program without the prerequisites for CHEM 1001 and CHEM 1002 may substitute CHEM 1005 and CHEM 1006 with permission from the Biology Department, but will be required to obtain a grade of B- or higher in CHEM 1006 to advance to second year CHEM courses.

## Business

### Sprott School of Business

710 Dunton Tower  
613-520-2388  
sprott.carleton.ca

This section presents the requirements for the programs:

- Bachelor of Commerce (Honours)
- Bachelor of Commerce (Honours) with Concentration in:
  - Accounting
  - Finance
  - Information Systems
  - International Business
  - Managing People and Organizations
  - Marketing
  - Supply Chain Management
- Bachelor of International Business (Honours)
- Bachelor of International Business (Honours) with Concentration in:
  - International Marketing and Trade
  - Strategic Management and International Human Resources
  - International Investment Finance and Banking
- Minor in Business

Co-operative Education Option is available in the Bachelor of Commerce.

### Graduation Requirements

In addition to the requirements listed below, students must satisfy the University regulations (see *the Academic Regulations of the University* section of this Calendar).

Students should consult with the School when planning their program and selecting courses.

### Academic Performance Evaluation

Students in B.Com. and B.I.B. are Honours students. Students in programs of the Eric Sprott School of Business who are not in *Good Standing* at any A.P.E. will be required to withdraw from the program with the standing *Ineligible to Return (IR)*.

### Bachelor of Commerce (Honours) Program Requirements

#### Bachelor of Commerce (Honours) (20.0 credits)

- A. Credits Included in the Major CGPA (13.5 credits):
1. 2.0 credits in BUSI 1004, BUSI 1005, BUSI 1402, BUSI 1800;
  2. 3.5 credits in BUSI 2101, BUSI 2208, BUSI 2301, BUSI 2400, BUSI 2504, BUSI 2601, BUSI 2701;
  3. 1.5 credits in BUSI 3102, BUSI 3103, BUSI 3309;
  4. 1.0 credit in BUSI 4601 and BUSI 4609;
  5. 1.0 credit in BUSI at the 4000-level;
  6. 1.0 credit in ECON 1000 [1.0];
  7. 0.5 credit from MATH 1009, MATH 1007;
  8. 0.5 credit from MATH 1119, MATH 1107;

9. 0.5 credit in PSYC 1002;
  10. 0.5 credit in SOCI 1002;
  11. 0.5 credit in ECON 2020;
  12. 1.0 credit in STAT 2606 and STAT 2607;
- B. Credits Not Included in the Major CGPA (6.5 credits):
13. 1.0 credit in free electives at the 3000-level or higher;
  14. 5.5 credits in free electives.

#### Notes:

1. BUSI 4601 and BUSI 4609 in Item 4 above must be taken at the Sprott School of Business.
2. The following ESL courses cannot be used as free electives toward the B.Com. degree: ESLA 1300, ESLA 1500, any 0000-level course such as MATH 0007, MATH 0107.

### Concentrations in the B.Com. Program

Concentrations described below are open to students registered in the B.Com. program. Students enrolled in a concentration must satisfy the requirements for Bachelor of Commerce (above) while gaining credit for the requirements of the Concentration through appropriate choice of courses. Students in the Concentration in International Business take Business BUSI 4709 in place of BUSI 4609, and BUSI 4705 in place of BUSI 4601 in the B.Com. requirements.

#### Declaration of Concentration(s)

Normally, students are expected to have declared their concentration(s), if any, before commencing the sixth credit into the program. Only under special circumstances would a student be allowed to enrol in a concentration after the completion of the thirteenth credit.

#### Declaration of Double Concentrations

To be eligible to declare a second concentration, a student must have completed at least 6.0 credits with a minimum overall CGPA of 8.0.

#### Concentration in Accounting

1. 2.5 credits in BUSI 2001, BUSI 2002, BUSI 3001, BUSI 3005, BUSI 3008;
2. 1.5 credits from BUSI 2505, BUSI 3007, BUSI 4000, BUSI 4002, BUSI 4005, BUSI 4008, BUSI 4009.

#### Concentration in Finance

1. 3.0 credits in BUSI 2505, BUSI 3500, BUSI 3502, BUSI 3504, BUSI 4500, BUSI 4502;
2. 1.0 credit from BUSI 2002, BUSI 2402, BUSI 3001, BUSI 3400, BUSI 3403, BUSI 4510, BUSI 4511, BUSI 4512

#### Concentration in Information Systems

1. 2.5 credits in BUSI 3400, BUSI 3402, BUSI 3405, BUSI 4400, BUSI 4404;
2. 1.5 credits from BUSI 2402, BUSI 3308, BUSI 3401, BUSI 4402, BUSI 4406, BUSI 4607.

#### Concentration in International Business

1. 2.5 credits in BUSI 3703, BUSI 3704, BUSI 4205, BUSI 4706, BUSI 4717;

2. 1.0 credit from BUSI 3301, BUSI 3504, BUSI 3705, BUSI 4604, BUSI 4707, BUSI 4708;
3. 1.0 credit from ECON 3508, ECON 3600, ECON 3601, ECON 3602, ECON 3808, EURR 4005, GEOG 2200, GEOG 3209, GEOG 3404; LAWS 3207, LAWS 3208, LAWS 4200, PSCI 2601, PSCI 2602, PSCI 3600 (See **Note**, below).

**Note:** for **Item 3** above, ECON 3600 precludes additional credit for ECON 3601 and ECON 3602.

**Concentration in Managing People and Organizations**

1. 2.5 credits in BUSI 3100, BUSI 3104, BUSI 3105, BUSI 4103, BUSI 4104;
2. 1.5 credits from BUSI 3703, BUSI 4105, BUSI 4107, BUSI 4108, BUSI 4112, BUSI 4119, BUSI 4602, BUSI 4706, PSYC 3103, PSYC 3405.

**Concentration in Marketing**

1. 2.0 credits in BUSI 3207, BUSI 4206 [1.0], BUSI 4208;
2. 2.0 credits from BUSI 3204, BUSI 3205, BUSI 3208, BUSI 4203, BUSI 4205.

**Concentration in Supply Chain Management**

1. 2.5 credits in BUSI 3301, BUSI 3305, BUSI 4302, BUSI 4304, BUSI 4431;
2. 2.0 credits from BUSI 3208, BUSI 3308, BUSI 3400, BUSI 3402, BUSI 3706, BUSI 4301, BUSI 4309, BUSI 4400, BUSI 4406, BUSI 4607, BUSI 4708, ECON 3600, LAWS 3208, STAT 3503, STAT 3507 (See **Note**, below).

**Note:** In **Item 2** above, for further emphasis within this concentration, students may cluster courses in the following manners:

- a) E-Supply Chain Management: BUSI 3208, BUSI 3400, BUSI 3402, BUSI 4301, BUSI 4309, BUSI 4400, BUSI 4607
- b) Supply Chain Management - Business Analytics: BUSI 3308, BUSI 3400, BUSI 4406, BUSI 4301, BUSI 4309, STAT 3503, STAT 3507
- c) Global Supply Chain Management: BUSI 3208, BUSI 3706, BUSI 4301, BUSI 4309, BUSI 4708, ECON 3600, LAWS 3208

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**Bachelor of International Business (Honours) Program Requirements**

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The Bachelor of International Business (B.I.B.) program is characterized by the requirement that students spend third year in studies abroad.

Students in the B.I.B. program are required to specialize in one of the following languages: French, German, Japanese, Mandarin, or Spanish.

**Language Training Component**

Students may select French, German, Japanese, Mandarin, or Spanish as their specialization language for study. Applicants to the program should indicate both a first and second choice, as their first choice may be oversubscribed. Students are strongly advised to continue study and use of their selected language independently, in the summers between academic years. Failure to do so may seriously undermine success during the year of study abroad.

Applicants to the program interested in languages other than those listed above should contact the Eric Sprott School of Business Supervisor of Undergraduate Programs to verify if the preferred language option may have become available after the publication of this calendar.

All first year Bachelor of International Business students will be assessed for ability in their selected language by the relevant language unit and placed in the appropriate courses as authorized by the language unit.

Students with some ability in their selected language may be allowed to pursue studies in that language on the understanding that they will effect a significant improvement in their ability.

**The Year Abroad**

The Study Abroad Requirement of the B.I.B. program is met by the successful completion of a minimum of 4.0 approved credits during the year of study abroad (this includes BUSI 3700), with a minimum of 1.0 credit taught in the chosen language for the program. The B.I.B. student will study at one of Carleton's approved Exchange partner institutions, as a full-time student on Exchange for one academic year.

In order to be eligible to study abroad in third year, students must be in *Good Standing* and are required to have successfully completed a minimum of 9.0 credits:

1. 4.0 credits in the specified Language Core (3.0 credits in the case of Japanese and Mandarin), and
2. 5.0 credits in Business and Economics from the Major requirements below the 3000-level (6.0 credits in the case of Japanese and Mandarin).

The number of courses available in English in foreign schools may vary. Carleton credits commensurate to courses taken abroad will be determined by the Registrar's Office and awarded towards the student's degree.

Students are responsible for all traveling, living and incidental costs for fulfilling third-year requirements abroad. Tuition fees and compulsory miscellaneous fees will be paid to Carleton University according to Carleton University's fee structure. The student may be liable for compulsory miscellaneous fees assessed by the foreign institution, including possible fees for language courses.

A limited number of bursaries are available to offset costs. For details on how to apply for a bursary, contact the Awards Office.

**Bachelor of International Business (Honours) (20.0 Credits)**

**A. Credits Included in the Major CGPA (12.0 credits):**

1. 1.5 credits in BUSI 1004, BUSI 1005, BUSI 1701;
2. 2.5 credits in MATH 1119, MATH 1009, ECON 1000[1.0], STAT 2606;
3. 3.5 credits in BUSI 2208, BUSI 2301, BUSI 2400, BUSI 2504, BUSI 2702, BUSI 3700, BUSI 3706;
4. 1.0 credit in BUSI 4705, BUSI 4709 (See **Note**, below);
5. 2.0 credits in BUSI at the 2000-level or above;
6. 0.5 credit from BUSI 3309, BUSI 3504, BUSI 3704, BUSI 3705, ECON 3600, ECON 3601, ECON 3602;
7. 1.0 credit from BUSI 4205, BUSI 4706, BUSI 4708, BUSI 4717;

Programs

**B. Credits Included in the Core CGPA (4.0 credits):**

8. 4.0 credits in one of French, German, Japanese, Mandarin, or Spanish;

**C. Credits Not Included in the Major or Core CGPA (4.0 credits):**

9. 1.5 credits in BUSI or ECON at the 2000-level or above;
10. 2.5 credits in free electives.

**Notes:**

1. For **Item 2** above, BUSI 4705 and BUSI 4709 must be taken at the Sprott School of Business.
2. For **Item 7** above, 1.0 credit must be taken at the Sprott School of Business.
3. For **Item 7** above, ECON 3600 precludes additional credit for both ECON 3601 and ECON 3602.
4. The following courses cannot be used as free electives toward the B.I.B. degree: ESLA 1300, ESLA 1500, any course at the 0000-level including MATH 0007, MATH 0107.

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**Concentrations in the B.I.B. Program**

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Concentrations described below are open to students registered in the B.I.B. program. Students enrolled in a concentration must satisfy the requirements for Bachelor of International Business (above) while gaining credit for the requirements of the Concentration through appropriate choice of courses. The order in which the courses listed for the Concentrations are taken should be planned in advance. Students are therefore strongly advised to consider their concentration choices by the end of their first year.

Courses taken at a foreign university during the year abroad must correspond to those below or, if different, be subject to evaluation and approval by the Eric Sprott School of Business.

**Concentration in International Marketing and Trade**

1. 2.0 credits in GEOG 2200, ECON 3601, BUSI 3705, BUSI 4205;
2. 1.0 credit from BUSI 3204, BUSI 3205, BUSI 3207, BUSI 3208, BUSI 4707, BUSI 4708;
3. 1.0 credit from ECON 3808, GEOG 3404, LAWS 3207, LAWS 3208, PSCI 3600.

**Concentration in Strategic Management and International Human Resources**

1. 2.0 credits in BUSI 3102, BUSI 4706, BUSI 4707, BUSI 4708;
2. 1.0 credit from BUSI 4103, BUSI 4105, BUSI 4108;
3. 1.0 credit from BUSI 3103, BUSI 3704, BUSI 4103, BUSI 4105, BUSI 4108, ECON 3360, LAWS 3208, LAWS 3603, PSCI 3103, PSCI 3600, PSCI 3703.

**Concentration in International Investment Finance and Banking**

1. 1.5 credits in BUSI 2505, BUSI 3500, BUSI 3504;
2. 1.0 credit from BUSI 3502, BUSI 4500, BUSI 4502;

3. 1.5 credits from BUSI 2001, BUSI 2002, BUSI 2402, BUSI 3001, BUSI 3400, BUSI 3403, BUSI 4500, BUSI 4502, ECON 3601, ECON 3602, ECON 3607.

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**Minor in Business**

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Only students pursuing undergraduate programs (except B.Com. and B.I.B.) requiring at least 20.0 credits to graduate and who have completed at least 4.0 credits toward their degrees with a minimum Overall CGPA of 7.00 may be admitted to Minor in Business.

Students who are required to leave the Minor due to a low Minor CGPA may not return to the Minor at any subsequent date.

**Requirements (4.0 credits):**

1. 1.0 credit in:
  - a) BUSI 1003 and 0.5 credit in BUSI at the 2000-level, or
  - b) BUSI 1001 and BUSI 1002;
2. 2.0 credits in BUSI 2101, BUSI 2204, BUSI 2400, BUSI 2503;
3. 1.0 credit in BUSI at the 2000-level or higher;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Minor in Business**

**B.Sc. Honours Applied Physics**

**Requirements (4.0 credits):**

In the B.Sc. Honours Applied Physics, **Items 12, 13 and 14** are replaced with the following requirements, and **Item 15** is reduced to 0.5 credit free elective.

1. 2.5 credits in BUSI 1003, BUSI 2101, BUSI 2204, BUSI 2400, and BUSI 2503;
2. 1.5 credits in BUSI at the 2000-level or higher. Recommended: (BUSI 3103 or BUSI 3600), plus 1.0 credit in BUSI; or (BUSI 3204 and BUSI 3205) or (BUSI 2301 plus BUSI 3309) plus 0.5 credit in BUSI;
3. The remaining requirements of the major discipline and degree must be satisfied.

**Minor in Business**

**B.Sc. Honours Earth Sciences**

**B.Sc. Major Earth Sciences**

**Requirements (4.0 credits)**

In the B.Sc. Honours Earth Sciences, **Items 14-17** are replaced with the following requirements and in the B.Sc. Major Earth Sciences, **Items 13-16** are replaced with the following requirements.

1. 1.0 credit in BUSI 1003 and BUSI 2503;
2. 2.0 credits in BUSI 2101, BUS 2204, BUSI 2301, BUSI 2400;
3. 1.0 credit in BUSI at the 2000-level or higher. Recommended: BUSI 2701, BUSI 3102, BUSI 3103, BUSI 3208, BUSI 3309, BUSI 3600;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.



## Canadian Studies

School of Canadian Studies  
(Faculty of Arts and Social Sciences)  
1206 Dunton Tower  
613-520-2366  
carleton.ca/cdnstudies

This section presents the requirements for:

- Canadian Studies - B.A. Combined Honours
- Canadian Studies - B.A. General
- Minor in Indigenous Studies
- Minor in Canadian Studies

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy the following:

- i) the University regulations (see *the Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see *the Academic Regulations for the Bachelor of Arts Degree*).
- iii) The School of Canadian Studies requires its Combined Honours and General students to demonstrate proficiency in a language other than English, normally French or an Indigenous language. Proficiency is normally demonstrated through the completion of 1.0 credit in FREN, or FINS 2105 and FINS 3105; or approved equivalent. For students who consider that they have proficiency in French, the School of Canadian Studies conducts a French language examination in September and January. For students who consider that they have proficiency in an Indigenous language, the onus is on the student to provide suitable documentary evidence of proficiency to the School of Canadian Studies.

Students should consult the School when planning their program and selecting courses.

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### Program Requirements

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#### Canadian Studies

##### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Major CGPA (7.0 credits):
1. 1.0 credit from CDNS 1000 [1.0], FYSM 1406 [1.0], FYSM 1409 [1.0], FYSM 1600 [1.0], INDG 1000 [1.0];
  2. 1.5 credits in CDNS 2000, CDNS 3000 and CDNS 4000;
  3. 0.5 credit from CDNS 2210, CDNS 2300, CDNS 2400, CDNS 2510, INDG 2010, INDG 2011;
  4. 1.0 credit from CDNS 3400, CDNS 3550, CDNS 3600, CDNS 3610, CDNS 3700, INDG 3000, INDG 3010;
  5. 0.5 credit from CDNS 4010, CDNS 4200, CDNS 4300, CDNS 4400, CDNS 4500, CDNS 4510, INDG 4000;
  6. 1.0 credit, at the 4000-level, from the list of Approved Canadian Studies or Indigenous Studies Electives below;

7. 1.5 credits from the list of Approved Canadian Studies or Indigenous Studies Electives below;
- B. Additional Requirements (13.0 credits):
8. The requirements for Combined Honours in the other discipline must be satisfied;
  9. 5.0 credits not in Canadian Studies, Indigenous Studies or the other discipline;
  10. Sufficient free electives to achieve a total of 20.0 credits for the program;
  11. The School of Canadian Studies language requirement must be met.

#### Canadian Studies

##### B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (7.0 credits):
1. 1.0 credit in CDNS 1000 [1.0], FYSM 1406 [1.0], FYSM 1409 [1.0], FYSM 1600 [1.0], INDG1000 [1.0];
  2. 1.0 credit from CDNS 2000, CDNS 2210, CDNS 2300, CDNS 2400, CDNS 2510, INDG 2010, INDG 2011;
  3. 1.5 credits from CDNS 3000, CDNS 3400, CDNS 3550, CDNS 3600, CDNS 3610, CDNS 3700, INDG 3000, INDG 3010;
  4. 1.0 credit, at the 3000-level, from the list of Approved Canadian Studies or Indigenous Studies Electives (below);
  5. 2.5 credits from the list of Approved Canadian Studies or Indigenous Studies Electives (below);
- B. Credits Not included in the Major CGPA (8.0 credits):
6. 7.0 credits in electives not in Canadian Studies or Indigenous Studies;
  7. 1.0 credit free elective (may be Canadian Studies).
- C. Additional Requirements
8. The School of Canadian Studies language requirement must be met.

#### Minor in Indigenous Studies

The Minor in Indigenous Studies is open to all undergraduate degree students.

##### Requirements (4.0 credits):

1. 1.0 credit in INDG 1000;
2. 1.0 credit in INDG 2010 and INDG 2011;
3. 1.0 credit in INDG 3000 and INDG 3010;
4. 0.5 credit in INDG 4000;
5. 0.5 credit from the list of approved Indigenous Studies Electives;
6. The remaining requirements of the major discipline(s) and degree must be satisfied.

## Minor in Canadian Studies

The Minor in Canadian Studies is open to all undergraduate degree students not in Canadian Studies programs.

### Requirements (4.0 credits):

- 1.0 credit from CDNS 1000 [1.0], FYSM 1406 [1.0], FYSM 1409 [1.0], FYSM 1600, INDG 1000 [1.0];
- 1.0 credit from CDNS 2000, CDNS 2210, CDNS 2300, CDNS 2400, CDNS 2510, INDG 2010, INDG 2011;
- 1.0 credit at the 3000- or 4000-level from:  
CDNS 3000, CDNS 3400, CDNS 3550, CDNS 3600, CDNS 3610, CDNS 3700, CDNS 4010, CDNS 4200, CDNS 4300, CDNS 4400, CDNS 4500, CDNS 4510, CDNS 4800, CDNS 4801, CDNS 4802, CDNS 4901, CDNS 4902, CDNS 4903, CDNS 4904, CDNS 4905, CDNS 4906, CDNS 4907, INDG 3000, INDG 3010, INDG 4000;
- 1.0 credit from the list of approved Canadian Studies or Indigenous Studies Electives (below);
- The remaining requirements of the major discipline(s) and degree must be satisfied.

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### Mention : Français

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Students who wish to qualify for the *Mention : Français* notation in Canadian Studies may do so by fulfilling the requirements listed below, in consultation with the Undergraduate Supervisor. Courses taken for the *Mention : Français* notation may be used to fulfil Combined Honours and the General program requirements.

Courses taught in French at the University of Ottawa or at another university and which are approved by the Undergraduate Supervisor may be used to satisfy *Mention : Français* requirements. Students who wish to enrol in University of Ottawa courses for this purpose must do so through the University of Ottawa Exchange Agreement. To enrol in courses in French at another university, a Letter of Permission is required from the Registrar's Office.

### Combined Honours Programs

To graduate with the notation *Mention : Français*, combined Honours students must include the following courses in their degree program:

- 1.0 credit in the advanced study of the French language;
- 1.0 credit in French-Canadian culture and heritage such as FREN 2201 or FREN 2401, or a course in another appropriate discipline, given in French, which is approved by the Undergraduate Supervisor. Courses from the University of Ottawa or another university must be approved by the Undergraduate Supervisor;
- 1.0 credit on a Canadian subject at the 2000- or 3000-level, taught in French, in any appropriate discipline. For Carleton University courses that may be used to fulfil this requirement, consult the list of Approved Canadian Studies Electives (below). Courses from the University of Ottawa or another university must be approved by the Undergraduate Supervisor;
- 1.0 credit on a Canadian subject at the 4000-level, taught in French, including either CDNS 4903 and CDNS 4904, or a directed studies, tutorial, research paper, or course in any appropriate discipline.

All written work must be submitted in French. Note that directed studies, tutorials, and research papers are weighted differently in various departments. Courses from the University of Ottawa or another university must be approved by the Undergraduate Supervisor.

5. Combined Honours program students must meet *Mention : Français* requirements of both disciplines.

### B.A. General

To graduate with the notation *Mention : Français*, B.A. General students must include the following courses in their degree program:

- 1.0 credit in the advanced study of the French language;
- 1.0 credit in French-Canadian culture and heritage such as FREN 2201 and FREN 2401, or a course in another appropriate discipline, given in French, which is approved by the Undergraduate Supervisor. Courses from the University of Ottawa or another university must be approved by the Undergraduate Supervisor;
- 1.0 credit on a Canadian subject at the 2000- or 3000-level, taught in French, in any appropriate discipline. For Carleton University courses that may be used to fulfil this requirement, consult the list below of Approved Canadian Studies Electives. Courses from the University of Ottawa or another university must be approved by the Undergraduate Supervisor.

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### Approved Canadian Studies Electives

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The following courses are deemed by the School of Canadian Studies to have significant Canadian content, and can be included where appropriate as part of a Canadian Studies degree. Carleton courses not on this list may be applied as approved Canadian Studies electives, but they must be approved by the Undergraduate Supervisor. Students taking courses at the University of Ottawa should consult with the Undergraduate Supervisor to gain approval for substituting them as approved Canadian Studies electives.

#### Art History

ARTH 2002, ARTH 2003, ARTH 2005, ARTH 2006, ARTH 2008, ARTH 3000, ARTH 3001, ARTH 3002, ARTH 3602, ARTH 4000, ARTH 4001, ARTH 4005

#### Canadian Studies

Students may use CDNS courses as approved Canadian Studies electives, provided they have met their core program requirements.

#### Communication Studies

COMM 2101 [1.0], COMM 2300, COMM 2302, COMM 2501, COMM 3005, COMM 3006 [1.0], COMM 3502, COMM 4500, COMM 4501

#### Economics

ECON 3104, ECON 3202, ECON 3207, ECON 3250, ECON 3300, ECON 3403, ECON 3405, ECON 3420, ECON 3450, ECON 3520, ECON 3607, ECON 3801, ECON 3810, ECON 3820, ECON 4309, ECON 4403, ECON 4404, ECON 4700, ECON 4701

#### English

ENGL 2802 [1.0], ENGL 2808 [1.0], ENGL 3801, ENGL 3803, ENGL 3960, ENGL 4802, ENGL 4806, ENGL 4807, ENGL 4960, ENGL 4961

**Film Studies**

FILM 2209 [1.0], FILM 3209, FILM 4209

**First Year Seminar**

FYSM 1900 (specifically the section on Selected Topics in the Study of Academic Discourse: Aboriginal Topics)

**French**

FINS 2500, FINS 4510, FREN 4213

**Geography**

GEOG 2020, GEOG 3026, GEOG 3501, GEOG 4004,

**History**

HIST 1300 [1.0], HIST 2303 [1.0], HIST 2304 [1.0], HIST 3202, HIST 3203, HIST 3204, HIST 3205, HIST 3206, HIST 3208, HIST 3209, HIST 3301, HIST 3304, HIST 3306, HIST 3500, HIST 3503 [1.0], HIST 3505, HIST 3506, HIST 3507, HIST 3602, HIST 3903, HIST 4302 [1.0], HIST 4304 [1.0], HIST 4306 [1.0], HIST 4505 [1.0]

**Journalism**

JOUR 2205, JOUR 2501, JOUR 3005, JOUR 3006, JOUR 3502

**Law**

LAWS 1000 [1.0], LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502, LAWS 3001, LAWS 3003, LAWS 3205, LAWS 3304, LAWS 3305, LAWS 3306, LAWS 3307, LAWS 3402, LAWS 3405, LAWS 3408, LAWS 3500, LAWS 3501, LAWS 3502, LAWS 3503, LAWS 3504, LAWS 3506, LAWS 3509, LAWS 3804, LAWS 4006, LAWS 4100, LAWS 4303, LAWS 4308, LAWS 4309, LAWS 4504, LAWS 4507

**Music**

MUSI 3103, MUSI 3104, MUSI 3302, MUSI 4103, MUSI 4104

**Political Science**

PSCI 1002, PSCI 1003, PSCI 2001 [1.0], PSCI 2002, PSCI 2003, PSCI 3000, PSCI 3003, PSCI 3004, PSCI 3005, PSCI 3006, PSCI 3007, PSCI 3109, PSCI 3305, PSCI 3401, PSCI 3402, PSCI 3406, PSCI 3407, PSCI 3500, PSCI 3606, PSCI 3607, PSCI 3805, PSCI 4000 [1.0], PSCI 4002, PSCI 4003, PSCI 4005, PSCI 4006, PSCI 4008, PSCI 4009, PSCI 4107, PSCI 4108, PSCI 4109, PSCI 4204, PSCI 4205, PSCI 4206, PSCI 4407, PSCI 4607, PSCI 4807

**Social Work**

SOWK 1000, SOWK 3804, SOWK 4101, SOWK 4102, SOWK 4103, SOWK 4203

**Sociology/Anthropology**

SOCI 1001, SOCI 1002, SOCI 1003, SOCI 2010, SOCI 2020, ANTH 2020, SOCI 2043, SOCI 2045, SOCI 2200, ANTH 2610, SOCI 3020, ANTH 3020, SOCI 3040, SOCI 3045, SOCI 3400, SOCI 3420, SOCI 3570, ANTH 3570, ANTH 3600, SOCI 3810, ANTH 4610, SOCI 4430, SOCI 4750, ANTH 4750

**Women's and Gender Studies**

WGST 2800

**Indigenous Studies Electives**

The following courses are deemed by the School of Canadian Studies to have significant Indigenous content, and can be included where appropriate as part of a minor in Indigenous Studies. Carleton courses not on this list may be applied as approved Indigenous Studies electives, but they must be approved by the Undergraduate Supervisor. Students taking courses at the University of Ottawa should consult with the Undergraduate Supervisor to gain approval for substituting them as approved Indigenous Studies electives.

**Art History**

ARTH 2005, ARTH 2006, ARTH 2008, ARTH 4004, ARTH 4005

**Canadian Studies**

CDNS 4800, CDNS 4801, CDNS 4802, CDNS 4901, CDNS 4902, CDNS 4903, CDNS 4904, CDNS 4905, CDNS 4906, CDNS 4907 [1.0]

**English**

ENGL 3960, ENGL 4960, ENGL 4961

**First Year Seminar**

FYSM 1900 (specifically the section on Selected Topics in the Study of Academic Discourse: Aboriginal Topics)

**Geography**

GEOG 3501

**History**

HIST 3503 [1.0]

**Law**

LAWS 2201, LAWS 2202, LAWS 2501, LAWS 2502, LAWS 3504, LAWS 4504

**Music**

MUSI 4104

**Political Science**

PSCI 4002, PSCI 4109, PSCI 4206

**Social Work**

SOWK 4102, SOWK 4203

**Sociology/Anthropology**

ANTH 2610, SOCI 3570, ANTH 3570, ANTH 3600, ANTH 4610

## Chemistry

Department of Chemistry  
(Faculty of Science)  
203 Steacie Chemistry Bldg.  
613-520-3534  
carleton.ca/chem

This section presents the requirements for:

- Chemistry – B.Sc. Honours
- Chemistry – B.Sc. General
- Chemistry with Concentration in Nanotechnology - B.Sc. Honours
- Chemistry and Computer Science – B.Sc. Combined Honours
- Chemistry and Earth Sciences – B.Sc. Combined Honours
- Chemistry and Physics – B.Sc. Combined Honours
- Minor in Chemistry

Co-operative Education Option is available (see the Co-operative Education section of this Calendar for details).

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see *the Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see the *Academic Regulations for the Bachelor of Science Degree*),

Students should consult with the Department when planning their program and selecting courses.

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### Program Requirements

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#### Chemistry

##### B.Sc. Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (10.5 credits):

1. 6.0 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2203, CHEM 2302, CHEM 2303, CHEM 2501, CHEM 3100, CHEM 3101, CHEM 3201, CHEM 3503, CHEM 3504;
2. 1.0 credit in CHEM 4907 [1.0] or CHEM 4908 [1.0];
3. 0.5 credit from CHEM 2204 or CHEM 2206;
4. 1.0 credit from CHEM 3106, CHEM 3107, CHEM 3205 or CHEM 3305;
5. 0.5 credit in CHEM 3401 or any BIOC course;
6. 1.0 credit at the 4000-level in CHEM, or 0.5 credit at the 4000-level in CHEM and BIOC 3102;
7. 0.5 credit at the 3000- or 4000-level in Chemistry;

###### B. Credits Not Included in the Major CGPA (9.5 credits):

8. 2.0 credits in MATH 1007, MATH 1107, MATH 1005 or MATH 2007, and MATH 2008;
9. 1.0 credit in (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008);
10. 0.5 credit in Science Continuation (not CHEM);
11. 1.0 credit in Science Faculty Electives at the 1000-level (not BIOL 1902 or BIOL 1903);
12. 2.0 credits in Science Faculty Electives or Science Continuation Courses (not BIOL 1902 or BIOL 1903);
13. 0.5 credit in NSCI 1000 or an Approved Arts or Social Sciences elective;
14. 1.5 credits in Approved Arts or Social Sciences electives;
15. 1.0 credit in free elective.

**Note:** normally the credits in **Item 12** above will be chosen either from non-compulsory Chemistry courses or other Science Continuation courses. Students who wish to broaden and strengthen a non-Science interest by substituting non-Science courses must obtain written permission from the Undergraduate Adviser prior to registration.

#### Chemistry

##### B.Sc. General (15.0 credits)

###### A. Credits Included in the Major CGPA (6.0 credits):

1. 4.5 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2203, CHEM 2302, CHEM 2303, CHEM 2501, CHEM 3100, and CHEM 3101;
2. 0.5 credit from CHEM 2204 or CHEM 2206;
3. 0.5 credit from CHEM 3106, CHEM 3205, CHEM 3305, CHEM 3503 or CHEM 3107;
4. 0.5 credit in CHEM at the 3000-level;

###### B. Credits Not Included in the Major CGPA (9.0 credits):

5. 2.0 credits in MATH 1007, MATH 1107, MATH 1005 or MATH 2007, and MATH 2008;
6. 1.0 credit in (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008);
7. 0.5 credit in Science Continuation (not CHEM);
8. 1.0 credit in Science Faculty Electives at the 1000-level (not BIOL 1902 or BIOL 1903);
9. 1.5 credit in Science Faculty Electives or Science Continuation Courses (not BIOL 1902 or BIOL 1903);
10. 0.5 credit in NSCI 1000 or an Approved Arts or Social Sciences elective;
11. 1.5 credits in Approved Arts or Social Sciences electives;
12. 1.0 credit in free electives.

### Chemistry with Concentration in Nanotechnology B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.5 credits):**
- 8.5 credits in: CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2203, CHEM 2302, CHEM 2501, CHEM 3100, CHEM 2303, CHEM 3101, CHEM 3107, CHEM 3201, CHEM 3503, CHEM 3600, CHEM 4103, CHEM 4104, and CHEM 4908 [1.0];
  - 0.5 credit from CHEM 2204 or CHEM 2206;
  - 1.0 credit from CHEM 3106, CHEM 3205, CHEM 3305 or CHEM 3504;
  - 0.5 credit in CHEM 3401 or any BIOC course;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
- 2.0 credits in MATH 1007, MATH 1107, MATH 1005 or MATH 2007, and MATH 2008;
  - 1.0 credit in (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008);
  - 0.5 credit in Science Continuation (not CHEM);
  - 1.0 credit in Science Faculty Electives at the 1000-level (not BIOL 1902 or BIOL 1903);
  - 2.0 credits in Science Faculty Electives or Science Continuation Courses (not BIOL 1902 or BIOL 1903);
  - 0.5 credit in NCSI 1000 or an Approved Arts or Social Sciences elective;
  - 1.5 credits in Approved Arts or Social Sciences electives;
  - 1.0 credit in free electives.

### Chemistry and Computer Science B.Sc. Combined Honours (20.0 credits)

- A. Credits Included in the Major CGPA (13.0 credits):**
- 5.5 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2203, CHEM 2206, CHEM 2501, CHEM 3101, CHEM 3102, CHEM 3106, CHEM 3503, and CHEM 4406;
  - 1.0 credit in BIOC 3101 and (BIOC 3102 or BIOC 3008);
  - 5.0 credits in COMP 1005, COMP 1006, COMP 2001, COMP 2002, COMP 2003, COMP 2004, COMP 3000, COMP 3004, COMP 3804, and COMP 3806;
  - 0.5 credit in COMP at the 4000-level;
  - 1.0 credit from:
    - CHEM 4908 [1.0]
    - or
    - COMP 4905 and 0.5 credit in COMP at the 4000-level;
- B. Credits Not Included in the Major CGPA (7.0 credits):**
- 3.0 credits in MATH 1007, MATH 1107, MATH 1005 or MATH 2007, MATH 2008, MATH 2107 and MATH 2108;
  - 1.0 credit in BIOL 1003 and BIOL 2200;

- 0.5 credit from PHYS 1003 or PHYS 1007;
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
- 1.0 credits in Approved Arts or Social Sciences;
- 1.0 credit in free electives.

### Chemistry and Earth Sciences B.Sc. Combined Honours (20.0 credits)

- A. Credits Included in the Major CGPA (13.5 credits):**
- 4.0 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2302, CHEM 2303, CHEM 2501, CHEM 3100, and CHEM 3503;
  - 1.0 credit in CHEM at the 4000-level;
  - 1.0 credit in EARTH 1006 and EARTH 1009;
  - 3.0 credits in EARTH 2102, EARTH 2104, EARTH 2105, EARTH 2314, EARTH 2406, EARTH 2802;
  - 0.5 credit from EARTH 3203 or EARTH 3206; (See Note, below);
  - 2.0 credits in EARTH 3003, EARTH 3204, EARTH 3207, EARTH 3806;
  - 1.0 credit in EARTH at the 4000-level;
  - 1.0 credit from CHEM 4908 [1.0] or EARTH 4908 [1.0] or (EARTH 4909 plus 0.5 credit EARTH at the 4000-level);
- B. Credits Not Included in the Major CGPA (6.5 credits):**
- 1.5 credits in MATH 1007, MATH 1107, MATH 1005 or MATH 2007;
  - 0.5 credit in STAT 2507;
  - 0.5 credit in GEOM;
  - 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
  - 0.5 credit in BIOL 1004;
  - 0.5 credit in Science Faculty Electives (not CHEM or EARTH);
  - 0.5 credit in NSCI or 0.5 credit in Approved Arts or Social Sciences;
  - 1.5 credits in Approved Arts or Social Sciences.

**Note:** for Item 5 above, EARTH 3203 is required if prerequisite conditions are met.

### Chemistry and Physics B.Sc. Combined Honours (20.0 credits)

- A. Credits Included in the Major CGPA (13.0 credits):**
- 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
  - 4.0 credits in PHYS 2202, PHYS 2604, PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3701, PHYS 3807 and PHYS 4707;
  - 1.0 credit in PHYS at the 4000-level;
  - 4.5 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2203, CHEM 2501, CHEM 3100, CHEM 3102, CHEM 3503, and CHEM 4102;

Programs - Chemistry

- 5. 0.5 credit from CHEM 2204 or CHEM 2206;
- 6. 0.5 credit from CHEM 3106 or CHEM 3107;
- 7. 0.5 credit in CHEM at the 4000-level;
- 8. 1.0 credit in one of:
  - a) CHEM 4908 [1.0];
  - b) PHYS 4909 [1.0];
  - c) PHYS 4907 plus 0.5 credit in PHYS at the 4000-level;
  - d) PHYS 4908 plus 0.5 credit in PHYS at the 4000-level;
- B. Credits Not Included in the Major CGPA (7.0 credits):**
  - 9. 3.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, STAT 3502, and MATH 3705;
  - 10. 0.5 credit from COMP 1005, COMP 1007, or ECOR 1606;
  - 11. 0.5 credit from MATH 3800 or ECOR 2606;
  - 12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences elective;
  - 13. 1.5 credits in Approved Arts or Social Sciences electives;
  - 14. 1.0 credit in free electives.

**Minor in Chemistry**

The Minor in Chemistry is available to degree students registered in programs other than those associated with the Department of Chemistry.

**Requirements (4.0 credits):**

- 1. 1.0 credit in CHEM 1001, CHEM 1002;
- 2. 3.0 credits in Chemistry at 2000-level or higher
- 3. The remaining requirements of the major discipline(s) and degree must be satisfied.

## Child Studies

**Child Studies Committee**  
**Institute of Interdisciplinary Studies**  
**(Faculty of Arts and Social Sciences)**  
**2201 Dunton Tower**  
**613-520-2368**  
[carleton.ca/iis/programs-of-study/child-studies](http://carleton.ca/iis/programs-of-study/child-studies)

This section presents the requirements for:

- Child Studies - B.A. Honours
- Child Studies - B.A. General

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- the University regulations (see *the Academic Regulations of the University* section of this Calendar),
- the common regulations applying to all B.A. students (see *the Academic Regulations for the Bachelor of Arts Degree*).

Students in the Child Studies programs are exempt from the First-Year Seminar requirement and the Breadth requirement.

Students should consult the Program Co-ordinator when planning their program and selecting courses.

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### Articulation Agreements

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Articulation agreements with Algonquin College of Applied Arts and Technology in Ottawa and Loyalist College in Belleville allow graduates with the ECE diploma from these colleges to apply for admission into Carleton's Child Studies program. Applicants from other colleges are welcome and will be considered on an individual basis. Successful applicants will be granted up to a maximum of 5.0 credits on admission.

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### Admission Requirements

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Enrolment into the program is limited. Successful applicants must demonstrate a high level of personal enthusiasm and professionalism, excellent communication skills (oral and written) and evidence of previous academic success. Further information may be obtained from the Program Co-ordinator.

Applications for admission should be made to the Institute of Interdisciplinary Studies, presenting:

- the diploma in Early Childhood Education from Algonquin or Loyalist College or an equivalent Early Childhood Education program from another institution;
- a B+ average overall or better at the college level;
- satisfactory performance in field placements;
- three letters of reference, including at least one letter from a faculty member in the ECE program, and one letter from the director of a child care centre;
- a letter of application, including a statement of professional goals and expectations of the program and a curriculum vitae.

Upon admission into the program, students will be granted up to a maximum of 5.0 credits based on their ECE studies, on the recommendation of the Program Coordinator. These credits are applicable only to the Child Studies program.

Students admitted may receive the following credits:

CHST 14xx, CHST 24xx, ISSC 14xx, ISSC 24xx,  
 PSYC 25xx, PSYC 35xx, PSYC 3901, SOWK 2xxx,  
 SOCI 1xxx, SOCI 2xxx

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### Academic Performance Evaluation

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For the Child Studies programs, all credits are included in the Major CGPA, making the Major CGPA and Overall CGPA identical. The minimum requirements for *Good Standing* are those specified for Major CGPA.

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### Program Requirements

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#### Child Studies B.A. Honours (20.0 credits)

##### Requirements:

- 3.0 credits in CHST 2503, CHST 2504, CHST 3100, CHST 3901, CHST 4908 [1.0];
- 1.5 credits in PSYC 1001, PSYC 1002, and PSYC 2500;
- 1.0 credit from PSYC 3505, PSYC 3506, PSYC 3507;
- 0.5 credit from SOCI 3300, SOCI 3045, SOCI 3810;
- 1.0 credit from CDNS 1000 [1.0], HIST 1300 [1.0], SOCI 2200, SOCI 2043;
- 1.0 credit from PSYC 2001 and PSYC 2002, or SOCI 2001 and SOCI 2002;
- 1.0 credit from the Faculty of Science;
- 1.0 credit from the Faculty of Arts and Social Sciences and/or the Faculty of Public Affairs, not PSYC or SOCI;
- 9.0 credits in electives approved by the Program Co-ordinator (including up to 5.0 credits granted on admission);
- 1.0 credit in electives at the 3000-level or above approved by the Program Co-ordinator.

##### Notes

- Additional credits may be required to meet the total specified in the Statement of Standing on Admission, as proposed by the student and approved by the Program Co-ordinator. A list of program electives that may be of interest can be obtained from the Program Co-ordinator.
- In collaboration with the Program Co-ordinator, Honours students will develop a field of interest. Normally, a minimum of 2.0 elective credits should be in the field of interest. Three possible fields of interest are Developmental, Sociocultural and Managerial. A list of courses related to these fields can be obtained from the Program Co-ordinator.
- Honours students who plan to apply for admission to Teacher's College or a graduate program should seek advice from the Program

## Programs - Child Studies

Co-ordinator in selecting their elective credits. Some substitutions to required courses may be acceptable, with permission of the Program Co-ordinator and the relevant department.

4. Some students may have to take courses extra to the degree to meet prerequisite requirements.

### **Child Studies B.A. General (15.0 credits)**

#### **Requirements**

1. 1.5 credits in CHST 2503, CHST 2504, CHST 3901;
2. 1.5 credits in PSYC 1001 and PSYC 1002, PSYC 2500;
3. 1.0 credit from PSYC 3505, PSYC 3506, PSYC 3507;
4. 0.5 credit from SOCI 3300, SOCI 3045, SOCI 3810;
5. 1.0 credit from CDNS 1000 [1.0], HIST 1300 [1.0], SOCI 2200, SOCI 2043;
6. 1.0 credit from PSYC 2001 and PSYC 2002, or SOCI 2001 and SOCI 2002;
7. 1.0 credit from the Faculty of Science;
8. 1.0 credit from the Faculty of Arts and Social Sciences and/or the Faculty of Public Affairs, and not PSYC or SOCI;
9. 6.5 credits in electives approved by the Program Co-ordinator (including up to 5.0 credits granted on admission).



## Cognitive Science

**Institute of Cognitive Science**  
**(Faculty of Arts and Social Sciences)**  
**2201 Dunton Tower**  
**613-520-2368**  
**carleton.ca/ics**

This section presents the requirements for:

- **Cognitive Science - B.A. Honours with Specialization in:**
  - Philosophical and Conceptual Issues
  - Language and Linguistics
  - The Biological Foundations of Cognition
  - Cognition and Psychology
  - Cognition and Computation

A Co-operative Education Option is available. See the Co-operative Education section of this Calendar.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult the Undergraduate Co-ordinator when planning their program and selecting courses.

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### Program Requirements

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#### Cognitive Science with Specialization in Philosophical and Conceptual Issues B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (15.5 credits):**
1. 2.0 credits in CGSC 2001, CGSC 2002, CGSC 3001 and CGSC 3002;
  2. 1.0 credit in CGSC 4908 [1.0];
  3. 1.0 credit in COMP 1005 and COMP 1006;
  4. 0.5 credit from CGSC 4001 or COMP 4106;
  5. 0.5 credit in LING 1001;
  6. 1.5 credits in LING 2001, LING 2005 and LING 3505;
  7. 1.0 credit from PHIL 1301, PHIL 2501, PHIL 3502;
  8. 0.5 credit from PHIL 2001, PHIL 2520, PHIL 3306;
  9. 0.5 credit from PHIL 2301, PHIL 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502, PHIL 3504, PHIL 3506, PHIL 3530, CGSC 3004;
  10. 2.5 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200 and PSYC 2700;

11. 4.5 credits in the specialization:
  - a) 3.0 credits from PHIL 2301, PHIL 2504, PHIL 2540, PHIL 3104, PHIL 3140, PHIL 3301, PHIL 3306, PHIL 3501, PHIL 3502, PHIL 3504, PHIL 3506, PHIL 3530, CGSC 3004;
  - b) 0.5 credit from PHIL 4503, PHIL 4504, PHIL 4701, PHIL 4702, PHIL 4703, PHIL 4704;
  - c) 1.0 credit from: PHIL 4210, PHIL 4220, PHIL 4230;

**B. Credits Not Included in the Major CGPA (4.5 credits):**

12. 4.5 credits in free electives.

**Note:**

Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 and CGSC 4802) in their total program, including independent study credits taken through other departments.

#### Cognitive Science with Specialization in Language and Linguistics B.A. Honours (20.0 credits)

**A. Credits Included in the Major CGPA (15.0 credits):**

1. 2.0 credits in CGSC 2001, CGSC 2002, CGSC 3001, and CGSC 3002;
  2. 1.0 credit in CGSC 4908 [1.0];
  3. 1.0 credits in COMP 1005 and COMP 1006;
  4. 0.5 credit from COMP 4106 or CGSC 4001;
  5. 0.5 credit in LING 1001;
  6. 1.5 credits in LING 2001, LING 2005 and LING 3505;
  7. 1.0 credit from PHIL 1301, PHIL 2501 or PHIL 3502;
  8. 0.5 credit from PHIL 2001, PHIL 2520 or PHIL 3306;
  9. 0.5 credit from PHIL 2301, PHIL 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502, PHIL 3504, PHIL 3506, PHIL 3530, CGSC 3004;
  10. 2.5 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200 and PSYC 2700;
  11. 4.0 credits in the specialization:
    - a) 1.5 credits in LING 3002, LING 3004 and LING 3601;
    - b) 2.0 credits from LING 2006, LING 2603, LING 3001, LING 3005, LING 3101, LING 3801;
    - c) 1.0 credit in LING 4001 and LING 4002;
- B. Credits Not Included in the Major CGPA (5.0 credits):**
12. 4.5 credits in free electives.

**Note:**

Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 and CGSC 4802) in their total program, including independent study credits taken through other departments.

**Cognitive Science with Specialization in the Biological Foundations of Cognition  
B.A. Honours (20.0 credits)**

- A. Credits Included in the Major GPA (15.5 credits):**
1. 2.0 credits in CGSC 2001, CGSC 2002, CGSC 3001 and CGSC 3002;
  2. 1.0 credit in CGSC 4908 [1.0];
  3. 1.0 credit in COMP 1005 and COMP 1006;
  4. 0.5 credit from COMP 4106 or CGSC 4001;
  5. 0.5 credit in LING 1001;
  6. 1.5 credits in LING 2001, LING 2005 and LING 3505;
  7. 1.0 credit in PHIL 1301, PHIL 2501, or PHIL 3502;
  8. 0.5 credit from PHIL 2001, PHIL 2520 or PHIL 3306;
  9. 0.5 credit from PHIL 2301, PHIL 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502, PHIL 3504, PHIL 3506, PHIL 3530, CGSC 3004;
  10. 2.5 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200, and PSYC 2700;
  11. 4.5 credits in the specialization:
    - a) 0.5 credit in PSYC 2002;
    - b) 0.5 credit in PSYC at the 2000-level or above;
    - c) 2.0 credits in PSYC 3000 [1.0] and PSYC 3200 [1.0];
    - d) 0.5 credit from PSYC 3202 or PSYC 3702;
    - e) 1.0 credit in PSYC at the 4000-level or above;

**B. Credits Not Included in the Major CGPA (4.5 credits):**

12. 4.5 credits in free electives.

**Note:**

Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 and CGSC 4802) in their total program, including independent study credits taken through other departments.

**Cognitive Science with Specialization in Cognition and Psychology  
B.A. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (15.5 credits):**
1. 2.0 credits in CGSC 2001, CGSC 2002, CGSC 3001 and CGSC 3002;
  2. 1.0 credit in CGSC 4908 [1.0];
  3. 1.0 credit in COMP 1005 and COMP 1006;
  4. 0.5 credit from COMP 4106 or CGSC 4001;
  5. 0.5 credit in LING 1001;
  6. 1.5 credits in LING 2001, LING 2005 and LING 3505;
  7. 1.0 credit from PHIL 1301, PHIL 2501 or PHIL 3502;
  8. 0.5 credit from PHIL 2001, PHIL 2520 or PHIL 3306;

9. 0.5 credit from PHIL 2301, PHIL 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502, PHIL 3504, PHIL 3506, PHIL 3530, CGSC 3004;
  10. 2.5 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200 and PSYC 2700;
  11. 4.5 credits in the specialization:
    - a) 0.5 credit in PSYC 2002;
    - b) 0.5 credit in PSYC at the 2000-level or above;
    - c) 2.0 credits in PSYC 3000 [1.0] and PSYC 3700 [1.0];
    - d) 0.5 credit from PSYC 3202 or PSYC 3702;
    - e) 1.0 credit in PSYC at the 4000-level or above;
- B. Credits Not Included in the Major CGPA (4.5 credits):**
12. 4.5 credits in free electives.

**Note:**

Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 and CGSC 4802) in their total program, including independent study credits taken through other departments.

**Cognitive Science with Specialization in Cognition and Computation  
B.A. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (15.5 credits):**
1. 2.0 credits in CGSC 2001, CGSC 2002, CGSC 3001 and CGSC 3002;
  2. 1.0 credit in CGSC 4908 [1.0];
  3. 1.0 credit in COMP 1005 and COMP 1006;
  4. 0.5 credit from COMP 4106 or CGSC 4001;
  5. 0.5 credit in LING 1001;
  6. 1.5 credit in LING 2001, LING 2005 and LING 3505;
  7. 1.0 credit in PHIL 1301, PHIL 2501 or PHIL 3502;
  8. 0.5 credit from PHIL 2001, PHIL 2520, or PHIL 3306;
  9. 0.5 credit from PHIL 2301, PHIL 2504, PHIL 3104, PHIL 3301, PHIL 3501, PHIL 3502, PHIL 3504, PHIL 3506, PHIL 3530, CGSC 3004;
  10. 2.5 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2200 and PSYC 2700;
  11. 4.5 credits in the specialization:
    - a) 1.0 credit in COMP 1002 and COMP 1805;
    - b) 2.0 credits in COMP at the 2000-level or higher;
    - c) 1.5 credits at the 4000-level or above in COMP;
- B. Credits Not Included in the Major CGPA (4.5 credits):**
12. 4.5 credits in free electives.

**Note:**

Normally, students may not offer more than one credit of independent study (eg. CGSC 4801 and CGSC 4802) in their total program, including independent study credits taken through other departments.

## Communication Studies

### School of Journalism and Communication (Faculty of Public Affairs)

310 St. Patrick's Bldg.  
613-520-7408  
carleton.ca/sjc

This section presents the requirements for the programs:

- Communication Studies - B.A. Honours
- Communication Studies - B.A. Combined Honours
- Journalism and Communication Studies - B.J. Combined Honours
- Communication Studies - B.A. General
- Minor in Communication Studies
- Concentrations (for B.A. Honours or B.A. Combined Honours):
  - Image, Politics and Persuasion
  - Media Industries and Institutions
  - Communication and Identity

A Co-operative Education Option is available within the Communication Studies Honours degree (consult the Co-operative Education section of this Calendar for details).

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the School of Journalism and Communication when selecting courses and planning their program.

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### Program Requirements

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#### Communication Studies B.A. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (9.0 credits):

1. 1.0 credit in COMM 1101 [1.0] or JOUR 1000 [1.0];
2. 2.0 credits in COMM 2001 [1.0] and COMM 2101 [1.0];
3. 0.5 credit from: COMM 3106, COMM 3108, COMM 3109;
4. 2.5 credits from: FYSM 1207 [1.0], COMM 2301, COMM 2401, COMM 2501, COMM 2504, COMM 2601, COMM 3001, COMM 3002, COMM 3301, COMM 3302, COMM 3303, COMM 3308, COMM 3309, COMM 3401, COMM 3403, COMM 3404, COMM 3405, COMM 3407, COMM 3409, COMM 3601, COMM 3602, COMM 3609;

5. 3.0 credits from COMM 4000, COMM 4002, COMM 4003, COMM 4004, COMM 4304, COMM 4306, COMM 4307, COMM 4309, COMM 4310, COMM 4401, COMM 4402, COMM 4403, COMM 4404, COMM 4409, COMM 4601, COMM 4602, COMM 4603, COMM 4609;

##### B. Credits Not Included in the Major CGPA (11.0 credits):

6. 8.0 credits in electives not in communication studies;
7. 3.0 credits in free electives.

#### Communication Studies B.A. Combined Honours (20.0 credits)

##### A. Credits Included in the Communication Studies Major CGPA (7.0 credits):

1. 1.0 credit in COMM 1101 [1.0] or JOUR 1000 [1.0];
2. 2.0 credits in COMM 2001 [1.0] and COMM 2101 [1.0];
3. 0.5 credit from COMM 3106, COMM 3108, COMM 3109;
4. 1.5 credits from FYSM 1207 [1.0], COMM 2301, COMM 2401, COMM 2501, COMM 2504, COMM 2601, COMM 3001, COMM 3002, COMM 3301, COMM 3302, COMM 3303, COMM 3308, COMM 3309, COMM 3401, COMM 3403, COMM 3404, COMM 3405, COMM 3407, COMM 3409, COMM 3601, COMM 3602, COMM 3609;

5. 2.0 credits from COMM 4000, COMM 4002, COMM 4003, COMM 4004, COMM 4304, COMM 4306, COMM 4307, COMM 4309, COMM 4310, COMM 4401, COMM 4402, COMM 4403, COMM 4404, COMM 4409, COMM 4601, COMM 4602, COMM 4603, COMM 4609;

##### B. Additional Requirements (13.0 credits):

6. The requirements from the other discipline must be satisfied;
7. 5.0 credits not in communication studies or the other discipline;
8. Sufficient credits in free electives to total 20.0 credits for the program.

#### Journalism and Communication Studies B.J. Combined Honours (20.0 credits)

This program is available only to students registered in the Bachelor of Journalism program.

##### A. Credits Included in the Communication Studies Major CGPA (7.0 credits):

1. 2.0 credits in COMM 2001 [1.0] and COMM 2101 [1.0];
2. 0.5 credit from COMM 3106, COMM 3108, COMM 3109;
3. 2.5 credits from: FYSM 1207 [1.0], COMM 2301, COMM 2401, COMM 2501, COMM 2504, COMM 2601, COMM 3001, COMM 3002, COMM 3301, COMM 3302, COMM 3303, COMM 3308, COMM 3309, COMM 3401, COMM 3403, COMM 3404, COMM 3405, COMM 3407, COMM 3409, COMM 3601, COMM 3602, COMM 3609;

4. 2.0 credits from COMM 4000, COMM 4002, COMM 4003, COMM 4004, COMM 4304, COMM 4306, COMM 4307, COMM 4309, COMM 4310, COMM 4401, COMM 4402, COMM 4403, COMM 4404, COMM 4409, COMM 4601, COMM 4602, COMM 4603, COMM 4609.
- B. Credits Included in the Journalism Major CGPA (8.0 credits):**
5. 7.0 credits in: JOUR 1000 [1.0], JOUR 2201 [1.0], JOUR 2205, JOUR 2501, JOUR 3205 [1.0], JOUR 3207, JOUR 3208, JOUR 4000 [1.0], JOUR 4201 [1.0];
  6. 1.0 credit from: JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207, JOUR 4208;
- C. Additional Requirements (5.0 credits):**
7. 1.0 language credit;
  8. 1.0 credit from: HIST 1300 [1.0], HIST 2303 [1.0], HIST 2304 [1.0], HIST 3203, HIST 3204;
  9. Approved options to make up a total of 20.0 credits.

**Communication Studies  
B.A. General (15.0 credits)**

The B.A. (General) in Communication Studies is for students in 2nd year or above, who have been previously in the B.A. (Honours) in Communication Studies.

- A. Credits Included in the Major CGPA (6.0 credits):**
1. 1.0 credit in COMM 1101 [1.0] or JOUR 1000 [1.0];
  2. 2.0 credits in COMM 2001 [1.0] and COMM 2101 [1.0];
  3. 0.5 credit from COMM 3106, COMM 3108, COMM 3109;
  4. 2.5 credits from FYSM 1207 [1.0], COMM 2301, COMM 2401, COMM 2501, COMM 2504, COMM 2601, COMM 3001, COMM 3002, COMM 3301, COMM 3302, COMM 3303, COMM 3308, COMM 3309, COMM 3401, COMM 3403, COMM 3405, COMM 3407, COMM 3409, COMM 3601, COMM 3602, COMM 3609.
- B. Credits Not Included in the Major CGPA (9.0 credits):**
5. 7.0 credits in electives not in communication studies;
  6. 2.0 credits in free electives.

**Minor in Communication Studies**

This Minor is open to students in B.A Honours and General programs.

**Requirements (4.0 credits)**

1. 1.0 credit in COMM 1101 [1.0] or JOUR 1000 [1.0];
2. 1.5 credits in COMM 2101 [1.0]; and one of COMM 3106, COMM 3108, COMM 3109;
3. 1.5 credit from FYSM 1207 [1.0], COMM 2301, COMM 2401, COMM 2501, COMM 2504, COMM 2601, COMM 3001, COMM 3002, COMM 3301, COMM 3302, COMM 3303, COMM 3308, COMM 3309, COMM 3401, COMM 3403, COMM 3404, COMM 3405, COMM 3407, COMM 3409, COMM 3601, COMM 3602, COMM 3609;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Concentrations**

The concentrations described below are open to all students in Communication Studies Honours or Combined Honours programs. Only one concentration can be taken in a Communication Studies Honours or Combined Honours program. The maximum number of Communication Studies credits that can be counted towards the degree is 12.0 credits for an Honours program and 9.0 for a Combined Honours program.

**Concentration in Image, Politics and Persuasion**

1. 0.5 credit in COMM 2301;
2. 0.5 credit in COMM 3106;
3. 0.5 credit in COMM 3001 or COMM 3002;
4. 2.0 credits in Image, Politics and Persuasion, including at least 1.0 credit at the 4000-level chosen from: COMM 3301, COMM 3302, COMM 3303, COMM 3308, COMM 3309, COMM 4000, COMM 4002, COMM 4003, COMM 4304, COMM 4306, COMM 4307, COMM 4309, COMM 4310.

**Concentration in Media Industries and Institutions**

1. 0.5 credit in COMM 2401;
2. 0.5 credit in COMM 3108;
3. 0.5 credit in COMM 3001 or COMM 3002;
4. 2.0 credits in Media Industries and Institutions, including at least 1.0 credit at the 4000-level chosen from: COMM 3401, COMM 3403, COMM 3404, COMM 3405, COMM 3407, COMM 3409, COMM 4000, COMM 4002, COMM 4401, COMM 4402, COMM 4403, COMM 4404, COMM 4409.

**Concentration in Communication and Identity**

1. 0.5 credit in COMM 2601;
2. 0.5 credit in COMM 3109;
3. 0.5 credit in COMM3001 or COMM 3002;
4. 2.0 credits in Communication and Identity, including at least 1.0 credit at the 4000-level chosen from: COMM 3601, COMM 3602, COMM 3403, COMM 3609, COMM 4000, COMM 4002, COMM 4003, COMM 4004, COMM 4601, COMM 4602, COMM 4603, COMM 4306, COMM 4609.

**Computer Science**  
**School of Computer Science**  
**(Faculty of Science)**  
 5302 Herzberg Bldg.  
 613-520-4333  
 scs.carleton.ca

This section presents the requirements for:

- **Bachelor of Computer Science Honours with streams**
  - Software and Computing
  - Management and Business Systems
  - Software Engineering
  - Network Computing
  - Computer and Internet Security
  - Mobile and Social Networking Applications
  - Computer Game Development
  - Biomedical Computing
  - Psychology
  - Law
- **Bachelor of Computer Science Major**
- **Chemistry and Computer Science - B.Sc. Combined Honours**
- **Computer Science and Mathematics - B.Math. Combined Honours**
- **Minor in Computer Science**

The Co-operative Education Option is available in Computer Science. See the Co-operative Education section of this Calendar for details.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy the University regulations common to all undergraduate students (see the *Academic Regulations of the University* section of this Calendar).

Students should consult with the School when planning their program and selecting courses.

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### Course Categories

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The following categories of courses are used in defining the program requirements in Computer Science.

#### Computer Science (COMP)

In addition to the courses with subject code COMP, the following courses offered by the Sprott School of Business, the Faculty of Engineering and Design, and the Faculty of Arts and Social Sciences are relevant to the B.C.S. program and the Combined Honours programs. These courses are counted as Computer Science credits in B.C.S., Minor in Computer Science and Combined Honours program requirements: BUSI 2300, BUSI 2400, BUSI 4400, BUSI 4402, BUSI 4406, BUSI 4407, SYSC 3303, SYSC 4005, SYSC 4106, SYSC 4507, and CCDP 2000.

#### Approved Arts or Social Sciences or Science or Business

All courses offered by the Faculty of Arts and Social Sciences, the Faculty of Public Affairs, and the Sprott School of Business. In Science, only courses in BIOL, BIOC, CHEM, ENSC, EARTH, FOOD, NSCI PHYS and ISCI. This excludes all courses in COMP, MATH, and STAT. Also excluded are courses in the Prohibited Courses category.

#### Natural Science Electives

This category is defined with the B.Math. programs. See the Mathematics Program section of this Calendar for details.

#### Prohibited Courses

The following courses cannot be used for credit in the B.C.S. or any Combined Computer Science program: BUSI 1402, BUSI 2402, ISCI 3000, COMP 1001, COMP 1004, COMP 1007, MATH 1009, MATH 1119, MATH/ECON 1401, MATH/ECON 1402.

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### Program Requirements

#### Bachelor of Computer Science Honours (20.0 credits)

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All B.C.S. Honours students must be registered in one of the following streams:

#### Computer Science Software and Computing Stream B.C.S. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 0.5 credit in COMP at the 2000-level or above;
  3. 1.5 credits in COMP at the 4000-level;
- B. Credits Not Included in the Major CGPA (11.0 credits):**
4. 1.0 credit in MATH 1007, MATH 1104;
  5. 0.5 credit from MATH 2007, MATH 2107, MATH 3101;
  6. 0.5 credit from STAT 2507 or STAT 2605;
  7. 0.5 credit in COMP or MATH electives at the 2000-level or above;
  8. 5.0 credits in Approved Arts or Social Sciences or Science or Business;
  9. 3.5 credits in free electives.

#### Computer Science Management and Business Systems Stream B.C.S. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.5 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 0.5 credit in COMP at the 2000-level or above;
  3. 1.5 credits in COMP at the 4000-level;
  4. 0.5 credit in BUSI 2300;
- B. Credits Not Included in the Major CGPA (10.5 credits):**
5. 1.0 credit in MATH 1007 and MATH 1104;
  6. 0.5 credit from MATH 2007, MATH 2107, MATH 3101;

7. 0.5 credit in STAT 2507;
8. 1.0 credit in:
  - a) BUSI 1003 and 0.5 credit in BUSI at the 2000-level, or
  - b) BUSI 1001 and BUSI 1002;
9. 1.5 credits in BUSI 2101, BUSI 2503, and BUSI 3402;
10. 1.0 credit in ECON 1000 [1.0];
11. 1.5 credit in BUSI at the 3000-level or above;
12. 0.5 credit in COMP or MATH electives at the 2000-level or above;
13. 3.0 credits in free electives.

**Computer Science  
Software Engineering Stream  
B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (9.5 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 0.5 credit in COMP 2405;
  3. 1.5 credits in SYSC 3303, COMP 4004 and SYSC 4106;
  4. 0.5 credit in COMP at the 4000-level;
- B. Credits Not Included in the Major CGPA (10.5 credits):**
5. 1.0 credit in MATH 1007, MATH 1104;
  6. 0.5 credit from MATH 2007, MATH 2107, and MATH 3101;
  7. 0.5 credit from STAT 2507, STAT 2605;
  8. 0.5 credit in COMP or MATH electives at the 2000-level or above;
  9. 5.0 credits in Approved Arts or Social Sciences or Science or Business Electives;
  10. 3.0 credits in free electives.

**Computer Science  
Network Computing Stream  
B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (9.5 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 1.0 credit in COMP 2405 and COMP 3203;
  3. 1.0 credit from COMP 4001, COMP 4009, COMP 4104, COMP 4108, COMP 4203, and COMP 4804;
  4. 0.5 credit in COMP at the 4000-level;

**B. Credits Not Included in the Major CGPA (10.5 credits):**

5. 1.0 credit in MATH 1007, MATH 1104;
6. 0.5 credit from MATH 2007, MATH 2107, MATH 3101;
7. 0.5 credit from STAT 2507, STAT 2605;
8. 5.0 credits in Approved Arts or Social Sciences or Science or Business Electives;
9. 3.5 credits in free electives.

**Computer Science  
Computer and Internet Security Stream  
B.C.S. Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (9.5 credits):**

1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
2. 2.0 credits in COMP 2405, COMP 3203, COMP 4108, COMP 4109;
3. 0.5 credit in COMP at the 4000-level;

**B. Credits Not Included in the Major CGPA (10.5 credits)**

4. 1.0 credit in MATH 1007, MATH 1104;
5. 0.5 credit from MATH 2007, MATH 2107, MATH 3101;
6. 0.5 credit from STAT 2507, STAT 2605;
7. 5.0 credits in Approved Arts or Social Sciences or Science or Business Electives;
8. 3.5 credits in free electives.

**Computer Science  
Mobile and Social Networking Applications Stream  
B.C.S. Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (10.0 credits):**

1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
2. 2.0 credits in COMP 1601, COMP 2601, COMP 3601, and COMP 4601;
3. 1.0 credit in COMP at the 4000-level;

**B. Credits Not Included in the Major CGPA (10.0 credits):**

4. 1.0 credit in MATH 1007, MATH 1104
5. 0.5 credit from MATH 2007, MATH 2107 and MATH 3101;
6. 0.5 credit from STAT 2507 or STAT 2605;
7. 5.0 credits in Approved Arts or Social Sciences or Science or Business Electives;
8. 3.0 credits in free electives.

Programs

**Computer Science**  
**Computer Game Development Stream**  
**B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (10.0 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 2.0 credits in COMP 1501, COMP 2501, COMP 3501, and COMP 4501;
  3. 1.0 credit in COMP at the 4000-level or above;
- B. Credits Not Included in the Major CGPA (10.0 credits):**
4. 1.0 credit in MATH 1007, MATH 1104;
  5. 0.5 credit from MATH 2007, MATH 2107, and MATH 3101;
  6. 0.5 credit from STAT 2507, STAT 2605;
  7. 5.0 credits in Approved Arts or Social Sciences or Science or Business Electives;
  8. 3.0 credits in free electives.

**Computer Science**  
**Biomedical Computing Stream**  
**B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (9.0 credits):**
1. 7.0 credits in: COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 1.0 credit in COMP 3308 and COMP 4804;
  3. 0.5 credit in COMP at the 4000-level;
  4. 0.5 credit from COMP 4300 or COMP 4308;
- B. Credits not included in the Major CGPA (11.0 credits):**
5. 1.0 credit in MATH 1007, MATH 1104;
  6. 0.5 credit from MATH 2007, MATH 2107, MATH 3101;
  7. 0.5 credit from STAT 2507, STAT 2605;
  8. 0.5 credit in COMP or MATH electives at the 2000-level or above;
  9. 2.0 credits in BIOL 1103, BIOL 1104, BIOL 2104, and BIOL 2600;
  10. 0.5 credit from BIOL 3104 or BIOL 3609;
  11. 2.0 credits in CHEM 1001, CHEM 1002, CHEM 2203, and CHEM 2204;
  12. 1.0 credit in BIOC 2200 and BIOC 3101;
  13. 3.0 credits in free electives.

**Computer Science**

**Psychology Stream**  
**B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (9.0 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 0.5 credit in COMP at the 2000-level or above;
  3. 1.5 credits in COMP at the 4000-level;
- B. Credits Not Included in the Major CGPA (11.0 credits):**
4. 1.0 credit in MATH 1007, MATH 1104;
  5. 0.5 credit from MATH 2007, MATH 2107, MATH 3101;
  6. 0.5 credit in STAT 2507;
  7. 1.0 credit in PSYC 1001 and PSYC 1002;
  8. 2.0 credits in PSYC 2001, PSYC 2100, PSYC 2700, and PSYC 2800;
  9. 1.0 credit in PSYC at the 3000-level or above;
  10. 0.5 credit from PSYC 3102, PSYC 3105 or PSYC 3702;
  11. 1.0 credit in PSYC 4800 and PSYC 4805;
  12. 0.5 credit in COMP or MATH electives at the 2000-level or above;
  13. 3.0 credits in free electives.

**Computer Science**  
**Law Stream**  
**B.C.S. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (9.0 credits):**
1. 7.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, COMP 3007, COMP 3804, and COMP 4905;
  2. 0.5 credit in COMP at the 2000-level or above;
  3. 1.5 credits in COMP at the 4000-level;
- B. Credits Not Included in the Major CGPA (11.0 credits):**
4. 1.0 credit in MATH 1007, MATH 1104;
  5. 0.5 credit from MATH 2007, MATH 2107, MATH 3101;
  6. 0.5 credit in STAT 2507;
  7. 1.0 credit in LAWS 1000;
  8. 1.0 credit in LAWS 2201 and LAWS 2202;
  9. 1.0 credit from LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502;
  10. 3.0 credits from LAWS 3003, LAWS 3005, LAWS 3201, LAWS 3202, LAWS 3203, LAWS 3205, LAWS 3206, LAWS 3207, LAWS 3303, LAWS 3304, LAWS 3501, LAWS 3502, LAWS 3800, LAWS 4202, LAWS 4204, LAWS 4209, LAWS 4302, LAWS 4901, and LAWS 4902;

## Programs - Computer Science

11. 0.5 credit in COMP or MATH electives at the 2000-level or above;
12. 2.5 credits in free electives.

### Computer Science B.C.S. Major (20.0 credits)

#### A. Credits Included in the Major CGPA (7.5 credits):

1. 6.0 credits in COMP 1405, COMP 1805, COMP 1406, COMP 2003, COMP 2401, COMP 2402, COMP 2404, COMP 2805, COMP 3000, COMP 3004, COMP 3005, and COMP 3007;
2. 1.0 credit in COMP at the 3000-level or above;
3. 0.5 credit in COMP at the 4000-level;

#### B. Credits Not Included in the Major CGPA (12.5 credits):

4. 1.0 credit in MATH 1007, MATH 1104;
5. 0.5 credit from STAT 2507, STAT 2605;
6. 0.5 credit in Mathematics and Statistics at the 2000-level or above;
7. 1.0 credit in COMP or MATH electives at the 2000-level or above;
8. 5.0 credits in Approved Arts or Social Sciences or Science or Business Electives;
9. 4.5 credits in free electives.

### Chemistry and Computer Science B.Sc. Combined Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (13.0 credits):

1. 5.5 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2203, CHEM 2206, CHEM 2501, CHEM 3101, CHEM 3102, CHEM 3106, CHEM 3503, and CHEM 4406;
2. 1.0 credit in BIOC 3101 and (BIOC 3102 or BIOC 3008);
3. 5.0 credits in COMP 1005, COMP 1006; COMP 2001, COMP 2002, COMP 2003, COMP 2004, COMP 3000, COMP 3004, COMP 3804, and COMP 3806;
4. 0.5 credit in COMP at the 4000-level;
5. 1.0 credit from:
  - a) CHEM 4908 [1.0]or
  - b) COMP 4905 and 0.5 credit in COMP at the 4000-level;

#### B. Credits Not Included in the Major CGPA (7.0 credits):

6. 3.0 credits in MATH 1007, MATH 1107, MATH 1005 or MATH 2007, MATH 2008, MATH 2107, MATH 2108;
7. 1.0 credit in BIOL 1003 and BIOL 2200;

8. 0.5 credit from PHYS 1003 or PHYS 1007;
9. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences or Business;
10. 1.0 credits in Approved Arts or Social Sciences or Business;
11. 1.0 credit in free electives.

### Computer Science and Mathematics B.Math. Combined Honours (20.0 credits)

Students must register in one of the two streams below, each of which adds 5.0 credits to the Major CGPA.

#### A. Credits Included in the Major CGPA (15.0 credits):

1. 4.0 credits in MATH 1002 [1.0], MATH 1107, MATH 2107, MATH 2000 [1.0], and MATH 2100 [1.0];
2. 5.5 credits in COMP 1405, COMP 1406, COMP 2401, COMP 2402, COMP 2003, COMP 2404, COMP 3004, COMP 3000, COMP 3005, COMP 3804, and COMP 3805;
3. 0.5 credit in MATH 4905 or COMP 4905;

*and for the concentration in Computing Theory and Numerical Methods:*

4. 2.5 credits in MATH 2454, STAT 2655; MATH 3801, MATH 3806, and COMP 4804;
5. 0.5 credit from MATH 3001, MATH 3002, MATH 3057, or MATH 3008;
6. 1.0 credit from MATH 4801, MATH 4802, MATH 4803, MATH 4805, MATH 4806, or MATH 4808;
7. 1.0 credit in COMP at the 3000-level or above;

*and for the concentration in Statistics and Computing:*

4. 2.5 credits in MATH 2454, STAT 2559, STAT 2655, STAT 3558, and STAT 3559;
5. 0.5 credit from STAT 3506, STAT 3553;
6. 1.0 credit in STAT at the 4000-level;
7. 1.0 credit in COMP at the 4000-level;

#### B. Credits Not Included in the Major CGPA (5.0 credits):

8. 4.0 credits not in MATH, STAT, or COMP, consisting of:
  - a) 1.0 credit in Natural Science electives;
  - b) 2.0 credits in Approved Arts or Social Sciences or Business;
  - c) 1.0 credit at the 2000-level or higher in Natural Science electives or in Approved Arts and Social Sciences;
9. 1.0 credit in free electives.

### Minor in Computer Science

#### Requirements (4.0 credits):

1. 2.5 credits in COMP 1005, COMP 1006, COMP 2001, COMP 2002, and COMP 2004;
2. 1.0 credit from: COMP 1805 and/or COMP at the 2000-level or above;



3. 0.5 credit in COMP at the 3000-level or above;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Criminology and Criminal Justice**  
 Institute of Criminology and Criminal Justice  
 (Faculty of Public Affairs)  
 C562 Loeb Bldg.  
 613-520-2588  
 carleton.ca/criminology

This section presents the requirements for:

- CCJ with Concentration in Law - B.A. Honours
- CCJ with Concentration in Psychology - B.A. Honours
- CCJ with Concentration in Sociology - B.A. Honours
- CCJ with Concentration in Law - B.A. General
- CCJ with Concentration in Psychology - B.A. General
- CCJ with Concentration in Sociology - B.A. General
- Field Placement Practicum
- Carleton/Algonquin Articulation Agreement - B.A. General

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars. The B.A. Breadth requirement is waived for students in Criminology and Criminal Justice (see *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the Institute when selecting courses and planning their program.

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### Admission to CCJ by Transfer and General Degree Availability

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Admission to Criminology and Criminal Justice with advanced standing and transfer within the B.A. to CCJ by change of major is limited. Students require a minimum overall CGPA of 7.5 and will be admitted to the Honours program. Access to the General degree is limited to CCJ Honours registered students who apply to transfer and to Algonquin College students governed by the Articulation Agreement noted below.

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### Maximum Number of CCJ Credits

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The total number of Criminology and Criminal Justice credits in the B.A. and B.A. (Honours) program may not exceed 11.5 (B.A. General) and 15.0 (B.A. Honours). This is the sum of credits used in the Major and Concentration PLUS free electives chosen from the list of Approved CCJ electives. Consult the Institute if clarification is required.

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### Program Requirements

#### Criminology and Criminal Justice

#### B.A. Honours (20.0 credits)

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Students in the B.A. Honours program choose to follow one of the three following concentrations. The selection must take place before second year status is achieved.

#### CCJ with Concentration in Law

#### B.A. Honours (20.0 credits)

- A. **Credits Included in the Major CGPA: (14.0 credits):**
  1. 0.5 credit in CRCJ 1000;
  2. 3.0 credits in LAWS 1000 [1.0], LAWS 2301, LAWS 2302, LAWS 2908, LAWS 3908;
  3. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  4. 1.0 credit in LAWS at the 2000-level or higher;
  5. 1.5 credits in LAWS at the 3000-level or higher;
  6. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402;
  7. 1.0 credit from: (SOCJ 1001 and SOCJ 1002) or SOCJ 1003 [1.0];
  8. 1.0 credit in: SOCJ 2445 and SOCJ 2450;
  9. 0.5 credit from: SOCJ 3400 or SOCJ 3410;
  10. 1.0 credit in CRCJ 3001 and CRCJ 3002;
  11. 1.0 credit from: CRCJ 3901 [1.0] or Approved CCJ Electives at the 3000-level;
  12. 1.0 credit from: CRCJ 4908 [1.0], CRCJ 4001, CRCJ 4002, or Approved CCJ Electives at the 4000-level;
- B. **Credits Not Included in the Major CGPA (6.0 credits):**
  13. 5.0 credits in electives, not in Approved CCJ electives;
  14. 1.0 credits in free electives.

#### Notes:

1. The course CRCJ 3901 may not be repeated.
2. See note entitled **Maximum Number of CCJ Credits** above the Program Requirements section, regarding the maximum permissible Criminology credits for your program.

#### CCJ with Concentration in Psychology

#### B.A. Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (14.0 credits):**
  1. 0.5 credit in CRCJ 1000;
  2. 2.0 credits in: LAWS 1000 [1.0], LAWS 2301, LAWS 2302;
  3. 0.5 credit from: LAWS 3305, LAWS 3306, LAWS 3308;
  4. 3.0 credits in: PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402, PSYC 3000 [1.0];
  5. 1.0 credit from (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
  6. 1.0 credit in PSYC at the 2000-level or higher;

Programs

7. 0.5 credit in PSYC at the 3000-level or higher;
  8. 1.0 credit from: (SOCJ 1001 and SOCJ 1002) or SOCJ 1003 [1.0];
  9. 1.0 credit in: SOCJ 2445 and SOCJ 2450;
  10. 0.5 credit from: SOCJ 3400 or SOCJ 3410;
  11. 1.0 credit in CRCJ 3002 and CRCJ 3003;
  12. 1.0 credit from: CRCJ 3901[1.0] or Approved CCJ Electives at the 3000-level;
  13. 1.0 credit from: CRCJ 4908 [1.0], CRCJ 4001, CRCJ 4002, or Approved CCJ Electives at the 4000-level;
- B. Credits Not Included in the Major CGPA (6.0 credits):**
14. 5.0 credits in electives, not in Approved CCJ electives;
  15. 1.0 credits in free electives.

**Note:**

See note entitled **Maximum Number of CCJ Credits** above the Program Requirements section, regarding the maximum permissible Criminology credits for your program.

**CCJ with Concentration in Sociology  
B.A. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA: (13.5 credits):**
1. 0.5 credit in CRCJ 1000;
  2. 2.0 credits in: LAWS 1000 [1.0], LAWS 2301, LAWS 2302;
  3. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  4. 2.0 credits in: PSYC 1001, PSYC 1002, PSYC 2400, and PSYC 3402;
  5. 1.0 credit from: (SOCJ 1001 and SOCJ 1002) or SOCJ 1003 [1.0];
  6. 2.0 credits in SOCJ 2001, SOCJ 2002, SOCJ 2445, SOCJ 2450;
  7. 0.5 credit from: SOCJ 3400 or SOCJ 3410;
  8. 1.0 credit in SOCJ at the 2000-level or higher;
  9. 1.0 credit in SOCJ at the 3000-level or higher;
  10. 1.0 credit from CRCJ 3001 and CRCJ 3003;
  11. 1.0 credit from: CRCJ 3901 [1.0] or Approved CCJ Electives at the 3000-level;
  12. 1.0 credit from: CRCJ 4908 [1.0], CRCJ 4001, CRCJ 4002, or Approved CCJ Electives at the 4000-level;
- B. Credits Not Included in the Major CGPA (6.5 credits):**
13. 5.0 credits in electives, not in Approved CCJ electives;
  14. 1.5 credits in free electives.

**Notes for all Concentrations:**

1. Registration in the Honours Research Project CRCJ 4908 requires a Major CGPA of at least 10.00.
2. For the Concentration in Sociology, SOCJ 2005 [1.0] or SOCJ 3005 is highly recommended.

3. See note entitled **Maximum Number of CCJ Credits** above the Program Requirements section regarding the maximum permissible Criminology credits for your program.

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**Program Requirements for  
Criminology and Criminal Justice  
B.A. General (15.0 credits)**

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Students in the B.A. General program choose to follow one of the three following concentrations. The selection must take place before second year status is achieved.

**CCJ with Concentration in Law  
B.A. General (15.0 credits)**

- A. Credits Included in the Major CGPA: (10.5 credits):**
1. 0.5 credit in CRCJ 1000;
  2. 2.0 credits in LAWS 1000 [1.0], LAWS 2301, LAWS 2302;
  3. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  4. 2.0 credits in LAWS at the 2000-level or higher;
  5. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402;
  6. 1.0 credit from: (SOCJ 1001 and SOCJ 1002) or SOCJ 1003 [1.0];
  7. 1.0 credit in SOCJ 2445 and SOCJ 2450;
  8. 0.5 credit from: SOCJ 3400 or SOCJ 3410;
  9. 1.0 credit from: CRCJ 3901 [1.0] or Approved CCJ Electives at the 3000-level;
- B. Credits Not Included in the Major CGPA (4.5 credits):**
10. 3.5 credits in electives, not in Approved CCJ electives;
  11. 1.0 credits in free electives.

**Note:**

See note entitled **Maximum Number of CCJ Credits** above the Program Requirements section regarding the maximum permissible Criminology credits for your program.

**CCJ with Concentration in Psychology  
B.A. General (15.0 credits)**

- A. Credits Included in the Major CGPA (11.0 credits):**
1. 0.5 credit in CRCJ 1000;
  2. 2.0 credits in LAWS 1000 [1.0] and LAWS 2301, LAWS 2302;
  3. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  4. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2400, and PSYC 3402;
  5. 1.0 credit from (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
  6. 1.5 credits in PSYC at the 2000-level or higher;

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- 7. 1.0 credit from: (SOCJ 1001 and SOCJ 1002) or SOCJ 1003 [1.0];
  - 8. 1.0 credit in: SOCJ 2445 and SOCJ 2450;
  - 9. 0.5 credit from: SOCJ 3400 or SOCJ 3410;
  - 10. 1.0 credit from: CRCJ 3901 [1.0] or Approved CCJ Electives at the 3000-level;
- B. Credits Not Included in the Major CGPA (4.0 credits):**
- 11. 3.5 credits in electives, not in Approved CCJ electives;
  - 12. 0.5 credit in free electives.

**Note:**

See note entitled **Maximum Number of CCJ Credits** above the Program Requirements section regarding the maximum permissible Criminology credits for your program.

**CCJ with Concentration in Sociology  
B.A. General (15.0 credits)**

- A. Credits Included in the Major CGPA: (10.5 credits):**
- 1. 0.5 credit in CRCJ 1000;
  - 2. 2.0 credits in: LAWS 1000 [1.0], LAWS 2301, LAWS 2302;
  - 3. 0.5 credit from: LAWS 3305, LAWS 3306 or LAWS 3308;
  - 4. 2.0 credits in: PSYC 1001, PSYC 1002, PSYC 2400, PSYC 3402;
  - 5. 1.0 credit from: (SOCJ 1001 and SOCJ 1002) or SOCJ 1003 [1.0];
  - 6. 2.0 credits in SOCJ 2001, SOCJ 2002, SOCJ 2445, SOCJ 2450;
  - 7. 0.5 credit from: SOCJ 3400 or SOCJ 3410;
  - 8. 1.0 credit in SOCJ at the 2000-level or higher;
  - 9. 1.0 credit from: CRCJ 3901[1.0] or Approved CCJ Electives at the 3000-level;
- B. Credits Not Included in the Major CGPA (4.5 credits):**
- 10. 3.5 credits in electives, not in Approved CCJ electives;
  - 11. 1.0 credits in free electives.

**Note:**

See note entitled **Maximum Number of CCJ Credits** above the Program Requirements section regarding the maximum permissible Criminology credits for your program.

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**Field Placement Practicum**

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The Field Placement Practicum (CRCJ 3901) is offered at the 3000-level to students in CCJ programs. Students complete a 1.0 (or 2.0) credit Field Placement Practicum course during the fall/winter session. To be eligible for the Practicum students must have completed at least 9.0 credits by May 1, including all of the 1000- and 2000-level requirements in the Major CGPA. Enrolment is restricted. A floating cutoff will be used to identify the students with the highest Major CGPA over those required courses, who may then receive permission

to register for the Field Placement. Allocation of Field Placements will be determined by the Field Placement Coordinator.

Students wishing to register for a Field Placement Practicum must apply to the Institute no later than **May 1** of their second year. Applications are available at [carleton.ca/criminology](http://carleton.ca/criminology) after January 1. If granted permission, students will then register in CRCJ 3901 [1.0] during registration. Students in the B.A. Honours program may receive permission to complete a 2.0 credit placement, in which case they will also register in CRCJ 3902 [1.0].

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**Course Categories for Criminology and Criminal Justice**

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**Approved CCJ Electives**

**Criminology**

CRCJ 3902 [1.0]

**Law**

LAWS 3006, LAWS 3307, LAWS 4302, LAWS 4303, LAWS 4304, LAWS 4305, LAWS 4306, LAWS 4307, LAWS 4308, LAWS 4309, LAWS 4504

**Psychology**

PSYC 3102, PSYC 3204, PSYC 3403, PSYC 3405, PSYC 3507, PSYC 3604, PSYC 4402, PSYC 4403, PSYC 4404

**Sociology**

SOCI 3055, SOCI 3420, SOCI 3450, SOCI 4055, SOCI 4410, SOCI 4420, SOCI 4430

**Notes**

- 1. Each of the courses LAWS 3305, LAWS 3306, LAWS 3308, SOCI 3400, and SOCI 3410 may be used as an elective if it has not been used to satisfy a Major requirement and student does not exceed maximum number of courses allowed in the Major and Concentration.
- 2. The total number of Criminology and Criminal Justice courses in the B.A. and B.A. (Honours) program may not exceed 11.5 (B.A.) and 15.0 (B.A. Honours). **Consult the Institute if clarification is required.**
- 3. Students may request permission to offer courses towards the Major which are not listed as electives, including those offered by the Criminal Justice and Social Policy Summer School, as well as special topics courses offered from time to time by the Institute or Departments of Law, Psychology and Sociology. Students should consult the Institute for a listing of courses approved as alternative electives.

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## Carleton University/Algonquin College Articulation Agreement

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### **B.A. General (Carleton)/Police Foundations (Algonquin)**

An articulation agreement between Carleton University and Algonquin College of Applied Arts and Technology permits graduates with a Diploma in Police Foundations from Algonquin College to apply for admission into the B.A. program at Carleton University. Successful applicants will be granted 5.0 credits on admission towards the completion of a B.A. in either Criminology, or Law, or Psychology, or Sociology.

To be eligible for admission according to this Articulation Agreement, students must have completed the Diploma in Police Foundations at Algonquin College with a B average (Algonquin GPA of 3.0). They will then be considered for admission to a B.A. General program at Carleton in either Criminology, or Law, or Psychology, or Sociology.

#### **Normal course transfer credits:**

2.0 credits in Law; 2.0 credits in Sociology, 0.5 in Political Science and 0.5 in Psychology.

Further information may be obtained from the Undergraduate Supervisor or Coordinator of the appropriate B.A. program.



## Directed Interdisciplinary Studies

### Institute of Interdisciplinary Studies (Faculty of Arts and Social Sciences)

2202 Dunton Tower

613-520-2600 ext.1750

carleton.ca/iis/programs-of-study/directed-interdisciplinary-studies

This section presents the requirements for:

- Directed Interdisciplinary Studies – B.A. Honours
- Directed Interdisciplinary Studies – B.A. General

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the Institute when selecting courses and planning their program.

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### Program Requirements

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#### General Information

The degree of Bachelor of Arts in Interdisciplinary Studies is pursued by means of a plan of study proposed by the student, in an area of special interest that the student defines, drawing courses from several disciplines to develop a theme not possible within existing programs.

1. Prior to submitting a formal application, students are required to consult with the Program Co-ordinator for assistance in working out a suitable pattern of courses.
2. To allow time for adequate appraisal by the Committee, the proposal should be submitted as early as possible before the year of entry to the program (by May 1 for September registration and by November 1 for January registration).
3. Students may apply for admission to the program before completion of their first 5.0 credits and must apply before they begin their last 5.0 credits towards the degree.
4. Normally, 3.0 credits in Part B of the degree program are to be included among the last 5.0 credits taken towards the degree.

### Directed Interdisciplinary Studies B.A. Honours (20.0 credits)

Students applying for the B.A. (Honours) program in Directed Interdisciplinary Studies must complete the prescribed application form, available from the Institute of Interdisciplinary Studies office, or online. They are required to list 4.5 credits which meet the requirements listed in Part A below, and 9.5 credits which meet the requirements listed in Part B below, and which include the Honours project (DIST 4908). The credits in Part B must be related to a significant theme or field of interest and fit into a coherent pattern. On acceptance of the

proposed pattern of study, the credits described above, or variations subsequently agreed to by the Committee, become a requirement for completion of the degree.

#### A. Credits Included in the Major CGPA (14.0 credits):

##### Part A (4.5 credits):

1. 1.0 credit that addresses the temporal dimension of human societies, analyzing times before the current era, and societies other than our own;
2. 1.0 credit that addresses the artifacts of the imagination, in literature and other forms, that addresses the life of the imagination and the culture;
3. 1.0 credit that addresses the understanding of social and/or natural processes, and the ways in which that understanding is obtained in science and Social Sciences;
4. 1.0 credit that addresses matters of human values, ethics and social responsibilities;
5. 0.5 credit in DIST 3901;

##### Part B (9.5 credits):

6. 9.5 credits as proposed by the student and approved by the committee including:
  - a) 1.0 credit in DIST 4908 [1.0] Honours Project;
  - b) At least 4.0 credits in one discipline;
  - c) At least 3.0 credits at the 4000-level or higher;

#### B. Credits Not Included in the Major CGPA (6.0 credits):

7. 6.0 credits in free electives.

### Directed Interdisciplinary Studies B.A. General (15.0 credits)

Students applying for the B.A. General program in Directed Interdisciplinary Studies must complete the prescribed application form, available from the Institute of Interdisciplinary Studies office, or online. They are required to list 4.5 credits which meet the requirements listed in Part A below, and 5.5 credits which meet the requirements listed in Part B below. The credits in Part B must be related to a significant theme or field of interest and fit into a coherent pattern. On acceptance of the proposed pattern of study, the credits described above, or variations subsequently agreed to by the Committee, become a requirement for completion of the degree.

#### A. Credits Included in the Major CGPA (10.0 credits):

##### Part A (4.5 credits):

1. 1.0 credit that addresses the temporal dimension of human societies, analyzing times before the current era, and societies other than our own;
2. 1.0 credit that addresses the artifacts of the imagination, in literature and other forms, or that addresses the life of the imagination and the culture;
3. 1.0 credit that addresses the understanding of social and/or natural processes, and the ways in which that understanding is obtained in science and Social Sciences;
4. 1.0 credit that addresses matters of human values, ethics and social responsibilities;
5. 0.5 credit in DIST 3901;

**Part B (5.5 credits):**

6. 5.5 credits as proposed by the student and approved by the committee including: at least 1.0 credit at the 3000-level;
- B. Credits Not Included in the Major CGPA (5.0 credits):**
7. 5.0 credits in free electives.

## Earth Sciences

Department of Earth Sciences  
(Faculty of Science)  
2125 Herzberg Bldg.  
613-520-5633  
earthsci.carleton.ca

This section presents the requirements for:

- Earth Sciences – B.Sc. Honours
- Earth Sciences with Concentration in Vertebrate Paleontology and Paleoecology - B.Sc. Honours
- Earth Sciences with Concentration in Resource Economics - B.Sc. Honours
- Earth Sciences – B.Sc. Major
- Earth Sciences – B.Sc. General
- Earth Sciences and Physical Geography – B.Sc. Combined Honours
- Earth Sciences and Geography: Concentration in Terrain Science – B.Sc. Combined Honours
- Biology and Earth Sciences – B.Sc. Combined Honours
- Chemistry and Earth Sciences – B.Sc. Combined Honours
- Minor in Earth Sciences: Earth Resources and Processes

The B.Sc. Honours in Earth Sciences and the B.Sc. Major in Earth Sciences are available with a Minor in Business. Consult the Business program section for admission and program requirements.

The Co-operative Education option is available in Earth Sciences. See the Co-operative Education section of this Calendar for details.

### Graduation Requirements

In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the Faculty regulations applying to all B.Sc. students including those relating to First-Year Seminar, Science Continuation and Breadth requirements (see the *Academic Regulations for the Bachelor of Science Degree*).

Students should consult with the department, school or committee responsible for their program when planning their program and selecting courses.

### Course Categories for Earth Sciences Programs

The program descriptions below make use of the following course categories that are defined in the *Academic Regulations for the Bachelor of Science Degree* section of this Calendar.

- Science Faculty Electives
- Advanced Science Faculty Electives

- Science Continuation Courses
- Science Geography
- Science Psychology
- Approved Arts or Social Science
- Free Elective

### Program Requirements

#### Earth Sciences B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (11.0 credits):
  1. 1.0 credit in EARTH 1006 and EARTH 1009;
  2. 3.5 credits in EARTH 2102, EARTH 2104, EARTH 2105, EARTH 2312, EARTH 2314, EARTH 2406, EARTH 2802;
  3. 0.5 credit in EARTH 3203 or EARTH 3206; (See Note below)
  4. 3.0 credits from (EARTH 3003 or EARTH 3206), EARTH 3204, EARTH 3205, EARTH 3207, EARTH 3405, EARTH 3806; (See Note, below)
  5. 2.0 credits in EARTH at the 4000-level;
  6. 1.0 credit in EARTH 4908 [1.0], or (EARTH 4909 and 0.5 credit in EARTH at the 4000-level);
- B. Credits Not Included in the Major CGPA (9.0 credits):
  7. 1.0 credit in MATH 1007 and MATH 1107;
  8. 1.0 credit in (CHEM 1001 and 1002) or (CHEM 1005 and CHEM 1006);
  9. 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
  10. 0.5 credit in BIOL 1004;
  11. 0.5 credit in COMP;
  12. 0.5 credit in STAT 2507;
  13. 0.5 credit in GEOM 2007;
  14. 1.0 credit in Science Continuation Courses (not EARTH);
  15. 0.5 credit in NSCI 1000 or Approved Arts or Social Science electives;
  16. 1.5 credits in Approved Arts or Social Science electives;
  17. 1.0 credit in free electives.

#### Notes:

1. For **Item 3** above, EARTH 3203 is required if prerequisite conditions are met.
2. For **Item 4** above, EARTH 3206 may be used only if it has not already been used to fulfil the requirement for **Item 3**.
3. For BIOL 1004, Ontario 4U/M in Biology (or equivalent) is required.
4. For **Items 14-17**, students admitted to the Minor in Business should substitute the requirements for the Minor. See the Business section of this Calendar.



### Earth Sciences with Concentration in Resource Economics B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (11.0 credits):**
- 1.0 credit in EARTH 1006 and EARTH 1009;
  - 3.5 credits in EARTH 2102, EARTH 2104, EARTH 2105, EARTH 2312, EARTH 2314, EARTH 2406, EARTH 2802;
  - 0.5 credit in EARTH 3203 or EARTH 3206 (See Note 1 below);
  - 3.0 credits from (EARTH 3003 or EARTH 3206), EARTH 3204, EARTH 3205, EARTH 3207, EARTH 3405, EARTH 3806 (See Note below);
  - 0.5 credit in EARTH 4303 or EARTH 4306;
  - 1.5 credit in EARTH at the 4000-level;
  - 1.0 credit in EARTH 4908 or (EARTH 4909 and 0.5 credit EARTH at the 4000-level);
- B. Credits Not Included in the Major CGPA (9.0 credits):**
- 3.5 credits in ECON 1000 [1.0], ECON 2002, ECON 2003, ECON 2201, ECON 2202, ECON 3509;
  - 1.0 credit from ECON 3803, ECON 3804, ECON 4030;
  - 1.0 credit in MATH 1007 and MATH 1107;
  - 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006);
  - 1.0 credit in (PHYS 1007 and PHYS 1008), or (PHYS 1003 and PHYS 1004);
  - 0.5 credit in BIOL 1004;
  - 0.5 credit in COMP;
  - 0.5 credit in Science Continuation courses.

#### Notes:

- For **Item 3** above, EARTH 3203 is required if prerequisite conditions are met.
- For **Item 4** above, EARTH 3206 may be used only if it has not already been used to fulfill the requirement for Item 3.

### Earth Sciences with Concentration in Vertebrate Paleontology and Paleoecology B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.5 credits):**
- 1.0 credit in EARTH 1006 and EARTH 1009;
  - 2.5 credits in EARTH 2102, EARTH 2105, EARTH 2312, EARTH 2314, EARTH 2406;
  - 0.5 credit in EARTH 3203 or EARTH 3206;
  - 2.0 credits in EARTH 3003, EARTH 3111, EARTH 3112, EARTH 3113;
  - 0.5 credit in EARTH 4003 or EARTH 4808;
  - 1.0 credit in EARTH 4908 [1.0] or (EARTH 4909 and 0.5 credit in EARTH at the 4000-level);

- 3.0 credits from BIOL 3104, BIOL 3501, (BIOL 3601 or BIOL 3602), BIOL 3605, BIOL 3609, BIOL 3611, BIOL 3802, BIOL 4500, GEOM 3002, GEOG 3102, GEOG 3104, EARTH 2401, EARTH 3806, EARTH 4005, EARTH 4305, EARTH 4306, EARTH 4403;

#### B. Credits Not Included in the Major CGPA (9.5 credits):

- 2.5 credits in BIOL 1103, BIOL 1104, MATH 1007, MATH 1107, PHYS 1007;
- 1.0 credits in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006);
- 2.0 credits in BIOL 2001, BIOL 2104, BIOL 2600, STAT 2507;
- 0.5 credit Science Faculty Electives;
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Electives;
- 1.5 credits in Approved Arts or Social Sciences;
- 1.5 credits in free electives.

### Earth Sciences B.Sc. Major (20.0 credits)

#### A. Credits Included in the Major CGPA (11.0 credits):

- 1.0 credit in EARTH 1006 and EARTH 1009;
- 3.5 credits in EARTH 2102, EARTH 2104, EARTH 2105, EARTH 2312, EARTH 2314, EARTH 2406, EARTH 2802;
- 0.5 credit in EARTH 3203 or EARTH 3206; (See Note below)
- 3.0 credits from (EARTH 3003 or EARTH 3206), EARTH 3204, EARTH 3205, EARTH 3207, EARTH 3405, EARTH 3806; (See Note below)
- 3.0 credits in EARTH at the 4000-level;

#### B. Credits Not Included in the Major CGPA (9.0 credits):

- 1.0 credit in MATH 1007 and MATH 1107;
- 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006);
- 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
- 0.5 credit in BIOL 1004;
- 0.5 credit in COMP;
- 0.5 credit in STAT 2507;
- 0.5 credit in GEOM 2007;
- 1.0 credit in Science Continuation Courses (not EARTH);
- 0.5 credit in NSCI 1000 or Approved Arts or Social Science electives;
- 1.5 credits in Approved Arts or Social Science electives;
- 1.0 credits in free electives.

#### Notes:

- For **Item 3** above, EARTH 3203 is required if prerequisite conditions are met.
- For **Item 4** above, EARTH 3206 may be used only if it has not already been used to fulfill the requirement for item 3.

3. For BIOL 1004, Ontario 4U/M in Biology (or equivalent) is required.
4. For **Items 13-16**, students admitted to the Minor in Business should substitute the requirements for the Minor. See the Business section of this Calendar.

### Earth Sciences

#### B.Sc. General (15.0 credits)

##### A. Credits Included in the Major CGPA (8.0 credits):

1. 1.0 credit from EARTH 1006 and EARTH 1009;
2. 3.5 credits EARTH 2102, EARTH 2104, EARTH 2105, EARTH 2312, EARTH 2314, EARTH 2406, EARTH 2802;
3. 3.5 credits in EARTH 3003, EARTH 3204, EARTH 3205, EARTH 3206, EARTH 3207, EARTH 3405, EARTH 3806;

##### B. Credits Not Included in the Major CGPA (7.0 credits):

4. 1.0 credit in MATH 1007 and MATH 1107;
5. 1.0 credit in (CHEM 1001 and 1002) or (CHEM 1005 and CHEM 1006);
6. 1.0 credit in (PHYS 1007 and PHYS 1008) or (BIOL 1004 and PHYS 1007);
7. 1.0 credit in Science Continuation Courses;
8. 0.5 credits in NSCI 1000 or Approved Arts or Social Sciences;
9. 1.5 credits in Approved Arts or Social Sciences;
10. 1.0 credit in free electives.

#### Earth Sciences and Physical Geography B.Sc. Combined Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (12.0 credits):

1. 1.0 credit in GEOG 2013 and GEOG 2014;
2. 0.5 credit in EARTH 1006;
3. 1.5 credits in EARTH 2102, EARTH 2314, EARTH 2406;
4. 0.5 credit in ENSC 2000;
5. 2.0 credits in EARTH at the 3000-level or above;
6. 1.0 credit in EARTH at the 4000-level;
7. 1.5 credits in Science Geography or Geomatics courses at the 2000-level or above;
8. 2.0 credits in GEOM 3002, GEOG 3102, GEOG 3105, GEOG 3108;
9. 1.0 credit in Science Geography or Geomatics courses at the 4000-level;
10. 1.0 credit in GEOG 4906 [1.0] or EARTH 4908 [1.0] or (EARTH 4909 and 0.5 credit in EARTH at the 4000-level);

##### B. Credits Not Included in the Major CGPA (8.0 credits):

11. 1.0 credit in MATH 1007 and MATH 1107;
12. 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006);

13. 1.0 credit in (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008);
14. 1.0 credit in MATH (MATH, STAT) at 2000-level or above; and/or in COMP; (STAT 2507 and COMP 1004 are recommended);
15. 1.0 credit Advanced Science Faculty Electives;
16. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
17. 1.5 credits in Approved Arts or Social Sciences;
18. 1.0 credit in free electives.

#### Earth Sciences and Geography: Concentration in Terrain Science B.Sc. Combined Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (12.5 credits):

1. 0.5 credit in GEOG 2014;
2. 0.5 credit in EARTH 1006;
3. 2.5 credits in EARTH 2102, EARTH 2104, EARTH 2314, EARTH 2406, EARTH 2802;
4. 0.5 credit from EARTH 3203 or EARTH 3206; (See **Note** below)
5. 1.5 credits in EARTH 3205, EARTH 3207, EARTH 3806;
6. 1.0 credit in EARTH at the 4000-level;
7. 0.5 credit from GEOG 2006 or STAT 2507;
8. 1.5 credits in GEOM 2004, GEOM 2007, GEOG 2013;
9. 2.0 credits in GEOM 3002, GEOG 3102, GEOG 3105, GEOG 3108;
10. 1.0 credit in GEOG 4101 and GEOG 4108;
11. 1.0 credit in GEOG 4906 [1.0] or EARTH 4908 [1.0] or (EARTH 4909 and 0.5 credit in EARTH at the 4000-level);

##### B. Credits Not Included in the Major CGPA (7.5 credits):

12. 1.0 credit in MATH 1007 and MATH 1107;
13. 1.0 credit in CHEM 1001 and CHEM 1002;
14. 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
15. 0.5 credit from COMP 1003, COMP 1004 or COMP 1007;
16. 0.5 credit in BIOL 1004;
17. 0.5 credit in Advanced Science Faculty electives;
18. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
19. 1.5 credits in Approved Arts or Social Sciences;
20. 1.0 credit free electives.

**Note:** for **Item 4** above, EARTH 3203 is required if prerequisite conditions are met.

## Biology and Earth Sciences B.Sc. Combined Honours (20.0 credits)

### A. Credits Included in the Major CGPA (13.0 credits):

1. 1.0 credit in BIOL 1103 and BIOL 1104;
2. 1.0 credit in EARTH 1006 and EARTH 1009;
3. 10.0 credits in BIOL (or BIOC) and EARTH at the 2000-level or above, collectively satisfying:
  - a) 1.0 credit in BIOL 3605 and (ERTH 2314 or EARTH 3206);
  - b) at least 4.0 credits in BIOC;
  - c) at least 4.0 credits in EARTH;
  - d) at least 4.0 credits at the 3000-level or above;
4. 1.0 credit in BIOL 4908 [1.0] or EARTH 4908 [1.0] or (ERTH 4909 and 0.5 credit in EARTH at the 4000-level);

### B. Credits Not Included in the Major CGPA (7.0 credits):

5. 1.0 credit in MATH 1007 and MATH 1107;
6. 1.0 credit from (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) or (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008). The omitted subject, i.e. Chemistry or Physics, must have been taken at the 4U/M level;
7. 0.5 credit in STAT (STAT 2507 is recommended);
8. 0.5 credit in COMP (COMP 1004 is recommended);
9. 1.0 credit in Science Faculty Electives;
10. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
11. 1.5 credits in Approved Arts or Social Sciences;
12. 1.0 credit in free electives.

## Chemistry and Earth Sciences B.Sc. Combined Honours (20.0 credits)

### A. Credits Included in the Major CGPA (13.5 credits):

1. 4.0 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2302, CHEM 2303, CHEM 2501, CHEM 3100, CHEM 3503;
2. 1.0 credit in CHEM at the 4000-level;
3. 1.0 credit in EARTH 1006 and EARTH 1009;
4. 3.0 credits in EARTH 2102, EARTH 2104, EARTH 2105, EARTH 2314, EARTH 2406, EARTH 2802;
5. 0.5 credit in EARTH 3203 or EARTH 3206; (See Note below)
6. 2.0 credits in EARTH 3003, EARTH 3204, EARTH 3207, EARTH 3806;
7. 1.0 credit in EARTH at the 4000-level;
8. 1.0 credit in either CHEM 4908 [1.0] or EARTH 4908 [1.0] or (ERTH 4909 and 0.5 credit in EARTH at the 4000-level);

### B. Credits Not Included in the Major CGPA (6.5 credits):

9. 1.5 credits in MATH 1007, MATH 1107, (MATH 1005 or MATH 2007);

10. 0.5 credit in STAT 2507;
11. 0.5 credit in GEOM;
12. 1.0 credit in (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008);
13. 0.5 credit in BIOL 1004;
14. 0.5 credit in Science Faculty Electives (not CHEM or EARTH);
15. 0.5 credit in NSCI 1000 or 0.5 credit in Approved Arts or Social Sciences;
16. 1.5 credits in Approved Arts or Social Sciences;

**Note:** for item 5 above, EARTH 3203 is required if prerequisite conditions are met.

## Minor in Earth Sciences: Earth Resources and Processes

The Minor (4.0 credits) in Earth Sciences offers a focus on earth resources and major geological processes that have shaped the planet's geological history, including resource distribution and character. The Minor is available to students registered in degree programs other than those offered by the Department of Earth Sciences. The courses should be taken in the order shown.

### Requirements:

1. 1.0 credit in EARTH 1006 and EARTH 1009;
2. 2.5 credits from EARTH 2316, EARTH 2318, EARTH 2401, EARTH 2402, EARTH 2403, EARTH 2415, EARTH 3113;
3. 0.5 credit in EARTH 4303.

## Economics

Department of Economics  
 Faculty of Public Affairs  
 C870 Loeb Building  
 613-520-3744  
[carleton.ca/economics](http://carleton.ca/economics)

This section presents the requirements for the programs:

- Economics – B.A. Honours
- Applied Economics – B.A. Honours
- Economics with Concentration: Financial Economics, or International Political Economy, or Development, or Natural Resources, Environment, and Economy – B.A. Honours
- Applied Economics with Concentration: Financial Economics, or International Political Economy, or Development, or Natural Resources, Environment, and Economy – B.A. Honours
- Economics with Specialization in Quantitative and Mathematical Economics – B.A. Honours
- Economics – B.A. Combined Honours
- Applied Economics – B.A. Combined Honours
- Economics – B.A. General
- Minor in Economics
- Minor in Industrial Economics

A Co-operative Education option is available in conjunction with B.A. Honours programs in Economics or Applied Economics. Consult the Co-operative Education section of this Calendar for details.

### Graduation Requirements

In addition to the requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar);
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the Department when planning their program and selecting courses.

### Access to Economics Courses

To meet the prerequisite requirements for most 2000-level economics courses, students must have obtained a grade of C- or higher in ECON 1401 and a grade of C- or higher in FYSM 1003 [1.0] or ECON 1000 [1.0] or, equivalently, an average grade of C- or higher in ECON 1001 and ECON 1002, one or both of which have been transferred from another university.

Certain 3000- and 4000-level economics courses also have prerequisites with minimum grade requirements. These requirements are specified with the course descriptions.

### 0000-Level Courses

Students in the Bachelor of Arts Economics programs may not count any 0000-level Mathematics courses for credit toward their degree. Such students may, however, be required to take one or more of these courses to replace missing program prerequisites in which case the courses will be set aside as “no credit for degree” (NCD).

### Program Requirements for B.A. Honours

#### Economics B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.0 credits):
  1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  2. 7.0 credits in ECON 1401, ECON 1402, ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 4001, ECON 4002, ECON 4020, ECON 4021, ECON 4706;
  3. 0.5 credit in ECON at the 3000-level;
  4. 1.0 credit in:
    - a) ECON 4901 and ECON 4902, or
    - b) ECON 4908 [1.0] (see Note below);
  5. 0.5 credit in ECON at the 4000-level;
- B. Credits Not Included in the Major CGPA (10.0 credits):
  6. 7.0 credits in electives not in ECON;
  7. 3.0 credits in free electives.

#### Note:

An Honours essay (ECON 4908 [1.0]) with a grade of B- or higher may be written by students with Overall and Major CGPAs of 7.50 or higher to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Qualified students who choose to pursue the Honours Essay option must first complete an Honours essay prospectus to the satisfaction of both their advisor and the B.A. Program Supervisor.

#### Applied Economics B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.0 credits):
  1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  2. 5.0 credits in ECON 1401, ECON 1402, ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 3706, ECON 4890;
  3. 2.0 credits in ECON 2400 and/or ECON at the 3000-level;
  4. 2.0 credits in ECON at the 4000-level;
- B. Credits Not Included in the Major CGPA (10.0 credits):
  5. 7.0 credits in electives not in ECON;
  6. 3.0 credits in free electives.

Programs

## Program Requirements for Concentrations and Specializations

### Economics B.A. Honours with Concentration (20.0 credits)

#### A. Credits Included in the Major CGPA (12.0 credits):

1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
2. 6.0 credits in ECON 1401, ECON 1402, ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 4020, ECON 4021, ECON 4706;
3. 1.0 credit in:
  - a) ECON 4901 and ECON 4902, or
  - b) ECON 4908 [1.0] (see Note 1 below);
4. One of the following concentrations, also included in the Major CGPA:

#### Concentration in Financial Economics

- a) 1.0 credits in BUSI 1001 and BUSI 1002 (see Note 2 below);
- b) 1.5 credits in:
  - i) ECON 3050, ECON 4051, and ECON 4052, or
  - ii) BUSI 2505, BUSI 3500, and BUSI 3502;
- c) 1.5 credits from ECON 3602 or ECON 4602, ECON 3607, ECON 4053, ECON 4056, ECON 4057, BUSI 2504 and BUSI 4500 and/or BUSI 4502 (see Note 3 below);

or

#### Concentration in International Political Economy

- a) 2.0 credits in ECON 4601, ECON 4602, PSCI 2602, PSCI 4603;
- b) 1.0 credit from ECON 3807 or PSCI 3207, PSCI 3204 or PSCI 3205, PSCI 3600, PSCI 3703, PSCI 3802 (or ANTH 3027 or SOCI 3027);
- c) 1.0 credit from ECON 4508, INAF 4103 or PSCI 4604, PSCI 4207, PSCI 4500, PSCI 4805;

or

#### Concentration in Development

- a) 3.0 credits in ECON 3508, ECON 3509, ECON 4507, ECON 4508, PSCI 2102, PSCI 4104;
- b) 1.0 credit from ECON 3510, ECON 3520, ECON 3808, ECON 3870, INAF 4102, PSCI 4105, PSCI 4409 (or INAF 4202);

or

#### Concentration in Natural Resources, Environment, and Economy

- a) 3.0 credits in ECON 3803, ECON 3804, GEOG 2200, GEOG 2300, GEOG 3022, PSCI 3801;
- b) 0.5 credit from ECON 4407, GEOG 4004, TSES 4001;
- c) 0.5 credit from EARTH 4303, EURR 4005, GEOG 3209, GEOG 4022, PSCI 4808, TSES 3002;

#### B. Credits Not Included in the Major CGPA (8.0 credits):

5. 7.0 credits in electives not in ECON;
6. 1.0 credit in free electives.

#### Notes:

1. An Honours essay (ECON 4908 [1.0]) with a grade of B- or higher may be written by students with Overall and Major GPAs of 7.50 or higher to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Qualified students who choose to pursue the Honours Essay option must first complete an Honours essay prospectus to the satisfaction of both their advisor and the B.A. Program Supervisor.
2. For Item 4 a) of the Concentration in Financial Economics above, BUSI 1004 may replace BUSI 1001 and BUSI 1005 may replace BUSI 1002.
3. For Item 4 c) of the Concentration in Financial Economics above, BUSI 2504 may not count for credit inside the major without also including at least one of BUSI 4500 and BUSI 4502.

### Applied Economics B.A. Honours with Concentration (20.0 credits)

#### A. Credits Included in the Major CGPA (12.0 credits):

1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
2. 5.0 credits in ECON 1401, ECON 1402, ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 3706, ECON 4890;
3. 1.0 credit in ECON 2400 and/or ECON at the 3000-level;
4. 1.0 credit in ECON at the 4000-level;
5. One of the following concentrations, also included in the Major CGPA:

#### Concentration in Financial Economics

- a) 1.0 credit in BUSI 1001 and BUSI 1002 (see Note 1 below);
- b) 1.5 credits in:
  - i) ECON 3050, ECON 4051 and ECON 4052, or
  - ii) BUSI 2505, BUSI 3500 and BUSI 3502;
- c) 1.5 credits from ECON 3602 or ECON 4602, ECON 3607, ECON 4053, ECON 4056, ECON 4057, BUSI 2504 and BUSI 4500 and/or BUSI 4502 (see Note 2 below);

or

#### Concentration in International Political Economy

- a) 2.0 credits in ECON 4601, ECON 4602, PSCI 2602, PSCI 4603;
- b) 1.0 credit from ECON 3807 or PSCI 3207, PSCI 3204 or PSCI 3205, PSCI 3600, PSCI 3703, PSCI 3802 (or ANTH 3027 or SOCI 3027);
- c) 1.0 credit from ECON 4508, INAF 4103 or PSCI 4604, PSCI 4207, PSCI 4500, PSCI 4805;

or

**Concentration in Development**

- a) 3.0 credits in ECON 3508, ECON 3509, ECON 4507, ECON 4508, PSCI 2102, PSCI 4104;
- b) 1.0 credit from ECON 3510, ECON 3520, ECON 3808, ECON 3870, INAF 4102, PSCI 4105, PSCI 4409 (or INAF 4202);

or

**Concentration in Natural Resources, Environment, and Economy**

- a) 3.0 credits in ECON 3803, ECON 3804, GEOG 2200, GEOG 2300, GEOG 3022, PSCI 3801;
- b) 0.5 credit from ECON 4407, GEOG 4004, TSES 4001;
- c) 0.5 credit from EARTH 4303, EURR 4005, GEOG 3209, GEOG 4022, PSCI 4808, TSES 3002;

**B. Credits Not Included in the Major CGPA (8.0 credits):**

- 6. 7.0 credits in electives not in ECON;
- 7. 1.0 credit in free electives.

**Notes:**

- 1. For **Item 5 a)** of the Concentration in Financial Economics above, BUSI 1004 may replace BUSI 1001 and BUSI 1005 may replace BUSI 1002.
- 2. For **Item 5 c)** of the Concentration in Financial Economics above, BUSI 2504 may not count for credit inside the major without also including at least one of BUSI 4500 and BUSI 4502.

**Economics with Specialization in Quantitative and Mathematical Economics B.A. Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (15.0 credits):**

- 1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
- 2. 1.0 credit in MATH 1002 [1.0] or MATH 1007 and MATH 2007;
- 3. 1.0 credit in MATH 1102 [1.0] or MATH 1107 and MATH 2107;
- 4. 4.0 credits in MATH 2000 [1.0], MATH 2454, MATH 3001, MATH 3107, STAT 2655, STAT 2559, STAT 3506;
- 5. 5.5 credits in ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 2400, ECON 4001, ECON 4002, ECON 4020, ECON 4021, ECON 4706, ECON 4707;
- 6. 1.5 credits in ECON at the 4000-level including at least 0.5 credit from ECON 4004, ECON 4005, ECON 4700, ECON 4713, ECON 4714;
- 7. 1.0 credit in:
  - a) ECON 4901 and ECON 4902, or
  - b) ECON 4908 [1.0] (see **Note** below);

**B. Credits Not Included in the Major CGPA (5.0 credits):**

- 8. 4.0 credits in electives not in economics, mathematics, or statistics (COMP 1005, COMP 1006, PHIL 2001, and PHIL 3306 are recommended for 2.0 credits);
- 9. 1.0 credit in free electives (MATH 4807 is recommended for 0.5 credit).

**Note:**

An Honours Essay (ECON 4908 [1.0]) with a grade of B- or higher may be written by students with Overall and Major CGPAs of 7.50 or higher to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Qualified students who choose to pursue the Honours Essay option must first complete an Honours essay prospectus to the satisfaction of both their advisor and the B.A. Program Supervisor.

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**Program Requirements for B.A., B.Hum., and B.J. Combined Honours**

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Students may apply for Combined Honours in Economics or Applied Economics and one of the following disciplines with the requirements described below: African Studies, Anthropology, Applied Linguistics and Discourse Studies, Art History, Biology, Canadian Studies, Communication Studies, English, European and Russian Studies, Film Studies, French, Geography, Global Politics, Greek and Roman Studies, History, Human Rights, Human Rights and Law with Concentration in Transnational Law and Human Rights, Humanities, Journalism, Law, Law with Concentration in Business Law, Law with Concentration in Law, Policy and Government, Law with Concentration in Transnational Law and Human Rights, Linguistics, Linguistics and Discourse Studies, Music, Philosophy, Political Science, Psychology, Religion, Sociology, Women's and Gender Studies.

The (B.Hum.) Combined Honours programs in Economics or Applied Economics and Humanities are available only to students already admitted to the B.Hum.

The (B.A. and B.J.) Combined Honours programs in Economics or Applied Economics and Journalism are available only to students registered in Journalism.

Note that it may be difficult or impossible to meet the requirements of certain Combined Honours programs within the 20.0 credits required for the degree.

Note also that certain Combined Honours programs specify pairs of courses that preclude one another; e.g., ECON 2201 and PSCI 2702 in the case of Economics and Political Science. Students in such programs are strongly advised to consult with the Department upon admission, or as soon as possible thereafter, to ensure that their program requirements are adjusted appropriately.

**Economics B.A. Combined Honours (20.0 credits)**

**A. Credits Included in the Economics Major CGPA (8.0 credits):**

- 1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
- 2. 5.5 credits in ECON 1401, ECON 1402, ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 4020, ECON 4021;
- 3. 1.5 credits in:
  - a) ECON 4706, ECON 4901 and ECON 4902, or
  - b) 0.5 credit in ECON at the 4000-level and ECON 4908 [1.0] (see **Note** below);

**B. Additional Requirements:**

- 4. The requirements for Combined Honours in the other discipline must be satisfied;

Programs

5. At least 4.0 credits in electives not in ECON or the other discipline;
6. Sufficient credits in free electives to make 20.0 credits for the degree.

**Note:**

An Honours essay (ECON 4908 [1.0]) with a grade of B- or higher may be written by students with Overall and Major CGPAs of 7.50 or higher to earn 1.0 credit at the 4000-level or to replace the ECON 4901 and ECON 4902 requirement. Qualified students who choose to pursue the Honours essay option must first complete an Honours essay prospectus to the satisfaction of both their advisor and the B.A. Program Supervisor.

**Applied Economics****B.A. Combined Honours (20.0 credits)**

- A. Credits Included in the Applied Economics Major CGPA (8.0 credits):**
1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  2. 5.0 credits in ECON 1401, ECON 1402, ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 3706, ECON 4890;
  3. 1.0 credit in ECON 2400 and/or ECON at the 3000-level;
  4. 1.0 credit in ECON at the 4000-level;
- B. Additional Requirements:**
5. The requirements for Combined Honours in the other discipline must be satisfied;
  6. At least 4.0 credits in electives not in ECON or the other discipline;
  7. Sufficient credits in free electives to make 20.0 credits for the degree.

**Program Requirements for****B.A. General****Economics****B.A. General (15.0 credits)**

- A. Credits Included in the Major CGPA (7.0 credits):**
1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  2. 2.5 credits in ECON 1401, ECON 1402, ECON 2020, ECON 2102, ECON 2201;
  3. 3.5 credits from ECON 2030, ECON 2103, ECON 2202, ECON 2400, ECON at the 3000- or 4000-level;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
4. 6.0 credits in electives not in ECON;
  5. 2.0 credits in free electives.

**Minors****Minor in Economics**

Open to all undergraduate degree students not pursuing a Major in Economics or Applied Economics.

**Requirements:**

1. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
2. 0.5 credit in ECON 2001 or ECON 2020;
3. 0.5 credit in ECON 2101 or ECON 2102;
4. 2.0 credits from ECON 2030, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON at the 3000- or 4000-level;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Minor in Industrial Economics**

Open to all B.Eng. students and other undergraduate degree students not pursuing a Major in Economics or Applied Economics who have successfully completed **Requirement 4** (below) while registered in a B.Eng. program.

**Requirements:**

1. 1.0 credit in ECON 1000 [1.0];
2. 1.5 credits in ECON 2020, ECON 2030, ECON 4020;
3. 0.5 credit from ECON 4005, ECON 4301, ECON 4309, ECON 4407;
4. 1.0 credit in ECOR 3800 and SYSC 3200;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

## Engineering

Faculty of Engineering and Design

3010 Minto Centre

613-520-5790

carleton.ca/engineeringdesign

Programs

This section presents the requirements for:

- **Aerospace Engineering – Bachelor of Engineering with streams:**
  - Aerodynamics, Propulsion and Vehicle Performance
  - Aerospace Structures, Systems and Vehicle Design
  - Aerospace Electronics and Systems
  - Space Systems Design
- **Architectural Conservation and Sustainability – Bachelor of Engineering with streams:**
  - Structural
  - Environmental
- **Biomedical and Electrical Engineering - Bachelor of Engineering**
- **Biomedical and Mechanical Engineering - Bachelor of Engineering**
- **Civil Engineering – Bachelor of Engineering**
- **Civil Engineering with Concentration in Management – Bachelor of Engineering**
- **Communications Engineering – Bachelor of Engineering**
- **Computer Systems Engineering – Bachelor of Engineering**
- **Electrical Engineering – Bachelor of Engineering**
- **Engineering Physics – Bachelor of Engineering**
- **Environmental Engineering – Bachelor of Engineering**
- **Mechanical Engineering – Bachelor of Engineering**
- **Mechanical Engineering with Concentration in Integrated Manufacturing - Bachelor of Engineering**
- **Software Engineering – Bachelor of Engineering**
- **Sustainable and Renewable Energy Engineering - Bachelor of Engineering with streams:**
  - Smart Technologies for Power Generation and Distribution
  - Efficient Energy Generation and Conversion

The Co-operative Education Option is available in Engineering. See the Co-operative Education section of this Calendar for details.

### Graduation Requirements

In addition to the requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the Faculty regulations applying to all B.Eng.

programs (see the *Academic Regulations for the Bachelor of Engineering Degree*).

Students should consult with their Department when planning their program and selecting courses.

### Course Categories for Engineering Programs

The following categories of courses are used in defining the programs.

#### Basic Science Electives

Courses in this classification must be chosen from among those listed as acceptable for the current academic year. The list is published annually on the engineering academic support website: [carleton.ca/engineering/uas](http://carleton.ca/engineering/uas). The list will change from year to year and only courses on the list valid in the year the course is taken, or courses for which formal approval of the Faculty has been obtained can be used as credit toward an engineering degree. Courses not on the list may be used to fulfil a Basic Science elective requirement with the permission of the Faculty of Engineering and Design and provided all other specified course requirements are met. Registration in CUTV sections is not acceptable. Note that access to courses on the list is not guaranteed and may depend on space availability and the satisfaction of other requirements including, for example, course prerequisites. Note that students using CHEM 1000 [1.0 credit] to fulfill this requirement are not required to take CHEM 1101 [0.5 credit]. CHEM 1000 will replace CHEM 1101 and the Basic Science Elective in their degree requirements.

#### Complementary Studies Electives

Courses in this classification must be chosen from among those listed as acceptable for the current academic year. The list is published annually on the engineering academic support website: [carleton.ca/engineering/uas](http://carleton.ca/engineering/uas). The list will change from year to year and only courses on the list valid in the year the course is taken, or courses for which formal approval of the Faculty has been obtained can be used as credit toward an engineering degree. English as a Second Language courses are not acceptable for use as Complementary Studies electives in any engineering program. Courses not on the list may be used to fulfil a Complementary Studies elective requirement with the permission of the Faculty of Engineering and Design and provided all other specified course requirements are met. Registration in CUTV sections is not acceptable. Note that access to courses on the list is not guaranteed and may depend on space availability and the satisfaction of other requirements including, for example, course prerequisites. Students must take a minimum of 1.0 credit of complementary studies at Carleton University.

#### Communications Electives for Communications Engineering

ELEC 4503, ELEC 4505, ELEC 4506, ELEC 4509, ELEC 4702, SYSC 4607

#### Science Electives for Engineering

- a) All courses in BIOC
- b) All courses in BIOL except BIOL 1902, BIOL 1903 and BIOL 2106
- c) All courses in CHEM except CHEM 0100, CHEM 1000 and CHEM 1003
- d) All courses in EARTH except EARTH 1001, EARTH 1003, EARTH 2401, EARTH 2402 and EARTH 2403



- e) All courses in MATH, STAT except MATH 0007, MATH 0107, MATH 1002, MATH 1007, MATH 1009, MATH 1102, MATH 1107, MATH 1109, MATH 2007, MATH 2008, MATH 2009, MATH 2000, MATH 2404, MATH 2454, STAT 2507, STAT 2605, STAT 2606
- f) All courses in PHYS at the 2000 level or above except PHYS 2101, PHYS 2305, PHYS 2306, PHYS 3308

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## Program Requirements

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### Aerospace Engineering Bachelor of Engineering (21.5 credits)

Students in Aerospace Engineering must satisfy the requirements for one of the following streams:

#### Aerospace Engineering Stream A: Aerodynamics, Propulsion and Vehicle Performance

##### First year

- 4.0 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;
- 1.0 credit in Complementary Studies Electives;

##### Second year

- 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;
- 0.5 credit in Basic Science Electives;

##### Third year

- 5.0 credits in STAT 3502, MAAE 3004, MAAE 3202, MAAE 3300, MAAE 3400, MAAE 3901, AERO 3002, AERO 3700, SYSC 3600, ELEC 3605;

##### Fourth year

- 4.5 credits in MAAE 4500, ECOR 4995, AERO 4003, AERO 4302, AERO 4306, AERO 4308, AERO 4907 [1.0], ECOR 3800;
- 1.5 credits in Mechanical and Aerospace Engineering (MAAE, AERO or MECH) at the 4000-level or ELEC 4504.

#### Aerospace Engineering Stream B: Aerospace Structures, Systems and Vehicle Design

##### First year

- 4.0 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;
- 1.0 credit in Complementary Studies Electives;

##### Second year

- 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;
- 0.5 credit in Basic Science Electives;

##### Third year

- 5.0 credits in STAT 3502, MAAE 3004, MAAE 3202, MAAE 3300, MAAE 3901, AERO 3002, AERO 3101, AERO 3700, SYSC 3600, ELEC 3605;

#### Fourth year

- 4.5 credits in MAAE 4500, MAAE 4102, ECOR 4995, AERO 4003, AERO 4602, AERO 4608, AERO 4907 [1.0], ECOR 3800;
- 1.5 credits in Mechanical and Aerospace Engineering (MAAE, AERO or MECH) at the 4000-level or ELEC 4504.

#### Aerospace Engineering Stream C: Aerospace Electronics and Systems

##### First year

- 4.5 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;
- 0.5 credit in Complementary Studies Electives;

##### Second year

- 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2700, ELEC 2501, ECOR 2606, ELEC 2607, ELEC 2507;
- 0.5 credit in Basic Science Electives;

##### Third year

- 5.0 credits in STAT 3502, MAAE 2400, MAAE 3202, AERO 3002, SYSC 3501, SYSC 3600, ELEC 3500, ELEC 3509, ELEC 3105, ELEC 3909;

##### Fourth year

- 3.0 credits in ECOR 4995, AERO 4003, AERO 4907 [1.0], ECOR 3800, MAAE 4500;
- 1.5 credits from: AERO 3240, AERO 4009, ELEC 4503, ELEC 4505, SYSC 4600;
- 1.0 credit from: AERO 3841, AERO 4842, ELEC 4502, ELEC 4509, ELEC 4600, ELEC 4706, SYSC 4405, SYSC 4607;
- 0.5 credit in Complementary Studies Electives.

#### Aerospace Engineering Stream D: Space Systems Design

##### First year

- 4.0 credits in MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CHEM 1101;
- 1.0 credits in Complementary Studies Electives;

##### Second year

- 5.0 credits in MATH 2004, MATH 3705, CCDP 2100, ECOR 2606, MAAE 2101, MAAE 2001, MAAE 2400, MAAE 2300, MAAE 2700, MAAE 2202;
- 0.5 credit in Basic Science Electives;

##### Third year

- 5.0 credits in STAT 3502, SYSC 3600, ELEC 3909, MAAE 3004, MAAE 3901, MAAE 3300, MAAE 3202, AERO 3002, AERO 3240, AERO 3841;

##### Fourth year

- 4.5 credits in ECOR 3800, ECOR 4995, AERO 4540, AERO 4446, AERO 4907 [1.0], AERO 4842, AERO 4442, ELEC 4509;
- 1.5 credits from MAAE, AERO or MECH at the 4000 level, or AERO 3101, AERO 3700, ELEC 4503, ELEC 4600, ELEC 4709

## Architectural Conservation and Sustainability Bachelor of Engineering (22.0 credits)

Students must satisfy the requirements for one of the following streams:

### Architectural Conservation and Sustainability Stream A: Structural

#### First year

1. 5.5 credits in CHEM 1001, CHEM 1002, MATH 1004, MATH 1005, MATH 1104, ECOR 1010, ECOR 1101, ECOR 1606, ARCH 1000, ARCC 1202, ENVE 1001;

#### Second year

2. 5.5 credits in MATH 2004, CIVE 2200, CIVE 2700, ENVE 2001, MAAE 2300, MAAE 2400, ECOR 2606, CCDP 2100, ARCC 2203, CDNS 2400, STAT 2507;
3. 0.5 credits from CHEM 2800, EARTH 2404;

#### Third year

4. 5.0 credits in CIVE 3202, CIVE 3203, CIVE 3204, CIVE 3205, CIVE 3206, CIVE 3207, ARCC 3202, ARCC 4500, ARCH 2300, ARCH 3100;

#### Fourth year

5. 3.0 credits in ECOR 4995, CIVE 4601, CIVE 4908, ENVE 4105, ENVE 4106, ARCH 4206;
6. 2.0 credit from CIVE 4200, CIVE 4201, CIVE 4202, CIVE 4302, CIVE 4303, CIVE 4308, CIVE 4400, CIVE 4403, CIVE 4500, CIVE 4600 (see Note below);
7. 0.5 credit in Complementary Studies Electives.

### Architectural Conservation and Sustainability Stream B: Environmental

#### First year

1. 5.5 credits in CHEM 1001, CHEM 1002, MATH 1004, MATH 1005, MATH 1104, ECOR 1010, ECOR 1101, ECOR 1606, ARCH 1000, ARCC 1202, ENVE 1001;

#### Second year

2. 5.5 credits in MATH 2004, CIVE 2200, CIVE 2700, ENVE 2001, MAAE 2300, MAAE 2400, ECOR 2606, CCDP 2100, ARCC 2203, CDNS 2400, STAT 2507;
3. 0.5 credits from CHEM 2800, EARTH 2404;

#### Third year

4. 5.5 credits in CIVE 3204, CIVE 3207, CIVE 4307, ENVE 2002, ENVE 3001, ENVE 3002, ENVE 3003, ENVE 3004, ARCC 3202, ARCC 4500, ARCH 3100;

#### Fourth year

5. 4.5 credits in ECOR 4995, CIVE 4601, ENVE 4005, ENVE 4101, ENVE 4104, ENVE 4105, ENVE 4106, ENVE 4908, ARCH 4206;
6. 0.5 credit in from: CIVE 4400, MECH 4401, MECH 4403, MECH 4406, MECH 4407, SREE 4002.

#### Notes:

1. For Item 1 and students transferring into Architectural Conservation and Sustainability (Structural or Environmental Stream), students in

good standing and who have successfully completed CHEM 1101 while registered in another engineering program may replace CHEM 1001 and CHEM 1002 with CHEM 1101 plus one 0.5 credit either from the Science Electives for Engineering or in AERO, CIVE, ELEC, IDES, MAAE, MECH or SYSC at the 2000-level or above.

2. For Item 6 in the Structural Stream, CIVE 4907 [1.0] may replace 1.0 credit.

## Biomedical and Electrical Engineering Bachelor of Engineering (21.0 credits)

#### First year

1. 5.0 credits in BIOL 1003, CHEM 1001, CHEM 1002, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;

#### Second year

2. 4.5 credits in MATH 2004, ECOR 2606, ELEC 2501, SYSC 2006, MATH 3705, CCDP 2100, ELEC 2507, ELEC 2607, ELEC 3105;
3. 0.5 credit from BIOL 2005, BIOC 2200, CHEM 2203;

#### Third year

4. 4.5 credits in SYSC 3600, ELEC 3509, ELEC 3500, ELEC 3908, STAT 3502, SYSC 3006, SYSC 3501, ELEC 3909, ECOR 3800;
5. 0.5 credit from BIOL 2005, BIOC 2200, CHEM 2203;

#### Fourth year

6. 2.5 credits in SYSC 4201, ECOR 4995, ELEC 4601, SYSC 4203, SYSC 4405;
7. 1.0 credit from SYSC 4917 [1.0];
8. 1.0 credit from ELEC 4709, SYSC 4202, SYSC 4205;
9. 0.5 credit from SYSC or ELEC at the 3000-level or above with a laboratory/problem analysis component;
10. 1.0 credit in Complementary Studies Electives.

## Biomedical and Mechanical Engineering Bachelor of Engineering (21.5 credits)

#### First year

1. 5.0 credits in CHEM 1001, CHEM 1002, BIOL 1003, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;

#### Second year

2. 4.5 credits in MATH 2004, MATH 3705, CCDP 2100, MAAE 2101, MAAE 2001, MAAE 2400, MAAE 2300, MAAE 2700, MAAE 2202;
3. 0.5 credit from BIOL 2005, BIOC 2200, CHEM 2203;

#### Third year

4. 5.0 credits in ECOR 2606, STAT 3502, SYSC 3600, ELEC 3605, MAAE 3004, MAAE 3202, MAAE 3400, MECH 3002, MECH 3310, MECH 3710;

- 0.5 credit from BIOL 2005, BIOC 2200, CHEM 2203;

**Fourth year**

- 3.5 credits in SYSC 4201, ECOR 3800, ECOR 4995, MAAE 4500, MECH 4406, MECH 4210, MECH 4013;
- 1.0 credit in MECH 4917 [1.0];
- 0.5 credit in MAAE, MECH or AERO at the 4000-level, SYSC 4202, SYSC 4203;
- 1.0 credit in Complementary Studies Electives.

**Civil Engineering Bachelor of Engineering (21.5 credits)**

**First year**

- 4.5 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;
- 0.5 credit in Complementary Studies Electives;

**Second year**

- 5.0 credits in EARTH 2404, MATH 2004, MATH 3705, CIVE 2004, CIVE 2101, CIVE 2200, CIVE 2700, MAAE 2300, MAAE 2400, ECOR 2606;

**Third year**

- 5.0 credits in STAT 2507, CIVE 3202, CIVE 3203, CIVE 3204, CIVE 3205, CIVE 3206, CIVE 3208, CIVE 3304, ECOR 3800, ELEC 3605;
- 0.5 credit in Complementary Studies Electives;

**Fourth year**

- 2.5 credits in CIVE 4208, CIVE 4209, CIVE 4407, CIVE 4908, ECOR 4995;
- 2.5 credits from CIVE 4200, CIVE 4201, CIVE 4202, CIVE 4301, CIVE 4302, CIVE 4303, CIVE 4307, CIVE 4308, CIVE 4400, CIVE 4403, CIVE 4500, CIVE 4614, CIVE 4907 [1.0], ENVE 3003;
- 1.0 credit in Complementary Studies Electives.

**Civil Engineering with Concentration in Management Bachelor of Engineering (21.5 credits)**

**First year**

- 4.5 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CCDP 2100;
- 0.5 credit in Complementary Studies Electives.

**Second year**

- 5.0 credits in BUSI 1001, BUSI 1002, EARTH 2404, MATH 2004, CIVE 2004, CIVE 2101, CIVE 2200, CIVE 2700, MAAE 2300, ECOR 2606;

**Third year**

- 5.5 credits in BUSI 2101, STAT 2507, CIVE 3202, CIVE 3203, CIVE 3204, CIVE 3205, CIVE 3206, CIVE 3208, CIVE 3304, ECOR 3800, ELEC 3605;

**Fourth year**

- 2.0 credits in CIVE 4400, ECOR 4995, CIVE 4908, SYSC 3200;

- 2.5 credits from CIVE 4200, CIVE 4201, CIVE 4202, CIVE 4208, CIVE 4209, CIVE 4301, CIVE 4302, CIVE 4303, CIVE 4307, CIVE 4308, CIVE 4403, CIVE 4407, CIVE 4500, CIVE 4614, CIVE 4907 (1.0), ENVE 3003;
- 1.5 credits in BUSI 2204, BUSI 3103, BUSI 4105.

**Communications Engineering Bachelor of Engineering (21.5 credits)**

**First year**

- 4.0 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;
- 1.0 credit in Complementary Studies Electives;

**Second year**

- 5.0 credits in MATH 2004, SYSC 2001, SYSC 2006, ELEC 2501, CCDP 2100, MATH 3705, SYSC 2003, ELEC 2507, ELEC 2607, SYSC 2004;
- 0.5 credit in Basic Science Electives;

**Third year**

- 4.5 credits in STAT 2605, ELEC 3509, ELEC 3500, ELEC 3909, SYSC 3503, SYSC 4602, ECOR 3800, SYSC 3500, SYSC 4502;
- 0.5 credit in SYSC or ELEC at the 3000-or 4000-level;

**Fourth year**

- 3.0 credit in SYSC 4604, SYSC 4504, ECOR 4995, SYSC 4700, SYSC 4701, SYSC 4405;
- 1.0 credit from SYSC 4937 [1.0] or ELEC 4907 [1.0];
- 1.0 credit in Communications Electives for Communications Engineering;
- 0.5 credit in SYSC or ELEC at the 3000- or 4000-level;
- 0.5 credit in Complementary Studies Electives.

**Note:**

For **Item 8** above, students should register in SYSC 4937 if their supervisor is in Systems and Computer Engineering, or in ELEC 4907 if their supervisor is in Electronics.

**Computer Systems Engineering Bachelor of Engineering (21.5 credits)**

**First year**

- 5.0 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1003, PHYS 1004, ECOR 1010, ECOR 1101, SYSC 1005, SYSC 2006;

**Second year**

- 5.0 credits in CCDP 2100, MATH 2004, MATH 3705, SYSC 2001, SYSC 2003, SYSC 2004, SYSC 2100, ELEC 2501, ELEC 2507, ELEC 2607;
- 0.5 credit in Complementary Studies Electives;

**Third year**

- 5.0 credits in STAT 3502, ECOR 3800, SYSC 3010, SYSC 3020, SYSC 3303, SYSC 3501, SYSC 3600, SYSC 3601, SYSC 4001, ELEC 3500;

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**Fourth year**

5. 2.5 credits in SYSC 4507, SYSC 4602, SYSC 4805, ELEC 4705, ECOR 4995;
6. 1.0 credit from SYSC 4907 [1.0] or ELEC 4907 [1.0];
7. 2.0 credits from: MECH 4503, ECOR 2606 or SYSC or ELEC at the 3000-level or above;
8. 0.5 credit in Complementary Studies Electives.

**Note:**

For **Item 6** above, students should register in SYSC 4907 if their supervisor is in Systems and Computer Engineering, and in ELEC 4907 if their supervisor is in Electronics.

**Electrical Engineering  
Bachelor of Engineering (21.5 credits)**

**First year**

1. 4.0 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;
2. 1.0 credit in Complementary Studies Electives;

**Second year**

3. 4.5 credits in MATH 2004, ECOR 2606, ELEC 2501, SYSC 2006, MATH 3705, SYSC 2004, ELEC 2507, ELEC 2607, CDDP 2100;
4. 0.5 credit in Complementary Studies;
5. 0.5 credit in Basic Science Electives;

**Third year**

6. 5.0 credits in SYSC 3600, ELEC 3509, ELEC 3500, ELEC 3908, ELEC 3105, STAT 3502, SYSC 3006, SYSC 3501, ELEC 3909, ELEC 3907;

**Fourth year**

7. 1.5 credits in ECOR 3800, ECOR 4995, ELEC 4601;
8. 1.0 credit from ELEC 4907 [1.0] or SYSC 4907 [1.0];
9. 3.0 credits from: MECH 4503, SYSC 3100, SYSC 3200, or ELEC or SYSC at the 4000-level.
10. 0.5 credit in Science Electives for Engineering or in ENVE, CIVE, IDES, MAAE, AERO, MECH at the 2000-level or above, MECH 4503, SYSC 3020, SYSC 3200, or any ELEC or SYSC at the 4000-level.

**Note:**

For **Item 8** above, students should register in ELEC 4907 if their supervisor is in Electronics, and in SYSC 4907 if their supervisor is in Systems and Computer Engineering.

**Engineering Physics  
Bachelor of Engineering (21.5 credits)**

**First year**

1. 4.5 credits in CDDP 2100, CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1001, PHYS 1002, ECOR 1606, ELEC 1908;
2. 0.5 credit in Complementary Studies Electives;

**Second year**

3. 5.0 credits in MATH 2004, MATH 3705, PHYS 2202, PHYS 2604, SYSC 2006, SYSC 2004, ECOR 2606, ELEC 2501, ELEC 2507, ELEC 2607;

**Third year**

4. 5.5 credits in STAT 3502, PHYS 3606, PHYS 3701, PHYS 3807, SYSC 3501, ELEC 3105, ELEC 3500, ELEC 3509, ELEC 3908, ELEC 3909, SYSC 3600;

**Fourth year**

5. 3.0 credits in PHYS 4007, PHYS 4707, ECOR 3800, ECOR 4995, ELEC 4908 [1.0];
6. 1.0 credit in PHYS at the 4000-level, which must include one of: PHYS 4203, PHYS 4208, PHYS 4409, PHYS 4508, PHYS 4807;
7. 1.0 credit in ELEC at the 4000-level, which must include one of: ELEC 4503, ELEC 4505, ELEC 4506, ELEC 4601, ELEC 4609, ELEC 4700, ELEC 4502, ELEC 4509, ELEC 4702, ELEC 4706, ELEC 4707, ELEC 4708;
8. 1.0 credit in Complementary Studies Electives.

**Environmental Engineering  
Bachelor of Engineering (21.0 credits)**

**First year**

1. 5.0 credits in CHEM 1001, CHEM 1002, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CDDP 2100;

**Second year**

2. 5.0 credits in CHEM 2800, ERTH 2404, MATH 2004, ENVE 2001, BIOL 1003, BIOL 1004, CIVE 2200, MAAE 2300, MAAE 2400, ECOR 2606;

**Third year**

3. 5.0 credits in CHEM 3800, ENVE 3001, ENVE 3002, ENVE 3003, ENVE 3004, CIVE 2700, CIVE 3208, CIVE 4307, ECOR 3800, STAT 2507;

**Fourth year**

4. 4.0 credits in ENVE 4002, ENVE 4003, ENVE 4005, ENVE 4006, ENVE 4101, ENVE 4104, ENVE 4908, ECOR 4995;
5. 1.0 credit from: ENVE 4105, ENVE 4106, ENVE 4907 [1.0], CIVE 3304, CIVE 4208, CIVE 4301, CIVE 4303, CIVE 4400, MECH 4401, MECH 4403, MECH 4406, MECH 4407, SYSC 3200, SREE 3001, SREE 4002;
6. 1.0 credit in Complementary Studies Electives.

**Note:** For **Item 1** and students transferring into Environmental Engineering, students in good standing and who have successfully completed CHEM 1101 while registered in another engineering program may replace CHEM 1001 and CHEM 1002 with CHEM 1101 plus one 0.5 credit either from the Science Electives for Engineering or in AERO, CIVE, ELEC, IDES, MAAE, MECH or SYSC at the 2000-level or above.

## Mechanical Engineering Bachelor of Engineering (21.5 credits)

### First year

- 4.0 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;
- 1.0 credit in Complementary Studies Electives;

### Second year

- 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;
- 0.5 credit in Basic Science Electives;

### Third year

- 5.0 credits in STAT 3502, MAAE 3004, MAAE 3202, MAAE 3300, MAAE 3400, MAAE 3901, MECH 3002, MECH 3700, SYSC 3600, ELEC 3605;

### Fourth year

- 4.0 credits in MAAE 4500, MAAE 4102, MECH 4003, MECH 4406, MECH 4907 [1.0], ECOR 3800, ECOR 4995;
- 2.0 credits from ELEC 4504, MECH, AERO, MAAE at the 4000-level.

## Mechanical Engineering with Concentration in Integrated Manufacturing Bachelor of Engineering (22.0 credits)

### First year

- 4.0 credits in CHEM 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606;
- 1.0 credit in Complementary Studies Electives;

### Second year

- 5.0 credits in MATH 2004, MATH 3705, MAAE 2001, MAAE 2101, MAAE 2202, MAAE 2300, MAAE 2400, MAAE 2700, ECOR 2606, CCDP 2100;
- 0.5 credit in Basic Science Electives;

### Third year

- 5.5 credits in STAT 3502, MAAE 3004, MAAE 3202, MAAE 3300, MAAE 3400, MAAE 3901, MECH 3002, MECH 3700, SYSC 3200, SYSC 3600, ELEC 3605;

### Fourth year

- 4.0 credits in MAAE 4500, MAAE 4102, ECOR 4995, MECH 4003, MECH 4406, MECH 4907 [1.0], ECOR 3800;
- 1.5 credits from MECH 4501, MECH 4503, MECH 4604, MECH 4704, MECH 4705, MECH 4805, MECH 4806;
- 0.5 credit in MECH, AERO, MAAE at the 4000-level, or ELEC 4504.

## Software Engineering Bachelor of Engineering (21.5 credits)

### First year

- 5.0 credits in CHEM 1101, ECOR 1010, ECOR 1101, MATH 1004, MATH 1005, MATH 1104, PHYS 1003, PHYS 1004, SYSC 1005, SYSC 2006;

### Second year

- 4.5 credits in CCDP 2100, MATH 2004, COMP 1805, SYSC 2001, SYSC 2003, SYSC 2004, SYSC 2100, ELEC 2501, ELEC 2607;
- 1.0 credit in Complementary Studies Electives;

### Third year

- 4.5 credits in COMP 3005, ECOR 3800, SYSC 3010, SYSC 3101, SYSC 3120, SYSC 3303, SYSC 4001, SYSC 4106, STAT 3502;
- 0.5 credit from ELEC 2507, SYSC 3200, SYSC 3600, SYSC 3601, SYSC 4102, SYSC 4502, SYSC 4504, SYSC 4602, ELEC 4708, ELEC 4509, ELEC 4506;

### Fourth year

- 3.5 credits in ECOR 4995, SYSC 4101, SYSC 4005, SYSC 4120, SYSC 4507, SYSC 4806, ELEC 4705;
- 1.0 credit from SYSC 4927 [1.0];
- 1.0 credit from the list in **Item 5**;
- 0.5 credit from the list in **Item 5** or from SYSC 4105, SYSC 4107, COMP 2805, COMP 3002, COMP 4000, COMP 4001, COMP 4002, COMP 4003, COMP 4100, COMP 4106;

## Sustainable and Renewable Energy Engineering Bachelor of Engineering (21.5 credits)

Students in Sustainable and Renewable Energy Engineering must satisfy the requirements for one of the following streams:

### Sustainable and Renewable Energy Engineering Stream A: Smart Technologies for Power Generation and Distribution

#### First year

- 4.5 credits in MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CHEM 1101, CCDP 2100;
- 0.5 credit in Complementary Studies Electives;
- Successful completion of SREE 1000[0.0].

#### Second year

- 5.0 credits in MATH 2004, MATH 3705, MAAE 2300, MAAE 2400, ENVE 2001, ELEC 2501, ELEC 2507, ECOR 2606, SYSC 2006, ELEC 2607;
- 0.5 credit in Basic Science Electives;

#### Third year

- 5.0 credits in STAT 3502, SYSC 3200, SYSC 3600, SYSC 3006, MAAE 3400, ELEC 4602, SREE 3001, SREE 3002, SREE 3003, ELEC 3508;

#### Fourth year

- 4.0 credits in SYSC 4505, SYSC 4602, ENVE 4003, ECOR 3800, ECOR 4995, SREE 4001, SREE 4002, ELEC 4703;
- 1.0 credit in SREE 4907 [1.0];
- 0.5 credit in any 3000-level or 4000-level Engineering course for which prerequisites have been satisfied;

Programs - Engineering

- 10. 0.5 credit in any 4000-level Engineering course for which prerequisites have been satisfied.

**Sustainable and Renewable Energy Engineering Stream B:  
Efficient Energy Generation and Conversion**

**First year**

- 1. 4.5 credits in MATH 1004, MATH 1005, MATH 1104, PHYS 1004, ECOR 1010, ECOR 1101, ECOR 1606, CHEM 1101, CCDP 2100;
- 2. 0.5 credit in Complementary Studies Electives;
- 3. Successful completion of SREE 1000[0.0];

**Second year**

- 4. 5.0 credits in MATH 2004, MATH 3705, MAAE 2300, MAAE 2400, ENVE 2001, ELEC 3605, MAAE 2101, ECOR 2606, MAAE 2001, ELEC 2607;
- 5. 0.5 credit in Basic Science Electives;

**Third year**

- 6. 5.0 credits in STAT 3502, SYSC 3200, SYSC 3600, MAAE 2700, MAAE 3300, MAAE 3400, ELEC 4602, SREE 3001, SREE 3002, SREE 3003;

**Fourth year**

- 7. 4.0 credits in MAAE 4500, ENVE 4003, ECOR 3800, ECOR 4995, MECH 4406, SREE 4001, SREE 4002, MECH 4408;
- 8. 1.0 credit in SREE 4907 [1.0];
- 9. 0.5 credit in any 3000-level or 4000-level Engineering course for which prerequisites have been satisfied;
- 10. 0.5 credit in any 4000-level Engineering course for which prerequisites have been satisfied.

## English

Department of English Language and Literature  
(Faculty of Arts and Social Sciences)  
1812 Dunton Tower  
613-520-2310  
carleton.ca/english

This section presents the requirements for the programs:

- English - B.A. Honours
- English - B.A. Combined Honours
- English - B.A. General
- Minor in English Language and Literature

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations including the Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the Department when planning their program and selecting courses.

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### Program Requirements

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#### English

##### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.0 credits):
  1. 1.0 credit in FYSM 1004 [1.0] (recommended) or ENGL 1000 [1.0];
  2. 3.0 credits in ENGL 2300 [1.0], ENGL 2802 [1.0] and ENGL 3502 [1.0];
  3. 1.0 credit from ENGL 2700, ENGL 2701, ENGL 2908, ENGL 2926, ENGL 2927, ENGL 2936, ENGL 2937, ENGL 2956, ENGL 2957;
  4. 0.5 credit from ENGL 3702, ENGL 3940, ENGL 3960, ENGL 3965, ENGL 3972;
  5. 0.5 credit from ENGL 4708, ENGL 4709, ENGL 4947, ENGL 4960, ENGL 4961, ENGL 4975, ENGL 4976;
  6. 0.5 credit from ENGL 2005, ENGL 3105, or ENGL 3605;
  7. 0.5 credit in ENGL at the 3000-level;
  8. 1.5 credits in ENGL at the 4000-level (It is recommended that at least 1.0 credit of these be taken in seminar format);
  9. 1.5 credits in ENGL;
- B. Credits Not Included in the Major CGPA (10.0 credits):

10. 8.0 credits in electives not in ENGL;
11. 2.0 credits in free electives (may be ENGL).

#### English

##### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the English Major CGPA (7.0 credits):
  1. 1.0 credit in FYSM 1004 [1.0] (recommended) or ENGL 1000 [1.0];
  2. 3.0 credits in ENGL 2300 [1.0], ENGL 2802 [1.0] and ENGL 3502 [1.0];
  3. 0.5 credit from ENGL 2700, ENGL 2701, ENGL 2908, ENGL 2926, ENGL 2927, ENGL 2936, ENGL 2937, ENGL 2956, ENGL 2957;
  4. 0.5 credit from ENGL 3702, ENGL 3940, ENGL 3960, ENGL 3965, ENGL 3972;
  5. 0.5 credit from ENGL 2005, ENGL 3105, or ENGL 3605;
  6. 1.0 credit in ENGL at the 4000-level;
  7. 0.5 credit in ENGL;
- B. Additional Requirements (13.0 credits):
  8. The requirements for B.A. Combined Honours in the other discipline;
  9. 5.0 credits in electives not in ENGL or the other discipline;
  10. Sufficient elective credits to make up 20.0 credits total for the program.

#### English

##### B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (6.0 credits):
  1. 1.0 credit in FYSM 1004 [1.0] (recommended) or ENGL 1000 [1.0];
  2. 3.0 credits in ENGL 2300 [1.0], ENGL 2802 [1.0] and ENGL 3502 [1.0];
  3. 0.5 credit from ENGL 2700, ENGL 2701, ENGL 2908, ENGL 2926, ENGL 2927, ENGL 2936, ENGL 2937, ENGL 2956, ENGL 2957;
  4. 0.5 credit from ENGL 3702, ENGL 3940, ENGL 3960, ENGL 3965, ENGL 3972;
  5. 1.0 credit in ENGL;
- B. Credits Not Included in the Major CGPA (9.0 credits):
  6. 7.0 credits not in ENGL;
  7. 2.0 credits in free electives (may be in ENGL).

#### Minor in English Language and Literature

Open to all undergraduate degree students not in

Programs - English

English programs.

**Requirements (4.0 credits):**

1. 1.0 credit in FYSM 1004 [1.0] (recommended) or ENGL 1000 [1.0];
2. 2.0 credits in ENGL at the 2000-level or higher;
3. 1.0 credit in ENGL at the 3000-level;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.



## Environmental Science

Institute of Environmental Science  
(Faculty of Science)  
2240 Herzberg Bldg.  
613-520-4461  
carleton.ca/envirosoci

This section presents the requirements for:

- Environmental Science – B.Sc. Honours
- Environmental Science with Concentration in Biology – B.Sc. Honours
- Environmental Science with Concentration in Chemistry – B.Sc. Honours
- Environmental Science with Concentration in Earth Sciences – B.Sc. Honours
- Environmental Science – B.Sc. Major

Co-operative Education Option is available in the Environmental Science program.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see *Academic Regulations for the Bachelor of Science Degree*).

Students should consult with the Institute when planning their program and selecting courses.

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### Course Categories

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The Environmental Science program description makes use of the following course categories:

**Approved Arts or Social Sciences**  
(approved by the Environmental Science Institute)

**Approved Environmental Science Specialization**  
(Approved by the Environmental Science Institute)

**Free Electives**  
(see Academic Regulations for the Bachelor of Science Degree)

**Approved Science for Environmental Science**  
Courses approved by the Institute of Environmental Science include Biochemistry, Biology, Chemistry, Computer Science, Earth Science, Environmental Science, Geography, Geomatics, Mathematics and Statistics, and Physics that comply with the Academic Regulations for the Bachelor of Science degree.

**Prohibited and Restricted Courses**  
Technology, Society, Environment Studies (TSES) courses are not accepted as Science Continuation courses in these programs, but may be used as Approved Environmental Science Specialization courses or as free electives.

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### Program Requirements

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#### Environmental Science B.Sc. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (10.5 credits):

1. 3.5 credits in ENSC 1500, ENSC 2000, ENSC 2001, ENSC 3509, ENSC 3906, ENSC 4906 [1.0];
2. 1.0 credit in BIOL 2600 and CHEM 2800;
3. 0.5 from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
4. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 3205;
5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding ENSC 4001;
6. 2.5 credits in Approved Science for Environmental Science;
7. 1.5 credits in Approved Environmental Science Specialization;

##### B. Credits Not Included in the Major CGPA (9.5 credits):

8. 1.0 credits in MATH 1007, STAT 2507;
9. 3.0 credits in BIOL 1103, BIOL 1104, CHEM 1001, CHEM 1002, GEOG 2013, EARTH 1006;
10. 0.5 credit in PHIL 2380;
11. 0.5 credit in CHEM 2302;
12. 0.5 credit from BIOL 2104 or BIOL 2200;
13. 0.5 from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
14. 0.5 from EARTH 2402, EARTH 2403, EARTH 3205;
15. 1.5 credits in Approved Arts and Social Sciences;
16. 0.5 credit in Approved Arts and Social Sciences or Approved Science;
17. 1.0 credit in free electives.

#### Environmental Science with Concentration in Biology B.Sc. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (10.5 credits):

1. 3.5 credits in ENSC 1500, ENSC 2000, ENSC 2001, ENSC 3509, ENSC 3906, ENSC 4906 [1.0];
2. 1.0 credit in BIOL 2600, CHEM 2800;
3. 0.5 from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
4. 0.5 from EARTH 2402, EARTH 2403, EARTH 3205;
5. 0.5 credit in Approved Science for Environmental Science at the 4000-level, excluding ENSC 4001;
6. 4.0 credits in:

- a) 1.5 credit in BIOL 2001, BIOL 2002, BIOL 2200;
- b) 0.5 credit from BIOL 2303, BIOL 3004, BIOL 3102, BIOL 3205;
- c) 2.0 credits in:
  - **Ecology focus:**
    - i) BIOL 3604;
    - ii) 1.0 from BIOL 3601, BIOL 3602, BIOL 3605, BIOL 3606;
    - iii) 0.5 credit BIOL at the 4000-level;

*or*

- **Microbiology/genetics focus:**
  - i) 1.0 credit in BIOL 3104, BIOL 4103;
  - ii) 0.5 credit from BIOL 2303, BIOL 3102, BIOL 3303;
  - iii) 0.5 credit BIOL at the 4000-level;

- 7. 0.5 credit in Approved Environmental Science Specialization;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
  - 8. 1.0 credit in MATH 1007, STAT 2507;
  - 9. 3.0 credits in BIOL 1103, BIOL 1104, CHEM 1001, CHEM 1002, GEOG 2013, EARTH 1006;
  - 10. 0.5 credit in PHIL 2380;
  - 11. 0.5 credit in CHEM 2302;
  - 12. 0.5 credit in BIOL 2104;
  - 13. 0.5 credit from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
  - 14. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 3205;
  - 15. 1.5 credits in Approved Arts and Social Sciences;
  - 16. 0.5 credit in Approved Arts and Social Sciences or Approved Science;
  - 17. 1.0 credit in free electives.

### Environmental Science with Concentration in Chemistry B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.5 credits):**
  - 1. 3.5 credits in ENSC 1500, ENSC 2000, ENSC 2001, ENSC 3509, ENSC 3906, ENSC 4906 [1.0];
  - 2. 1.0 credit in BIOL 2600 and CHEM 2203;
  - 3. 0.5 from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
  - 4. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 3205;
  - 5. 3.0 credits in CHEM 2204, CHEM 2303, CHEM 2501, CHEM 2800, CHEM 3305, CHEM 3800;
  - 6. 1.5 credits in:

- **Organic focus:**
    - i) CHEM 3201, CHEM 3202, CHEM 3205;
- or*

- **Inorganic focus:**
  - i) CHEM 3503, CHEM 3504, and
  - ii) 0.5 credit in CHEM at the 4000-level;

- 7. 0.5 credit in CHEM 4800;
- B. Credits not included in the Major CGPA (9.5 credits):**
  - 8. 1.0 credit in MATH 1007 and STAT 2507;
  - 9. 3.0 credits in BIOL 1103, BIOL 1104, CHEM 1001, CHEM 1002, GEOG 2013, EARTH 1006;
  - 10. 0.5 credit in PHIL 2380;
  - 11. 0.5 credit in CHEM 2302;
  - 12. 0.5 credit from BIOL 2104 or BIOL 2200;
  - 13. 0.5 credit from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
  - 14. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 3205;
  - 15. 1.5 credits in Approved Arts and Social Sciences;
  - 16. 0.5 credit in MATH 1107;
  - 17. 1.0 credit in free electives.

### Environmental Science with Concentration in Earth Sciences B.Sc. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.5 credits):**
  - 1. 3.5 credits in ENSC 1500, ENSC 2000, ENSC 2001, ENSC 3509, ENSC 3906, ENSC 4906 [1.0];
  - 2. 1.0 credit in BIOL 2600, CHEM 2800;
  - 3. 0.5 credit from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
  - 4. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 2802;
  - 5. 1.0 credit in EARTH at the 4000-level;
  - 6. 3.0 credits in EARTH 2102, EARTH 2104, EARTH 2105, EARTH 2314, EARTH 2406, EARTH 3205;
  - 7. 1.0 credit from EARTH 2312, EARTH 3003, EARTH 3204, EARTH 3206, EARTH 3207, EARTH 3405, EARTH 3806;
- B. Credits not included in the Major CGPA (9.5 credits):**
  - 8. 1.0 credit in MATH 1007, STAT 2507;
  - 9. 3.0 credits in BIOL 1103, BIOL 1104, CHEM 1001, CHEM 1002, GEOG 2013, EARTH 1006;
  - 10. 0.5 credit in PHIL 2380;
  - 11. 0.5 credit in CHEM 2302;
  - 12. 0.5 credit from BIOL 2104 or BIOL 2200;
  - 13. 0.5 credit from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;

Programs

14. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 2802;
15. 1.5 credits in Approved Arts or Social Sciences;
16. 0.5 credit in GEOM 2007;
17. 1.0 credit in free electives.

**Environmental Science  
B.Sc. Major (20.0 credits)**

**A. Credits Included in the Major CGPA  
(10.5 credits):**

1. 2.5 credits in ENSC 1500, ENSC 2000, ENSC 2001, ENSC 3509, ENSC 4700;
2. 1.0 credit in BIOL 2600 and CHEM 2800;
3. 0.5 from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
4. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 3205;
5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding ENSC 4001;
6. 2.5 credits in Approved Science for Environmental Science;
7. 2.5 credits in Approved Environmental Science Specialization;

**B. Credits Not Included in the Major CGPA  
(9.5 credits):**

8. 1.0 credits in MATH 1007, STAT 2507;
9. 3.0 credits in BIOL 1003, BIOL 1004, CHEM 1001, CHEM 1002, GEOG 2013, EARTH 1006;
10. 0.5 credit in PHIL 2380;
11. 0.5 credit in CHEM 2302;
12. 0.5 credit from BIOL 2104 or BIOL 2200;
13. 0.5 credit from GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108;
14. 0.5 credit from EARTH 2402, EARTH 2403, EARTH 3205;
15. 1.5 credits in Approved Arts and Social Sciences;
16. 0.5 credit in Approved Arts and Social Sciences or Approved Science;
17. 1.0 credit in free electives.

## Environmental Studies

Department of Geography and  
Environmental Studies  
(Faculty of Arts and Social Sciences)  
B349 Loeb Bldg.  
613-520-2561

carleton.ca/geography/environmental-studies

This section presents the requirements for the programs:

- Environmental Studies - B.A. Honours
- Environmental Studies - B.A. General

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- the common regulations applying to all B.A. students including those relating to First-Year Seminars (see *Academic Regulations for the Bachelor of Arts Degree*). Environmental Studies students are exempt from the Breadth requirements.

Students should consult with the Department when planning their program and selecting courses. Suggested thematic groupings of approved electives are outlined on the departmental website. Some of the Environmental Studies Approved Electives have prerequisites, which are not explicitly included in the program. Students should plan to obtain all necessary prerequisites or waivers for courses selected for this program.

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### Program Requirements

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#### Environmental Studies B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (12.0 credits):**
- 0.5 credit in ISCI 1001;
  - 1.0 credit from (ENST 1020/GEOG 1020 and GEOG 1010), ENST 1001 [1.0], FYSM 1100 [1.0];
  - 1.5 credits in ENST 2000, ISCI 2000 and ISCI 2002;
  - 1.0 credit from: ECON 2201 and ECON 2202, or GEOG 2005 and GEOG 2006, or PSCI 2701 and PSCI 2702, or PSYC 2001 and PSYC 2002, or SOCI 2001 and SOCI 2002;
  - 0.5 credit in ENST 3000;
  - 0.5 credit in PHIL 2380;
  - 0.5 credit from LAWS 3800, PHIL 3380, RELI 3710, ENST 2900;
  - 0.5 credit from BIOL 2106, ENSC 2001, ENST 2900, or Science Continuation courses;
  - 1.5 credits in ENST 4000 and (ENST 4906 [1.0] or ENST 4907 [1.0]);
  - 0.5 credit from ENST 4001 or ENST 4002;
  - 1.5 credits in Approved Environmental Studies Electives at the 3000-level or above;

- 2.5 credits in Approved Environmental Studies Electives;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
- 8.0 credits in free electives.

**Note:** it may be necessary to use some of the free elective credits to fulfil prerequisite requirements for courses in the Major.

#### Environmental Studies B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (8.0 credits):**
- 1.5 credits in ISCI 1001, ISCI 2000, and ISCI 2002;
  - 1.0 credit from (ENST 1020/GEOG 1020 and GEOG 1010), ENST 1001 [1.0], FYSM 1100 [1.0];
  - 1.0 credit in ENST 2000 and ENST 3000;
  - 1.0 credit from ECON 2201 and ECON 2202, or GEOG 2005 and GEOG 2006, or PSCI 2701 and PSCI 2702, or PSYC 2001 and PSYC 2002, or SOCI 2001 and SOCI 2002;
  - 0.5 credit in PHIL 2380;
  - 0.5 credit from LAWS 3800, PHIL 3380, RELI 3710, ENST 2900;
  - 1.5 credits in Approved Environmental Studies Electives;
  - 1.0 credit in Approved Environmental Studies Electives at the 3000-level or above.
- B. Credits Not Included in the Major CGPA (7.0 credits):**
- 7.0 credits in free electives.

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### Approved Environmental Studies Electives

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#### Architecture

ARCU 3902 (Section A), ARCC 3004, ARCC 4103, ARCH 4105

#### Biology

BIOL 1902, BIOL 2106, BIOL 2600, BIOL 2903, BIOL 3601, BIOL 3602

#### Earth Sciences

ERTH 1006, ERTH 2401, ERTH 2402, ERTH 2403, ERTH 4303

#### Economics

ECON 3803, ECON 3804

#### Environmental Science

ENSC 2001

#### Environmental Studies

ENST 2900

#### European and Eurasian Studies

EURR 4005

#### Geomatics

GEOM 2004

#### Geography

GEOG 2020, GEOG 2200, GEOG 2300, GEOG 2600, GEOG 3021, GEOG 3022, GEOG 3023, GEOG 3024, GEOG 3105, GEOG 3108, GEOG 3206, GEOG 3209, GEOG 3700, GEOG 4004, GEOG 4022, GEOG 4023, GEOG 4050, GEOG 4303

**History**

HIST 2310, HIST 2311, HIST 3209, HIST 3310

**Law**

LAWS 3005, LAWS 3800, LAWS 4800

**Philosophy**

PHIL 3320, PHIL 3330, PHIL 3340, PHIL 3350,  
PHIL 3380, PHIL 4320, PHIL 4330

**Political Science**

PSCI 2002, PSCI 2003, PSCI 2601, PSCI 2602,  
PSCI 3801, PSCI 4002

**Religion**

RELI 3710

**Sociology and Anthropology**

ANTH/SOCI 2035, ANTH/SOCI 3033, SOCI 3038,  
ANTH 3355, ANTH/SOCI 3570, SOCI 3805, ANTH/  
SOCI 4036, SOCI 4038

**Technology, Society, Environment**

TSES 2305, TSES 3001, TSES 3002, TSES 4001,  
TSES 4002, TSES 4003, TSES 4005, TSES 4006,  
TSES 4007, TSES 4008

## European and Russian Studies

Institute of European, Russian and Eurasian Studies  
(Faculty of Public Affairs)

1311 Dunton Tower  
613-520-2888  
carleton.ca/eurus

This section presents the requirements for:

- European and Russian Studies – B.A. Honours
- European and Russian Studies – B.A. Combined Honours
- Minor in European and Russian Studies

Co-operative education option is available in European and Russian Studies. Consult the Co-operative Education section of this Calendar.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars and for Breadth (see *Academic Regulations for the Bachelor of Arts Degree*).

Students must fulfil the requirements listed below. Students must attain proficiency in a major European language, as noted. (See language requirement below).

Individualized programs can be worked out with the Honours Adviser. Students should consult the Institute when planning their program and selecting courses.

#### Institute Language Requirement

All candidates are required to have knowledge of a major European language to be selected from the following: Russian, German, French, Spanish, Italian, Polish.

This requirement may be fulfilled in one of two ways:

- i) Completion of 1.0 credit from the list of the following courses (or equivalent): RUSS 3010 and RUSS 3020 or one of FREN 2100 [1.0]; GERM 3110 [1.0]; SPAN 3110 [1.0]; ITAL 3110 [1.0].
- ii) Certification by the unit offering the relevant language or the Institute that the student has attained a level of language proficiency equivalent to completion of one of the courses above, or, for Polish, an equivalent level.

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### Program Requirements

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#### European and Russian Studies B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.5 credits):
1. 1.0 credit from HIST 1001 [1.0], HIST 1002 [1.0], FYSM 1102 [1.0], or approved sections of FYSM 1405 [1.0];
  2. 1.0 credit in EURR 2001 and EURR 2002;
  3. 1.0 credit in EURR 3001 and EURR 3002;
  4. 1.0 credit from HIST 2510, HIST 2511, HIST 2600 [1.0] or HIST 2801 [1.0];
  5. 0.5 credit from PSCI 3207 or PSCI 3208;
  6. 0.5 credit from PSCI 3206, PSCI 3207 (if not used to fulfil requirement 5), PSCI 3208 (if not used to fulfil requirement 5), PSCI 3209, PSCI 3704 or PSCI 3705;
  7. 0.5 credit from ECON 3807 or ECON 3808;
  8. 0.5 credit in EURR 4003;
  9. 1.5 credits in EURUS electives at the 4000 level. May include EURR 4908 but not FREN, GERM, ITAL, RUSS or SPAN;
  10. 3.0 credit in EURUS electives;
  11. The Institute language requirement must be satisfied in French, German, Italian, Polish, Russian or Spanish;
- B. Credits Not Included in the Major CGPA (9.5 credits):
12. 1.0 credit in ECON 1000 [1.0] or FYSM 1003 [1.0];
  13. 8.5 credits in free electives.

**Note:** the program may include approved literature and civilization courses, including approved courses offered at the University of Ottawa.

#### European and Russian Studies B.A. Combined Honours (20.0 credits)

- A. Credits Included in the EURUS Major CGPA (7.0 credits):
1. 1.0 credit in EURR 2001 and EURR 2002;
  2. 1.0 credit in EURR 3001 and EURR 3002;
  3. 1.0 credit from HIST 2510, HIST 2511, HIST 2600 [1.0] or HIST 2801 [1.0];
  4. 0.5 credit from PSCI 3206, PSCI 3207, PSCI 3208, PSCI 3209, PSCI 3704, PSCI 3705;
  5. 0.5 credit from ECON 3807 or ECON 3808;
  6. 1.0 credit in EURUS electives at the 4000-level, one of which must be EURR 4003 or EURR 4908 [1.0] but not FREN, GERM, ITAL, RUSS or SPAN courses;
  7. 2.0 credit in EURUS electives;
  8. The Institute language requirement must be satisfied in French, German, Italian, Polish, Russian or Spanish;

**B. Credits Not Included in the Major CGPA requirements:**

9. The requirements from the other discipline must be satisfied;
10. 1.0 credit from ECON 1000;
11. 5.0 credits in electives not in courses with code EURR or the other discipline;
12. Sufficient free electives to make 20.0 credits for the degree.

**Notes:**

1. At most, one Honours essay course from either department may be counted toward this Combined program.
2. Combined Honours in European and Russian Studies and Journalism is available only to students already admitted to the Bachelor of Journalism degree.
3. No more than 1.0 credit from HIST 1001 [1.0] and HIST 1002 [1.0] may be counted toward program requirements included in the Major CGPA in the B.A. Combined Honours.

**Minor in European and Russian Studies**

Open to all undergraduate degree students not in EURUS programs.

**Requirements (4.0 credits):**

1. 1.5 credit from EURR 2001, EURR 2002, EURR 3001, EURR 3002;
2. 1.0 credit from HIST 1001 [1.0], HIST 1002 [1.0], HIST 2510, HIST 2511, HIST 2600 [1.0], HIST 2801 [1.0], or another approved European history course;
3. 0.5 credit from PSCI 3206, PSCI 3207, PSCI 3208, PSCI 3209, PSCI 3704, PSCI 3705;
4. 1.0 credit in EURUS Electives;
5. No more than 1.0 credit at the 1000-level;
6. The remaining requirements of the major discipline(s) and degree must be satisfied.

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**EURUS Electives Categories**

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**Art History**

ARTH 2403, ARTH 2502, ARTH 2600, ARTH 3505, ARTH 4505

**Economics**

ECON 3600, ECON 3601, ECON 3602, ECON 3807, ECON 3808, ECON 3870

**European and Russian Studies**

FYSM 1002 [1.0], FYSM 1601 [1.0], EURR 4002, EURR 4005, EURR 4006, EURR 4007, EURR 4008, EURR 4100, EURR 4101, EURR 4104, EURR 4106, EURR 4107, EURR 4201, EURR 4202, EURR 4203, EURR 4204, EURR 4205, EURR 4206, EURR 4207, EURR 4208, EURR 4908 [1.0]

**French**

No more than 2.0 credits from FREN 1100 [1.0], FREN 2100 [1.0] or other French courses relevant to the program, with the approval of the undergraduate supervisor.

**German**

No more than 2.0 credits from GERM 2000, GERM 2010, GERM 2020, GERM 2110 [1.0], GERM 3000, GERM 3110 [1.0], GERM 4110 [1.0]

**History**

FYSM 1405 (approved sections only), HIST 1001[1.0], HIST 1002[1.0], HIST 2207 [1.0], HIST 2501, HIST 2502, HIST 2507, HIST 2508, HIST 2510, HIST 2511, HIST 2600 [1.0], HIST 2801 [1.0], HIST 3105, HIST 3113, HIST 3115, HIST 3200[1.0], HIST 3213, HIST 3214, HIST 3603, HIST 3800, HIST 3801, HIST 3803, HIST 3902, HIST 4100 [1.0], HIST 4200 [1.0], HIST 4500 [1.0], HIST 4600 [1.0]

**Italian**

No more than 2.0 credits from ITAL 2010, ITAL 2020, ITAL 2110 [1.0], ITAL 3110[1.0], ITAL 4110 [1.0]

**Law**

LAWS 2601, LAWS 3604, LAWS 4806

**Music**

MUSI 1001, MUSI 2103, MUSI 2104, MUSI 2105

**Philosophy**

PHIL 2101, PHIL 2103, PHIL 2201, PHIL 2202, PHIL 3002, PHIL 3003, PHIL 3005, PHIL 3009

**Political Science**

PSCI 3206, PSCI 3207, PSCI 3208, PSCI 3209, PSCI 3308, PSCI 3309, PSCI 3311, PSCI 3500, PSCI 3600, PSCI 3703, PSCI 3704, PSCI 3705, PSCI 4103, PSCI 4305 [1.0], PSCI 4501, PSCI 4502, PSCI 4503, PSCI 4505, PSCI 4601, PSCI 4903 [1.0], PSCI 4904 [3.0]

**Religion**

RELI 2320, RELI 3131, RELI 3220, RELI 3731

**Russian**

No more than 2.0 credits from RUSS 2010, RUSS 2020, RUSS 3010, RUSS 3020, RUSS 4010, RUSS 4020

**Sociology**

SOCI 2005 [1.0]

**Spanish**

No more than 2.0 credits from SPAN 2010, SPAN 2020, SPAN 2110[1.0], SPAN 3010, SPAN 3020, SPAN 3110[1.0], SPAN 4010, SPAN 4020, SPAN 4110[1.0]

Programs

## Film Studies

### School for Studies in Art and Culture (Faculty of Arts and Social Sciences)

423 St. Patrick's Bldg.

613-520-5606

carleton.ca/ssac/filmstudies

This section presents the requirements for the B.A. programs in:

- Film Studies – B.A. Honours
- Film Studies – B.A. Combined Honours
- Film Studies – B.A. General
- Minor in Film Studies

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the School when planning their program and selecting courses.

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### Program Requirements

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#### Film Studies

##### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):
  1. 4.5 credits in FILM 1000 [1.0], FILM 2000 [1.0], FILM 2608 [1.0], FILM 3505 [1.0], FILM 4001;
  2. 1.0 credit in FILM at the 3000-level;
  3. 1.5 credits in FILM at the 4000-level;
  4. 2.0 credits in FILM at the 2000-level or higher;
- B. Credits Not Included in the Major CGPA (11.0 credits):
  5. 8.0 credits in electives not in FILM;
  6. 3.0 credits in free electives.

#### Film Studies

##### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Film Studies Major CGPA (7.0 credits):
  1. 4.0 credits in FILM 1000 [1.0], FILM 2000 [1.0], FILM 2608 [1.0], FILM 3505 [1.0];
  2. 1.0 credit in FILM at the 2000-level or higher;
  3. 1.0 credit in FILM at the 3000-level or higher;
  4. 1.0 credit in FILM at the 4000-level;
- B. Credits Not Included in the Film Studies Major CGPA (8.0 credits):
  5. The requirements of the other discipline must be satisfied;
  6. 5.0 credits not in film studies or the other discipline;
  7. Sufficient free electives to total 20.0 credits for the program.

#### Film Studies

##### B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (6.0 credits):
  1. 2.0 credits in FILM 1000 [1.0] and FILM 2608 [1.0];
  2. 2.0 credits in FILM at the 2000-level or higher;
  3. 2.0 credits in FILM at the 3000-level;
- B. Credits Not Included in the Major CGPA (9.0 credits):
  4. 7.0 credits in electives not in FILM;
  5. 2.0 credits in free electives.

#### Minor in Film Studies

Open to all undergraduate degree students not in Film Studies programs.

##### Requirements (4.0 credits):

1. 1.0 credit from: FILM 1000 [1.0], FILM 2209 [1.0], or FILM 2608 [1.0];
2. 2.0 credits from: FILM 2000 [1.0], FILM 2101, FILM 2106, FILM 2201, FILM 2209 [1.0], FILM 2401, FILM 2601, FILM 2608 [1.0];
3. 1.0 credit from: FILM 3105, FILM 3206, FILM 3301, FILM 3608, FILM 3505 [1.0], FILM 3701, FILM 3209, FILM 3808, FILM 3901;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.



## Food Science and Nutrition

### Department of Chemistry (Faculty of Science)

203 Steacie Chemistry Bldg.  
613-520-3534  
carleton.ca/chem

This section presents the requirements for:

- Food Science and Nutrition - B.Sc. Honours
- Minor in Food Science

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see the *Academic Regulations for the Bachelor of Science Degree*).

Students should consult with the Department when planning their program and selecting courses.

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### Program Requirements

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#### Food Science and Nutrition B.Sc. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (8.0 credits):

- 5.5 credits in FOOD 1001, FOOD 2001, FOOD 3001, FOOD 3002, FOOD 3003, FOOD 3004, FOOD 3005, FOOD 4001, FOOD 4101 [1.0], FOOD 4102;
- 1.0 credit from FOOD 4907 [1.0] or FOOD 4908 [1.0];
- 1.5 credits in ECON 1000 [1.0] and ECON 3300;

##### B. Credits Not Included in the Major CGPA (12.0 credits):

- 3.0 credits in CHEM 1001, CHEM 1002, CHEM 2203, CHEM 2204, CHEM 2303, CHEM 5709;
- 2.5 credits in BIOL 1003, BIOL 1004, BIOL 2104, BIOL 2303, BIOL 3104;
- 1.0 credit in MATH 1007 and MATH 1107;
- 1.0 credit in STAT 2507 and STAT 2509;
- 1.0 credit in BIOC 2200 and BIOC 4708;
- 0.5 credit from PHYS 1007, EARTH 1006, EARTH 1009;
- 2.0 credits in Science Continuation Courses;
- 1.0 credit in free elective.

#### Minor in Food Science

The Minor in Food Science is available to degree students registered in programs other than the Food Science and Nutrition B.Sc. Honours program. Note that there are several prerequisites in Chemistry, Biochemistry and Math that may also need to be satisfied.

#### Requirements (4.0 credits):

- 1.0 credit in FOOD 1001, FOOD 2001;
- 3.0 credits in FOOD at 2000-level or higher;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

## French

### Department of French (Faculty of Arts and Social Sciences)

1602 Dunton Tower  
613-520-2168  
carleton.ca/french

This section presents the requirements for:

- **French – B.A. Honours**
- **French Interdisciplinary Studies – B.A. Honours**
- **French– B.A. Combined Honours**  
Combined Honours programs are available in French and other disciplines in Arts or Social Sciences
- **French and Journalism – B.J. Combined Honours**
- **French – B.A. General**
- **Minor in French**
- **Minor in French Interdisciplinary Studies**

A Co-operative education option is available. See the Co-operative Education section of this calendar.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth Requirements (see *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult the Department when planning their program and selecting courses.

English-speaking students who wish to graduate with a B.A. General or Honours in French, a B.A. Honours in French Interdisciplinary Studies, a B.A. Combined Honours in French and a B.J. Combined Honours in French are normally required to pass an oral examination testing their proficiency in spoken French. The examination normally takes place during the second year for B.A. General students and during the third year for B.A. Honours. Students have the option of repeating the examination during the following academic year.

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### Program Requirements

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#### French

#### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.0 credits):**
1. 1.0 credit from FREN 2100 [1.0] or FREN 2110 [1.0] (see Note 1, below);
  2. 1.0 credit from FREN 2201[1.0];
  3. 1.0 credit in FREN 2401[1.0];
  4. 0.5 credit in FREN 3050;
  5. 0.5 credit in FREN 3251 or FREN 3451;
  6. 2.0 credits at the 3000-level in one of the following series:
    - a) Literature: FREN 3212, FREN 3213, FREN 3214, FREN 3215; or

- b) Linguistics: FREN 3412 , FREN 3413, FREN 3414, FREN 3415;

7. 2.0 credits at the 4000-level in one of the following series:
    - a) Literature: FREN 4212, FREN 4213, FREN 4214, FREN 4215, or
    - b) Linguistics: FREN 4412, FREN 4413, FREN 4414, FREN 4415;
  8. 2.0 credits in FREN at the 3000-level or higher;
- B. Credits Not Included in the Major CGPA (10.0 credits):**
9. 8.0 credits in electives not in FREN;
  10. 2.0 credits in free electives (may include FREN).

#### Notes:

1. Students exempted from either one of the courses in **Item 1** above must replace it with another FREN course.
2. A maximum of 12.0 credits in FREN may be used toward the B.A. Honours in French.

#### French Interdisciplinary Studies B.A. Honours (20.0 credits)

- A. Credits included in the Major CGPA (12 credits)**
1. 1.0 credit from FREN 2100 [1.0] or FREN 2110 [1.0] (See **Note 1**, below);
  2. 2.0 credits in FREN 2201 [1.0] and FREN 2401 [1.0];
  3. 1.5 credits in FREN 3050, FREN 3701, FREN 3702;
  4. 0.5 credit from FREN 3900 or FREN 3511;
  5. 1.0 credit in FREN at the 1100-level or above;
  6. 1.0 credit in FREN at the 4000-level;
  7. 5.0 credits approved French Interdisciplinary Electives (see **Note 2**, below):
    - a) 1.0 credit from HIST 1300 [1.0], CDNS 1000 [1.0];
    - b) 1.0 credit from PSCI 2001 [1.0] or (PSCI 2002 and PSCI 2003);
    - c) 3.0 credits from CGSC 2001, FILM 2209 [1.0], FINS 2510/CDNS 2510, FINS 3550/CDNS 3550, FINS 4510/CDNS 4510, HIST 2304 [1.0], HIST 2507, HIST 2508, HIST 3113, HIST 3301, ALDS 2203, PHIL 2504, COMM 2504, ALDS 2704, PSCI 3000, PSCI 3305, PSCI 2002, PSCI 4009, MUSI 3103, MUSI 4103, PHIL 1301, SOCI 2200;

**B. Credits Not Included in the Major CGPA (8.0 credits):**

8. 8.0 credits in electives not in FREN.

#### Notes

1. Students exempted from either one of the courses in **Item 1** above must replace it with another FREN course.
2. 1.0 credit of the 5.0 credits of approved electives in **Item 7** above must be in a course or courses taught in the French language at Carleton University or the University of Ottawa.
3. It may be necessary to use some of the elective credits in **Item 8** above to fulfil prerequisite requirements for the Major.

**French****B.A. Combined Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (7.0 credits):**
- 1.0 credit from FREN 2100 [1.0] or FREN 2110 [1.0] (See **Note**, below);
  - 1.0 credit in FREN 2201 [1.0];
  - 1.0 credit in FREN 2401 [1.0];
  - 0.5 credit in FREN 3050;
  - 0.5 credit from FREN 3251 or FREN 3451;
  - 1.0 credit at the 3000-level in one of the following series:
    - Literature: FREN 3212, FREN 3213, FREN 3214, FREN 3215; or
    - Linguistics: FREN 3412, FREN 3413, FREN 3414, FREN 3415;
  - 1.0 credit at the 4000-level in one of the following series:
    - Literature: FREN 4212, FREN 4213, FREN 4214, FREN 4215; or
    - Linguistics: FREN 4412, FREN 4413, FREN 4414, FREN 4415;
  - 1.0 elective credit at the 3000-level or higher;
- B. Additional Requirements (13.0 credits):**
- The requirements from the other discipline must be satisfied;
  - 5.0 credits in electives not in FREN or the other discipline;
  - Sufficient free electives to make 20.0 credits for the degree.

**Note:** students exempted from either one of the courses in Item 1 above must replace it with another FREN course.

**French and Journalism****B.J. Combined Honours (20.0 credits)**

This program is restricted to students in the Bachelor of Journalism program. Please consult the Journalism section of the calendar for complete details. The required credits in French are as follows:

**Requirements: (7.0 French credits--consult Journalism section for full requirements)**

- 1.0 credit from FREN 2100 [1.0] or FREN 2110 [1.0];
- 1.0 credit from FREN 2201 [1.0];
- 1.0 credit in FREN 2401 [1.0];
- 0.5 credit in FREN 3050;
- 0.5 credit in FREN 3251 or FREN 3451;
- 1.0 credit at the 3000-level in one of the following series:
  - Literature: FREN 3212, FREN 3213, FREN 3214, FREN 3215; or
  - Linguistics: FREN 3412, FREN 3413, FREN 3414, FREN 3415;
- 1.0 credit at the 4000-level in one of the following series:
  - Literature: FREN 4212, FREN 4213, FREN 4214, FREN 4215; or

- Linguistics: FREN 4412, FREN 4413, FREN 4414, FREN 4415;

- 1.0 elective credit at the 3000-level or higher.

**French****B.A. General (15.0 credits)**

- A. Credits included in the Major CGPA (6.0 credits):**
- 1.0 credit in FREN 2100 [1.0] or FREN 2110 [1.0] (See **Note**, below);
  - 1.0 credit in FREN 2201 [1.0];
  - 1.0 credit in FREN 2401 [1.0];
  - 2.0 credits at the 3000-level in one of the following series:
    - Literature: FREN 3212, FREN 3213, FREN 3214, FREN 3215; or
    - Linguistics: FREN 3412, FREN 3413 [1.5], FREN 3414, FREN 3415;
  - 1.0 credit in FREN at the 3000-level or higher;
- B. Credits not included in the Major CGPA (9.0 credits):**
- 7.0 credits not in FREN;
  - 2.0 credits in free electives (may include FREN).

**Note:** students exempted from either one of the courses in **Item 1** above must replace it with another FREN course.

**Minor in French**

Open to all undergraduate degree students not in French programs.

**Requirements (4.0 credits):**

- 3.0 credits in FREN at the level of FREN 1100 or higher;
- 1.0 credit in FREN at the 3000-level;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

**Minor in French Interdisciplinary Studies**

Open to all undergraduate degree students not in French programs.

**Requirements (4.0 credits):**

- 3.0 credits in FINS;
- 1.0 credit in FINS at the 3000-level;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

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**FINS Area Courses**

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**The French World**

FINS 1000

**Written Comprehension I, II**

FINS 2105, FREN 3105

**Oral Comprehension I, II**

FINS 2205, FINS 3205

**Culture and Society**

FINS 3305, FINS 3306, FINS 3307

**French for Special or Professional Purposes**

FINS 3405, FINS 3406, FINS 3407

**Cultural Aspects**

FINS 3505, FINS 3506, FINS 3507,  
FINS 4510/CDNS 4510, FINS 4801, FINS 4802

**Interdisciplinary Approaches: French Links**

FINS 3605, FINS 3606, FINS 3607

Programs

## Geography

Department of Geography and  
Environmental Studies  
(Faculty of Arts and Social Sciences)  
B349 Loeb Bldg.  
613-520-2561  
carleton.ca/geography

This section presents the requirements for:

- Geography - B.A. Honours
- Geography with Concentration in Physical Geography - B.A. Honours
- Geography - B.A. Combined Honours
- Geography - B.A. General
- Geography with Concentration in Physical Geography - B.Sc. Honours
- Minor in Geography
- Minor in Geography: Physical Geography
  
- Geography with Concentration in Geomatics - B.Sc. Honours - consult the Geomatics section of this Calendar.

The following programs are offered by the Department of Geography and Environmental Studies in cooperation with other academic units.

**Biology and Physical Geography B.Sc. Combined Honours:** see the Biology program section of this Calendar.

**Earth Sciences and Physical Geography B.Sc. Combined Honours:** see the Earth Sciences program section of this Calendar.

**Earth Sciences and Geography B.Sc. Combined Honours with Concentration in Terrain Science:** see the Earth Sciences program section of this Calendar.

**Biology and Geography B.A. Combined Honours:** see the Biology program section of this Calendar.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) for B.A. programs, the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth Requirements (see Academic Regulations for the Bachelor of Arts Degree),
- (iii) for B.Sc. programs the common regulations applying to all B.Sc. students including those relating to Science Continuation and Breadth Requirements (see *Academic Regulations for the Bachelor of Science Degree*).

Students should consult the Department when planning their program and selecting courses.

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### B.A. Program Requirements

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#### Geography

#### B.A. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (10.0 credits):

1. 1.0 credit in GEOG 1010 and GEOG 1020;
2. 0.5 credit from GEOG 2020, GEOG 2013 or GEOG 2014;
3. 1.5 credits in GEOM 2004, GEOG 2005, and GEOG 2006;
4. 1.0 credit in GEOG 2200 and GEOG 2300;
5. 1.0 credit in GEOG 3000 or GEOG 3030 (or other approved field course) and GEOG 3900;
6. 0.5 credit from GEOG 3001, GEOG 3003, GEOM 2007, GEOM 3002, or GEOM 3007;
7. 1.0 credit in GEOG 3021, GEOG 3022, GEOG 3023, or GEOG 3024;
8. 1.0 credit from GEOG 4904 [1.0] or GEOG 4909 [1.0];
9. 1.0 credit in GEOG and/or GEOM at the 3000-level;
10. 1.5 credits in GEOG and/or GEOM at the 4000-level;

##### B. Credits Not Included in the Major CGPA (10.0 credits):

11. 8.0 credits in electives not in GEOG or GEOM;
12. 2.0 credits in free electives.

#### Geography with Concentration in Physical Geography

#### B.A. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (10.5 credits):

1. 1.0 credit in GEOG 1010 and GEOG 1020;
2. 1.5 credits in GEOM 2004, GEOG 2005, and GEOG 2006;
3. 0.5 credit from GEOG 2200 or GEOG 2300;
4. 1.0 credit in GEOG 3000 or GEOG 3010 (or other approved field course) and GEOG 3900;
5. 1.0 credit in GEOG 4904 [1.0] or GEOG 4909 [1.0] (with a topic in physical geography);

and in Physical Geography:

6. 0.5 credit in GEOG 2013;
7. 1.0 credit in GEOG 2014 and GEOM 3002;
8. 0.5 credit from GEOG 4406 or GEOG 4408 (with a placement in physical geography);
9. 2.0 credits from GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, or GEOG 3108;
10. 1.5 credits from GEOM 4003, GEOG 4004, GEOG 4005 (with a topic in physical geography), GEOG 4013, GEOG 4017, GEOG 4101, GEOG 4103, GEOG 4104, or GEOG 4108;

##### B. Credits Not Included in the Major CGPA (9.5 credits):

11. 8.0 credits in electives not in GEOG or GEOM;
12. 1.5 credits in free electives.

**Geography  
B.A. Combined Honours (20.0 credits)**

- A. Credits Included in the Geography Major CGPA (7.0 credits):**
1. 1.0 credit in GEOG 1010 and GEOG 1020;
  2. 0.5 credit from GEOG 2020, GEOG 2013, or GEOG 2014;
  3. 0.5 credit from GEOG 2200 or GEOG 2300;
  4. 1.0 credit from GEOM 2004, GEOG 2005 or GEOG 2006;
  5. 0.5 credit in GEOG 3900;
  6. 1.5 credits in GEOG and/or GEOM at the 3000-level;
  7. 1.0 credit in GEOG and/or GEOM at the 4000-level;
  8. 1.0 credit in GEOG 4904 [1.0] or GEOG 4909 [1.0] or GEOG at the 4000-level;
- B. Additional Requirements (13.0 credits):**
9. The requirements of the other Honours discipline must be satisfied;
  10. 5.0 credits in electives not in Geography or the other discipline;
  11. Sufficient free electives to total 20.0 credits for the program.

**Note:** in **Item 8** above, credit in one of GEOG 4904 [1.0] or GEOG 4909 [1.0] is compulsory unless an Honours research essay or equivalent is completed in the other Honours discipline.

**Geography  
B.A. General (15.0 credits)**

- A. Credits Included in the Major CGPA (7.0 credits):**
1. 1.0 credit in GEOG 1010 and GEOG 1020;
  2. 0.5 credit from GEOG 2020, GEOG 2013, or GEOG 2014;
  3. 1.0 credit from GEOM 2004, GEOG 2005, or GEOG 2006;
  4. 1.0 credit in GEOG 2200 and GEOG 2300;
  5. 1.0 credit in GEOG and/or GEOM at the 2000-level or above;
  6. 2.5 credits in GEOG and/or GEOM at the 3000-level or above;
- B. Credits Not Included in the Geography Major CGPA (8.0 credits):**
7. 7.0 credits in electives not in GEOG or GEOM;
  8. 1.0 credit in free electives.

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**Course Categories for B.Sc. Geography**

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- Geography Science Electives**  
 GEOG 1010, GEOG 2006, GEOG 2013, GEOG 2014, GEOG 3000, GEOG 3010, GEOG 3003, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4000, GEOG 4004, GEOG 4005, GEOG 4013, GEOG 4017, GEOG 4101, GEOG 4103, GEOG 4104, GEOG 4108, GEOG 4406, GEOG 4408

- Geomatics Science Electives**  
 GEOM 2004, GEOM 2007, GEOM 3002, GEOM 3005, GEOM 3007, GEOM 4003, GEOM 4007, GEOM 4008, GEOM 4009, GEOM 4406, GEOM 4408

**Science Continuation**  
 See *Academic Regulations for the Bachelor of Science Degree* for a list of courses in this category.

**Experimental Science Electives**  
 See *Academic Regulations for the Bachelor of Science Degree* for a list of courses in this category.

**Approved Arts or Social Sciences Electives**  
 See *Academic Regulations for the Bachelor of Science Degree* for a list of courses in this category.

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**B.Sc. Program Requirements**

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**Geography with Concentration  
in Physical Geography  
B.Sc. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (9.0 credits):**
1. 0.5 credit from GEOG 1010 or EARTH 1006;
  2. 1.5 credits in GEOM 2004, GEOG 2013 and GEOG 2014;
  3. 2.5 credits from GEOG 3010, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105 and GEOG 3108;
  4. 2.0 credits in Geography or Geomatics Science Electives at the 4000-level;
  5. 1.5 credits in Geography Science Electives;
  6. 1.0 credit in GEOG 4906 [1.0];
- B. Credits Not Included in the Major CGPA (11.0 credits):**
7. 1.0 in Experimental Science Electives;
  8. 0.5 credit in MATH 1007;
  9. 0.5 credit in MATH, STAT or COMP;
  10. 2.0 credits in Science Continuation, not in GEOG or GEOM;
  11. 2.0 credits in Science Faculty Electives;
  12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
  13. 1.0 credit in Approved Arts or Social Sciences, not in GEOG;
  14. 0.5 credit in Approved Arts or Social Sciences;
  15. 3.0 credits in free electives.

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## Minors

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### Minor in Geography

Open to all undergraduate degree students not in Geography programs.

#### Requirements (4.0 credits):

1. 1.0 credit in GEOG 1010 and GEOG 1020;
2. 0.5 credit from GEOG 2013, GEOG 2014, or GEOG 2020;
3. 0.5 credit in GEOG 2005;
4. 0.5 credit from GEOG 2200 or GEOG 2300;
5. 1.0 credit in GEOG and/or GEOM at the 3000-level;
6. 0.5 credit in GEOG or GEOM;
7. The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in Geography: Physical Geography

Open to all undergraduate degree students not in Geography programs.

#### Requirements (4.0 credits):

1. 0.5 credit in GEOG 2013;
2. 0.5 credit in GEOG 2014;
3. 3.0 credits from: GEOM 3002, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4013, GEOG 4017, GEOG 4101, GEOG 4104, GEOG 4108;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

## Geomatics

Department of Geography and  
Environmental Studies  
Faculty of Arts and Social Sciences  
B349 Loeb Bldg.  
613-520-2561  
carleton.ca/geography

This section presents the requirements for:

- Geomatics – B.A. Honours
- Geography with Concentration in Geomatics – B.Sc. Honours
- Minor in Geomatics

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) for B.A. programs, the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth Requirements (see Academic Regulations for the Bachelor of Arts Degree),
- iii) for B.Sc. programs the common regulations applying to all B.Sc. students including those relating to Science Continuation and Breadth Requirements (see *Academic Regulations for the Bachelor of Science Degree*).

Students should consult the Department when planning their program and selecting courses.

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### Course Categories for B.Sc. Geography with Concentration in Geomatics

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#### Geography Science Electives

GEOG 1010, GEOG 2006, GEOG 2013, GEOG 2014, GEOG 3000, GEOG 3003, GEOG 3010, GEOG 3102, GEOG 3103, GEOG 3104, GEOG 3105, GEOG 3108, GEOG 4000, GEOG 4004, GEOG 4005, GEOG 4013, GEOG 4017, GEOG 4101, GEOG 4103, GEOG 4104, GEOG 4108, GEOG 4406, GEOG 4408

#### Geomatics Science Electives

GEOM 2004, GEOM 2007, GEOM 3002, GEOM 3005, GEOM 3007, GEOM 4003, GEOM 4007, GEOM 4008, GEOM 4009, GEOM 4406, GEOM 4408

#### Science Continuation

See *Academic Regulations for the Bachelor of Science Degree* for a list of courses in this category.

#### Experimental Science Electives

See *Academic Regulations for the Bachelor of Science Degree* for a list of courses in this category.

#### Approved Arts or Social Sciences Electives

See *Academic Regulations for the Bachelor of Science Degree* for a list of courses in this category.

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### Program Requirements

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#### Geomatics

##### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (10.0 credits):
1. 1.0 credit in GEOG 1010 and GEOG 1020, or GEOG 1001;
  2. 1.5 credits in GEOM 2004, GEOG 2006 or STAT 2507, GEOM 2007;
  3. 2.5 credits in (GEOG 3000 or GEOG 3010), GEOM 3002, GEOG 3003, GEOM 3005, GEOM 3007;
  4. 2.0 credits in GEOM 4003, GEOM 4007, GEOM 4008, GEOM 4009;
  5. 0.5 credit in GEOM 4406 or GEOM 4408 (with placement in a Geomatics-related setting);
  6. 1.5 credit in GEOG at the 2000-level or higher;
  7. 1.0 credit in GEOM 4904 [1.0] or GEOM 4909 [1.0]. The project must have an emphasis on the nature and/or use of geomatics;
- B. Credits not included in the Major CGPA (10.0 credits)
8. 8.0 credits in electives not in Geography;
  9. 2.0 credits in free electives.

#### Geography with Concentration in Geomatics

##### B.Sc. Honours (20.0 credits)

- A. Credits included in the Major CGPA (9.0 credits):
1. 0.5 credit from GEOG 1010, EARTH 1006;
  2. 2.0 credits in GEOG 2013, GEOM 2004, (GEOG 2006 or STAT 2507), GEOM 2007;
  3. 2.0 credits in GEOM 3002, GEOG 3003, GEOM 3005, GEOM 3007;
  4. 2.0 credits in GEOM 4003, GEOM 4007, GEOM 4008, GEOM 4009;
  5. 0.5 credit in Geography Science Electives at the 4000-level;
  6. 1.0 credits in Geography Science Electives;
  7. 1.0 credit in GEOM 4906 [1.0]. The project must have an emphasis on the nature and/or use of geomatics;
- B. Credits Not Included in the Major CGPA (11.0 credits):
8. 1.0 credit in Experimental Science Electives;
  9. 2.0 approved credits in Computer Science;
  10. 2.0 credits in Science Continuation, not in GEOG or GEOM;
  11. 1.0 credit in Science Faculty Electives;
  12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
  13. 1.0 credit in Approved Arts or Social Sciences, not in Geography;
  14. 0.5 credit in Approved Arts or Social Sciences;
  15. 3.0 credits in free electives.



### Minor in Geomatics

Open to undergraduate Honours students with a CGPA of 6.5 or better.

#### Requirements (4.0 credits):

1. 1.5 credit in GEOM 2004, GEOM 2007, GEOM 3005;
2. 0.5 credit from GEOG 2006 or STAT 2507;
3. 2.0 credits from GEOM 3002, GEOM 3007, GEOM 4003, GEOM 4007, GEOM 4008 or GEOM 4009;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

Note: familiarity with computers is assumed. Students with little computer experience may wish to take one of the following courses as part of their program of study: BUSI 1402, COMP 1001 or COMP 1004.

## Global Politics

Department of Political Science  
 Faculty of Public Affairs  
 B640 Loeb Bldg.  
 613-520-2777  
 carleton.ca/polisci

This section presents the requirements for:

- Global Politics – B.A. Honours
- Global Politics – B.A. Combined Honours

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### Graduation Requirements

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In addition to the program requirements listed below, students must satisfy:

- i) the University regulations (see *the Academic Regulations of the University* in this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see *the Academic Regulations for the Bachelor of Arts degree* in this Calendar).

#### Program Language Requirement

Prior to graduation, students must satisfy a language proficiency requirement in one of the following ways:

##### By course work

Successful completion of [1.0 credit] in language instruction courses taught at Carleton in languages other than English at the 1000-level or above.

OR

##### By demonstrating prior language proficiency.

For students who consider that they already have proficiency in French, the Department conducts a French language examination twice a year, in November and February. Students whose high school transcript shows the primary language of instruction to be other than English may apply to have the examination requirement waived. For students who consider themselves proficient in a second language other than French, arrangements may be made to examine the student in that language, depending on faculty resource availability. Exams in languages other than French will normally be written at the same time as the French examination – twice a year, in November and February.

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### Course Categories

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#### Global Politics Electives

The courses listed in the following disciplines are treated as Global Politics Electives.

##### Political Science

PSCI 2101, PSCI 2102, PSCI 2200, PSCI 2300, PSCI 2500, PSCI 3100, PSCI 3101, PSCI 3102, PSCI 3103, PSCI 3105, PSCI 3107, PSCI 3108, PSCI 3200, PSCI 3203, PSCI 3204, PSCI 3205, PSCI 3206, PSCI 3207, PSCI 3208, PSCI 3209, PSCI 3302, PSCI 3307, PSCI 3404, PSCI 3405, PSCI 3407, PSCI 3409, PSCI 3500, PSCI 3502, PSCI 3600, PSCI 3601, PSCI 3603, PSCI 3605, PSCI 3606, PSCI 3607, PSCI 3700, PSCI 3701, PSCI 3702, PSCI 3703, PSCI 3704, PSCI 3705, PSCI 3801, PSCI 3802, PSCI 3805, PSCI 4005, PSCI 4008, PSCI 4103, PSCI 4104, PSCI 4105,

PSCI 4203, PSCI 4204, PSCI 4206, PSCI 4207, PSCI 4208, PSCI 4303, PSCI 4305, PSCI 4310, PSCI 4400, PSCI 4402, PSCI 4403, PSCI 4407, PSCI 4409, PSCI 4500, PSCI 4501, PSCI 4502, PSCI 4503, PSCI 4505, PSCI 4506, PSCI 4601, PSCI 4602, PSCI 4603, PSCI 4604, PSCI 4605, PSCI 4606, PSCI 4607, PSCI 4608, PSCI 4609, PSCI 4700, PSCI 4800, PSCI 4801, PSCI 4802, PSCI 4803, PSCI 4804, PSCI 4805, PSCI 4806, PSCI 4807

#### Global Politics

GPOL 1000, GPOL 3000, GPOL 4908

#### European and Eurasian Studies

EURR 4002, EURR 4003, EURR 4005, EURR 4006, EURR 4007, EURR 4008, EURR 4100, EURR 4101, EURR 4104, EURR 4106, EURR 4107, EURR 4201, EURR 4202, EURR 4203, EURR 4204

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### Program Requirements

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#### Global Politics

##### B.A. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (9.0 credits):

1. 1.0 credit in GPOL 1000 [1.0];
2. 2.0 credits in PSCI 2101, PSCI 2102, PSCI 2701, PSCI 2702;
3. 0.5 credit in GPOL 3000;
4. 2.5 credits in GPOL 3100, or 2.5 credits from Global Politics Electives (see list under Course Categories);
5. 2.0 credits at the 4000-level which may be satisfied by either:
  - a) 2.0 credits in 4000-level Global Politics Electives, or
  - b) GPOL 4908 [1.0] and 1.0 credit in 4000-level Global Politics Electives;
6. 1.0 credit in Global Politics Electives other than those listed in Items 1-5.

##### B. Credits Not Included in the Major CGPA (11.0 credits):

7. 8.0 credits in electives:
  - a) not in GPOL courses or Global Politics Electives
  - b) not in PSCI courses
  - c) not in FYSM 1002 or FYSM 1602
8. 3.0 credits in free electives;

##### C. Additional Requirements:

9. Global Politics language requirement must be met.

#### Global Politics

**B.A. Combined Honours (20.0 credits)**

Students may apply for Combined Honours programs in Global Politics with any other department or academic unit at Carleton that permits it. Combined Honours with Political Science is not permitted. The Global Politics requirements for Combined Honours are as listed below. Details of the specific requirements for the other discipline may be obtained from the Department concerned.

**A. Credits Included in the Global Politics Major CGPA (7.0 credits):**

1. 1.0 credit in GPOL 1000 [1.0];
2. 2.0 credits in PSCI 2101, PSCI 2102, PSCI 2701, PSCI 2702;
3. 0.5 credit in GPOL 3000;
4. 2.5 credits in GPOL 3100, or 2.5 credits in Global Politics Electives if the Internship is not taken;
5. 1.0 credits at the 4000-level which may be satisfied by either:
  - a) 1.0 credits in 4000-level Global Politics Electives, or
  - b) GPOL 4908 [1.0] ;

**B. Credits Not Included in the Global Politics Major CGPA:**

6. The requirements as stated for Combined Honours in the other discipline must be met;
7. Sufficient free elective credits to make a total of 20.0 credits for the program;

**C. Additional Requirements:**

8. Global Politics language requirement must be met.

## Greek and Roman Studies

College of the Humanities  
 (Faculty of Arts and Social Sciences)  
 300 Paterson Hall  
 613-520-2809  
[carleton.ca/chum/greek-and-roman-studies](http://carleton.ca/chum/greek-and-roman-studies)

This section presents the requirements for:

- Greek and Roman Studies B.A. Honours
- Greek and Roman Studies B.A. Combined Honours
- Greek and Roman Studies B.A. General
- Minor in Greek and Roman Studies

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the Academic Regulations of the University in this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars (see the Academic Regulations for the Bachelor of Arts Degree).

Students should consult the Discipline when planning their program and selecting courses.

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### Program Requirements

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#### Greek and Roman Studies B.A. Honours (20.0 Credits)

- A. **Credits Included in the Major CGPA (10.0 credits):**
  1. 2.0 credits in GREK or 2.0 credits in LATN or 1.0 credit in both GREK and LATN each;
  2. 1.0 credit from CLCV 2000 [1.0] or CLCV 2009 [1.0];
  3. 2.0 credits from CLCV 2900 [1.0], CLCV 2901 [1.0], GREK 2200, GREK 2201, LATN 2200, or LATN 2201;
  4. 2.0 credits at the 3000-level or higher from CLCV, GREK or LATN;
  5. 1.0 credit at the 4000-level from CLCV, GREK or LATN;
  6. 2.0 credits in electives in Greek and Roman Studies (CLCV, GREK, or LATN);
- B. **Credits Not Included in the Major CGPA (10.0 credits):**
  7. 8.0 credits in electives not in Greek and Roman Studies (CLCV, GREK, LATN);
  8. 2.0 credits in free electives.

#### Greek and Roman Studies B.A. Combined Honours (20.0 Credits)

- A. **Credits Included in the Major CGPA (7.0 credits):**
  1. 1.0 credit in GREK or LATN;
  2. 1.0 credit from CLCV 2000 [1.0] or CLCV 2009 [1.0];

3. 2.0 credits from CLCV 2900 [1.0], CLCV 2901 [1.0], GREK 2200, GREK 2201, LATN 2200, or LATN 2201;
  4. 1.0 credit at the 3000-level from CLCV, GREK or LATN;
  5. 1.0 credit at the 4000-level from CLCV, GREK or LATN;
  6. 1.0 credit in electives in Greek and Roman Studies (CLCV, GREK, LATN);
- B. **Additional requirements (13.0 credits):**
    7. The requirements for B.A. Combined Honours in the other discipline must be satisfied;
    8. 5.0 credits in electives not in Greek and Roman Studies (CLCV, GREK, LATN) or the other discipline;
    9. Sufficient free electives to make 20.0 credits total for the degree.

#### Greek and Roman Studies B.A. General (15.0 Credits)

- A. **Credits Included in the Major CGPA (6.0 credits):**
  1. 1.0 credit in GREK or 1.0 credit in LATN;
  2. 1.0 credit from CLCV 2000 [1.0] or CLCV 2009 [1.0];
  3. 2.0 credits from CLCV 2900 [1.0], CLCV 2901 [1.0], GREK 2200, GREK 2201, LATN 2200, or LATN 2201;
  4. 1.0 credit at the 3000-level from CLCV, GREK or LATN;
  5. 1.0 credit in electives in Greek and Roman Studies (CLCV, GREK, LATN);
- B. **Credits Not Included in the Major CGPA (9.0 credits):**
  6. 7.0 credits in electives not in Greek and Roman Studies (CLCV, GREK, LATN);
  7. 2.0 credits in free electives.

#### Minor in Greek and Roman Studies

Open to all undergraduate degree students not in the Greek and Roman Studies programs.

##### Requirements (4.0 credits):

1. 1.0 credit from FYSM 1106 [1.0], or CLCV, GREK or LATN at the 1000-level;
2. 1.0 credit from CLCV 2000 [1.0] or CLCV 2009 [1.0] (ENGL 2009 [1.0]);
3. 1.0 credit from CLCV 2900 [1.0] (HIST 2900 [1.0]) or CLCV 2901 [1.0] (HIST 2901 [1.0]);
4. 1.0 credit in:
  - i) CLCV at the 3000-level,
  - or
  - ii) GREK or LATN at the 2000-level or above.
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

## History

Department of History  
(Faculty of Arts and Social Sciences)  
400 Paterson Hall  
613-520-2828  
carleton.ca/history

This section presents the requirements for:

- History – B.A. Honours
- History with Concentration in International History – B.A. Honours
- History – B.A. Combined Honours
- History – B.A. General
- Minor in History

Co-operative Education Option is available. See the Co-operative Education section of this Calendar for details.

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### Graduation Requirements

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In addition to the program requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the Department when planning their program and selecting courses.

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### First Year Courses

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There is a limit on the number of history courses permitted in a B.A. degree in History. To avoid the course designation of "Extra to Degree (ETD)" students should not exceed the maximum of two 1000-level history courses (including FYSM courses designated with topics in history).

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### Course Categories

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The following course categories are used in the specification of History programs.

The following field definitions are used to classify history courses:

- a) the world before 1750
- b) modern Europe
- c) North America
- d) Asia, Africa, the Caribbean, and Latin America
- e) ideas, culture, and society

The field classification of each course is included with the course description. Courses that do not have a history field classification cannot be used to meet the history field requirements of degree programs in History.

- **History 4000-level Seminars**

HIST 4006 [1.0], HIST 4100 [1.0], HIST 4200 [1.0], HIST 4209 [1.0], HIST 4302 [1.0], HIST 4304 [1.0], HIST 4306 [1.0], HIST 4308 [1.0], HIST 4400 [1.0], HIST 4500 [1.0], HIST 4505 [1.0], HIST 4600 [1.0],

HIST 4603, HIST 4604, HIST 4700 [1.0], HIST 4802 [1.0], HIST 4805 [1.0]

4000-level history seminars have limited enrolment. Priority in enrolment is given to students in History Honours and Combined Honours programs. All students must obtain prior permission to enrol from the Department of History, normally during March and April of the preceding academic year. Places in seminars cannot be guaranteed to students who do not obtain prior permission.

- **Cross-Listed Courses**

The Department of History cross-lists several courses offered by other departments (e.g., several Classical Civilization courses in the Discipline of Greek and Roman Studies). No more than 2.0 credits in cross-listed courses may be included in the 7.0 credits required for the B.A. General program. No more than 3.0 credits in cross-listed courses may be included in a B.A. Honours or B.A. Combined Honours program.

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### Program Requirements

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#### History

#### B.A. Honours (20.0 credits)

The requirements for this program are modified when the Honours Research Essay is included.

#### A. Credits Included in the Major CGPA (10.0 credits):

##### Normal Pattern

1. 7.0 credits in history including 0.5 credit in each of four of the five history fields below the 4000-level and satisfying:
  - a) 1.0 credit at the 1000-level;
  - b) 3.0 credits at the 2000-level;
  - c) 3.0 credits at the 3000-level;
2. 0.5 credit in HIST 3810;
3. 0.5 credit from HIST 2809, HIST 3809, or HIST 3811;
4. 2.0 credits in 4000-level history seminars.

##### Honours Research Essay Pattern

1. 5.0 credits in history including 0.5 credit in each of four of the five history fields below the 4000-level and satisfying:
  - a) 1.0 credit at the 1000-level;
  - b) 2.0 credits at the 2000-level;
  - c) 1.0 credit at the 3000-level;
  - d) 1.0 credit at the 2000- or 3000-level;
2. 0.5 credit in HIST 3810;
3. 0.5 credit from HIST 2809, HIST 3809, or HIST 3811;
4. 2.0 credits in 4000-level history seminars;
5. 2.0 credits in HIST 4909 [2.0];

#### B. Credits Not Included in the Major CGPA (10.0 credits):

6. 8.0 credits in electives not in HIST;
7. 2.0 credits in free electives (may be HIST).

#### Notes:

1. One of the history seminar credits in **Item 4** above may, with departmental approval, be replaced with a credit

in a discipline other than history. The replacement credit will count as part of the Major CGPA.

2. Students should endeavour to have one course at the 2000-or 3000-level in the area of each fourth-year seminar.
3. Students electing to follow the Honours Research Essay Pattern should consult with the Department. The decision to commit to this pattern should be made at the beginning of third year.

**History with Concentration in International History  
B.A. Honours (20.0 credits)**

The Concentration in International History is open to students in the History B.A. Honours program. Students in the Concentration must complete a total of 11.0 history credits, of which a minimum of 6.0 must be chosen from the list of designated courses in international history (see below). The minimum CGPA required for the courses in the Concentration is 6.50.

**Concentration Credits (5.0 credits)**

The concentration credits are those in c), d), e) and 5.

- A. **Credits Included in the Major CGPA (11.0 credits):**
  1. 7.0 credits in history including 0.5 credit in each of four of the five history fields below the 4000-level and satisfying:
    - a) 1.0 credit in HIST at the 1000-level;
    - b) 2.0 credits in HIST at the 2000-level;
    - c) 1.0 credit in HIST 2801 [1.0] (Field b);
    - d) 1.5 credits chosen from HIST 3304, HIST 3306, HIST 3400, HIST 3405, HIST 3800, HIST 3801;
    - e) 1.5 credits chosen from HIST 2207, HIST 2308, HIST 2309, HIST 2704 [1.0], HIST 2706, HIST 2707, HIST 2806 [1.0], HIST 3200 [1.0], HIST 3702, HIST 3803, HIST 3804, HIST 3805, HIST 3806, HIST 3905 and courses listed under d) not already used to satisfy d);
  2. 1.0 credit at the 3000-level;
  3. 0.5 credit in HIST 3810;
  4. 0.5 credit from HIST 2809, HIST 3809, or HIST 3811;
  5. 1.0 credit in HIST 4802 [1.0];
  6. 1.0 credit in 4000-level history seminar(s);
- B. **Credits Not Included in the Major CGPA (9.0 credits):**
  7. 8.0 credits in electives not in HIST;
  8. 1.0 credit in free electives (may be HIST).

**History**

**B.A. Combined Honours (20.0 credits)**

- A. **Credits Included in the History Major CGPA (6.0 credits):**
  1. 4.0 credits in history including 0.5 credit in each of four of the five history fields below the 4000-level and satisfying:
    - a) 1.0 credit in HIST at the 1000-level;
    - b) 2.0 credits in HIST at the 2000-level;
    - c) 1.0 credit in HIST at the 3000-level;
  2. 0.5 credit in HIST 3810;
  3. 0.5 credit from HIST 2809, HIST 3809, or HIST 3811;
  4. 1.0 credit in HIST at the 4000-level;
- B. **Additional Credit Requirements (14.0 credits):**
  5. The requirements of the other discipline must be satisfied;
  6. 5.0 credits not in HIST or the other field;
  7. Sufficient free elective credits to make 20.0 credits for the degree.

**History**

**B.A. General (15.0 credits)**

- A. **Credits Included in the Major CGPA (7.0 credits):**
  1. 7.0 credits in history including 0.5 credit in each of four of the five history fields below the 4000-level and satisfying:
    - a) 1.0 credit in HIST at the 1000-level;
    - b) 3.0 credits in HIST at the 2000-level;
    - c) 3.0 credits in HIST at the 3000-level;
- B. **Credits Not Included in the Major CGPA (8.0 credits):**
  2. 7.0 credits not in HIST;
  3. 1.0 credit in free electives (may be HIST).

**Minor in History**

Open to all undergraduate degree students not in history programs.

**Requirements (4.0 credits):**

1. 1.0 credit in HIST at the 1000-level;
2. 1.0 credit in HIST at the 2000-level;
3. 1.0 credit in HIST at the 3000-level;
4. 1.0 credit in HIST at either the 2000- or 3000-level;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

Programs

## Human Rights

**Human Rights Program Committee**  
(Faculty of Arts and Social Sciences)  
2201 Dunton Tower  
520-2600 ext 2368  
carleton.ca/iis/programs-of-study/human-rights

This section presents the requirements for:

- Human Rights – B.A. Honours
- Human Rights – B.A. Combined Honours
- Human Rights and Law with Concentration in Transnational Law and Human Rights – B.A. Combined Honours
- Human Rights – B.A. General

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars. (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students in the Human Rights program are exempt from the B.A. Breadth Requirement.

Students should consult the Human Rights Program Committee when planning their program and selecting courses.

Some of the Human Rights Electives have prerequisites that are not explicitly included in the program. Students should plan to have credit for the prerequisites of each course in their program or ask to have the prerequisite waived.

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### Course Categories

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#### Thematic Groups

##### Laws and Institutions

LAWS 2105, LAWS 2601, LAWS 3401, LAWS 3509, LAWS 3602, LAWS 3604, LAWS 4601, LAWS 4606, LAWS 4607, PSCI 2601, PSCI 3600, PSCI 4109

##### Critical Principles

HUMR 2202, HUMR 3202, HUMR 4201, HUMR 4203, LAWS 2105, LAWS 4101, LAWS 4102, LAWS 4105, PHIL 2101, PHIL 2103, PHIL 2306, PHIL 2307, PHIL 2408, PHIL 3320, PHIL 3330, PHIL 3340, PSCI 3109, PSCI 3307

##### Marginalized Groups, Diversities & Identities

SXST 2101, SXST 4101, HIST 3403, HIST 3710, HUMR 2301, HUMR 3301, HUMR 3302, HUMR 3303, HUMR 4301, HUMR 4302, HUMR 4303, LAWS 3503, LAWS 3504, LAWS 4001, LAWS 4002, LAWS 4504, PSCI 2500, PSCI 3805, PSCI 4205, PSCI 4206, PSCI 4208, PSCI 4403, PSCI 4605, SOWK 4102, SOWK 4300, SOCI 2020, ANTH 2020, SOCI 2045, SOCI 3020, ANTH 3020, SOCI 3040, SOCI 4020, ANTH 4020, SOCI 4040, ANTH 3600, ANTH 4610, WGST 2800, WGST 2803

##### Political Violence, Persecution and Repression

HUMR 2401, HUMR 2402, HUMR 3401, HUMR 4402, HUMR 4403, HUMR 4404, LAWS 4106, LAWS 4304, LAWS 4309, LAWS 4603, LAWS 4607, PSCI 3107, PSCI 3702

##### Social and Economic Justice

ANTH 2850, ANTH 3025, HUMR 2502, HUMR 3501, HUMR 3502, HUMR 3503, HUMR 4501, HUMR 4503, HIST 3506, HIST 3702, LAWS 4800, PSCI 2102, PSCI 2602, PSCI 3100, PSCI 3105, PSCI 3204, PSCI 3502, PSCI 3802, PSCI 4104, PSCI 4105, PSCI 4500, SOCI 2010, SOCI 2045, SOCI 3010/ANTH 3010, SOCI 3027, ANTH 3027, SOCI 3040, SOCI 3044, SOCI 3430, ANTH 3430, SOCI 4010, SOCI 4040, SOCI 4730, ANTH 4730, SOCI 4750, ANTH 4750, SOWK 2101, SOWK 3101, SOWK 3207, WGST 2800, WGST 2801, WGST 4901, WGST 4902

##### Human Rights Electives

HUMR 3001, HUMR 4905, HUMR 4906, HUMR 4907, HUMR 4908

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### Program Requirements

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#### Human Rights

##### B.A. Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (9.0 Credits):

1. 1.0 credit from HUMR 1001 [1.0], FYSM 1104 [1.0], or FYSM 1502 (specifically the section on Global Governance and Human Rights), or approved FYSM;
2. 0.5 credit in HUMR 2001;
3. 0.5 credit in HUMR 2202;
4. 0.5 credit from LAWS 2105, PHIL 2103, PSCI 3307;
5. 2.5 credits, comprised of 0.5 credit from each of the five Thematic Groups (see list under Course Categories);
6. 1.0 credit at the 4000-level from Thematic Groups and/or Human Rights Electives (see lists under Course Categories);
7. 3.0 credits from Thematic Groups and/or Human Rights Electives (see lists under Course Categories);

###### B. Credits Not Included in the Major CGPA (11.0 credits):

8. 11.0 credits in free electives.

#### Human Rights

##### B.A. Combined Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (7.0 Credits):

1. 1.0 credit from HUMR 1001 [1.0], FYSM 1104 [1.0], or FYSM 1502 [1.0] (specifically the section on Global Governance and Human Rights), or approved FYSM;
2. 0.5 credit in HUMR 2001;
3. 0.5 credit in HUMR 2202;
4. 0.5 credit from LAWS 2105, PHIL 2103, PSCI 3307;
5. 2.5 credits, comprised of 0.5 credit from each of the five Thematic Groups (see list under Course Categories);

Programs - Human Rights

- 6. 1.0 credit at the 4000-level from Thematic Groups and/or Human Rights Electives (see lists under Course Categories);
- 7. 1.0 credit from Thematic Groups and/or Human Rights Electives (see lists under Course Categories);

**B. Additional Credit Requirements (13.0 credits):**

- 8. The requirements for the other discipline must be satisfied;
- 9. Sufficient free electives to make 20.0 credits total for the program.

**Human Rights and Law with Concentration in Transnational Law and Human Rights**

**B.A. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (7.0 Credits):**

- 1. 1.0 credit from HUMR 1001 [1.0], FYSM 1104 [1.0], or FYSM 1502 [1.0] (the section on Global Governance and Human Rights), or approved FYSM;
- 2. 0.5 credit in HUMR 2001;
- 3. 0.5 credit in HUMR 2202;
- 4. 2.5 credits, comprised of 0.5 credit from each of the five Thematic Groups (see list under Course Categories);
- 5. 1.0 credit at the 4000-level from Thematic Groups and/or Human Rights Electives (see lists under Course Categories);
- 6. 1.5 credits from Thematic Groups and/or Human Rights Electives (see lists under Course Categories);

**B. Additional Credit Requirements (13.0 credits):**

- 7. The requirements for the other discipline must be satisfied;
- 8. Sufficient free electives to make 20.0 credits total for the program.

**Human Rights**

**B.A. General (15.0 credits)**

**A. Credits Included in the Major CGPA (7.0 Credits):**

- 1. 1.0 credit from HUMR 1001 [1.0], FYSM 1104 [1.0], or FYSM 1502 [1.0] (specifically the section on Global Governance and Human Rights), or an approved First-Year Seminar);
- 2. 0.5 credit in HUMR 2001;
- 3. 0.5 credit in HUMR 2202;
- 4. 0.5 credit from LAWS 2105, PHIL 2103, PSCI 3307;
- 5. 2.5 credits, comprised of 0.5 credit from each of the five Thematic Groups (see list under Course Categories);
- 6. 1.0 credit at the 3000- or 4000-level from Thematic Groups and/or Human Rights Electives (see lists under Course Categories);
- 7. 1.0 credit from Thematic groups and/or Human Rights Electives (see lists under Course Categories);

**B. Credits Not Included in the Major CGPA (8.0 Credits):**

- 8. 8.0 credits in free electives.



## Humanities

College of the Humanities  
(Faculty of Arts and Social Sciences)  
2A39 Paterson Hall  
613-520-2100  
carleton.ca/chum

This section presents the requirements for:

- Humanities – B.Hum. Honours
- Humanities – B.Hum. Combined Honours
- Biology and Humanities – B.Hum. Combined Honours

The B.Hum. Honours is available with a Study Year Abroad option. Consult the B.Hum. Honours program requirements for more information.

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### Graduation Requirements

In addition to the requirements listed below, students must satisfy the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar).

Students should consult the College and its Web site when planning their program and selecting courses.

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### Academic Performance Evaluation

The Bachelor of Humanities degree specifies that all credits are included in the Major CGPA, making this average identical to the Overall CGPA. Students are evaluated on the basis of their Overall CGPA and their Core CGPA.

Students are in *Good Standing* if the Overall CGPA = 7.00 and the Core CGPA = 7.0.

A student who is not in *Good Standing* but has Overall CGPA = 6.00 and Core CGPA = 6.00 is on Academic Warning.

A student is required to leave the program with the status *Ineligible to Return* if either:

1. the student was on Academic Warning and does not achieve *Good Standing* at the next Academic Performance Evaluation, or
2. the student has Overall CGPA of less than 6.00 or Core CGPA of less than 6.00 at any Academic Performance Evaluation.

#### The Humanities Core

HUMS 1000 [1.0], HUMS 2000 [1.0]  
HUMS 3000 [1.0], HUMS 4000 [1.0]

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### Requirement for Full-Time Study

Students in the Humanities program must complete a minimum of 4.0 credits by the end of the summer session. The College may permit students to study abroad for a year while remaining registered in the program. For those students permitted to study abroad, Carleton credits commensurate to studies taken abroad will be determined by the College and awarded towards the student's degree. In exceptional circumstances (usually financial need or sickness) the College may also permit students to take a leave of absence for one year while remaining registered in the program.

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### Language Requirement

Language courses are normally selected from the following list and chosen in consultation with the College's Academic Advisor. It may be necessary to fulfil a prerequisite before taking these courses.

- GREK 2200 and GREK 2201
- LATN 2200 and LATN 2201
- FREN 1100 [1.0] or FREN 2100 [1.0]
- GERM 2010 and GERM 2020, or GERM 2110 [1.0]
- ITAL 2010 and ITAL 2020, or ITAL 2110 [1.0]
- RELI 2010 [1.0]
- RUSS 2010 and RUSS 2020
- SPAN 2010 and SPAN 2020, or SPAN 2110 [1.0]

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### Program Requirements

#### Humanities

#### B.Hum. Honours (20.0 credits)

1. 4.0 credits in Humanities Core: HUMS 1000 [1.0], HUMS 2000 [1.0], HUMS 3000 [1.0], HUMS 4000;
2. 2.5 credits in HUMS 1005, HUMS 3200 [1.0], HUMS 4103, HUMS 4104;
3. 2.0 credits in HUMS 2101, HUMS 2102, HUMS 3102, HUMS 3103 (See **Note**, below);
4. 2.5 credits in CLCV 2000 [1.0], RELI 1731 and RELI 2710[1.0];
5. 1.0 credit from ENGL 1000 [1.0], HIST 1001 [1.0], PHIL 1600 [1.0], or PSCI 1000 [1.0];
6. 1.0 credit fulfilling the language requirement;
7. 1.0 credit from CLCV 2009 [1.0], CLCV 2900 [1.0], CLCV 2901 [1.0], ENGL 2300 [1.0], HIST 2005 [1.0], HIST 3215, HIST 3216, PHIL 2005, PSCI 2300 [1.0];
8. 5.0 credits in:
  - a) 1.0 credit at the 2000-level or above;
  - b) 1.0 credit from HUMS 4901, HUMS 4902, HUMS 4903 or HUMS 4904;
  - c) 1.0 credit from ENGL 3304 [1.0], HIST 2204, HIST 2206, HUMS 3205 [1.0], PHIL 3002, PHIL 3003;
  - d) 2.0 credits in electives

**or (for Study Year Abroad)**

  - a) 5.0 pre-approved credits to be taken at an accredited international institution. Acceptable courses that cannot be equivalenced in a specific discipline will be equivalenced as HUMS courses;
9. 1.0 credit in free electives.

**Note:** For **Item 3** above, students who transfer into the B. Hum. may use up to 2.0 credits of any previously completed art and/or music courses (with the exception of advanced placement courses); students who study abroad may use up to 2.0 credits of art and/or music courses taken abroad; students enrolled in a Combined Honours in Humanities and Art History or Humanities and Music may substitute up to 1.0 credit of music or art from their combined discipline for the respective requirement or part thereof.

## Humanities

### B.Hum. Combined Honours (20.0 credits)

Students already admitted to the B.Hum. may register for a Combined Honours degree in Humanities and any other discipline offered within the B.A. Honours degree as a Combined Honours. Credits used to satisfy Items 1 through 8 below may also be used to satisfy up to 2.0 credits of the requirements of the other discipline under Item 9. A core seminar in Humanities used to fulfil the requirements of the other discipline will satisfy the 1.5 credit residence requirement of that discipline. In this case the requirement that residency credits be 3000-level or above is waived.

#### Requirements (20.0 credits):

1. 4.0 credits in Humanities Core: HUMS 1000 [1.0], HUMS 2000 [1.0], HUMS 3000 [1.0], and HUMS 4000 [1.0];
2. 2.5 credits in HUMS 1005, HUMS 3200 [1.0] HUMS 4103, and HUMS 4104;
3. 2.0 credits in HUMS 2101, HUMS 2102, HUMS 3102, HUMS 3103 (See **Note**, below);
4. 2.5 credits in CLCV 2000 [1.0], RELI 1731, and RELI 2710 [1.0];
5. 1.0 credit from ENGL 1000 [1.0], HIST 1001 [1.0], PHIL 1600 [1.0], or PSCI 1000 [1.0];
6. 1.0 credit fulfilling the language requirement;
7. 0.5 credit at the 2000-level or above;
8. 0.5 credit from HUMS 4901, HUMS 4902, HUMS 4903, or HUMS 4904;
9. 6.0 credits in electives that include the requirements for the other discipline of the combined degree or the minor.

**Note:** For **Item 3** above, students who transfer into the B. Hum. may use up to 2.0 credits of any previously completed art and/or music courses (with the exception of advanced placement courses); students who study abroad may use up to 2.0 credits of art and/or music courses taken abroad; students enrolled in a Combined Honours in Humanities and Art History or Humanities and Music may substitute up to 1.0 credit of music or art from their combined discipline for the respective requirement or part thereof.

## Biology and Humanities

### B.Hum. Combined Honours (20.0 credits)

#### A. Credits included in the Humanities (12.0 credits):

1. 4.0 credits in Humanities Core: HUMS 1000 [1.0], HUMS 2000 [1.0], HUMS 3000 [1.0], and HUMS 4000 [1.0];
2. 1.5 credits in HUMS 1005, HUMS 3200 [1.0];
3. 2.0 credits in HUMS 2101, HUMS 2102, HUMS 3102, HUMS 3103 (see **Note**, below);
4. 2.5 credits in CLCV 2000 [1.0], RELI 1731, and RELI 2710 [1.0];
5. 0.5 credit from HUMS 4901, HUMS 4902, HUMS 4903, or HUMS 4904;
6. 1.0 credit fulfilling the language requirement;
7. 0.5 credit at the 2000-level or above;

#### B. Credits Included in the Biology CGPA (8.0 credits):

8. 4.0 credits in BIOL 1003, BIOL 1004, BIOL 2001, BIOL 2104, BIOL 2200, BIOL 2303, BIOL 3201, and BIOL 3305;
9. 2.0 credits in CHEM 1005, CHEM 1006, CHEM 2203, and CHEM 2204;
10. 2.0 credits in BIOL or BIOC at the 3000 level or above.

**Note:** For **Item 3** above, students who transfer into the B. Hum. may use up to 2.0 credits of any previously completed art and/or music courses (with the exception of advanced placement courses); students who study abroad may use up to 2.0 credits of art and/or music courses taken abroad; students enrolled in a Combined Honours in Humanities and Art History or Humanities and Music may substitute up to 1.0 credit of music or art from their combined discipline for the respective requirement or part thereof.

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#### B.Hum. with Minor

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Students already admitted to the B.Hum may add a minor to their program in any other discipline in the University which offers a minor. Students registered in the Humanities - B.Hum. Honours who add a minor follow the requirements listed under items 7 to 9 of Humanities - B.Hum. Combined Honours instead of the requirements listed under items 7 to 9 of the Humanities - B.Hum. Honours degree.

## Industrial Design

School of Industrial Design  
(Faculty of Engineering and Design)  
3470 Mackenzie Bldg.  
613-520 5672  
id.carleton.ca

This section presents the requirements for:

- Industrial Design – B.I.D.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar), and the *Academic Regulations for the Bachelor of Industrial Design*.

Students should consult the School when planning their program and selecting courses.

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### Academic Performance Evaluation

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Students in Industrial Design are subject to the standard Academic Performance Evaluation process with the following additions and amendments:

1. The Industrial Design program does not define a Major CGPA. Students are assessed at each Academic Performance Evaluation using their Overall CGPA and the Core minimum defined in 2 below.
2. The courses in the Industrial Design Core are as follows:
 

*Industrial Design Core*

IDES 1300, IDES 1301, IDES 2203, IDES 2300,  
IDES 2302, IDES 3300 [1.0], IDES 3302,  
IDES 4310 [1.5], IDES 4301, IDES 4302

*Good Standing* requires a grade of C- or better in each course of the Industrial Design Core.
3. Students in Industrial Design are either in *Good Standing* or on Academic Warning. Students who satisfy the conditions for *Suspension* at an Academic Performance Evaluation must leave the Industrial Design program with the status *Ineligible to Return (ITR)*.
4. For more information regarding academic performance evaluation in the B.I.D. program, consult the *Academic Regulations of the University*, and *Academic Regulations for the Bachelor of Industrial Design Degree* sections of this Calendar.

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### Prerequisites

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The following broad course prerequisites specify requirements for access to upper year project courses.

Registration in IDES 3300 [1.0] normally requires successful completion of all first-year and second-year course requirements (Items 1, 2, 3, 4 below).

Registration in IDES 4310 [1.5] normally requires successful completion of all third-year course requirements (Items 5, 6, 7, 8 below).

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### Absence and Readmission

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Students in Industrial Design who intend to be absent for a fall/winter session must request permission from the School in advance. Students who are absent for a fall/winter session without permission will be required to apply for readmission to the program in advance of registration.

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### Program Requirements

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#### Industrial Design B.I.D. (20.0 credits)

##### First Year

1. 5.0 credits in:  
IDES 1000, IDES 1001, IDES 1300, IDES 1301,  
ECON 1000 [1.0], MATH 1107, PSYC 1001,  
PSYC 1002, PHYS 1007;

##### Second Year

2. 4.0 credits in:  
IDES 2101, IDES 2102, IDES 2105, IDES 2203,  
IDES 2300, IDES 2302, IDES 2600, PSYC 3702;
3. 0.5 credit in:  
Architecture, Art History, Business, Computer  
Science, Engineering, Mathematics, Physics,  
Psychology, or Technology, Society, Environment  
Studies;
4. 0.5 credit in free electives;

##### Third Year

5. 3.0 credits in:  
IDES 3300 [1.0], IDES 3302, IDES 3502,  
IDES 3503, IDES 3601;
6. 0.5 credit in BUSI 2204;
7. 1.0 credits in electives at the 2000-level or above;
8. 0.5 credit in: IDES 3104, IDES 3105, IDES 3202,  
IDES 3305, or IDES 3306;

##### Fourth Year

9. 3.5 credits in:  
IDES 4001, IDES 4301, IDES 4302,  
IDES 4310 [1.5], IDES 4400;
10. 1.5 credits in approved electives at the 3000-level or above.

##### Notes:

1. Fourth-year students are required to register in IDES 4301, IDES 4302 and IDES 4310 in the same academic year.
2. Although the Industrial Design Seminar IDES 4001 takes place in the winter term, the preparatory work that students are required to do must be completed in the fall term, and therefore requires registration in the course in that term.
3. One successfully completed Industrial Design Co-op work term is equivalent to IDES 4400.
4. The electives under Item 10 above must be chosen in consultation with the School on the following principles:
  - a) the electives chosen should serve to deepen the

Programs - Industrial Design

student's understanding of fields related to Industrial Design or disciplines that are relevant for industrial designers;

- b) the electives chosen should preferably be related to the Industrial Design projects and provide basic and/or actual information for these projects.

Programs

## Information Technology

**Carleton School of Information Technology**  
**Algonquin College of Applied Arts and Technology**  
 230 Azrieli Pavilion  
 613-520-5644  
 bitdegree.ca

This section presents the requirements for:

- **Interactive Multimedia and Design - B.I.T.**
- **Network Technology - B.I.T.**

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy the University regulations, including:

- the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar).
- the common regulations applying to all B.I.T. students (see the *Academic Regulations for the Bachelor of Information Technology Degree*).

Students should consult the School when planning their program and selecting courses.

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### Academic Standing in B.I.T.

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Students in the BIT are subject to the process of Academic Performance Evaluation as specified for General programs of 20.0 credits.

In addition, *Good Standing* in the IMD program requires a Core CGPA of at least 4.5 in the core constituted as:

IMD 1000, IMD 1001, IMD 1002,  
 IMD 1003, IMD 1004, IMD 1005,  
 IMD 2900, IMD 3900, IMD 3901,  
 IMD 4901, IMD 4902

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### Course Categories

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#### Electives

- Carleton University Electives
- Algonquin College Electives

Please check the current lists of approved electives on the program web site.

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### Program Requirements

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#### Interactive Multimedia and Design B.I.T. (20.0 credits)

- Credits Included in the Major CGPA (13.5 credits):**
  - 3.0 credits in IMD 1000, IMD 1001, IMD 1002, IMD 1003, IMD 1004, and IMD 1005;
  - 3.5 credits in IMD 2000, IMD 2001, IMD 2002, IMD 2003, IMD 2004, and IMD 2900 [1.0];
  - 3.5 credits in IMD 3001, IMD 3002, IMD 3004, IMD 3900 [1.0], and IMD 3901 [1.0];

- 3.5 credits in IMD 4003, IMD 4005, IMD 4901 [1.5] and IMD 4902 [1.0];
- Credits Not Included in the Major CGPA (6.5 credits):**
    - 1.0 credit in BIT 1100 and BIT 1002;
    - 1.5 credits in BIT 1101, BIT 2100, and BIT 2001;
    - 1.5 credits in IMD 3003, BIT 2002, and BIT 3003;
    - 0.5 credit in IMD 4002;
    - 2.0 credits in electives for IMD and/or BIT 4000.

#### Network Technology B.I.T. (20.0 credits)

- Credits Included in the Major CGPA (9.0 credits):**
    - 2.5 credits in NET 1000, NET 1002, NET 1005, BIT 1000, and BIT 1002;
    - 1.5 credits in NET 2000, NET 2001, and NET 2006;
    - 2.5 credits in NET 3000, NET 3001, NET 3008, NET 3010, and NET 3900;
    - 2.5 credits in NET 4005, NET 4007, NET 4010, and NET 4901;
- Credits Not Included in the Major CGPA (11.0 credits):**
    - 2.5 credits in NET 1001, NET 1004, BIT 1001, BIT 1003, and BIT 2001;
    - 3.5 credits in NET 2002, NET 2003, NET 2004, NET 2007, BIT 2000, BIT 2002, and BIT 2003;
    - 2.5 credits in NET 3004, NET 3006, NET 3007, NET 3009, and NET 3011;
    - 2.0 credits in NET 4000, NET 4001, NET 4003, and NET 4009;
    - 0.5 credit in Arts and Humanities electives for NET.

## Integrated Science

**Integrated Science Institute  
(Faculty of Science)  
2240 Herzberg Bldg.  
613-520-2600 ext. 4461  
carleton.ca/isi**

This section presents the requirements for:

- **Integrated Science – B.Sc. Honours**
- **Integrated Science – B.Sc. Honours with concentrations in**
  - Forensic Science
  - Life and Health Sciences
  - Information Science
  - Information Technology
  - Science and Ethics
  - Science and Policy
  - Science and Technology
  - Science and the Arts
  - Science Education
- **Integrated Science – B.Sc. General**
- **Integrated Science – B.Sc. General with concentration in**
  - Forensic Science
  - Life and Health Sciences
  - Information Science
  - Information Technology
  - Science and Ethics
  - Science and Policy
  - Science and Technology
  - Science and the Arts
  - Science Education

### Graduation Requirements

In addition to the requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see the *Academic Regulations for the Bachelor of Science Degree*),

### General Information

The Integrated Science (ISI) programs offered by the Faculty of Science provide undergraduate students an opportunity to design a program of study that blends a concentration in science with a linked area of specialization in another Faculty. The science concentration can be in any one of the following areas: physical, earth, life, or mathematical (including computer) science in association with specialty areas outside of the Faculty of Science. In this way, the student acquires a depth of understanding of a particular branch of science integrated with knowledge that will aid in the application of that understanding in a professional or employment context.

First-year students must submit their proposed course selection to the IS Director for approval before commencing second year. The progress of all students is monitored by the IS Advisor.

An Honours program and a General program are available. Both require a course of independent study (INSC 4907 [1.0] or INSC 4908 [1.0], INSC 3907 or INSC 3909) as an important element in the program.

### Academic Performance Evaluation for IS

The Academic Performance Evaluation for students in Integrated Science is based on the Major CGPA and the Overall CGPA. The Major CGPA is calculated over the combined credits in the Science Sequence and the Non-Science Sequence (13.0 credits for Honours, 9.0 credits for General.)

### Program Requirements

#### Integrated Science B.Sc. Honours (20.0 credits)

Detailed programs in IS are constructed and approved on an individual basis. All IS Honours programs adhere to the following structure.

- A. Science Sequence (9.0 credits included in the Major CGPA):**
  1. 1.0 credit in INSC 4907 [1.0] or INSC 4908 [1.0];
  2. 3.0 credits from the Faculty of Science at the 3000-level or above;
  3. 4.0 credits from the Faculty of Science at the 2000-level or above;
  4. 1.0 credits from the Faculty of Science at the 2000-level or above (may include up to 1.0 credit 1000-level COMP)
- B. Non-Science Sequence (4.0 credits included in the Major CGPA):**
  5. 4.0 credits in an area selected from outside the Faculty of Science;
- C. Additional Requirements (7.0 credits)**
  6. 1.0 credit in MATH 1007 and MATH 1107;
  7. 2.0 credits from (BIOL 1103 and BIOL 1104), CHEM 1001 and CHEM 1002, EARTH 1006, EARTH 1009, PHYS 1007, PHYS 1008, GEOG 1010;
  8. 2.0 credits from Science, Mathematics, Arts and Social Sciences, Public Affairs, Computer Science or Engineering;
  9. 2.0 credits in free electives.

**Note:** at least 2.0 credits in **Items 1 to 9** above must be chosen from the Faculties of Arts and Social Sciences or Public Affairs.

Technology, Society, Environment Studies (TSES) courses are considered Non-Science credits. These TSES courses may be used to satisfy the 2.0 credits in **Items 1 to 9** above which must be chosen from the Faculties of Arts and Social Sciences or Public Affairs.

English as a Second Language (ESLA) courses are accepted in **Items 8 and 9** only.

The following engineering courses may be used to fulfil the Faculty of Science course requirements if they were taken while the student was registered in the Bachelor of Engineering program: CIVE 2101, ENVE 2002, ENVE 3004, ENVE 4003, ELEC 2501, ELEC 2507, ELEC 3909, ECOR 1606, MAAE 2101, MAAE 2300, MAAE 2400, SYSC 1100, SYSC 1101, SYSC 1102,

Programs

SYSC 2001, SYSC 2002, SYSC 2003, SYSC 2004, SYSC 2100, SYSC 3001, SYSC 3006, SYSC 3100, SYSC 3200.

No more than a total of 1.0 credit of Independent Study or Directed Studies courses may be used in any program. (These courses include, but are not limited to, INSC 3909, INSC 3907, BIOL 4901, TSES 4009).

### Integrated Science B.Sc. General (15.0 credits)

Detailed programs in ISI are constructed and approved on an individual basis. All ISI General programs adhere to the following structure.

- A. Science Sequence (6.0 credits included in the Major CGPA):**
- 0.5 credit in INSC 3909 or INSC 3907;
  - 1.5 credits from the Faculty of Science at the 3000-level or above;
  - 3.0 credits from the Faculty of Science at the 2000-level or above;
  - 1.0 credit from the Faculty of Science at the 2000-level (may include up to 1.0 credit 1000-level computer science)
- B. Non-Science Sequence (3.0 credits included in the Major CGPA):**
- 3.0 credits in an area selected from outside the Faculty of Science;
- C. Additional Requirements (6.0 credits):**
- 1.0 credit in MATH 1007 and MATH 1107;
  - 2.0 credits from (BIOL 1003 and BIOL 1004), (CHEM 1001 and CHEM 1002), EARTH 1006, EARTH 1009, PHYS 1007, PHYS 1008, GEOG 1010;
  - 2.0 credits from Science, Mathematics, Arts and Social Sciences, Public Affairs, Computer Science or Engineering;
  - 1.0 credit in free electives;

Note: at least 2.0 credits in **Items 1 to 9** above must be chosen from the Faculties of Arts and Social Sciences or Public Affairs.

Technology, Society, Environment Studies (TSES) courses are considered Non-Science credits. These TSES courses may be used to satisfy the 2.0 credits in Items 1 to 9 above which must be chosen from the Faculties of Arts and Social Sciences or Public Affairs.

English as a Second Language (ESLA) courses are accepted in **Items 8 and 9** only.

In IS programs, all Technology, Society, Environment (TSE) Studies courses are considered Non-Science credits.

The following engineering courses may be used to fulfil the Faculty of Science course requirements if they were taken while the student was registered in the Bachelor of Engineering program: CIVE 2101, ENVE 2002, ENVE 3004, ENVE 4003, ELEC 2501, ELEC 2507, ELEC 3909, ECOR 1606, MAAE 2101, MAAE 2300, MAAE 2400, SYSC 1100, SYSC 1101, SYSC 1102, SYSC 2001, SYSC 2002, SYSC 2003, SYSC 2004, SYSC 2100, SYSC 3001, SYSC 3006, SYSC 3100, SYSC 3200.

No more than a total of 1.0 credit of Independent Study or Directed Studies courses may be used in any program. (These courses include, but are not limited to, INSC 3909, INSC 4907, BIOL 4901, TSES 4009).

## Concentrations

### Forensic Science

Offers a sound basis in fundamental Biology and Chemistry with an emphasis on trace analysis techniques combined with a non-science sequence in Psychology, and Sociology or Law.

#### Required Courses (6.5 credits):

- 1.5 credit in BIOL 2200, BIOL 2104, BIOL 2303;
- 1.0 credit in CHEM 2302, CHEM 2303;
- 1.0 credit from BIOL 3104, BIOL 3303, CHEM 3305;
- 1.0 credit in PSYC 2400, PSYC 3402;
- 1.0 credit in STAT 2507, STAT 2509;
- 1.0 credit from (LAWS 2301 and LAWS 2302) or (SOCI 2445 and SOCI 2450).

### Life and Health Sciences

In preparation for the study of Medicine, Dentistry, Nursing Science, Pharmacy, Veterinary Medicine, comprises a science sequence drawn from the life sciences (Biology, Biochemistry and Chemistry, Psychology) and a non-science sequence from the social sciences.

#### Required Courses (6.0 credits):

- 2.5 credits Biology: BIOL 2001, BIOL 2104, BIOL 2200, BIOL 3305, BIOL 3307;
- 1.0 credit in CHEM 2203, CHEM 2204;
- 1.0 credit in ENGL;
- 1.5 credits in PSYC 2200, PSYC 2301, PSYC 3204;
- 1.0 credit PHYS 1007, PHYS 1008 recommended.

### Information Science

A science sequence selected from Computer Science and Mathematics and Statistics and Psychology with a non-science sequence of an appropriate selection of courses in Arts and Social Sciences.

#### Required Courses (6.0 credits):

- 2.5 credits in COMP 2001, COMP 1005, COMP 1006, COMP 2002, COMP 2004;
- 0.5 credit from: COMP 3004, COMP 3804, COMP 3805;
- 0.5 credit in MATH 2107;
- 0.5 credit in STAT 2507;
- 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2700, PSYC 2800;

### Information Technology

A science sequence selected from Computer Science and Mathematics and Statistics with a non-science sequence consisting of courses in Technology, Society and Environment Studies leading to opportunities in areas such as software development, user interface design, web applications, communications, advertising and computer-assisted design applications.

#### Required Courses (6.0 credits):

- 2.5 credits in COMP 2001, COMP 1005, COMP 1006, COMP 2002, COMP 2004;
- 0.5 credit from COMP 3004, COMP 3804, COMP 3805;

Programs - Integrated Science

3. 0.5 credit in MATH 2107;
4. 0.5 credit in STAT 2507;
5. 2.0 credits from TSES 3001, TSES 4001, TSES 4002, TSES 4003, TSES 4005, TSES 4006, TSES 4007, TSES 4011, TSES 4012;
6. Some Engineering courses may be substituted for some or all TSES courses.

**Science and Ethics**

A non-science sequence in Philosophy, focusing on the ethical implications of scientific and technological innovation. The presence of Environment Canada's National Wildlife Research Centre on Carleton's campus allows for exceptional opportunities for directed study in the area of environmental ethics.

**Required Courses (5.0 credits):**

1. 1.0 credit in (PHIL 1301 and PHIL 1550) or PHIL 1500 [1.0];
2. 1.5 credits in PHIL 2001, PHIL 2101 and PHIL 2408;
3. 2.0 credits from PHIL 2003, PHIL 2103, PHIL 2104 or PHIL 2106, PHIL 2380, PHIL 2501, PHIL 2504, PHIL 2550, PHIL 2900 [1.0], PHIL 3140, PHIL 3301, PHIL 3306, PHIL 3320, PHIL 3350, PHIL 3380;
4. 0.5 credit at the 3000-level or higher.

**Science and Policy**

A science sequence in any one of the science areas of concentration and a non-science sequence of courses in Political Science and Economics in preparation for the public service and/or non- governmental organizations or for administration and regulation of innovation, science and technology.

**Required Courses (5.0 credits):**

1. 3.5 credits in PSCI 1001 and PSCI 1002 or PSCI 1000[1.0], and PSCI 2401, PSCI 3402, PSCI 3405, PSCI 3407, PSCI 3801;
2. 1.0 credit in ECON 1000 [1.0] ;
3. 0.5 credit in STAT 2507.

**Science and Technology**

A science sequence in one or more areas of concentration and a non-science sequence of credits drawn from courses offered by Technology, Society, Environment Studies and Sociology. Engineering courses may be substituted for some or all TSES credits.

**Required Courses (5.0 credits):**

1. 1.5 credits in SOCI 1001, SOCI 1002, SOCI 2035;
2. 1.5 credits in TSES 2305 [1.0], TSES 3001;
3. 2.0 credits from TSES 4001, TSES 4002, TSES 4005, TSES 4006, TSES 4007, TSES 4011, TSES 4012.

**Science and the Arts**

Developed by the student in consultation with an Integrated Science Adviser, offers a breadth of scientific and humanistic knowledge in an individualized but coherent program that instills the literacy, critical, analytical and problem solving skills that can only be acquired through the study of both the sciences and the humanities and social sciences.

**Required Courses (5.0 credits):**

1. 1.5 credit in PHIL 2001, PHIL 2900 [1.0];
2. 1.0 credit in ENGL;
3. 2.5 credits in Arts.

**Science Education**

Preparation for further studies in teaching at the primary or secondary school levels, combines a science sequence in any one of the science areas of concentration with an appropriate non-science sequence.

Note: students should consult the entrance requirements and recommendations of the teachers college that they wish to attend.

**Required Courses (8.0 credits):**

1. 1.0 credits in PSYC 2500, PSYC 2700;
2. 4.0 credits in the chosen (for teaching) area of science at 2000-level or above;
3. 3.0 credits in the chosen (for teaching) non-science or second science;

In some cases, in consultation with an ISI Adviser, courses may be moved to other categories, or be substituted for by similar courses. Programs such as Psychology and Geography offer courses in both the science and social science categories. The science courses are listed under Science Regulations near the beginning of the calendar.

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**Integrated Science with Minors**

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Integrated Science is structured to incorporate any of the 30 or more minors offered by various programs, both in the sciences and in the non-sciences. Regulations for minors are governed by the department/faculty offering the minor, and the University regulations. For example:

**Integrated Science with a Minor in Business**

A science sequence in any of the science areas is combined with a sequence of business courses from the Sprott School of Business that fulfil the requirements for the Minor in Business, allowing for study of the management of science and technology.



## Journalism

**School of Journalism and Communication**  
**(Faculty of Public Affairs)**  
**346 St. Patrick's Bldg.**  
**613-520-2600 ext.7404**  
 carleton.ca/sjc

This section presents the requirements for:

- Journalism – B.J. Honours
- Journalism with Concentration in Psychology – B.J. Honours
- Journalism – B.J. Combined Honours

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy the University regulations including the process of Academic Performance Evaluation (see Academic Regulations section of this Calendar).

Students should consult with the School when planning their program and selecting courses.

Note: students who already hold an undergraduate degree in another field are not eligible to apply for the B.J. (Honours) program. These students should consult the information on the Master of Journalism or the Master of Arts in Communication in the *Graduate Calendar*.

In addition to the graduation requirements of the Faculty, a candidate for the degree of Bachelor of Journalism with Honours must have:

- a) a Major CGPA of at least 6.50,
- b) a grade of C or better in the reporting courses,
- c) a grade of C- or better in each other Journalism course,
- d) an Overall CGPA of at least 5.00, and
- e) the recommendation of the School of Journalism and Communication for graduation.

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### Academic Performance Evaluation in Journalism

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Students in the Journalism degree are subject to the standard process of Academic Performance Evaluation for Honours programs with the following exceptions and additions.

#### 1. Continuation to Second Year

Continuation in *Good Standing* after the first Academic Performance Evaluation will be guaranteed only to First-year Journalism students who achieve a B+ or better in JOUR 1000 [1.0] and an Overall CGPA of at least 8.00 in first year on 5.0 full credits. The School also maintains a number of places in second year for students who wish to transfer from Carleton or elsewhere. Normally, offers are made to students with an overall CGPA equivalent to 10.00 (A-) or better.

2. **Continuation in Good Standing** at subsequent Academic Performance Evaluations requires a minimum major CGPA of 6.50 and an Overall CGPA of at least 5.00.

### General Prerequisite

Students may not continue into 3000-level or higher courses unless the following three minimum requirements are met:

- a) at least C standing in JOUR 2201 [1.0];
- b) a CGPA of at least 6.50 over the courses JOUR 1000 [1.0], JOUR 2201 [1.0], JOUR 2205 and JOUR 2501;
- c) an Overall CGPA of at least 5.00.

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### Prohibited Courses

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Courses below the 1000-level may not be used for credit in Journalism programs.

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### Language Requirement

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The School requires students to demonstrate proficiency in at least one language other than English. Students are required to demonstrate such proficiency normally through the completion of at least 1.0 credit at the 1000-level or higher in a language offered at Carleton.

For students who consider that they already have a proficiency in French, the School conducts oral French-language examinations on an ad hoc basis. Students who have completed French Immersion in high school or who have obtained a Bilingual Diploma or Certificate will be regarded as having met the language requirement. For other languages, the onus is on the student to provide suitable evidence of proficiency to the School. In both cases, the student will be required to take an additional free elective credit to replace the language credit.

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### Program Requirements

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#### Journalism B.J. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (8.0 credits):

1. 1.0 credit in JOUR 1000 [1.0];
2. 2.0 credits in JOUR 2201 [1.0], JOUR 2205 and JOUR 2501;
3. 2.0 credits in JOUR 3205 [1.0], JOUR 3207 and JOUR 3208;
4. 2.0 credits in JOUR 4000 [1.0] and JOUR 4201 [1.0];
5. 1.0 credit from: JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207 or JOUR 4208;

##### B. Credits Not Included in the Major CGPA (12.0 credits):

6. 4.0 credits must be taken in a field other than journalism, with at least 1.0 of these credits at the 3000-level or higher;
7. 1.0 credit to meet language requirement;
8. 1.0 credit from: HIST 1300 [1.0], HIST 2303 [1.0], HIST 2304 [1.0] or HIST 3203 and HIST 3204;
9. 6.0 credits in free electives.

Note: No more than two of JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207 and JOUR 4208 may be used to fulfil requirements for the degree. No course from this list may be taken more than once and two courses from this list may not be taken simultaneously.

### Journalism with Concentration in Psychology B.J. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (8.0 credits):**
1. 7.0 credits in JOUR 1000 [1.0], JOUR 2201 [1.0], JOUR 2205, JOUR 2501, JOUR 3205 [1.0], JOUR 3207, JOUR 3208, JOUR 4000 [1.0] and JOUR 4201 [1.0];
  2. 1.0 credit from: JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207, or JOUR 4208;
- B. Credits Not Included in the Major CGPA (12.0 credits):**
3. 2.0 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2002;
  4. 1.0 credit from: PSYC 2100, PSYC 2200, PSYC 2300, PSYC 2500, PSYC 2600 or PSYC 2700;
  5. 2.0 credits in psychology chosen in consultation with members of the Department from psychology courses in the areas of behavioral neuroscience, community and social psychology, perception and cognition, developmental psychology, forensic, HCI, or personality and assessment;
  6. 1.0 credit in PSYC;
  7. 1.0 language credit;
  8. 1.0 credit from: HIST 1300 [1.0], HIST 2303 [1.0], HIST 2304 [1.0] or HIST 3203 and HIST 3204;
  9. 4.0 credits in free electives.

### Bachelor of Journalism Combined Honours

Bachelor of Journalism students may take Combined Honours programs in which Journalism is combined with another discipline. Students may choose from Combined Honours programs offered in the following Bachelor of Arts disciplines: African Studies, Anthropology, Art History, Biology, Canadian Studies, Communication Studies, Economics, Applied Economics, English, European and Russian Studies, Film Studies, French, Geography, Global Politics, Greek and Roman Studies, History, Human Rights, Law, Linguistics, Music, Philosophy, Political Science, Psychology, Religion, Sociology and Women's and Gender Studies. The Journalism requirements for the Combined Honours program are normally the same as those for the Bachelor of Journalism with Honours listed above. The requirements of the other discipline are the same as those listed for the B.A. Combined Honours program in that discipline. Students are advised to consult the Combined Honours entry of their second discipline in this calendar for details. Combined Honours programs in Journalism and other disciplines are available only to students registered in Journalism.

### Bachelor of Arts Combined Honours

Upon application procedures described below, students combining Journalism with another discipline may elect to graduate with the degree Bachelor of Arts (Combined Honours) in lieu of the Bachelor of Journalism (Combined Honours). The Journalism requirements for this degree are the same as those for the Bachelor of Journalism with Honours listed above. The requirements of the other discipline are the same as those listed for the Combined Honours program in the other discipline. Students are advised to consult the Combined Honours entry of their second discipline in this calendar for details. All students who elect to receive the Bachelor of Arts (Combined Honours) must (i) write the Honours Research Essay, if required, in the other discipline and (ii) must transfer to the Bachelor of Arts Honours program as a Combined Honours student. Students who are not required to present an Honours Research Essay by the other discipline, but who prefer to graduate with a Bachelor of Arts (Combined Honours), must also transfer to the Bachelor of Arts Honours program. Such students must request an Internal Degree Transfer in their final term and at least 60 days before the completion of the final courses required for their degree to assure their graduation at the next convocation.

Combined Honours programs in Journalism and other disciplines are available only to students registered in Journalism.

### Journalism B.J. Combined Honours (20.0 credits)

- A. Credits Included in the Journalism CGPA (8.0 credits):**
1. 1.0 credit in JOUR 1000 [1.0];
  2. 2.0 credits in JOUR 2201 [1.0], JOUR 2205 and JOUR 2501;
  3. 2.0 credits in JOUR 3205 [1.0] and JOUR 3207 and JOUR 3208;
  4. 2.0 credits in JOUR 4000 [1.0] and JOUR 4201 [1.0];
  5. 1.0 credit from: JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207 or JOUR 4208;
- B. Additional Requirements (12.0 credits):**
6. 1.0 language credit;
  7. 1.0 credit from: HIST 1300 [1.0], HIST 2303 [1.0], HIST 2304 [1.0] or HIST 3203 and HIST 3204;
  8. The requirements from the other discipline, including where required an honours research essay;
  9. Sufficient free electives to make 20.0 credits for the whole program.

Note: **Items 6 and/or 7** above may be satisfied by courses simultaneously fulfilling requirements of the other discipline.

Programs

## Law

**Department of Law**  
**(Faculty of Public Affairs)**  
 C473 Loeb Bldg.  
 613-520-3690  
 carleton.ca/law

This section presents the requirements for:

- Law - B.A. Honours
- Law with Concentration in Law, Policy and Government - B.A. Honours
- Law with Concentration in Business Law - B.A. Honours
- Law with Concentration in Transnational Law and Human Rights - B.A. Honours
- Law - B.A. Combined Honours
- Law with Concentration in Law, Policy and Government - B.A. Combined Honours
- Law with Concentration in Business Law - B.A. Combined Honours
- Law with Concentration in Transnational Law and Human Rights - B.A. Combined Honours
- Law and Human Rights - B.A. Combined Honours
- Law - B.A. General
- Minor in Law
- Mention : Français
- Carleton University/Algonquin College Articulation Agreement – B.A. (Carleton)/Police Foundations (Algonquin)
- Study Abroad Option

Co-operative Education Option is available in Law: Concentration in Business Law and Law: Concentration in Law, Policy and Government. Consult the Co-operative Education section of this Calendar.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations including those concerning Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations and Requirements for the Bachelor of Arts Degree*).

Students should consult the Department when planning their program and selecting courses.

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### Program Requirements

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#### Law

##### B.A. Honours (20.0 credits)

- A. Credits included in the Major CGPA (9.0 credits):**
1. 1.0 credit in LAWS 1000 [1.0];
  2. 2.0 credits from LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502 and LAWS 2601 (see **Note 1** below);
  3. 1.0 credit in LAWS 2908 and LAWS 3908;

4. 3.0 credits in LAWS at the 4000-level or above;
  5. 2.0 credits in LAWS;
- B. Credits not included in the Major CGPA (11.0 credits):**
6. 8.0 credits in electives not in LAWS;
  7. 3.0 credits in free electives.

#### Notes:

1. **Law Area Requirement:**  
For Item 2 above, students must complete at least:
  - 0.5 credit from LAWS 2201, LAWS 2202;
  - 0.5 credit from LAWS 2301, LAWS 2302; and
  - 0.5 credit from LAWS 2105, LAWS 2501, LAWS 2502, LAWS 2601.
2. Students with a Major in Law are encouraged, but not required, to consider completing a Minor in **another** discipline in order to broaden their exposure to that discipline.

#### Law

##### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Law Major CGPA (6.5 credits):**
1. 1.0 credit in LAWS 1000 [1.0];
  2. 2.0 credits from LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502 and LAWS 2601 (see note 1 below).;
  3. 1.0 credit in LAWS 2908 and LAWS 3908;
  4. 0.5 credit in LAWS at the 3000-level or above;
  5. 2.0 credits in LAWS at the 4000-level or above;
- B. Additional Requirements (13.5 credits):**
6. The requirements for B.A. Combined Honours in the other discipline;
  7. 5.0 credits in electives not in LAWS or the other discipline;
  8. Sufficient free electives to make up 20.0 credits total for the program.

#### Note:

1. **Law Area Requirement:**  
For **Item 2** above, students must complete at least:
  - 0.5 credit from LAWS 2201, LAWS 2202;
  - 0.5 credit from LAWS 2301, LAWS 2302; and
  - 0.5 credit from LAWS 2105, LAWS 2501, LAWS 2502, LAWS 2601.

#### Law and Human Rights

##### B.A. Combined Honours (20.0 credits)

Students may complete a B.A.(Honours) in Law and Human Rights. Students must complete the Law - B.A. Combined Honours requirements stated above. The Human Rights requirements are offered jointly by the Departments of Law, Philosophy, Political Science and

Programs - Law

Sociology: please consult the Human Rights program entry for details concerning the Human Rights component of the program.

**Law with Concentration in Law, Policy and Government  
B.A. Honours (20.0 credits)**

Continuation in this concentration requires a minimum CGPA of 6.50 over credits in the concentration.

The courses defining the Concentration in Law, Policy and Government are those in **Items 2, 5, 6, 7** below.

**A. Credits included in the Major CGPA (10.5 credits):**

1. 1.0 credit in LAWS 1000 [1.0];
2. 1.0 credit in LAWS 2501 and LAWS 2502;
3. 1.5 credits from LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, and LAWS 2601 (see Note 1 below).;
4. 1.0 credit in LAWS 2908 and LAWS 3908;
5. 1.5 credits in LAWS 3005, LAWS 3506, and LAWS 4801;
6. 2.0 credits from LAWS 3000, LAWS 3106, LAWS 3405, LAWS 3500, LAWS 3502, LAWS 3503, LAWS 3504, LAWS 3509, or LAWS 3800;
7. 1.5 credits from LAWS 4006, LAWS 4101, LAWS 4102, LAWS 4501, LAWS 4507, LAWS 4603, LAWS 4607, LAWS 4800, LAWS 4901, LAWS 4902, or LAWS 4908 [1];
8. 1.0 credit in LAWS at the 4000-level or above;

**B. Credits not included in the Major CGPA (9.5 credits):**

9. 8.0 credits in electives not in LAWS;
10. 1.5 credits in free electives.

**Notes:**

1. **Law Area Requirement:**  
For **Item 3** above, students must complete at least:
  - 0.5 credit from LAWS 2201, LAWS 2202; and
  - 0.5 credit from LAWS 2301, LAWS 2302.
2. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] toward the requirements of Item 7 above must complete an approved topic related to the theme of the Concentration.
3. Students completing the B.A. (Honours) in Law with a Concentration in Law, Policy and Government are encouraged, but not required, to consider completing a Minor in another discipline (e.g. Political Science) to broaden their exposure to that discipline.
4. The Concentration in Law, Policy and Government is not available to students in the Law - B.A. General program.

**Law with Concentration in Law, Policy and Government**

**B.A. Combined Honours (20.0 credits)**

Continuation in this concentration requires a minimum CGPA of 6.50 over credits in the concentration. The courses defining the Concentration in Law, Policy and Government are those in **Items 2, 5, 6, 7** below.

**A. Credits included in the Law Major CGPA (8.0 credits):**

1. 1.0 credit in LAWS 1000 [1.0];
2. 1.0 credit in LAWS 2501 and LAWS 2502;
3. 1.5 credits from LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, and LAWS 2601 (see note 1 below);
4. 1.0 credit in LAWS 2908 and LAWS 3908;
5. 1.5 credits in LAWS 3005, LAWS 3506, and LAWS 4801;
6. 0.5 credit from LAWS 3000, LAWS 3106, LAWS 3405, LAWS 3500, LAWS 3502, LAWS 3503, LAWS 3504, LAWS 3509, or LAWS 3800;
7. 1.5 credits from LAWS 4006, LAWS 4101, LAWS 4102, LAWS 4501, LAWS 4507, LAWS 4603, LAWS 4607, LAWS 4800, LAWS 4901, LAWS 4902, or LAWS 4908 [1.0];

**B. Additional Requirements (12.0 credits):**

8. The requirements for B.A. Combined Honours in the other discipline;
9. 5.0 credits in electives not in LAWS or the other discipline;
10. Sufficient free electives to total 20.0 credits for the program.

**Notes:**

1. **Law Area Requirement:**  
For **Item 3** above, students must complete at least:
  - 0.5 credit from LAWS 2201, LAWS 2202; and
  - 0.5 credit from LAWS 2301, LAWS 2302.
2. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] toward the requirements of Item 7 above must complete an approved topic related to the theme of the Concentration.
3. Where the Combined Honours is with the School of Journalism and Communication, the degree awarded will be the Bachelor of Journalism with Law with a Concentration in Law, Policy and Government. Students are directed to the regulations of the School of Journalism and Communication in this Calendar. The Concentration in Law, Policy and Government is not available to students in the Law - B.A. General program.

**Law with Concentration in Business Law  
B.A. Honours (20.0 credits)**

Continuation in this concentration requires a minimum CGPA of 6.50 over credits in the concentration.

The courses defining the Concentration in Business Law are those in **Items 2, 5, 6, 7** below.

**A. Credits included in the major CGPA (10.5 credits):**

1. 1.0 credit in LAWS 1000 [1.0];
2. 1.0 credit in LAWS 2201 and LAWS 2202;

3. 1.5 credits in LAWS 2105, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502 and LAWS 2601 (see Note 1 below);
  4. 1.0 credit in LAWS 2908 and LAWS 3908;
  5. 1.5 credits in LAWS 3003, LAWS 3201, and LAWS 3206;
  6. 1.5 credit from LAWS 3202, LAWS 3205, LAWS 3207, LAWS 3208, LAWS 3304, LAWS 3401, or LAWS 3405;
  7. 2.0 credits from LAWS 4200, LAWS 4202, LAWS 4204, LAWS 4209, LAWS 4302, LAWS 4402, LAWS 4801, LAWS 4901, LAWS 4902, or LAWS 4908 [1.0];
  8. 1.0 credit in LAWS at the 4000-level or above;
- B. Credits not included in the Major CGPA (9.5 credits):**
9. 8.0 credits in electives not in LAWS;
  10. 1.5 credits in free electives.

**Notes:**

1. **Law Area Requirement:**  
For **Item 3** above, students must complete at least:
  - 0.5 credit from LAWS 2301, LAWS 2302; and
  - 0.5 credit from LAWS 2105, LAWS 2501, LAWS 2502, LAWS 2601;
2. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] toward **Item 7** above must complete an approved topic related to the theme of the Concentration;
3. Students completing the B.A. (Honours) in Law with a Concentration in Business Law are encouraged, but not required, to consider completing a Minor in another discipline (e.g. Business) in order to broaden their exposure to that discipline;
4. The Concentration in Business Law is not available to students in the Law B.A. General program.

**Law with Concentration in Business Law B.A. Combined Honours (20.0 credits)**

Continuation in this concentration requires a minimum CGPA of 6.50 over credits in the concentration.

The courses defining the Concentration in Business Law are those in **Items 2, 5, 6** below.

- A. Credits included in the Law Major CGPA (8.0 credits):**
1. 1.0 credit in LAWS 1000 [1.0];
  2. 1.0 credit in LAWS 2201, LAWS 2202;
  3. 1.5 credit from LAWS 2105, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502 and LAWS 2601 (see **Note 1** below);
  4. 1.0 credit in LAWS 2908 and LAWS 3908;
  5. 1.5 credits in LAWS 3003, LAWS 3201, and LAWS 3206;
  6. 2.0 credits from LAWS 4200, LAWS 4202, LAWS 4204, LAWS 4209, LAWS 4302, LAWS 4402, LAWS 4801, LAWS 4901, LAWS 4902, or LAWS 4908 [1.0];
- B. Additional Requirements (12.0 credits):**
7. The requirements for B.A. Combined Honours in the other discipline;

8. 5.0 credits in electives not in LAWS or the other discipline;
9. Sufficient free electives to make up 20.0 credits total for the program.

**Notes:**

1. **Law Area Requirement:**  
For **Item 3** above, students must complete at least:
  - 0.5 credit from LAWS 2301, LAWS 2302; and
  - 0.5 credit from LAWS 2105, LAWS 2501, LAWS 2502, LAWS 2601;
2. Students counting LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] toward **Item 6** above must complete an approved topic related to the theme of the Concentration;
3. Where the Combined Honours is with the School of Journalism and Communication, the degree awarded will be the Bachelor of Journalism with Law with a Concentration in Business Law. Students are directed to the regulations of the School of Journalism and Communication.

**Law with Concentration in Transnational Law and Human Rights B.A. Honours (20.0 credits)**

Continuation in this concentration requires a minimum CGPA of 6.50 over credits in the concentration.

The courses defining the Concentration in Transnational Law and Human Rights are those in **Items 2, 5, 6, 7** below.

- A. Credits included in the Major CGPA (10.5 credits):**
1. 1.0 credit in LAWS 1000 [1.0];
  2. 1.0 credit in LAWS 2105 and LAWS 2601;
  3. 1.5 credits in LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, and LAWS 2502 (see **Note 1** below).
  4. 1.0 credit in LAWS 2908 and LAWS 3908;
  5. 1.5 credits in LAWS 3503, LAWS 3602, and LAWS 4601;
  6. 1.5 credits from LAWS 3001, LAWS 3207, LAWS 3208, LAWS 3504, LAWS 3509, LAWS 3604;
  7. 2.0 credits from LAWS 4001, LAWS 4002, LAWS 4006, LAWS 4100, LAWS 4101, LAWS 4102, LAWS 4105, LAWS 4106, LAWS 4603, LAWS 4605, LAWS 4606, LAWS 4607, LAWS 4901, LAWS 4902, or LAWS 4908 [1.0];
  8. 0.5 credit in LAWS at the 3000-level or above;
  9. 0.5 credit in LAWS at the 4000-level;
- B. Credits not included in the Major CGPA (9.5 credits):**
10. 8.0 credits in electives not in LAWS;
  11. 1.5 credits in free electives.

**Notes:**

1. **Law Area Requirement:**  
For **Item 3** above, students must complete at least:
  - 0.5 credit in LAWS 2502;
  - 0.5 credit from LAWS 2201, LAWS 2202;
  - 0.5 credit from LAWS 2301, LAWS 2302, LAWS 2501.
2. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] toward the requirements of **Item 7** above must complete an approved topic related

to the theme of the Concentration.

3. Students completing the B.A. (Honours) in Law with a Concentration in Transnational Law and Human Rights are encouraged, but not required, to consider completing a Minor in another discipline (e.g. Political Science) to broaden their exposure to that discipline.
4. The Concentration in Transnational Law and Human Rights is not available to students in the Law - B.A. General program.

### Law with Concentration in Transnational Law and Human Rights B.A. Combined Honours (20.0 credits)

Continuation in this concentration requires a minimum CGPA of 6.50 over credits in the concentration.

The courses defining the Concentration in Transnational Law and Human Rights are those in Items 2, 5, 6, 7 below.

- A. **Credits included in the Major CGPA (8.0 credits):**
  1. 1.0 credit in LAWS 1000 [1.0];
  2. 1.0 credit in LAWS 2105 and LAWS 2601;
  3. 1.5 credits in LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, and LAWS 2502 (see note 1 below).
  4. 1.0 credit in LAWS 2908 and LAWS 3908;
  5. 1.5 credits in LAWS 3503, LAWS 3602, and LAWS 4601;
  6. 1.5 credits LAWS 4001, LAWS 4002, LAWS 4006, LAWS 4100, LAWS 4101, LAWS 4102, LAWS 4105, LAWS 4106, LAWS 4603, LAWS 4605, LAWS 4606, LAWS 4607, LAWS 4901, LAWS 4902, or LAWS 4908 [1];
  7. 0.5 credit in LAWS at the 3000-level or above;
- B. **Additional Requirements (12.0 credits):**
  8. The requirements for B.A. Combined Honours in the other discipline;
  9. 5.0 credits in electives not in LAWS or the other discipline;
  10. Sufficient free electives to make up 20.0 credits total for the program.

#### Notes:

1. **Law Area Requirement:**  
For **Item 3** above, students must complete at least:
  - 0.5 credit in LAWS 2502;
  - 0.5 credit from LAWS 2201, LAWS 2202;
  - 0.5 credit from LAWS 2301, LAWS 2302, LAWS 2501.
2. Students who count LAWS 4901, LAWS 4902 or LAWS 4908 [1.0] toward the requirements of Item 7 above must complete an approved topic related to the theme of the Concentration.
3. Where the Combined Honours is with the School of Journalism and Communication, the degree awarded will be the Bachelor of Journalism with Law with a Concentration in Transnational Law and Human Rights. Students are directed to the regulations of the School of Journalism and Communication in this Calendar.
4. Where the Combined Honours is with the Human Rights program, students are directed to the specific requirements for the Human Rights

Combined Honours with Law with Concentration in Transnational Law and Human Rights. Combined Honours students should note that courses required by one major (such as Law) cannot be counted to fulfill the requirements of the second major (such as Human Rights).

### Law

#### B.A. General (15.0 credits)

- A. **Credits included in the Major CGPA (6.5 credits):**
  1. 1.0 credit in LAWS 1000 [1.0];
  2. 2.0 credits from LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502 and LAWS 2601;
  3. 0.5 credit in LAWS 2908;
  4. 1.0 credit in LAWS at the 3000-level or above;
  5. 2.0 credits in LAWS;
- B. **Credits not included in the Major CGPA (8.5 credits):**
  5. 6.5 credits in electives not in LAWS;
  6. 2.0 credits in free electives.

**Note:** students with a Major in Law are encouraged, but not required, to consider completing a Minor in another discipline in order to broaden their exposure to that discipline.

#### Minor in Law

The Minor in Law is open to all students registered in undergraduate programs, with the exception of students registered in the B.A. in Law or in Criminology and Criminal Justice with a concentration in Law.

#### Requirements (4.0 credits):

1. 1.0 credit in LAWS 1000 [1.0];
2. 2.0 credits from LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502 and LAWS 2601;
3. 1.0 credit in LAWS at the 3000-level or higher.
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

#### Mention : Français

Students wishing to qualify for the *Mention : français* notation in Law may do so by taking the following pattern of courses in their degree program:

1. 1.0 credit in the advanced study of the French language (FREN 2100 [1.0]);
2. 1.0 credit in French-Canadian culture and heritage (FREN 2201[1.0] or FREN 2401[1.0]);
3. 1.0 credit at the 2000- or 3000- level in law or legal studies taught in French at the university level, and approved by the Undergraduate Supervisor;
4. In addition, for B.A. (Honours) Law or Combined B.A. (Honours) Law, 1.0 credit at the 4000-level in law or legal studies taught in French at the university level, and approved by the undergraduate supervisor.

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## **Carleton University/Algonquin College Articulation Agreement B.A. (Carleton)/Police Foundations (Algonquin)**

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An articulation agreement between Carleton University and Algonquin College of Applied Arts and Technology permits graduates with a Diploma in Police Foundations from Algonquin College to apply for admission into the B.A. program at Carleton University. Successful applicants will be granted 5.0 credits on admission toward the completion of a B.A. in criminology, law, psychology, or sociology.

Course transfers: 2.0 credits in law; 2.0 credits in sociology, and 0.5 in political science and 0.5 in psychology.

To be eligible for admission according to this Articulation Agreement, students must have completed the Diploma in Police Foundations at Algonquin College with an overall B average (Algonquin Grade Point Average of 3.0). They will then be admitted to a B.A. program at Carleton in criminology, law, psychology, or sociology.

Further information may be obtained from the Undergraduate Supervisor or Coordinator of the appropriate B.A. program.

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## **Study Abroad Option**

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The Department participates in an International Exchange with the Division of Applied Social Science, Faculty of Development and Society at Sheffield Hallam University in the U.K. The Exchange provides an opportunity for students in the B.A. (Honours) in Law program to study law in a comparative setting within a professional law school firmly rooted in the social scientific study of law. Students accepted into the Exchange select approved courses from the LL.B. (Hons.) syllabus of the Division of Applied Social Science, Faculty of Development and Society at Sheffield Hallam University. Students are eligible to apply to participate in the Exchange for their third or fourth year of study. The minimum requirements for consideration for the Exchange are completion of LAWS 1000 and 2.0 credits from LAWS 2003, LAWS 2004, LAWS 2005, LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502, and LAWS 2601; and third-year standing in Law at the time of the Exchange. Students interested in the Exchange should apply to the Department as early as possible, and no later than February 1. Selection will be made by the Department of Law based on the basis of CGPA, overall program performance, and potential for success in the Exchange.

Students who successfully complete 6 units in the LL.B. (Hons.) Law program in the Division of Applied Social Science will receive 5.0 credits towards their B.A. Honours. Interested students should contact the Department.

## Linguistics and Language Studies

School of Linguistics and  
Language Studies  
(Faculty of Arts and Social Sciences)

215 Paterson Hall  
613-520-6612  
carleton.ca/slals

This section presents the requirements for

- Linguistics – B.A. Honours
- Linguistics – B.A. Combined Honours
- Linguistics and Discourse Studies – B.A. Combined Honours
- Linguistics – B.A. General
- Applied Linguistics and Discourse Studies – B.A. Honours
- Applied Linguistics and Discourse Studies – B.A. Combined Honours
- Applied Linguistics and Discourse Studies – B.A. General
- Minor in American Sign Language
- Minor in Applied Linguistics and Discourse Studies
- Minor in German
- Minor in Italian
- Minor in Japanese Language
- Minor in Linguistics
- Minor in Mandarin Chinese
- Minor in Russian
- Minor in Spanish
- Certificate in the Teaching of English as a Second Language

### Graduation Requirements

In addition to the requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) the regulations common to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the School when planning their program and selecting courses.

#### School Language Proficiency Requirement

Students in B.A. Honours, General or Combined Honours programs of the School are required, at graduation, to have a working knowledge of a language other than English. Proficiency is determined by successful completion of a university course in the language or by an oral or written test given by the School.

### Program Requirements

#### Linguistics

##### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.5 credits):
  1. 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
  2. 2.5 credits in LING 2001, LING 2005, LING 3002, LING 3004, LING 3505;
  3. 0.5 credit from LING 2006, LING 3603, LING 3801;
  4. 1.5 credits from LING 3001, LING 3005, LING 3009, LING 3101, LING 3504, LING 3601;
  5. 1.0 credit in LING 4001, LING 4002;
  6. 0.5 credit from LING 4009, LING 4507, LING 4601;
  7. 1.0 credit in Linguistics at the 4000-level;
  8. 1.5 credits in Linguistics;
- B. Credits Not Included in the Major CGPA (10.5 credits):
  9. 5.0 credits not in Linguistics or Applied Linguistics and Discourse Studies
  10. 5.5 credits in free electives (maximum 2.5 in Linguistics)
- C. Additional Requirements:
  11. School Language Proficiency Requirement must be satisfied.

#### Linguistics

##### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Major CGPA (6.0 credits):
  1. 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
  2. 2.5 credits in LING 2001, LING 2005, LING 3002, LING 3004, LING 3505;
  3. 1.0 credit from LING 2006, LING 3001, LING 3005, LING 3009, LING 3101, LING 3504, LING 3601, LING 3603, LING 3801;
  4. 1.0 credit in LING 4001, LING 4002;
  5. 0.5 credit from LING 4009, LING 4507, LING 4601;
- B. Additional Requirements:
  6. The requirements of the other discipline must be satisfied;
  7. 5.0 credits not in Linguistics or the other discipline;
  8. Sufficient free electives to make a total of 20.0 credits for the program;
  9. School Language Proficiency Requirement must be satisfied.



## Linguistics and Discourse Studies B.A. Combined Honours (20.0 credits)

Honours Linguistics and Honours Linguistics and Discourse Studies are combined into the Linguistics and Discourse Studies B.A. Combined Honours.

- A. Credits Included in the Major CGPA (12.0 credits):**
- 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
  - 2.5 credits in LING 2001, LING 2005, LING 3002, LING 3004, LING 3505;
  - 1.0 credit in LING 4001, LING 4002;
  - 2.0 credits in LING;
  - 1.0 credit in ALDS 2201, ALDS 2202,
  - 1.0 credits in ALDS at the 3000-level or above;
  - 1.0 credit in ALDS at the 4000-level;
  - 2.5 credits in ALDS;
- B. Additional Requirements:**
- 5.0 credits not in Linguistics or Applied Linguistics and Discourse Studies
  - Sufficient free electives to make a total of 20.0 credits for the program;
  - School Language Proficiency Requirement must be satisfied.

## Linguistics B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (6.5 credits):**
- 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
  - 2.5 credits in LING 2001, LING 2005, LING 3002, LING 3004, LING 3505;
  - 0.5 credit from LING 2006, LING 3603, LING 3801;
  - 1.5 credits from LING 3001, LING 3005, LING 3009, LING 3101, LING 3504, LING 3601;
  - 1.0 credit in Linguistics;
- B. Credits Not Included in the Major CGPA (8.5 credits):**
- 5.0 credits not in Linguistics or Applied Linguistics and Discourse Studies
  - 3.5 credits in free electives (maximum 1.5 in Linguistics)
- C. Additional Requirement:**
- School Language Proficiency Requirement must be satisfied.

## Applied Linguistics and Discourse Studies B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.5 credits):**
- 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
  - 1.0 credit in ALDS 2201 and ALDS 2202;
  - 1.0 credit from FYSM 1202, FYSM 1204, FYSM 1205, FYSM 1612, LING 2001, ALDS 2203, LING 2604, ALDS 2701, ALDS 2704, ALDS 2705;
  - 1.5 credits from ALDS 3401, ALDS 3402, ALDS 3405, LING 3603, ALDS 3701, ALDS 3702, ALDS 3705, ALDS 3706, ALDS 3903;
  - 1.0 credit from ALDS 4201, ALDS 4207, ALDS 4208, ALDS 4403, ALDS 4602, ALDS 4709, ALDS 4801, ALDS 4802;
  - 1.0 credit in Applied Linguistics and Discourse Studies at the 4000-level;
  - 2.0 credits in Applied Linguistics and Discourse Studies, at the 2000-level or above;
  - 1.0 credit from ALDS 4206 [1.0] or ALDS 4908 [1.0], or other courses approved by the ALDS academic advisor;
- B. Credits Not Included in the Major CGPA (10.5 credits):**
- 5.0 credits not in Applied Linguistics and Discourse Studies or Linguistics
  - 5.5 credits in free electives (maximum 2.5 in Applied Linguistics and Discourse Studies)
- C. Additional Requirement:**
- School Language Proficiency Requirement must be satisfied.

## Applied Linguistics and Discourse Studies B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Major CGPA (6.0 credits):**
- 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
  - 1.0 credit in ALDS 2201 and ALDS 2202;
  - 1.5 credits in Applied Linguistics and Discourse Studies at the 4000-level;
  - 2.5 credits in Applied Linguistics and Discourse Studies which may include FYSM 1202, FYSM 1204, FYSM 1205, FYSM 1612;
- B. Additional Requirements:**
- The requirements for the other discipline must be met;
  - 5.0 credits not in Applied Linguistics and Discourse Studies or the other discipline;
  - Sufficient free electives to make a total of 20.0 credits for the program;
  - School Language Proficiency Requirement must be satisfied.

## Applied Linguistics and Discourse Studies B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (6.5 credits):**
- 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
  - 1.0 credit in ALDS 2201 and ALDS 2202;
  - 1.0 credit from FYSM 1202, FYSM 1204, FYSM 1205, FYSM 1612, LING 2001, ALDS 2203, LING 2604, ALDS 2701, ALDS 2704, ALDS 2705;
  - 1.5 credits from ALDS 3401, ALDS 3402, ALDS 3405, LING 3603, ALDS 3701, ALDS 3702, ALDS 3705, ALDS 3706, ALDS 3903;
  - 2.0 credits in Applied Linguistics and Discourse Studies;
- B. Credits Not Included in the Major CGPA (8.5 credits):**
- 5.0 credits not in Applied Linguistics and Discourse Studies or Linguistics;
  - 3.5 credits in free electives (maximum 1.5 in Applied Linguistics and Discourse Studies)
- C. Additional Requirements:**
- The School Language Proficiency Requirement must be satisfied.

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## Minors

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### Minor in American Sign Language

Open to all undergraduate degree students.

**Requirements (4.0 credits):**

- 3.0 credits in ASLA;
- 1.0 credit in ASLA at the 3000-level or higher;
- Subject to approval of the School, a maximum of 2.0 credits may be substituted for the above, as follows:
  - 1.0 credit in ALDS 2203 and ALDS 3803;
  - courses at the 2000-level or higher in another discipline relevant to the language;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

## Minor in Applied Linguistics and Discourse Studies

Open to all undergraduate degree students in programs other than Applied Linguistics and Discourse Studies.

**Requirements (4.0 credits):**

- 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
- 1.0 credit in ALDS 2201 AND ALDS 2202;
- 1.0 credit from FYSM 1202, FYSM 1204, FYSM 1205, FYSM 1612, LING 2001, ALDS 2203, LING 2604, ALDS 2701, ALDS 2704, ALDS 2705;
- 1.0 credit from ALDS 3401, ALDS 3402, ALDS 3405, LING 3603, ALDS 3701, ALDS 3702, ALDS 3705, ALDS 3706, ALDS 3903;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in German

Open to all undergraduate degree students.

**Requirements (4.0 credits):**

- 3.0 credits in GERM;
- 1.0 credit in GERM at the 3000-level or higher;
- Subject to approval of the School, a maximum of 2.0 credits may be substituted for the above, as follows:
  - 1.0 credit in ALDS 2203 and ALDS 3803;
  - courses at the 2000-level or higher in another discipline relevant to the language;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in Italian

Open to all undergraduate degree students.

**Requirements (4.0 credits):**

- 3.0 credits in ITAL;
- 1.0 credit in ITAL at the 3000-level or higher;
- Subject to approval of the School, a maximum of 2.0 credits may be substituted for the above, as follows:
  - 1.0 credit in ALDS 2203 and ALDS 3803;
  - courses at the 2000-level or higher in another discipline relevant to the language;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in Japanese Language

Open to all undergraduate degree students.

**Requirements (4.0 credits):**

- 3.0 credits in JAPA;
- 1.0 credit in JAPA at the 3000-level or higher;
- Subject to approval of the School, a maximum of 2.0 credits may be substituted for the above, as follows:
  - 1.0 credit in ALDS 2203 and ALDS 3803;
  - courses at the 2000-level or higher in another discipline relevant to the language;

4. The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in Linguistics

Open to all undergraduate degree students in programs other than Linguistics.

#### Requirements (4.0 credits):

1. 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0];
2. 2.5 credits in LING 2001, LING 2005, LING 3002, LING 3004, LING 3505;
3. 0.5 credit from LING 2006, LING 3001, LING 3005, LING 3009, LING 3101, LING 3504, LING 3601, LING 3603, LING 3801;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in Mandarin Chinese

Open to all undergraduate degree students.

#### Requirements (4.0 credits):

1. 3.0 credits in CHIN;
2. 1.0 credit in CHIN at the 3000-level or higher;
3. Subject to approval of the School, a maximum of 2.0 credits may be substituted for the above, as follows:
  - a) 1.0 credit in ALDS 2203 and ALDS 3803;
  - b) courses at the 2000-level or higher in another discipline relevant to the language;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in Russian

Open to all undergraduate degree students.

#### Requirements (4.0 credits):

1. 3.0 credits in RUSS;
2. 1.0 credit in RUSS at the 3000-level or higher;
3. Subject to approval of the School, a maximum of 2.0 credits may be substituted for the above, as follows:
  - a) 1.0 credit in ALDS 2203 and ALDS 3803;
  - b) courses at the 2000-level or higher in another discipline relevant to the language;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

### Minor in Spanish

Open to all undergraduate degree students.

#### Requirements (4.0 credits):

1. 3.0 credits in SPAN;
2. 1.0 credit in SPAN at the 3000-level or higher;
3. Subject to approval of the School, a maximum of 2.0 credits may be substituted for the above, as follows:
  - a) 1.0 credit in ALDS 2203 and ALDS 3803;
  - b) courses at the 2000-level or higher in another discipline relevant to the language;

4. The remaining requirements of the major discipline(s) and degree must be satisfied.

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## Certificate in the Teaching of English as a Second Language (CTESL)

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### Admission

1. The Certificate in the Teaching of English as a Second Language (CTESL) has restricted enrolment. Admission is at the discretion of the School of Linguistics and Language Studies.
2. The application requires a written statement.
3. International applicants or Canadian citizens and residents whose first language is not English must meet the English language requirements of Carleton University.
4. Students may seek admission to the CTESL program after having completed a first degree in another discipline.
5. Students may also earn the CTESL through concurrent studies with an Honours program in any discipline. Applicants for concurrent studies must be registered in an Honours program and have an Overall CGPA of 7.00 or higher. Students registered in the concurrent CTESL program who do not complete their degree cannot receive the CTESL.

### Graduation

A candidate for the CTESL must obtain a grade of C or higher in all courses taken at Carleton University under the CTESL program. All credits for the CTESL must be taken at Carleton University.

## Certificate in the Teaching of English as a Second Language (CTESL)

### Requirements (5.0 credits)

1. 1.0 credit in (LING 1001 and ALDS 1001) or LALS 1000 [1.0], which must be taken before or concurrently with other required courses;
2. 3.0 credits in ALDS 4205 [1.0] and ALDS 4206 [1.0] taken concurrently; ALDS 4602; ALDS 4801.
3. 1.0 credit from LING 2001, LING 2005, ALDS 2201, ALDS 2202, ALDS 2203, LING 2604, ALDS 2701, ALDS 2704, ALDS 2705, ALDS 3401, ALDS 3402, ALDS 3405, LING 3601, LING 3603, ALDS 3701, ALDS 3702, ALDS 3705, ALDS 3706, ALDS 4201, ALDS 4207, ALDS 4208, ALDS 4209, ALDS 4403, ALDS 4802, ALDS 4906, or any other course approved by the Supervisor of CTESL.

## Mathematics and Statistics

### School of Mathematics and Statistics

(Faculty of Science)

4302 Herzberg Bldg.

613-520-2155

math.carleton.ca

This section presents the requirements for:

- Mathematics – B.Math. Honours
- Mathematics with Specialization in Stochastics – B.Math. Honours
- Computational and Applied Mathematics and Statistics – B.Math. Honours
- Statistics – B.Math. Honours
- Mathematics – B.Math. General
- Computer Mathematics – B.Math. General
- Statistics – B.Math. General
- Computer Science and Mathematics – B.Math. Combined Honours
- Mathematics and Physics – B.Sc. Double Honours
- Biostatistics - B.Math. Combined Honours
- Economics and Mathematics – B.Math. Combined Honours
- Economics and Statistics – B.Math. Combined Honours
- Mathematics (Combined B.Math./M.Sc.) – B.Math.
- Statistics (Combined B.Math./M.Sc.) – B.Math.
- Minor in Mathematics
- Minor in Statistics

A Co-operative Education Option is available for Honours programs in the B.Math. degree. Consult the Co-operative Education section of this Calendar.

### Graduation Requirements

In addition to the program and academic performance evaluation requirements listed below, students must satisfy the University regulations common to all undergraduate students (see the Academic Regulations section of this Calendar).

Students should consult with the School of Mathematics and Statistics when planning their program and selecting courses.

### Course Prerequisites

The following courses central to B.Math. programs have grade requirements in their prerequisites:

- MATH 2000 requires C+ in MATH 1002, or B+ in (MATH 2007 or MATH 1005), and C+ in MATH 1102, or B+ in (MATH 1107 or MATH 1104)
- MATH 2100 requires C+ in MATH 1102, or B+ in MATH 2107
- MATH 2454 requires C+ in (MATH 1002 or MATH 2007), and C+ in (MATH 1102 or MATH 2107)
- STAT 2655 requires C+ in (MATH 1002 or MATH 2007 or MATH 1005), and C+ in (MATH 1102 or MATH 1107 or MATH 1104)
- MATH 2007 requires MATH 1004 or C- in (MATH 1007 or MATH 1009)
- MATH 2107 requires MATH 1104 or C- in (MATH 1107 or MATH 1109)

### Course Categories for B.Math. Programs

The following categories of courses are used in the specification of the programs.

#### 2000-level Honours Sequence

The following courses constitute the 2000-level Honours Sequence:

MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2559, STAT 2655, MATH 2907

#### 3000-level Honours Sequence

The following courses constitute the 3000-level Honours Sequence:

MATH 3001, MATH 3002, MATH 3057, MATH 3008, MATH 3106, MATH 3158, MATH 3306, MATH 3805, MATH 3806, MATH 3807, MATH 3855, STAT 3506, STAT 3553, STAT 3555, STAT 3558, STAT 3559

#### Natural Science Electives

All courses with subject codes:

BIOC, BIOL, BIOT, CHEM, ENSC, EARTH, ISCI, NSCI, PHYS

#### Approved Arts or Social Sciences Electives

All courses offered by the Faculty of Arts and Social Sciences and the Faculty of Public Affairs are acceptable as Arts or Social Sciences Electives except for the following courses, which are only accepted for credit as free electives in any program of the School. See Item (iii) under Prohibited and Restricted Courses below concerning Computer Mathematics programs.

#### Business

BUSI 1001, BUSI 1002, BUSI 1004, BUSI 1005, BUSI 1402, BUSI 2001, BUSI 2002, BUSI 2402, BUSI 2700, BUSI 3001, BUSI 3008, BUSI 4000, BUSI 4001, BUSI 4002

#### Economics

ECON 4005, ECON 4706, ECON 4707

#### Geography

GEOG 2100, GEOG 3101, GEOG 3102, GEOG 3103, GEOG 3105, GEOG 3108, GEOG 4000 (ENST 4400), GEOG 4005 (ENST 4005), GEOG 4101, GEOG 4103 (ENVE 3003), GEOG 4104, GEOG 4108

#### Geomatics

GEOM 2007, GEOM 3002, GEOM 3005, GEOM 3007, GEOM 4003, GEOM 4008, GEOM 4009

#### Interdisciplinary Social Sciences

ISSC 3000

#### Psychology

PSYC 2200, PSYC 2700, PSYC 3200 [1.0], PSYC 3201, PSYC 3202, PSYC 3203, PSYC 3204, PSYC 3205, PSYC 3206, PSYC 3207, PSYC 3506, PSYC 3700 [1.0], PSYC 3702, PSYC 3800 [1.0], PSYC 4001

#### Prohibited and Restricted Courses

1. MATH 1805/COMP 1805 can be counted only as a half-credit "free elective" in Mathematics and Statistics programs.
2. The following courses may not be counted for academic credit (even as free electives) in any program offered by the School of Mathematics and Statistics:

ECON 2200 [1.0], ECON 2201, ECON 2202, ECON 2400, ECON 4004, BUSI 2300, GEOG 2006, GEOG 3003, PSCI 2700 [1.0], PSYC 2000 [1.0], PSYC 2001, PSYC 2002, PSYC 3000 [1.0], ISSC 4001, ISSC 4002, SOWK 2500 [1.0], SOWK 3501,

SOWK 3502, SOCI 2003 [1.0], ANTH 2003 [1.0], SOCI 3700 [1.0], SOCI 4003, SOCI 4004, SOAN 4500

A student who has successfully completed one or more of these courses prior to September 1, 1996 will retain credit for these courses.

Students who have completed ECON 2201 and 2202, (or ECON 2200 [1.0]) and wish to enter a B.Math. General program may be exempted from taking STAT 2507 and STAT 2509 only with permission of the School of Mathematics and Statistics, and provided the grade in ECON 2201 and ECON 2202 is B- or better in each.

3. BUSI 1402, BUSI 2402 and COMP 1001 may not count for credit in the Computer Mathematics Honours or General program, even as free electives.
4. Only one of MATH 3806, COMP 3806, CMPS 3800 or MATH 3800 may count for credit in a B.Math. program.

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### Program Requirements

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In B.Math. programs the following selections for first year courses are permitted substitutions:

1. MATH 1002 [1.0] may be replaced with (MATH 1007 or MATH 1004) and (MATH 2007 or MATH 1005)
2. MATH 1102 [1.0] may be replaced with (MATH 1107 or MATH 1104) and MATH 2107

A higher standard must be achieved in MATH 1004, MATH 1005, MATH 1007, MATH 1104, MATH 1107, MATH 2007, MATH 2107 if these are used to fulfil the requirements of the program. See *Academic Performance Evaluation*, Item 2.

### Mathematics

#### B.Math. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (11.0 credits):

1. 2.0 credits in MATH 1002 [1.0], MATH 1102 [1.0];
2. 3.5 credits in MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2559, STAT 2655;
3. 2.0 credits in MATH 3001, MATH 3057, MATH 3106, MATH 3158;
4. 0.5 credit from: MATH 3002 or MATH 3008;
5. 1.0 credit from the 3000-level Honours Sequence;
6. 1.5 credits in MATH or STAT at the 4000-level or higher;
7. 0.5 credit in MATH 4905;

##### B. Credits Not Included in the Major CGPA (9.0 credits):

8. 4.0 credits not in MATH, STAT or COMP, consisting of:
  - a) 1.0 credit in Natural Science Electives;
  - b) 2.0 credits in Approved Arts or Social Sciences;
  - c) 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences;
9. 5.0 credits in free electives.

### Mathematics with Specialization in Stochastics

#### B.Math. Honours (20.0 credits)

Items 3, 4, 5 and 6 in the Mathematics degree requirements are replaced by:

3. 3.0 credits in MATH 3001, MATH 3008, STAT 3506, STAT 3558, STAT 3559, STAT 4501;
4. 0.5 credit from: STAT 3553 (or STAT 3505), MATH 3801;
5. 0.5 credit in STAT at the 4000-level;
6. 1.0 credit in MATH or STAT at the 4000-level or higher.

### Computational and Applied Mathematics and Statistics

#### B.Math. Honours (20.0 credits)

##### A. Credits included in the Major CGPA (13.5 credits):

1. 7.5 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], STAT 2655, STAT 2559, COMP 1405, COMP 1406, COMP 2401, COMP 2402, COMP 2404;
2. 1.5 credits in MATH 3804, MATH 3806, STAT 3558;
3. 0.5 credit from STAT 3506, STAT 3553, STAT 3555;
4. 1.0 credit in:
  - a) MATH 2454, MATH 3855, or
  - b) STAT 3559 and one of (STAT 3506 or STAT 3553 or STAT 3555);
5. 0.5 credit in MATH 4905;
6. 1.5 credits from MATH 4109, MATH 4700, MATH 4703, MATH 4801, MATH 4802, MATH 4803, MATH 4805, MATH 4806, MATH 4808, MATH 4809, MATH 4811; STAT 4500, STAT 4501, STAT 4502, STAT 4503, STAT 4504, STAT 4507, STAT 4508, STAT 4509, STAT 4601, STAT 4603, STAT 4604;
7. 1.0 credit in MATH or STAT at the 3000-level or above;

##### B. Credits Not Included in the Major CGPA (6.5 credits):

8. 1.0 credit in Natural Sciences (1000-level or above);
9. 2.0 credits in Approved Arts or Social Science Electives;
10. 1.0 credit at the 2000-level or above in Natural Sciences or Approved Arts or Social Sciences;
11. 2.5 credits in Free Electives.

### Statistics

#### B.Math. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (12.0 credits):

1. 2.0 credits in MATH 1002 [1.0], MATH 1102 [1.0];
2. 1.0 credit in COMP 1005, COMP 1006;

3. 6.0 credits in MATH 2000 [1.0], MATH 2454, STAT 2559, STAT 2655, STAT 3506, STAT 3553 (or STAT 3505), STAT 3558, STAT 3559, MATH 3806, STAT 4500, MATH 4905;
  4. 1.0 credit in either:
    - a) MATH 2100 [1.0]
    - or
    - b) MATH 3107 and 0.5 credit from: 3000-level Honours Sequence, MATH 3705, MATH 3801, MATH 3807, MATH 3809 or Mathematics or Statistics at the 4000-level or higher;
  5. 0.5 credit from the 3000-level Honours Sequence or MATH or STAT at the 4000-level or higher;
  6. 1.5 credits in STAT at the 4000-level;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
7. 4.0 credits not in MATH, STAT or COMP, consisting of:
    - a) 1.0 credit in Natural Science Electives;
    - b) 2.0 credits in Approved Arts or Social Sciences;
    - c) 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences.
  8. 4.0 credits in free electives.

**Mathematics**

**B.Math. General (15.0 credits)**

- A. Credits Included in the Major CGPA (7.0 credits):**
1. 2.0 credits in MATH 1002 [1.0], MATH 1102 [1.0];
  2. 2.0 credits in MATH 2008, MATH 2108, MATH 2404, STAT 2507;
  3. 3.0 credits from STAT 2509 or MATH or STAT at the 3000-level or higher, excluding MATH 3101 and STAT 3502;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
4. 4.0 credits not in MATH, STAT or COMP, consisting of:
    - a) 1.0 credit in Natural Science Electives;
    - b) 2.0 credits in Approved Arts or Social Sciences;
    - c) 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences.
  5. 4.0 credits in free electives.

**Computer Mathematics**

**B.Math. General (15.0 credits)**

- A. Credits Included in the Major CGPA (10.0 credits):**
1. 2.0 credits in MATH 1002 [1.0], MATH 1102 [1.0];

2. 2.5 credits in COMP 2001, COMP 1005, COMP 1006, COMP 2002, COMP 2004;
  3. 2.5 credits in MATH 2008, STAT 2507, STAT 2605, MATH 3804, MATH 3825;
  4. 0.5 credit from MATH 2108 or MATH 3101;
  5. 1.0 credit from MATH 3801, MATH 3802, MATH 3806, MATH 3807, MATH 3809;
  6. 1.0 credit in MATH or STAT at the 3000-level (excluding STAT 3502);
  7. 0.5 credit in MATH or STAT at the 2000-level or higher;
- B. Credits Not Included in the Major CGPA (5.0 credits):**
8. 4.0 credits not in MATH, STAT or COMP, consisting of:
    - a) 1.0 credit in Natural Science Electives;
    - b) 2.0 credits in Approved Arts or Social Sciences;
    - c) 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences.
  9. 1.0 credit free elective.

**Statistics**

**B.Math. General (15.0 credits)**

- A. Credits Included in the Major CGPA (7.0 credits):**
1. 2.0 credits MATH 1002 [1.0], MATH 1102 [1.0];
  2. 4.0 credits in MATH 2008, STAT 2507, STAT 2509, STAT 3503, STAT 3504, STAT 3507, STAT 3508, STAT 3509;
  3. 1.0 credit at the 2000-level or higher;
- B. Credits Not Included in the Major CGPA (8.0 credits):**
4. 4.0 credits not in MATH, STAT or COMP, consisting of:
    - a) 1.0 credit in Natural Science Electives;
    - b) 2.0 credits in Approved Arts or Social Sciences;
    - c) 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences;
  5. 4.0 credits free electives.

**Note:** students are advised to include at least 1.0 credit in computer science (COMP) in this program.

**Computer Science and Mathematics**

**B.Math. Combined Honours (20.0 credits)**

Students must register in one of two concentrations, each of which adds 5.0 credits to the Major CGPA.

- A. Credits Included in the Major CGPA (15.0 credits):**

1. 4.0 credits in MATH 1002 [1.0], MATH 1107, MATH 2107, MATH 2000 [1.0], MATH 2100 [1.0];
2. 5.5 credits in COMP 1405, COMP 1406, COMP 2401, COMP 2402, COMP 2003, COMP 2404, COMP 3004, COMP 3000, COMP 3005, COMP 3804, COMP 3805;
3. 0.5 credit in MATH 4905 or COMP 4905;

and for the concentration in Computing Theory and Numerical Methods:

4. 2.5 credits in MATH 2454, STAT 2655; MATH 3801, MATH 3806, COMP 4804;
5. 0.5 credit from MATH 3001, MATH 3002, MATH 3057, MATH 3008;
6. 1.0 credit from MATH 4801, MATH 4802, MATH 4803, MATH 4805, MATH 4806, MATH 4808;
7. 1.0 credit in Computer Science at the 3000-level or higher.

and for the concentration in Statistics and Computing:

4. 2.5 credits in MATH 2454, STAT 2559, STAT 2655, STAT 3558, STAT 3559;
5. 0.5 credit from STAT 3506, STAT 3553 (or STAT 3505);
6. 1.0 credit in STAT at the 4000-level;
7. 1.0 credit in COMP at the 4000-level.

**B. Credits Not Included in the Major CGPA (5.0 credits):**

8. 4.0 credits not in MATH, STAT or COMP, consisting of:
  - a) 1.0 credit in Natural Science Electives;
  - b) 2.0 credits in Approved Arts or Social Sciences;
  - c) 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences.
9. 1.0 credit free elective.

**Notes:**

1. The following courses offered by the School of Business and the Faculty of Engineering are treated as Computer Science courses in this program:

*Business*

BUSI 2400, BUSI 4400, BUSI 4402, BUSI 4406, BUSI 4407

*Engineering*

SYSC 3303, SYSC 4005, SYSC 4507

2. Students who wish to keep open the choice of other Honours programs in Mathematics and Statistics are advised to take MATH 1102 [1.0] instead of MATH 1107 and MATH 2107.

**Mathematics and Physics  
B.Sc. Double Honours (21.5 credits)**

Note that MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2655 have minimum grade requirements in their prerequisites. Refer to the section Course Prerequisites in the Mathematics and Statistics programs section of the calendar.

**A. Credits Included in the Major CGPA (16.5 credits):**

1. 7.0 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2655, MATH 3705, MATH 3001, MATH 3057, MATH 3106;
2. 0.5 credit from MATH 3002, MATH 3008;
3. 1.0 credit in Mathematics (MATH, STAT) at the 4000-level or higher;
4. 1.0 credit from PHYS 1001 and PHYS 1002 (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
5. 1.5 credits in PHYS 2202, PHYS 2604, PHYS 3701;
6. 3.5 credits in PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3802, PHYS 4409, PHYS 4707, PHYS 4708;
7. 1.0 credit in PHYS at the 4000-level or higher;
8. 1.0 credit from:
  - a) MATH 4905 or PHYS 4907 or PHYS 4908, and 0.5 credit in math or physics at the 4000-level;

or

- b) PHYS 4909 [1.0];

**B. Credits Not Included in the Major CGPA (5.0 credits):**

9. 1.0 credit from (BIOL 1003 and BIOL 1004), or (CHEM 1001 and CHEM 1002), (CHEM 1005 and CHEM 1006), or (ERTH 1006 and ERTH 1009);
10. 0.5 credit in COMP 1005 or COMP 1007;
11. 0.5 credit in COMP;
12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
13. 1.5 credits in Approved Arts or Social Sciences Electives;
14. 1.0 credit in free elective.

**Note:** in Item 2 above, MATH 4003 is highly recommended.

**Biostatistics**

**B.Math. Combined Honours (20.0 credits)**

**A. Credits included in the Major CGPA (13.5 credits):**

1. 3.5 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2008, MATH 3806, MATH 4905;
2. 0.5 credit in MATH 3815 or MATH 3816;
3. 4.5 credits in STAT 2655, STAT 2559, STAT 3503, STAT 3504, STAT 3506, STAT 3508, STAT 3509, STAT 4605, STAT 4606;
4. 4.0 credits in BIOL 1103, BIOL 1104, BIOL 2104, BIOL 2200, BIOL 2600, BIOL 3104, BIOL 3609, BIOL 4103;
5. 0.5 credit from BIOC 3008 or BIOC 4008;
6. 0.5 credit in STAT at the 4000-level;

**B. Credits Not Included in the Major CGPA (6.5 credits):**

7. 1.0 credit in BIOC 3101, BIOC 3102;

Programs

8. 2.0 credits in CHEM 1001, CHEM 1002, CHEM 2203, CHEM 2204;
9. 1.0 credit in PHYS 1003 and PHYS 1004, or PHYS 1007 and PHYS 1008;
10. 1.0 credit in COMP 1005, COMP 1006;
11. 1.0 credit in Approved Arts or Social Sciences Electives;
12. 0.5 credit in free electives.

### Economics and Mathematics

#### B.Math. Combined Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (15.0 credits):

1. 7.0 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2655, STAT 2559, MATH 3001, STAT 3558, STAT 3559;
2. 0.5 credit in MATH 3002 or MATH 3008;
3. 0.5 credit in MATH 4905;
4. 1.0 credit in MATH or STAT at the 4000-level;
5. 4.0 credits in ECON 1000 [1.0]; ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 4020, ECON 4021;
6. 2.0 credits in ECON at the 4000-level;

##### B. Credits Not Included in the Major CGPA (5.0 credits):

8. 1.0 credit in COMP 1005, COMP 1006;
9. 1.0 credit in Natural Science Electives;
10. 3.0 credits in free electives.

##### Notes

1. An Honours Essay (ECON 4908 [1.0]) with a grade of B- or higher may be written by students with Overall and Major CGPAs of 7.50 or higher to earn 1.0 credit in ECON at the 4000-level. Qualified students who choose to pursue the Honours Essay option must first complete an Honours essay prospectus to the satisfaction of both their adviser and the Department of Economics B.A. program supervisor.
2. ECON 2400 does not count for credit in this program.
3. Only one of STAT 4603 and ECON 4713 can count for credit in this program.

### Economics and Statistics

#### B.Math. Combined Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (15.0 credits):

1. 8.0 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2454, STAT 2655, STAT 2559, MATH 3107, STAT 3506, STAT 3553 (or STAT 3505), STAT 3558, STAT 3559; STAT 4502, STAT 4503;
2. 0.5 credit in MATH 4905;
3. 0.5 credit in STAT at the 4000-level;
4. 4.0 credits in ECON 1000 [1.0], ECON 2020, ECON 2030, ECON 2102, ECON 2103, ECON 4020, ECON 4021;
5. 2.0 credits in ECON at the 4000-level;

##### B. Credits Not Included in the Major CGPA (5.0 credits):

6. 1.0 credit in COMP 1005, COMP 1006;
7. 1.0 credit in Natural Science Electives;
8. 3.5 credits in free electives.

##### Notes:

1. An Honours Essay (ECON 4908 [1.0]) with a grade of B- or higher may be written by students with Overall and Major CGPAs of 7.50 or higher to earn 1.0 credit in ECON at the 4000-level. Qualified students who choose to pursue the Honours Essay option must first complete an Honours essay prospectus to the satisfaction of both their adviser and the Department of Economics B.A. program supervisor.
2. MATH 2100 [1.0] may replace MATH 3107 and 0.5 credit in free electives in this program.
3. ECON 2400 does not count for credit in this program.
4. Only one of STAT 4603 and ECON 4713 can count for credit in this program.

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#### Program Requirements for Combined B.Math./M.Sc.

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This "fast-track" program combines the requirements for Bachelor of Mathematics in Mathematics or Statistics, and Master of Science in Mathematics, into a sequence that will enable exceptional students to complete in four years of study.

Entry to this program directly from an Ontario High School requires both of the following:

- i) an average of 90 per cent or better on Grade 12 Mathematics: Advanced Functions and Introductory Calculus (or an OAC in Calculus) and Grade 12 Mathematics: Geometry and Discrete Mathematics (or an OAC in Algebra and Geometry);
- ii) an average of 85 per cent or better over six credits in Grade 12 courses of University or University/College type (or over six OACs).

Admission, continuation and graduation from the undergraduate portion of the program requires a Major CGPA of 11.0 or better and Overall CGPA of 10.00 or better.

Before entry into the fourth year of this program, students must: obtain a recommendation from the School of Mathematics and Statistics to continue, apply to graduate with a B.Math. General degree, by the end of January of their third year, and submit an application for graduate studies to the School by mid-February.

#### Undergraduate Portion

Students may apply for admission to either the Mathematics or the Statistics versions of the program.



**Mathematics (Combined B.Math./M.Sc.)  
B.Math. (15.0 credits)**

- A. Credits Included in the Major CGPA (9.5 credits):**
- 7.0 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2655, MATH 3001, MATH 3057, MATH 3106, MATH 3158;
  - 0.5 credit in MATH 3002 or MATH 3008;
  - 0.5 credit from the 3000-level Honours Sequence or MATH or STAT at the 4000-level or higher;
  - 1.5 credits at the 4000-level or higher in MATH or STAT;
- B. Credits Not Included in the Major CGPA (5.5 credits):**
- 4.0 credits not in MATH, STAT or COMP, consisting of:
    - 1.0 credit in Natural Science Electives;
    - 2.0 credits in Approved Arts or Social Sciences;
    - 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences.
  - 1.5 credits in free electives.

Students wishing to specialize in Stochastics may, with the permission of the School, replace **Items 1 - 4** of the Mathematics version by:

- 5.5 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2559, STAT 2655;
- 2.0 credits in MATH 3001, STAT 3506, STAT 3558, STAT 3559;
- 0.5 credit from MATH 3002, MATH 3057, MATH 3008;
- 1.5 credits at the 4000-level or higher in MATH or STAT.

**Statistics (Combined B.Math./M.Sc.)  
B.Math. (15.0 credits)**

- A. Credits Included in the Major CGPA (9.5 credits):**
- 8.0 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2559, STAT 2655, MATH 3001, STAT 3506, STAT 3553 (or STAT 3505), STAT 3558, STAT 3559;
  - 1.5 credits at the 4000-level or higher in Mathematics or Statistics;
- B. Credits Not Included in the Major CGPA (5.5 credits):**
- 4.0 credits not in MATH, STAT or COMP, consisting of:
    - 1.0 credit in Natural Science Electives;
    - 2.0 credits in Approved Arts or Social Sciences;
    - 1.0 credit at the 2000-level or higher, in Natural Science Electives or in Approved Arts and Social Sciences.
  - 1.5 credits in free electives.

**Graduate Portion – M.Sc.**

During the graduate portion of the "fast-track" program, the student is registered as a graduate student and is covered by the regulations of the Faculty of Graduate Studies.

- 1.5 credits at the 5000-level or higher in MATH or STAT;
- 1.0 credit at the 5000-level or higher in mathematics or statistics or from another department or school;
- Either:
  - MATH 4905 and 1.5 credits in MATH or STAT at the 5000-level or higher
  - an M.Sc. thesis in Mathematics.

**Minors**

**Minor in Mathematics**

This minor is open to students in all undergraduate programs except programs of the School of Mathematics and Statistics.

**Requirements (4.0 credits):**

- 1.0 credit in either:
  - (MATH 1007 and MATH 2007), or (MATH 1004 and MATH 1005);
  - MATH 1002 [1.0];
- 1.0 credit in either:
  - (MATH 1107 or MATH 1104) and MATH 2107;
  - MATH 1102 [1.0];
- 1.0 credit in MATH at the 2000-level or higher;
- 1.0 credit in MATH at the 3000-level or higher;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

**Minor in Statistics**

This minor is open to students in all undergraduate programs except programs of the School of Mathematics and Statistics.

**Requirements (4.0 credits):**

- 0.5 credit from: MATH 1004, MATH 1007, MATH 1009;
- 0.5 credit from: MATH 1104, MATH 1107, MATH 1119;
- 1.0 credit from:
  - 0.5 credit from: (STAT 2507 and STAT 2509), or (STAT 3502 and STAT 2509), or (STAT 2606 and STAT 2607);

or

b) ECON 2201 and ECON 2202;

4. 1.5 credits in STAT 3503, STAT 3504, STAT 3507;
5. 0.5 credit from COMP 1005, COMP 1007, BUSI 1402 (Business students only), ECOR 1606 (Engineering students only);
6. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Notes:**

1. **Item 1** above may be satisfied by credit in MATH 1002 [1.0]. **Item 2** may be satisfied by credit in MATH 1102 [1.0].
2. With approval an alternate introductory statistics course may be used to satisfy **Item 3** above.

Programs

## Music

### School for Studies in Art and Culture (Faculty of Arts and Social Sciences)

A917 Loeb Bldg.

613-520-5770

carleton.ca/ssac/music

This section presents the requirements for:

- Music – B.Mus. Honours
- Music – B.A. Honours
- Music – B.A. Combined Honours
- Music – B.A. General
- Minor in Music

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### Graduation Requirements

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In addition to the program requirements listed below, students must satisfy:

- i) the University regulations, including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) in the case of B.A. programs, the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth Requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult the School when planning their program and selecting courses.

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### Course Categories for Music Programs

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#### Music History and Musicology

MUSI 1000, MUSI 1001, MUSI 1002, MUSI 2005, MUSI 2006, MUSI 2007, MUSI 2008, MUSI 2009, MUSI 2100, MUSI 2101, MUSI 2102, MUSI 2103, MUSI 2104, MUSI 2105, MUSI 2106, MUSI 3102, MUSI 3103, MUSI 3104, MUSI 3106, MUSI 3302, MUSI 3400, MUSI 3401, MUSI 3402, MUSI 3403, MUSI 4006, MUSI 4103, MUSI 4104, MUSI 4303, MUSI 4703, MUSI 4908 [1.0]

#### Theory and Composition

MUSI 1106, MUSI 1107, MUSI 1701, MUSI 1712, MUSI 2601, MUSI 2602, MUSI 2700, MUSI 2701, MUSI 2703, MUSI 2712, MUSI 3600 [1.0], MUSI 3700, MUSI 3701, MUSI 4300, MUSI 4700, MUSI 4701, MUSI 4906 [1.0]

#### Performance

MUSI 1900, MUSI 1901, MUSI 2900, MUSI 2901, MUSI 3900, MUSI 3901, MUSI 4900 [1.0], MUSI 4907 [1.0]

#### Ensemble

These courses are graded Sat/Uns.

MUSI 1912 [0.0], MUSI 1913 [0.0], MUSI 1914 [0.0], MUSI 1915 [0.0], MUSI 2912 [0.0], MUSI 2913 [0.0], MUSI 2914 [0.0], MUSI 2915 [0.0], MUSI 3912 [0.0], MUSI 3913 [0.0], MUSI 3914 [0.0], MUSI 3915 [0.0], MUSI 4912 [0.0], MUSI 4913 [0.0], MUSI 4914 [0.0], MUSI 4915 [0.0]

#### Practicum Courses

MUSI 4800, MUSI 4801

#### Special Topics

MUSI 4109 [1.0], MUSI 4200, MUSI 4201, MUSI 4205, MUSI 4206, MUSI 4209 [1.0]

#### Sonic Design

MUSI 4909 [1.0], MUSI 3603, MUSI 3604

#### Prohibited and Restricted Courses

Performance courses are open only to students in the B.Mus. program. All ensemble (choir, jazz, early music, Indian classical music, chamber music, etc.) courses are open (without credit) to members of the public.

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### Academic Performance Evaluation

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Academic Performance Evaluation for students in the B.Mus. degree is applied as follows:

1. The minimum requirements for *Good Standing* are:
  - a) If at most 15.0 credits are included in the Overall CGPA, the Major CGPA must be at least 6.00 and the Overall CGPA must be at least 5.00.
  - b) If more than 15.0 credits are included in the Overall CGPA, the Major CGPA must be at least 6.50 and the Overall CGPA must be at least 5.00.

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### Program Requirements

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#### Music

#### B.Mus. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (14.0 credits):

1. Performance:
 

3.0 credits in MUSI 1900, MUSI 1901, MUSI 2900, MUSI 2901, MUSI 3900, MUSI 3901;
2. Music Theory:
  - a) 3.5 credits in MUSI 1701, MUSI 1712 [1.0], MUSI 2700, MUSI 2701, MUSI 2712 [1.0];
  - b) 0.5 credit from MUSI 3700, MUSI 3701, MUSI 4700 or MUSI 4701;
3. Music History and Musicology:
  - a) 1.5 credit in MUSI 1000, MUSI 1001, MUSI 1002;
  - b) 1.0 credit in Music History and Musicology at the 2000-level;
  - c) 0.5 credit from one of the following Canadian music courses: MUSI 3103, MUSI 3104, MUSI 4103, MUSI 4104;
  - d) 0.5 credit in Music History and Musicology at the 3000-level;
4. 3.5 credits in MUSI, satisfying:
  - a) 1.0 credit in MUSI at the 2000-level;
  - b) 1.0 credit in MUSI at the 3000-level;
  - c) 1.5 credits in MUSI at the 4000-level;

##### B. Credits Not Included in the Major CGPA (6.0 credits):

5. 3.0 credits not in MUSI, not cross-listed with MUSI;
6. 3.0 credits in free electives;

##### C. Additional Non-Credit Requirements:

7. Satisfactory performance in eight Ensemble courses (see **Note**, below, and see list in Course Categories, above).

**Note:** For **Item 7** above, it is strongly recommended that, as a minimum, B. Mus. students enroll in the same group (i.e. Choral Ensemble or Instrumental Ensemble) for at least three out of four years.

**Music**

**B.A. Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (10.0 credits):**

1. 1.0 credit from MUSI 1000, MUSI 1001, MUSI 1002;
2. 1.0 credit in Music History and Musicology at the 2000-level;
3. 1.0 credit in Music History and Musicology at the 3000-level;
4. 2.0 credits in MUSI at the 2000-level;
5. 2.0 credits in MUSI at the 3000-level;
6. 2.0 credits in MUSI at the 4000-level;
7. 1.0 credit in MUSI;

**B. Credits Not Included in the Major CGPA (10.0 credits):**

8. 8.0 credits in electives not in MUSI;
9. 2.0 credits in free electives.

**Music**

**B.A. Combined Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (7.0 credits):**

1. 1.0 credit from MUSI 1000, MUSI 1001, MUSI 1002;
2. 2.0 credits in MUSI at the 2000-level;
3. 2.0 credits in MUSI at the 3000-level;
4. 1.0 credit in MUSI at the 4000-level;
5. 1.0 credit in MUSI;

**B. Additional Requirements:**

6. The requirements from the other discipline must be satisfied;
7. 5.0 credits in electives not in MUSI or the other discipline;
8. Sufficient free electives to make 20.0 credits total for the program.

**Music**

**B.A. General (15.0 credits)**

**A. Credits Included in the Major CGPA (7.0 credits):**

1. 1.0 credit from MUSI 1000, MUSI 1001, MUSI 1002;
2. 1.0 credit in Music History and Musicology at the 2000-level;
3. 2.0 credits in MUSI at the 2000-level;
4. 2.0 credits in MUSI at the 3000-level;
5. 1.0 credit in Music;

**B. Credits Not Included in the Major CGPA (8.0 credits):**

6. 7.0 credits in electives not in MUSI;
7. 1.0 credit in free electives.

**Minor in Music**

Open to all undergraduate degree students not in Music programs.

**Requirements (4.0 credits):**

1. 1.0 credit in MUSI 1001, MUSI 1002;
2. 1.0 credit in MUSI at the 2000-level;
3. 1.0 credit in MUSI at the 3000-level;
4. 1.0 credit in MUSI;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

Programs

## Nanoscience

Department of Chemistry  
(Faculty of Science)  
203 Steacie Chemistry Bldg.  
613-520-3534  
carleton.ca/chem

This section presents the requirements for:

- **Nanoscience – B.Sc. Honours**

Co-operative Education Option is available (see the Co-operative Education section of this Calendar for details).

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see *the Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see the *Academic Regulations for the Bachelor of Science Degree*),

Students should consult with the Department when planning their program and selecting courses.

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### Program Requirements

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#### Nanoscience B.Sc. Honours (20.0 credits)

- A. **Credits Included in the Major CGPA (11.5 credits):**
  1. 5.0 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2501, CHEM 3100, CHEM 3107, CHEM 3503, CHEM 3600, CHEM 4908 [1.0];
  2. 1.0 credit from (CHEM 2203 and CHEM 2204) or (CHEM 2302 and CHEM 2303);
  3. 1.0 credit from CHEM 4103, CHEM 4104, CHEM 4201;
  4. 4.5 credits in ELEC 2501, ELEC 2507, ELEC 3509, ELEC 3908, ELEC 3105, ELEC 3909, ELEC 4609, ELEC 4700, ELEC 4704;
- B. **Credits Not Included in the Major CGPA (8.5 credits):**
  5. 2.5 credits MATH 1004, MATH 1005, MATH 1104, MATH 2004, STAT 3502;
  6. 1.0 credits PHYS 1003, PHYS 1004;
  7. 2.0 credits in Science Continuation (not CHEM);
  8. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
  9. 1.5 credits in Approved Arts or Social Sciences;
  10. 1.0 credit in free electives.

## Neuroscience

Department of Biology  
(Faculty of Science)

209 Nesbitt Bldg.

613-520-2478

carleton.ca/biology

Department of Neuroscience  
(Faculty of Science)

325 Life Science Research Building

613-520-4020

carleton.ca/neuroscience

This section presents the requirements for:

- Neuroscience – B.Sc. Combined Honours

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- the University regulations (see the Academic Regulations of the University in this Calendar),
- the common regulations applying to all B.Sc. students (see the Academic Regulations for the Bachelor of Science Degree).

Students should consult with the either the Department of Biology or the Department of Neuroscience when planning their program and selecting courses.

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### Course Categories for B.Sc. Programs

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The program descriptions for B.Sc. Combined Honours Neuroscience make use of the course categories defined for all B.Sc. programs (see Academic Regulations for the Bachelor of Science Degree):

- Science Faculty Electives
- Science Continuation Courses
- Free Electives

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### Program Requirements

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#### Neuroscience B.Sc. Combined Honours (20.0 Credits)

- A. Credits Included in the Major CGPA (12.5 credits):**
- 3.0 credits in BIOL 1103, BIOL 1104, BIOL 2001, BIOL 2200, BIOL 2104, and BIOL 3305;
  - 1.0 credit in BIOL, BIOC or CHEM;
  - 1.5 credits in BIOL, BIOC or CHEM at the 3000-level or above;
  - 4.5 credits in PSYC 1001, PSYC 1002, PSYC 2001, PSYC 2002, PSYC 2200, PSYC 2700, PSYC 3200 [1.0] and PSYC 4200;
  - 1.0 credit from PSYC 3202, PSYC 3203 (BIOL 3605), PSYC 3204, PSYC 3205, PSYC 3207, PSYC 3700 [1.0], PSYC 4001 (with permission), PSYC 4207;
  - 0.5 credit from BIOL 3802, BIOL 4317 or BIOC 4007;
  - 1.0 credit in NEUR 4908 [1.0], or BIOL 4908 [1.0];
- B. Credits Not Included in the Major CGPA (7.5 credits):**
- 1.0 credit in MATH 1007 and MATH 1107;
  - 1.0 credit in PSYC 3000 [1.0];
  - 1.5 credits in (CHEM 1001 and CHEM 1002) and CHEM 2203 (see Note 2, below);
  - 1.0 credit in (PHYS 1007 and PHYS 1008) or (PHYS 1001 and PHYS 1002);
  - 0.5 credit in NSCI 1000 or in the Faculty of Arts and Social Sciences or Faculty of Public Affairs, not in Psychology;
  - 1.5 credits in Approved Arts or Social Sciences, not in PSYC or BIOL;
  - 1.0 credits in free electives.

#### Notes

- The topic for Item 7 above must be in neurophysiology, animal behaviour, neuropsychology or a related topic.
- For Item 10 above, students in this program without the prerequisites for CHEM 1001 and CHEM 1002 may substitute CHEM 1005 and CHEM 1006, but will be required to obtain a grade of B- or higher in CHEM 1006 to advance to second year CHEM courses.

## Philosophy

Department of Philosophy  
(Faculty of Arts and Social Sciences)  
3A46 Paterson Hall  
613-520-2110  
carleton.ca/philosophy

This section presents the programs in:

- Philosophy – B.A. Honours
- Philosophy with Specialization in Philosophy, Ethics and Public Affairs – B.A. Honours
- Philosophy – B.A. Combined Honours
- Philosophy – B.A. General
- Minor in Philosophy

### Graduation Requirements

In addition to the program requirements listed below, students must satisfy:

- the University regulations including those concerned with Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the department or committee responsible for their program when planning their program and selecting courses.

### Course Categories for Philosophy

For purposes of program description the Philosophy courses are classified as follows.

#### History of Philosophy

PHIL 2005, PHIL 2101, PHIL 2201, PHIL 2202, PHIL 3001, PHIL 3002, PHIL 3003, PHIL 3005, PHIL 3009, PHIL 3010, PHIL 3104, PHIL 3330

#### Ethics, Society and Aesthetics (ESA):

PHIL 2020, PHIL 2101, PHIL 2103, PHIL 2104, PHIL 2106, PHIL 2201, PHIL 2306, PHIL 2307, PHIL 2380, PHIL 2408, PHIL 2601, PHIL 2807, PHIL 3010, PHIL 3102, PHIL 3320, PHIL 3330, PHIL 3340, PHIL 3350, PHIL 3380, PHIL 3450

#### Language, Mind and World (LMW):

PHIL 2010, PHIL 2301, PHIL 2405, PHIL 2501, PHIL 2504, PHIL 2520, PHIL 2540, PHIL 2550, PHIL 2601, PHIL 3005, PHIL 3010, PHIL 3104, PHIL 3140, PHIL 3150, PHIL 3301, PHIL 3306, PHIL 3501, PHIL 3502, PHIL 3504, PHIL 3506, PHIL 3530

#### Philosophy Courses Open to First-Year Students:

PHIL 1000; PHIL 1100 [1.0], PHIL 1301, PHIL 1500 [1.0], PHIL 1550; PHIL 1600 [1.0], PHIL 2001, PHIL 2003. Please note that not all of these courses are offered each year.

### Program Requirements

#### Philosophy

##### B.A. Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (10.0 credits):

- 2.0 credits in PHIL 2005 [1.0], PHIL 3002, and PHIL 3003;
- 1.0 credit in PHIL 2010 and PHIL 2020;
- 0.5 credit from PHIL 2001, PHIL 2003;
- 1.5 credits in Ethics, Society and Aesthetics at the 2000-level or higher;
- 1.5 credits in Language, Mind and World at the 2000-level or higher;
- 1.5 credits in PHIL;
- 2.0 credits in PHIL at the 4000-level or higher;

###### B. Credits Not Included in the Major CGPA (10.0 credits):

- 8.0 credits not in PHIL;
- 2.0 credits in free electives.

#### Philosophy with Specialization in Philosophy, Ethics and Public Affairs

##### B.A. Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (12.0 credits):

- 1.0 credit in PHIL 2010 and PHIL 2020;
- 2.0 credits in PHIL 2101, PHIL 3320, PHIL 3330, and PHIL 3340;
- 2.0 credits in Philosophy from: PHIL 1500 [1.0], PHIL 1550, PHIL 2103, PHIL 2104, PHIL 2201, PHIL 2202, PHIL 2306, PHIL 2307, PHIL 2380, PHIL 2408, PHIL 2900 [1.0], PHIL 3350;
- 1.5 credits in History of Philosophy;
- 1.0 credit in Language, Mind and World;
- 2.0 credits in PHIL at the 4000-level or above;
- 2.5 credits in PHIL;

###### B. Credits Not Included in the Major CGPA (8.0 credits):

- 1.0 credit in PSCI 2300 [1.0];
- 2.0 credits from PSCI 3109, PSCI 3300, PSCI 3302, PSCI 3303, PSCI 3305, PSCI 3307, PSCI 3308, PSCI 3309, PSCI 4302, PSCI 4305 [1.0], PSCI 4310 [1.0];
- 2.0 credits not in PHIL;
- 3.0 credits in free electives.

**Note:** students intending to take this specialization are strongly encouraged to include either a First Year Seminar in Philosophy or 1.0 credit in Philosophy at the 1000-level (especially PHIL 1500 [1.0]) in their first year program.

#### Philosophy

##### B.A. Combined Honours (20.0 credits)

Combined Honours programs are available in Philosophy with the following subjects: Art History, Biology, Economics, English, French, History, Human Rights, Journalism, Law, Linguistics and Applied Language

Programs - Philosophy

Studies, Political Science, Psychology, Religion, Sociology-Archaeology and Women's and Gender Studies. Special arrangements may be made for combining with other subjects.

Students taking any of the above programs or proposing other combinations must consult the Supervisor of Undergraduate Studies.

- A. **Credits Included in the Philosophy CGPA (7.0 credits):**
  1. 2.0 credits in the History of Philosophy or 1.0 credit in History of Philosophy and HUMS 2000;
  2. 1.0 credit in PHIL 2010 and PHIL 2020;
  3. 1.0 credit in Language, Mind, and World;
  4. 1.0 credit in Ethics, Society and Aesthetics;
  5. 1.0 credit in PHIL at the 4000-level or above;
  6. 1.0 credit in PHIL, which may be satisfied by FYSM 1208, FYSM 1209, or FYSM 1300;
- B. **Additional Credit Requirements (13.0 credits):**
  7. The requirements of the other discipline must be satisfied;
  8. 5.0 credits in electives not in PHIL or the other discipline (not applicable to B.Hum.);
  9. Sufficient free electives to make 20.0 credits in total for the program.

**Philosophy  
B.A. General (15.0 credits)**

- A. **Credits Included in the Major CGPA (6.0 credits):**
  1. 1.0 credit in History of Philosophy;
  2. 1.0 credit in PHIL, which may be satisfied by FYSM 1208, FYSM 1209, or FYSM 1300;
  3. 4.0 credits in PHIL above the 1000-level;
- B. **Credits Not Included in the Major CGPA (9.0 credits):**
  4. 7.0 credits not in PHIL;
  5. 2.0 credits free electives.

**Minor in Philosophy  
Requirements (4.0 credits):**

1. 2.0 credit in PHIL at the 2000-level or above;
2. 1.0 credit in PHIL at the 3000-level or above;
3. 1.0 credit in PHIL, which may be satisfied by FYSM 1208, FYSM 1209, or FYSM 1300;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

The Philosophy Department has identified patterns of courses that satisfy the requirements of the Minor in Philosophy and focus the student's studies in the following areas:

- History of Philosophy
- Philosophy, Ethics and Public Affairs
- Philosophy of Journalism and Mass Communication
- Philosophy of Language
- Philosophy of Mind
- Ethics and Technology

Consult the Supervisor of Undergraduate Studies for details.

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**Mention : Français**

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Students in the B.A. (Honours) or B.A. (General) program in Philosophy may qualify for the notation *Mention : Français* by fulfilling the requirements outlined. Those wishing to pursue this path should consult with the Department's Undergraduate Supervisor, whose approval is required for all courses under *Mention : Français*.

Philosophy courses presented in fulfilment of *Mention : Français* requirements can double as courses to satisfy Philosophy B.A. (General) or B.A. (Honours) requirements.

To graduate with the notation *Mention : Français*, Philosophy students must include in their program the following:

1. 1.0 credit in French language chosen in consultation with the French Department to perfect the student's French language skills.
2. 1.0 credit from the following list of courses taught in French at Carleton and concerned with the study of the heritage and culture of French Canada: FREN 2200, FREN 2300, FREN 3002, FREN 3003, FREN 3302, FREN 3303.
3. 1.0 credit from among PHIL 3901, PHIL 3901, PHIL 3903, PHIL 3906, PHIL 3907, PHIL 3908 (Independent Study) with philosophical works read in French and papers submitted in French to be assessed by two members of the Philosophy Department knowledgeable in the language, or 1.0 credit in Philosophy at the 3000-level taught in French at another university and acceptable to the Philosophy Department.  
  
In addition, Philosophy students in B.A. Honours or Combined Honours must include:
4. 1.0 credit from among special projects (PHIL 4900, PHIL 4901, PHIL 4902, PHIL 4903, PHIL 4904, PHIL 4906 Tutorial) in French, supervised by a member of the Department of Philosophy, or earned in a Philosophy seminar or seminars at the 4000-level taught in French at another university and acceptable to the Philosophy Department. Students must, in addition, satisfy the Honours requirement of 2.0 Carleton credits at the 4000-or 5000-level in Philosophy (1.0 for Combined Honours).
5. Combined Honours students must meet the *Mention : Français* requirements of both Honours disciplines.



## Physics

Department of Physics  
(Faculty of Science)  
3302 Herzberg Bldg.  
613-520-4320  
www.physics.carleton.ca

This section presents the requirements for:

- Physics (Experimental Stream) – B.Sc. Honours
- Physics (Theory Stream) – B.Sc. Honours
- Physics – B.Sc. Major
- Applied Physics – B.Sc. Honours
- Mathematics and Physics – B.Sc. Double Honours
- Biology and Physics – B.Sc. Combined Honours
- Chemistry and Physics – B.Sc. Combined Honours
- Minor in Physics

The Department of Physics also offers the program: **Engineering Physics – B.Eng.** Consult the Engineering program section for details about this program.

The B.Sc. Honours in Applied Physics is available with a **Minor in Business**. Consult the Business program section for admission and program requirements.

The Co-operative Education Option is available in conjunction with all Honours programs of the Department of Physics (see the Co-operative Education section of this Calendar for details).

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### Advice to Incoming Students

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Students should consult with the Department when planning their program and selecting courses.

The Associate Chair for Undergraduate Studies may be contacted at [undergrad-advisor@physics.carleton.ca](mailto:undergrad-advisor@physics.carleton.ca)

See [www.physics.carleton.ca/undergrad](http://www.physics.carleton.ca/undergrad) for advice on year by year coursework.

Students in Physics programs should normally choose PHYS 1001 and PHYS 1002 in first year.

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### Graduation Requirements

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In addition to the program requirements listed below, students must satisfy:

- the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- the common regulations applying to all B.Sc. programs including those relating to Breadth requirements (see the *Academic Regulations for the Bachelor of Science*).

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### Course Categories for Physics

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The program descriptions below make use of the following course categories, which are defined in the *Academic Regulations for the Bachelor of Science* section of this Calendar:

- Approved Arts or Social Sciences Elective
- Free Elective

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### Program Requirements

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#### Physics (Experimental Stream) B.Sc. Honours (20.0 credits)

##### A. Credits included in the Major CGPA (11.0 credits):

- 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
- 1.0 credit in PHYS 2202 and PHYS 2604;
- 1.0 credit in ELEC 2501 and ELEC 2507;
- 5.0 credits in PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3701, PHYS 3802, PHYS 3807, PHYS 4409, PHYS 4008, PHYS 4707, and PHYS 4807;
- 1.0 credit in one of:
  - PHYS 4907 plus 0.5 credit in PHYS at the 4000-level;
  - PHYS 4908 plus 0.5 credit in PHYS at the 4000-level;
  - PHYS 4909 [1.0];
- 1.0 credit in PHYS at the 4000-level or above (PHYS 4203 is recommended for 0.5 credit);
- 1.0 credit in PHYS, COMP, ELEC, MATH and/or STAT at 3000-level or above;

##### B. Credits Not Included In the Major CGPA (9.0 credits):

- 1.0 credit from (BIOL 1003 and BIOL 1004), (CHEM 1001 and CHEM 1002), (CHEM 1005 and CHEM 1006), or (ERTH 1006 and ERTH 1009);
- 3.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, MATH 3705, STAT 3502;
- 0.5 credit from MATH 3800, MATH 3806;
- 1.5 credits from one of:
  - COMP 1005, COMP 2001 and COMP 2004, or
  - ECOR 1606, ECOR 2606 plus 0.5 credit at the 2000-level or higher in COMP, MATH, or PHYS;
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Elective;
- 1.5 credits in approved Arts or Social Science Electives;
- 1.0 credit in free electives.

#### Physics (Theory Stream) B.Sc. Honours (20.0 credits)

##### A. Credits included in the Major CGPA (10.0 credits)

- 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
- 1.0 credit in PHYS 2202 and PHYS 2604;
- 5.0 credits in PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3701, PHYS 3802, PHYS 3807, PHYS 4409, PHYS 4707, PHYS 4708, and PHYS 4807;

4. 1.0 credit in one of:
    - a) PHYS 4907 plus 0.5 credit in PHYS at the 4000-level;
    - b) PHYS 4908 plus 0.5 credit in PHYS at the 4000-level;
    - c) PHYS 4909 [1.0];
  5. 1.0 credit in PHYS at the 4000-level or above;
  6. 1.0 credit in PHYS, COMP, MATH and/or STAT at the 3000-level or above;
- B. Credits Not Included In the Major CGPA (10.0 credits):**
7. 1.0 credit from (BIOL 1003 and BIOL 1004), (CHEM 1001 and CHEM 1002), (CHEM 1005 and CHEM 1006), or (ERTH 1006 and ERTH 1009);
  8. 4.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, MATH 2107, (MATH 2108 or MATH 3107), MATH 3705, STAT 3502;
  9. 0.5 credit from MATH 3800, MATH 3806;
  10. 1.5 credits from one of:
    - a) COMP 1005, COMP 2001 and COMP 2004, or
    - b) ECOR 1606, ECOR 2606, plus 0.5 credit at the 2000-level or higher in COMP, MATH, or PHYS;
  11. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Elective;
  12. 1.5 credits in Approved Arts or Social Sciences Electives;
  13. 1.0 credit in free electives.

**Physics**

**B.Sc. Major (20.0 credits)**

- A. Credits included in the Major CGPA (8.5 credits):**
1. 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
  2. 1.0 credit in PHYS 2202 and PHYS 2604;
  3. 1.0 credit in approved computer science, engineering, mathematics or statistics electives at the 2000-level or higher which may include 0.5 credit 1000-level computer science;
  4. 2.5 credits in PHYS 3007, PHYS 3308, PHYS 3606 (or PHYS 3608), PHYS 3701, and PHYS 4409;
  5. 1.0 credit in PHYS at the 4000-level;
  6. 1.0 credit in PHYS at the 3000-level or above;
  7. 1.0 credit in ELEC and/or science faculty electives (excluding TSES) at the 3000-level or above;
- B. Credits Not Included In the Major CGPA (11.5 credits):**
8. 1.0 credit from (BIOL 1003 and BIOL 1004), (CHEM 1001 and CHEM 1002), (CHEM 1005 and CHEM 1006), or (ERTH 1006 and ERTH 1009);
  9. 3.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, MATH 3705 and (STAT 2507 or STAT 3502);

10. 0.5 credit from COMP 1005, COMP 1007 or ECOR 1606;
11. 4.0 credits in Advanced Science Faculty Electives and/or Approved Arts or Social Sciences Electives and/or Engineering electives selected in consultation with the Department to complement the study of physics; these credits may be used to complete the requirements of a minor designation;
12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Elective;
13. 1.5 credits in Approved Arts or Social Sciences Electives;
14. 1.0 credit in free electives.

**Applied Physics**

**B.Sc. Honours (20.0 credits)**

- A. Credits Included in the Major CGPA (11.0 credits):**
1. 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
  2. 1.0 credit in PHYS 2202 and PHYS 2604;
  3. 1.0 credit in ELEC 2501 and ELEC 2507;
  4. 0.5 credit from ECOR 2606 or MATH 3800;
  5. 4.5 credits in PHYS 3007, PHYS 3308, PHYS 3608, PHYS 3701, PHYS 3802, PHYS 3807, PHYS 4008, PHYS 4409, and PHYS 4707;
  6. 1.0 credit from PHYS 3207, PHYS 4203, PHYS 4208, PHYS 4608, or PHYS 4807;
  7. 1.0 credit from ELEC 3509, ELEC 3908, COMP at the 3000-level, or PHYS at the 4000-level;
  8. 1.0 credit in one of:
    - a) PHYS 4907 plus 0.5 credit in PHYS at the 4000-level;
    - b) PHYS 4908 plus 0.5 credit in PHYS at the 4000-level;
    - c) PHYS 4909 [1.0] ;
- B. Credits Not Included in the Major CGPA (9.0 credits):**
9. 1.0 credit from (BIOL 1003 and BIOL 1004), (CHEM 1001 and CHEM 1002), (CHEM 1005 and CHEM 1006), or (ERTH 1006 and ERTH 1009);
  10. 3.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, STAT 3502 and MATH 3705;
  11. 0.5 credit from COMP 1005 or ECOR 1606;
  12. 4.0 credits (Business minor students see **Notes**, below):
    - a) (COMP 1002 and COMP 2004) or (COMP 1006 and COMP 2002) or (SYSC 2002 and SYSC 2004);
    - b) 1.5 credits in Approved Arts or Social Sciences Elective;
    - c) 1.5 credit in free electives;
  13. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Electives (See Note 2, below).

**Notes:**

- For **Item 12** above students admitted to the Business Minor for Applied Physics may substitute the requirements listed in a), b) and c) with the requirements for a Minor in Business. Consult the Business section of this Calendar for requirements.
- Students in the Business Minor for Applied Physics may also select a BUSI course or a free elective to fulfil **Item 13**.

### Mathematics and Physics B.Sc. Double Honours (21.5 credits)

Note that MATH 2000, MATH 2100, MATH 2454, STAT 2655 have minimum grade requirements in their prerequisites. Refer to the section Course Prerequisites under the Mathematics and Statistics programs sections of the calendar.

#### A. Credits Included in the Major CGPA (16.5 credits):

- 7.0 credits in MATH 1002 [1.0], MATH 1102 [1.0], MATH 2000 [1.0], MATH 2100 [1.0], MATH 2454, STAT 2655, MATH 3705, MATH 3001, MATH 3057, and MATH 3106;
- 0.5 credit from MATH 3002 or MATH 3008;
- 1.0 credit in Mathematics (MATH, STAT) at the 4000-level or above;
- 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
- 1.5 credits in PHYS 2202, PHYS 2604, and PHYS 3701;
- 3.5 credits in PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3802, PHYS 4409, PHYS 4707, and PHYS 4708;
- 1.0 credit in PHYS at the 4000-level or higher;
- 1.0 credit in one of:
  - MATH 4905 or PHYS 4907 or PHYS 4908, and 0.5 credit in math or physics at the 4000-level;

or

  - PHYS 4909 [1.0];

#### B. Credits Not Included in the Major CGPA (5.0 credits):

- 1.0 credit from (BIOL 1003 and BIOL 1004), (CHEM 1001 and CHEM 1002), (CHEM 1005 and CHEM 1006), or (ERTH 1006 and EARTH 1009);
- 0.5 credit in COMP 1005 or COMP 1007;
- 0.5 credit in COMP;
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences;
- 1.5 credits in Approved Arts or Social Sciences Electives;
- 1.0 credit in free electives.

**Note:** in **Item 3** above, MATH 4003 is highly recommended.

### Biology and Physics B.Sc. Combined Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (12.5 credits):

- 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004), or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
- 2.5 credits in PHYS 2604, PHYS 2202, PHYS 3308, PHYS 4409, and ECOR 2606;
- 2.0 credits in PHYS 3007, PHYS 3207, PHYS 3606, and PHYS 3701;
- 1.0 credit from PHYS 3802, PHYS 4008, PHYS 4203, PHYS 4508, or PHYS 4707;
- 4.0 credits in BIOL 1103, BIOL 1104, BIOL 2200, BIOL 2104, BIOL 2001, BIOL 3201, BIOL 3104, and BIOL 3305;
- 1.0 credit from BIOL 4106, BIOL 4109, BIOL 4202, BIOL 4301, BIOL 4302, or BIOL 4306;
- 1.0 credit in one of:
  - BIOL 4908 [1.0];
  - PHYS 4909 [1.0];
  - PHYS 4907 plus 0.5 credit in PHYS at the 4000-level;
  - PHYS 4908 plus 0.5 credit in PHYS at the 4000-level;

#### B. Credits Not Included in the Major CGPA (7.5 credits):

- 1.0 credit in (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) (See **Note**, below);
- 0.5 credit from MATH 1004 or MATH 1007;
- 0.5 credit from MATH 1104 or MATH 1107;
- 2.0 credits in STAT 2507, MATH 1005, MATH 2004, and MATH 3705;
- 0.5 credit from COMP 1005 or COMP 1007;
- 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences Elective;
- 1.5 credits in Approved Arts or Social Sciences;
- 1.0 credit in free electives.

**Note:** in **Item 8** above, students who intend to take courses in CHEM beyond first year must either complete CHEM 1001 and CHEM 1002, or obtain a grade of B- or higher in CHEM 1006.

### Chemistry and Physics B.Sc. Combined Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (13.0 credits):

- 1.0 credit from (PHYS 1001 and PHYS 1002) (recommended), or (PHYS 1003 and PHYS 1004) or (PHYS 1007 and PHYS 1008 with an average grade of B- or higher);
- 4.0 credits in PHYS 2202, PHYS 2604, PHYS 3007, PHYS 3308, PHYS 3606, PHYS 3701, PHYS 3807 and PHYS 4707;
- 1.0 credit in PHYS at the 4000-level;
- 4.5 credits in CHEM 1001, CHEM 1002, CHEM 2103, CHEM 2203, CHEM 2501, CHEM 3100, CHEM 3102, CHEM 3503, and CHEM 4102;

## Programs - Physics

5. 0.5 credit from CHEM 2204 or CHEM 2206;
6. 0.5 credit from CHEM 3106 or CHEM 3107;
7. 0.5 credit in CHEM at the 4000-level;
8. 1.0 credit in one of:
  - a) CHEM 4908 [1.0];
  - b) PHYS 4909 [1.0];
  - c) PHYS 4907 plus 0.5 credit in PHYS at the 4000-level;
  - d) PHYS 4908 plus 0.5 credit in PHYS at the 4000-level;

### B. Credits Not Included in the Major CGPA (7.0 credits):

9. 3.0 credits in MATH 1004, MATH 1005, MATH 1104, MATH 2004, STAT 3502, and MATH 3705;
10. 0.5 credit from COMP 1005, COMP 1007, or ECOR 1606;
11. 0.5 credit from MATH 3800 or ECOR 2606;
12. 0.5 credit in NSCI 1000 or Approved Arts or Social Sciences elective;
13. 1.5 credits in Approved Arts or Social Sciences electives;
14. 1.0 credit in free electives.

### Minor in Physics

The Minor in Physics is available to students registered in degree programs other than those offered by the Department of Physics.

#### Requirements:

1. 0.5 credit from PHYS 1001, PHYS 1003, or PHYS 1007 (see note below);
2. 0.5 credit from PHYS 1002, PHYS 1004, or PHYS 1008 (see note below);
3. 0.5 credit in PHYS 2604;
4. 0.5 credit in PHYS 3701;
5. 2.0 credits from PHYS 2202, PHYS 2203, PHYS 3007, PHYS 3207, PHYS 3308, PHYS 3606, PHYS 3802, PHYS 3807, or PHYS at the 4000-level.

**Note:** PHYS 1007, PHYS 1008 are acceptable only if a grade point average of at least 7.0 is presented on these courses.

## Political Science

### Department of Political Science (Faculty of Public Affairs)

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carleton.ca/polisci

This section presents the requirements for the programs:

- Political Science – B.A. Honours
- Political Science – B.A. Combined Honours
- Journalism and Political Science – B.A. or B.J. Combined Honours
- Economics and Political Science – B.A. Combined Honours
- Human Rights and Political Science – B.A. Combined Honours
- Political Science and Sociology – B.A. Combined Honours
- Political Science – B.A. General
- Concentrations (for B.A. Honours, B.A. Combined Honours, or B.A. General)
  - Canadian Politics
  - Comparative Politics and Area Studies (Global North)
  - Comparative Politics and Area Studies (Global South)
  - Gender and Politics
  - International Relations
  - North American Politics
  - Political Theory
  - Public Affairs and Policy Analysis
- Minor in Political Science
- Mention : Français

Co-operative Education Option is available in Political Science. Consult the *Co-operative Education* section of this Calendar.

### Graduation Requirements

In addition to the program requirements listed below, students must satisfy:

- i) the University regulations (see *the Academic Regulations of the University* in this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see *the Academic Regulations for the Bachelor of Arts degree* in this Calendar).

Students should consult with the Department when selecting courses and planning their program.

#### Departmental Language Requirement

The Department requires Honours students to demonstrate proficiency in at least one language other than English, normally French. Honours students are required to demonstrate such proficiency, normally through the completion of any first-year course (or its approved equivalent) in a language offered at Carleton.

For students who consider that they already have proficiency in French, the Department conducts a French language examination twice a year, in November and February. Students whose high school transcript shows the primary language of instruction to be other than English may apply to have the examination requirement waived. For students who consider themselves proficient in a second language other than French, arrangements may be made to examine the student in that language,

depending on faculty resource availability. Exams in languages other than French will normally be written at the same time as the French examination – twice a year, in November and February. For students in the Canadian concentration, French must be used to satisfy the language requirement.

### Categories of Courses

The following categories of Political Science courses are used in the program descriptions:

#### Canadian Government and Politics

PSCI 2001 [1.0], PSCI 2002, PSCI 2003, PSCI 3000, PSCI 3003, PSCI 3004, PSCI 3005, PSCI 3006, PSCI 3007, PSCI 3109, PSCI 3305, PSCI 3401, PSCI 3402, PSCI 3406, PSCI 3606, PSCI 3607, PSCI 4000 [1.0], PSCI 4002, PSCI 4003, PSCI 4006, PSCI 4008, PSCI 4009, PSCI 4106, PSCI 4107, PSCI 4108, PSCI 4109, PSCI 4205

#### Comparative Politics and International Relations

PSCI 2101, PSCI 2102, PSCI 2200, PSCI 2500, PSCI 2601, PSCI 2602, PSCI 3100, PSCI 3101, PSCI 3102, PSCI 3103, PSCI 3105, PSCI 3107, PSCI 3108, PSCI 3109, PSCI 3200, PSCI 3203, PSCI 3204, PSCI 3205, PSCI 3206, PSCI 3207, PSCI 3208, PSCI 3209, PSCI 3302, PSCI 3307, PSCI 3404, PSCI 3405, PSCI 3406, PSCI 3407, PSCI 3409, PSCI 3500, PSCI 3502, PSCI 3600, PSCI 3601, PSCI 3603, PSCI 3605, PSCI 3606, PSCI 3607, PSCI 3700, PSCI 3701, PSCI 3702, PSCI 3703, PSCI 3704, PSCI 3705, PSCI 3801, PSCI 3802, PSCI 3805, PSCI 4003, PSCI 4005, PSCI 4008, PSCI 4103, PSCI 4104, PSCI 4105, PSCI 4203, PSCI 4204, PSCI 4206, PSCI 4207, PSCI 4208, PSCI 4303, PSCI 4400, PSCI 4402, PSCI 4403, PSCI 4409, PSCI 4500, PSCI 4501, PSCI 4502, PSCI 4503, PSCI 4505, PSCI 4506, PSCI 4601, PSCI 4602, PSCI 4603, PSCI 4604, PSCI 4605, PSCI 4606, PSCI 4607, PSCI 4608, PSCI 4609, PSCI 4700, PSCI 4800, PSCI 4801, PSCI 4802, PSCI 4803, PSCI 4804, PSCI 4805, PSCI 4806, PSCI 4807, PSCI 4808, PSCI 4817

#### 4000-level Seminar

All courses in the range PSCI 4000 [1.0] to PSCI 4809 [1.0]

### Program Requirements

#### Political Science

##### B.A. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (9.0 credits):

1. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
2. 2.0 credits in PSCI 2300 [1.0], PSCI 2701 and PSCI 2702;
3. 1.0 credit in Canadian Government and Politics;
4. 1.0 credit in Comparative Politics and International Relations;
5. 1.0 credit in PSCI 4908 [1.0] (with a grade of B- or better) or 4000-level seminars;
6. 1.0 credit in a 4000-level seminar;
7. 2.0 credits in PSCI at the 3000-level or above;

##### B. Credits Not Included in the Major CGPA (11.0 credits):

8. 8.0 credits in electives not in PSCI;

9. 3.0 credits in free electives;

**C. Additional Requirements:**

10. Departmental language requirement must be met.

**Notes**

1. At least 1.0 credit in 4000-level seminars must be completed at Carleton University.
2. **Item 5:** candidates with fourth-year Honours standing in Political Science and a Major CGPA of 9.00 or better are strongly encouraged to present an Honours essay on some topic involving independent investigation (PSCI 4908 [1.0]); they may be examined orally on this essay and must receive a B- or better in this course. PSCI 4908 [1.0] must be taken at Carleton University. Any Honours student with a Major CGPA below 9.00 who wishes to present an Honours essay may do so with the agreement of a faculty supervisor and the permission of the Supervisor of Undergraduate Studies. Students who do not write an Honours essay are required to complete 1.0 replacement credit in Political Science in the form of one or more 4000-level seminars.

**Political Science  
B.A. Combined Honours (20.0 credits)**

**A. Credits Included in the Political Science Major CGPA (7.0 credits):**

1. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
2. 2.0 credits in PSCI 2300 [1.0], PSCI 2701 and PSCI 2702;
3. 2.0 credits in courses in Canadian Government and Politics and/or Comparative Politics and International Relations, of which at least 1.0 credit is at the 3000-level or above;
4. 2.0 credits at the 4000-level which may be satisfied by either:
  - a) 2.0 credits in 4000-level PSCI seminars, or
  - b) PSCI 4908 [1.0] and 1.0 credit from 4000-level PSCI seminars.

**B. Additional Credit Requirements:**

5. The requirements as stated for Combined Honours in the other discipline must be met;
6. 5.0 credits not in PSCI or the other discipline;
7. Sufficient free electives credits to make a total of 20.0 credits for the program;

**C. Additional Requirements:**

8. Departmental language requirement must be met.

**Note:** at least 1.0 credit in 4000-level seminars must be completed at Carleton University.

**Journalism and Political Science  
B.A. or B.J. Combined Honours (20.0 credits)**

Students who successfully complete the Combined Honours program in Journalism and Political Science graduate with a B.J. degree unless they complete the Honours Essay PSCI 4908 [1.0] in which case they may graduate with a B.A.

**A. Credits Included in the Political Science Major CGPA (7.0 credits):**

1. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
2. 2.0 credits in PSCI 2300 [1.0], PSCI 2701 and PSCI 2702;
3. 2.0 credits in courses in Canadian Government and Politics and/or Comparative Politics and International Relations, of which at least 1.0 credit is at the 3000-level or above;
4. 2.0 credits at the 4000-level which may be satisfied by either:
  - a) 2.0 credits in 4000-level PSCI seminars, or
  - b) PSCI 4908 [1.0] and 1.0 credit from 4000-level PSCI seminars.

**B. Credits Included in the Journalism Major CGPA (8.0 credits):**

5. 1.0 credit in JOUR 1000 [1.0];
6. 6.0 credits in JOUR 2201 [1.0], JOUR 2205, JOUR 2501, JOUR 3205 [1.0], JOUR 3206 [1.0], JOUR 4000 [1.0], JOUR 4201 [1.0];
7. 1.0 credit from JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207, JOUR 4208;

**C. Credits Not Included in Either Major (5.0 credits):**

8. 1.0 credit in approved Canadian history: HIST 1300 [1.0], HIST 2303 [1.0], HIST 2304 [1.0] or HIST 2305 [1.0];
9. 4.0 credits in free electives.

**D. Additional Requirements:**

10. Departmental language requirement in Political Science must be satisfied.

**Note:** students admitted to Journalism prior to 1995-1996 should consult the School of Journalism and Communication for requirements.

**Economics and Political Science  
B.A. Combined Honours (20.0 credits)**

**A. Credits Included in the Economics Major CGPA (8.0 credits):**

1. 1.0 credit from ECON 1000 [1.0] or FYSM 1003 [1.0];
2. 5.5 credits in: ECON 1401, ECON 1402, ECON 2002, ECON 2003, ECON 2102, ECON 2103, ECON 2201, ECON 2202, ECON 2400, ECON 4020, ECON 4021;
3. 1.5 credits in
  - a) ECON 4706, ECON 4901 and ECON 4902, or
  - b) 0.5 credit in ECON at the 4000-level and ECON 4908 [1.0];

- B. Credits Included in the Political Science Major CGPA (7.0 credits):**
4. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
  5. 2.0 credits in PSCI 2300 [1.0], PSCI 2701 and PSCI 2702;
  6. 2.0 credits in courses in Canadian Government and Politics and/or Comparative Politics and International Relations, of which at least 1.0 credit is at the 3000-level or above;
  7. 2.0 credits at the 4000-level which may be satisfied by either:
    - a) 2.0 credits in 4000-level PSCI seminars, or
    - b) PSCI 4908 [1.0] and 1.0 credit from 4000-level PSCI seminars.
- C. Credits Not Included in Either Major CGPA (5.0 credits):**
8. 4.0 credits in electives not in ECON or PSCI;
  9. 1.0 credit free elective;
- D. Additional Requirements:**
10. The Political Science Departmental language requirement must be satisfied.

### Human Rights and Political Science B.A. Combined Honours (20.0 credits)

Students in this program are required to complete at least 7.0 credits in Political Science including:

1. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
2. 2.0 credits in PSCI 2300 [1.0], PSCI 2701 and PSCI 2702;
3. 2.0 credits in courses in Canadian Government and Politics and/or Comparative Politics and International Relations, of which at least 1.0 credit is at the 3000-level or above;
4. 2.0 credits at the 4000-level which may be satisfied by either:
  - a) 2.0 credits in 4000-level PSCI seminars, or
  - b) PSCI 4908 [1.0] and 1.0 credit from 4000-level PSCI seminars.
5. Political Science Departmental Language Requirement must be satisfied.

**Note:** for Human Rights requirements, see the Human Rights Program section of this Calendar.

### Political Science and Sociology B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Political Science Major (7.0 credits):**
1. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
  2. 1.0 credit in PSCI 2300 [1.0];
  3. 2.0 credits in courses in Canadian Government and Politics and/or Comparative Politics and International Relations, of which at least 1.0 credit is at the 3000-level or above;
  4. 2.0 credits at the 4000-level which may be satisfied by either:
    - a) 2.0 credits in 4000-level PSCI seminars, or

- b) PSCI 4908 [1.0] and 1.0 credit from 4000-level PSCI seminars;

- B. Credits Included in the Sociology Major CGPA (5.0 credits):**
5. 1.0 credit from (SOC 1001 and SOC 1002) or SOC 1003 [1.0]
  6. 1.0 credit in SOC 2005 [1.0];
  7. 2.0 credits in SOC and/or ANTH at the 4000- or 5000-level;
  8. 1.0 credit in SOC and/or ANTH beyond the 1000-level;
- C. Credits Included in the Political Science or Sociology Major CGPA (2.0 credits):**
9. 2.0 credits in a methodology sequence, either:
    - a) (PSCI 2701 and PSCI 2702) and one of SOC 2003 [1.0] or SOC 3003 [1.0]; or
    - b) One of SOC 2003 [1.0] or SOC 3003 [1.0] and (PSCI 4701 and PSCI 4702);
- D. Credits Not Included in Either Major CGPA (6.0 credits):**
10. 5.0 credits in electives not in PSCI or SOC;
  11. 1.0 credit in free electives;
- E. Additional Requirements:**
12. The Political Science departmental language requirement must be satisfied.

**Note:** PSCI 4701 and PSCI 4702 may not be offered every year.

### Political Science B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (6.0 credits):**
1. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
  2. 1.0 credit from PSCI 2300 [1.0] or (PSCI 2701 and PSCI 2702);
  3. 2.0 credits in PSCI at the 2000-level or above;
  4. 2.0 credits in PSCI at the 3000-level or above.
- B. Credits Not Included in the Major CGPA (9.0 credits):**
5. 7.0 credits not in PSCI;
  6. 2.0 credits in free electives.

#### Notes

1. First-year students intending to enter a B.A. General or Honours program in Political Science may take a 2000-level course concurrently with a first-year credit in Political Science.
2. B.A. General students should take a number of courses in related disciplines. Final-year B.A. General students with the required standing may, with permission, be admitted to 4000-level Honours courses, provided space is available. The entire program must be approved by the Department.

## Concentrations

The concentrations described below are open to all students in Political Science Honours, Combined Honours or General programs. The maximum number of Political Science credits that can be counted towards the degree is 12.0 credits for an Honours program, 8.0 for a General program and 9.0 for a Combined Honours program. Concentrations are open to students in the General program in Political Science though it may be difficult to meet the requirements of the Concentrations within the 15.0 credits required for the General degree, so that courses extra to the primary degree may have to be taken.

### Concentration in Canadian Politics

- 1.0 credit in PSCI 2001 [1.0] or (PSCI 2002 and PSCI 2003);
- 2.5 credits in Canadian politics, including at least 0.5 credit at the 4000-level for students in honours or combined honours programs, chosen from: PSCI 3000, PSCI 3003, PSCI 3004, PSCI 3005, PSCI 3006, PSCI 3007, PSCI 3109, PSCI 3305, PSCI 3401, PSCI 3402, PSCI 3406, PSCI 3407, PSCI 3606, PSCI 3607, PSCI 4000 [1.0], PSCI 4002, PSCI 4003, PSCI 4005, PSCI 4006, PSCI 4008, PSCI 4009, PSCI 4106, PSCI 4107, PSCI 4108, PSCI 4109, PSCI 4205, PSCI 4206, PSCI 4506, PSCI 4607, PSCI 4908 [1.0] (with Departmental approval, for qualified Honours students on an accepted Canadian Politics theme).
- French must be used to satisfy the Departmental language requirement.

### Concentration in Comparative Politics and Area Studies (Global North)

- 1.0 credit in PSCI 2101 and PSCI 2102;
- 2.5 credits in Comparative Politics and Area Studies (Global North), including at least 0.5 credit at the 4000-level, for students in honours or combined honours programs, chosen from: PSCI 2200, PSCI 3108, PSCI 3109, PSCI 3200, PSCI 3206, PSCI 3207, PSCI 3208, PSCI 3209, PSCI 3404, PSCI 3405, PSCI 3406, PSCI 3407, PSCI 3409, PSCI 3500, PSCI 3703, PSCI 3704, PSCI 3705, PSCI 3801, PSCI 3805, PSCI 4003, PSCI 4103, PSCI 4204, PSCI 4206, PSCI 4208, PSCI 4303, PSCI 4402, PSCI 4403, PSCI 4500, PSCI 4501, PSCI 4502, PSCI 4505, PSCI 4506, PSCI 4601, PSCI 4606, PSCI 4607, PSCI 4608, PSCI 4609, PSCI 4807, PSCI 4908 [1.0] (with Departmental approval, for qualified Honours students on an accepted Comparative Politics (Global North) theme).

### Concentration in Comparative Politics and Area Studies (Global South)

- 1.0 credit in PSCI 2101 and PSCI 2102;
- 2.5 credits in Comparative Politics and Area Studies (Global South), including at least 0.5 credit at the 4000-level, for students in honours or combined honours programs, chosen from: PSCI 3100, PSCI 3101, PSCI 3102, PSCI 3103, PSCI 3105, PSCI 3203, PSCI 3204, PSCI 3205, PSCI 3302, PSCI 3404, PSCI 3502, PSCI 3700, PSCI 3701, PSCI 3805, PSCI 4104, PSCI 4105, PSCI 4203, PSCI 4207, PSCI 4302, PSCI 4303, PSCI 4409, PSCI 4503, PSCI 4505,

PSCI 4802, PSCI 4803, PSCI 4804, PSCI 4807, PSCI 4908 [1.0] (with Departmental approval, for qualified Honours students on an accepted Comparative Politics and Area Studies (Global South) theme).

### Concentration in Gender and Politics

- 0.5 credit in PSCI 2500;
- 1.5 credits in Gender and Politics core courses, including at least 0.5 credit at the 4000-level for students in honours or combined honours, chosen from: PSCI 3303, PSCI 3500, PSCI 3502, PSCI 4402, PSCI 4500, PSCI 4403, PSCI 4501, PSCI 4506, PSCI 4605, PSCI 4908 [1.0] (with Departmental approval, for qualified Honours students on an accepted Gender and Politics theme);
- 1.5 credits in Gender and Politics core and related courses, chosen from the list in **Item 2** above, or the following: PSCI 3006, PSCI 3108, PSCI 3109, PSCI 3307, PSCI 4205.

### Concentration in International Relations

- 1.0 credit in PSCI 2601 and PSCI 2602;
- 2.5 credits in International Relations, including at least 0.5 credit at the 4000-level, for students in honours or combined honours programs, chosen from: PSCI 3101, PSCI 3105, PSCI 3107, PSCI 3207, PSCI 3307, PSCI 3600, PSCI 3601, PSCI 3603, PSCI 3605, PSCI 3606, PSCI 3607, PSCI 3702, PSCI 3703, PSCI 3801, PSCI 3802, PSCI 4303, PSCI 4500, PSCI 4601, PSCI 4602, PSCI 4603, PSCI 4604, PSCI 4605, PSCI 4606, PSCI 4607, PSCI 4608, PSCI 4609, PSCI 4700, PSCI 4800, PSCI 4801, PSCI 4802, PSCI 4803, PSCI 4804, PSCI 4805, PSCI 4806, PSCI 4807, PSCI 4808, PSCI 4817, PSCI 4908 [1.0] (with Departmental approval, for qualified Honours students on an accepted International Relations theme).

### Concentration in North American Politics

- 0.5 credit in PSCI 1003;
- 0.5 credit chosen from PSCI 3109, PSCI 3607, PSCI 4206, PSCI 4403, PSCI 4506, PSCI 4607, PSCI 4905, PSCI 4906;
- 1.0 credit in United States politics: PSCI 2200, plus 0.5 credit chosen from PSCI 3108, PSCI 3109, PSCI 3200, PSCI 3210, PSCI 3406, PSCI 3407, PSCI 4003, PSCI 4606;
- 1.0 credit in Canadian politics: PSCI 2002 or PSCI 2003, plus 0.5 credit chosen from PSCI 3000, PSCI 3003, PSCI 3004, PSCI 3005, PSCI 3006, PSCI 3007, PSCI 3108, PSCI 3109, PSCI 3305, PSCI 3401, PSCI 3402, PSCI 3406, PSCI 3407, PSCI 3606, PSCI 4002, PSCI 4003, PSCI 4005, PSCI 4006, PSCI 4008, PSCI 4009, PSCI 4107, PSCI 4108, PSCI 4109, PSCI 4205;
- 0.5 credit in Mexican politics: PSCI 3205;
- For students in honours or combined honours programs, at least 0.5 credit must be at the 4000-level. With Departmental approval, qualified Honours students may substitute PSCI 4908 [1.0], on an accepted North American politics theme, for two elective courses chosen from **Items 2, 3 or 4**.



**Concentration in Political Theory**

1. 1.0 credit in PSCI 2300 [1.0];
2. 2.5 credits in Political Theory, including at least 0.5 credit at the 4000-level for students in honours or combined honours, chosen from: PSCI 3300, PSCI 3302, PSCI 3303, PSCI 3305, PSCI 3307, PSCI 3308, PSCI 3309, PSCI 3311, PSCI 3709, PSCI 4302, PSCI 4303, PSCI 4305 [1.0], PSCI 4308, PSCI 4309, PSCI 4310 [1.0], PSCI 4908 [1.0] (with Departmental approval, for qualified Honours students on an accepted Political Theory theme).

**Concentration in Public Affairs and Policy Analysis**

1. 0.5 credit in PSCI 2401;
2. 3.0 credits in Public Affairs and Policy Analysis, including at least 0.5 credit at the 4000-level, for students in honours and combined honours programs, chosen from: PSCI 3401, PSCI 3402, PSCI 3404, PSCI 3405, PSCI 3406, PSCI 3407, PSCI 3409, PSCI 3801, PSCI 4000, PSCI 4002, PSCI 4003, PSCI 4008, PSCI 4107, PSCI 4204, PSCI 4400, PSCI 4402, PSCI 4403, PSCI 4407, PSCI 4408, PSCI 4409, PSCI 4506, PSCI 4602, PSCI 4701, PSCI 4702, PSCI 4808, PSCI 4908 [1.0] (with Departmental approval, for qualified Honours students on an accepted Public Affairs and Policy Analysis theme).

**Minor in Political Science**

The Minor in Political Science is not available to students enrolled in the B.A. Honours programs in Global Politics.

**Requirements:**

1. 1.0 credit from PSCI 1000 [1.0], FYSM 1602 [1.0], PSCI 1001, PSCI 1002, PSCI 1003;
2. 1.0 credit in PSCI at the 2000-level;
3. 1.0 credit in PSCI at the 2000-level or above;
4. 1.0 credit in PSCI at the 3000-level or above;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Mention : Français**

Students who wish to qualify for the *Mention : Français* notation in Political Science may do so by taking the following pattern of courses in their degree program:

**Requirements:**

1. 1.0 credit in the advanced study of the French language (a minimum of FREN 1100 [1.0]);
2. 1.0 credit in FREN 2201 [1.0];
3. One of PSCI 2001 [1.0] or PSCI 3900 (PSCI 2001 [1.0] is recommended);
4. Honours students are required to take PSCI 4909 [1.0] or one of PSCI 2001 [1.0] or PSCI 3900 [1.0], whichever was not used to meet **Item 3** above.

With the prior approval of the department, students may substitute appropriate courses taught in french at the University of Ottawa for **Items 2 and 4** above.

**Carleton-Leeds Parliamentary Internship Exchange**

The Carleton-Leeds Parliamentary Internship Exchange is open to fourth year Political Science honours or combined honours students. Admission to the exchange is restricted to three to five students annually, selected on the basis of academic merit. Successful completion of the exchange satisfies the requirements of the fourth year of the Honours program. Students serve four days a week as Parliamentary interns, in Ottawa during the fall term and in London, England, during the winter term. Additionally, students take courses offered by Carleton University (fall) and Leeds University (winter) on parliamentary politics in Canada and the United Kingdom. The normal 5.0-credit course load for participants in the exchange is:

- a) PSCI 4006 [0.5 credit], Legislatures and Representation in Canada
- b) PSCI 4903 [0.5 credit], British Parliamentary Politics
- c) PSCI 4904 [3.0 credits], Carleton-Leeds Parliamentary Internships
- d) PSCI 4908 [1.0 credit], Honours Research Essay

Full information on the exchange and application forms can be obtained from the Department of Political Science.

**Washington Center Internship Program**

The Washington Center Internship Program is open to Honours or Combined Honours Political Science students in the third year or the first term of fourth year. Admission is open to students with at least a 9.5 GPA in Political Science. Successful completion of the program satisfies the requirements for one term of full-time study (2.5 credits). Students spend one term (fall, winter or summer) in Washington D.C. They serve four days a week as an intern in Washington D.C. and also take two seminar courses offered by faculty of The Washington Center. The normal 2.5 credit course load for participants in the programme is:

- a) PSCI 3905 [1.5 credits], Washington Center Internship
- b) PSCI 4905 [0.5 credit], Washington Center Seminar I
- c) PSCI 4906 [0.5 credit], Washington Center Seminar II

Full information on the program and application forms can be obtained from the Department of Political Science.

## Psychology

### Department of Psychology (Faculty of Arts and Social Sciences)

B550 Loeb Bldg.  
613-520-2644

carleton.ca/psychology

This section presents the requirements for:

- Psychology – B.A. Honours
- Psychology – B.A. Combined Honours
- Psychology – B.A. General
- Psychology – B.Sc. Honours
- Minor in Psychology

The B.Sc. Combined Honours in Neuroscience is offered jointly between the department of Biology and the department of Psychology.

### Graduation Requirements

In addition to the program requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar),
- ii) for B.A. programs, the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth Requirements (see the *Academic Regulations for the Bachelor of Arts Degree*),
- iii) for B.Sc. programs the common regulations applying to all B.Sc. students (see the *Academic Regulations for the Bachelor of Science Degree*).

Students should consult with the Department when planning their program and selecting courses.

### Program Requirements for B.A. Psychology

#### Psychology

##### B.A. Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (9.0 credits):

1. 1.0 credit in PSYC 1001 and PSYC 1002;
2. 1.0 credit in PSYC 2001 and PSYC 2002;
3. 1.0 credit from PSYC 2200, PSYC 2301, PSYC 2700, or PSYC 2800;
4. 1.0 credit from PSYC 2003, PSYC 2100, PSYC 2400, PSYC 2500, or PSYC 2600;
5. 1.0 credit in PSYC 3000 [1.0];
6. 2.0 credits from:

###### a) Thesis Stream:

- i) 1.0 credit from PSYC 3100 [1.0], PSYC 3200 [1.0], PSYC 3300 [1.0], PSYC 3400 [1.0], PSYC 3500 [1.0], PSYC 3600 [1.0], PSYC 3700 [1.0];
- ii) 1.0 credit in PSYC 4908 [1.0];

or

###### b) Essay Stream

- i) 1.0 credit in PSYC at 3000-level or higher;
  - ii) 1.0 credit in PSYC 4905 [1.0];
7. 1.0 credit in PSYC at 3000-level or higher;
  8. 1.0 credit in PSYC;
- B. Credits Not Included in the Major CGPA (11.0 credits):**
9. 2.0 credits from BIOL, CHEM, COMP, EARTH, ISCI, MATH, PHYS, STAT, or TSES;
  10. 3.0 credits at the 2000 level and above, not in PSYC;
  11. 3.0 credits, not in PSYC;
  12. 3.0 credits free electives.

**Note:** registration in the seminars in Requirement 6 a) i) requires a Major CGPA of at least 9.00. Registration in the thesis course PSYC 4908[1.0] requires a Major CGPA of at least 10.00.

#### Psychology

##### B.A. Combined Honours (20.0 credits)

###### A. Credits Included in the Major CGPA (7.0 credits):

1. 1.0 credit in PSYC 1001 and PSYC 1002;
2. 1.0 credit from (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
3. 1.0 credit from PSYC 2200, PSYC 2301, PSYC 2700, or PSYC 2800;
4. 1.0 credit from PSYC 2003, PSYC 2100, PSYC 2400, PSYC 2500, or PSYC 2600;
5. 1.0 credit in PSYC 3000 [1.0];
6. 2.0 credits from:

###### a) Thesis Stream:

- i) 1.0 credit from PSYC 3100 [1.0], PSYC 3200 [1.0], PSYC 3300 [1.0], PSYC 3400 [1.0], PSYC 3500 [1.0], PSYC 3600 [1.0], or PSYC 3700 [1.0];
- ii) 1.0 credit in PSYC 4908 [1.0];

or

###### b) Essay Stream:

- i) 1.0 credit in PSYC at 3000-level or higher;
  - ii) 1.0 credit in PSYC 4905 [1.0];
7. 1.0 credit in PSYC 4905 [1.0] or PSYC 4908 [1.0];
- B. Additional Requirements (13.0 credits):**
8. The requirements for Combined Honours in the other discipline must be satisfied;
  9. 5.0 credits not in PSYC or the other discipline;
  10. 2.0 credits from BIOL, CHEM, COMP, EARTH, ISCI, MATH, STAT, PHYS or TSES;
  11. Sufficient free electives to make 20.0 credits total for the program.

#### Notes:

1. All students in B.A. Combined Honours Psychology must complete an Honours Research Essay in either Psychology or the other discipline. If the Honours Research Essay is completed in the other discipline, Items 2, 5 and 7 above may be replaced by credits from the other discipline (see below). In this case, replacement credits in Psychology

- must be taken so that a minimum of 7.0 credits in Psychology is presented at graduation.
2. **Item 2** above may be replaced with one of ANTH 2003, MCOM 2001, PSCI 2700 or SOCI 2003.
  3. **Item 5** above may be replaced with ECON 2201 and ECON 2202, or MCOM 4000 and MCOM 4002.
  4. For **Item 7** above, please consult with an advisor in the Department of Psychology for acceptable alternatives to PSYC 4905 and PSYC 4908.

**Psychology**

**B.A. General (15.0 credits)**

**A. Credits Included in the Major CGPA (6.0 credits):**

1. 1.0 credit in PSYC 1001 and PSYC 1002;
2. 1.0 credit in PSYC 2001 and PSYC 2002;
3. 1.0 credit from PSYC 2200, PSYC 2301, PSYC 2700, or PSYC 2800;
4. 1.0 credit from PSYC 2003, PSYC 2100, PSYC 2400, PSYC 2500, or PSYC 2600;
5. 1.0 credit in PSYC at 3000-level or above;
6. 1.0 credit in PSYC;

**B. Credits Not Included in the Major CGPA (9.0 credits):**

7. 4.0 credits, not in PSYC;
8. 3.0 credits at the 2000-level and above, not in PSYC;
9. 2.0 credits in free electives.

- i) 1.0 credit from PSYC 3100 [1.0], PSYC 3200 [1.0], PSYC 3300 [1.0], PSYC 3400 [1.0], PSYC 3500 [1.0], PSYC 3600 [1.0], PSYC 3700 [1.0],
- ii) 1.0 credit in PSYC 4907 [1.0];

or

**b) Essay Stream**

- i) 1.0 credit in PSYC at 3000-level or higher;
- ii) 1.0 credit in PSYC 4906 [1.0];
7. 1.0 credit in PSYC at 3000-level or higher;
8. 1.0 credit in PSYC;

**B. Credits Not Included in the Major CGPA (11.0 credits):**

9. 1.0 credit in MATH 1007 and MATH 1107;
10. 2.0 credits from (BIOL 1103 and BIOL 1104), (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006), GEOG 1010, EARTH 1006, or EARTH 1009, (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004);
11. 1.0 credit from Science Faculty Electives or from a discipline other than Psychology in the Faculty of Arts and Social Sciences or Faculty of Public Affairs (NSCI 1000 recommended);
12. 2.0 credits from a discipline other than Psychology in the Faculty of Arts and Social Sciences or Faculty of Public Affairs;
13. 1.0 credit in Science Continuation (not PSYC);
14. 1.0 credit in BIOL, CHEM, EARTH, MATH, STAT or PHYS at the 2000-level or above;
15. 3.0 credits in free electives.

Note: Registration in the seminars in Requirement 6 a) i) requires a Major CGPA of at least 9.0. Registration in the thesis course PSYC 4907[1.0] requires a Major CGPA of at least 9.0.

**Course Categories for B.Sc. Programs**

The program descriptions for B.Sc. Psychology and for Neuroscience make use of the course categories defined for all B.Sc. programs (see *Academic Regulations for the Bachelor of Science Degree*):

- Science Faculty Electives
- Science Continuation Courses
- Free Elective

**Program Requirements for B.Sc. Psychology**

**Psychology**

**B.Sc. Honours (20.0 credits)**

**A. Credits Included in the Major CGPA (9.0 credits):**

1. 1.0 credit in PSYC 1001 and PSYC 1002;
2. 1.0 credit in PSYC 2001 and PSYC 2002;
3. 1.0 credit from PSYC 2200, PSYC 2301, PSYC 2700, PSYC 2800;
4. 1.0 credit from PSYC 2003, PSYC 2100, PSYC 2400, PSYC 2500, PSYC 2600;
5. 1.0 credit in PSYC 3000 [1.0];
6. 2.0 credits from:
  - a) **Thesis Stream:**

**Minor**

**Minor in Psychology**

Open to all undergraduate students in programs other than Psychology or Neuroscience.

Requirements:

1. 1.0 credit in PSYC 1001 and PSYC 1002;
2. 1.0 credit from (PSYC 2001 and PSYC 2002) or PSYC 2000 [1.0];
3. 2.0 credits in PSYC at the 2000-level or above.
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

## Public Affairs and Policy Management

Arthur Kroeger College of Public Affairs  
(Faculty of Public Affairs)

D199 Loeb Bldg.

613.520.7560

carleton.ca/akcollege

This section presents the requirements for:

- Public Affairs and Policy Management with Specialization in Communication and Information Technology Policy – B.P.A.P.M.
- Public Affairs and Policy Management with Specialization in Development Studies – B.P.A.P.M.
- Public Affairs and Policy Management with Specialization in Human Rights – B.P.A.P.M.
- Public Affairs and Policy Management with Specialization in International Studies – B.P.A.P.M.
- Public Affairs and Policy Management with Specialization in Public Policy and Administration – B.P.A.P.M.
- Public Affairs and Policy Management with Specialization in Social Policy – B.P.A.P.M.
- Public Affairs and Policy Management with Specialization in Strategic Public Opinion and Policy Analysis – B.P.A.P.M.

A Co-operative Education Option is available with the B.P.A.P.M. degree (consult the Co-operative Education section of this Calendar for details.)

### Graduation Requirements

In addition to the requirements listed below, students must satisfy the University regulations (see the *Academic Regulations of the University* section of this Calendar.)

Students should consult the College when planning their program and selecting courses.

#### Minimum CGPA Requirements for Graduation

Overall CGPA: 6.50

Major CGPA: 6.50

#### Language Requirement for B.P.A.P.M.

Prior to graduation, students must satisfy a language proficiency requirement in one of the following ways:

- i) successful completion of an approved French language credit (FREN 1100 [1.0]);
- ii) placement at a demonstrated competency level equivalent to satisfactory completion of FREN 1100 [1.0] following a self-assessment questionnaire and interview administered by the Department of French (for students who already possess demonstrated capacity in French);
- iii) successful completion of French Immersion in high school or possession of a Bilingual Diploma or Certificate.

Students should note that they will be required to use one of their elective credits if they choose to satisfy the language requirement through an approved French language credit.

For students whose first language is not English, or for students whose Specialization interests require a language other than French, the Language Requirement may be met by substituting another language for French. Permission for substitution may be sought from the Program Coordinator. Students registering in the

Specialization in International Studies should note the additional language requirement.

### Academic Performance Evaluation

Students in the B.P.A.P.M. are subject to the standard Academic Performance Evaluation (APE) process with the following additions and amendments:

1. Students are in *Good Standing* at the first APE if they have a Major CGPA of at least 7.0 and an Overall CGPA of at least 7.0. A student who is not in *Good Standing* but has a Major CGPA of at least 6.0 and an Overall CGPA of at least 6.0 is on *Academic Warning*. Students with a Major CGPA of less than 6.0 or an Overall CGPA of less than 6.0 are required to leave the program with the status of *Ineligible to Return* (ITR) within that program of study.
2. Students are in *Good Standing* at any subsequent APE and at graduation if they have a Major CGPA of at least 6.5 and an Overall CGPA of at least 6.5.
3. Students who do not receive *Good Standing* at any subsequent Academic Performance Evaluation will be required to withdraw from the program with the status *Ineligible to Return* (ITR) within that program of study.

### Program Requirements

#### Bachelor of Public Affairs and Policy Management (B.P.A.P.M.)

Before the second year of study, students in this program must register in one of the seven specializations:

- Communication and Information Technology Policy
- Development Studies
- Human Rights
- International Studies
- Public Policy and Administration
- Social Policy
- Strategic Public Opinion and Policy Analysis

#### Public Affairs and Policy Management with Specialization in Communication and Information Technology Policy B.P.A.P.M. (20.0 credits)

##### A. Credits Included in the Major CGPA (10.5 credits):

1. 4.0 credits in PAPM 1000 [1.0], PAPM 2000 [1.0], PAPM 3000, PAPM 4000, PAPM 4908 [1.0];
2. 0.5 credit in COMM 2401;
3. 0.5 credit from BUSI 2400, ECON 2001, COMM 2301, COMM 2601, SOCI 2035, ANTH 2035;
4. 1.0 credit from LAWS 3202, LAWS 3501 or LAWS 3502;
5. 0.5 credit from PSCI 3401 or PSCI 3406;
6. 1.5 credits from ECON 3850, LAWS 3005, LAWS 3506, COMM 3405, COMM 3407, COMM 3403, SOCI 3035/ANTH 3035, SOCI 3037/ANTH 3037;
7. 0.5 credit in COMM 4409;
8. 2.0 credits from BUSI 4400, BUSI 4404, ECON 3850, LAWS 4204, LAWS 4507, PSCI 4003, PSCI 4407, SOCI 4035/ANTH 4035;

- B. Credits Not Included in the Major CGPA (9.5 credits):**
9. 1.0 credit from (PSCI 2701 and PSCI 2702), COMM 2001 [1.0] or (ECON 2201 and ECON 2202);
  10. 1.0 credit in LAWS 2501 and LAWS 2502;
  11. 1.5 credits in ECON 1000 [1.0], BUSI 3602;
  12. 1.0 credit from (PSCI 2002 and PSCI 2003) or (PSCI 2101 and PSCI 2102);
  13. 1.0 credit from HIST 1300 [1.0], HIST 1002 [1.0] or HIST 1705 [1.0];
  14. 4.0 credits in free electives;
- C. Additional Requirement:**
15. The language requirement of the B.P.A.P.M. must be satisfied.

**Public Affairs and Policy Management with Specialization in Development Studies  
B.P.A.P.M. (20.0 credits)**

- A. Credits Included in the Major CGPA (10.5 credits):**
1. 4.0 credits in PAMP 1000 [1.0], PAMP 2000 [1.0], PAMP 3000, PAMP 4000, PAMP 4908 [1.0];
  2. 3.0 credit in ECON 3508, SOWK 3206, ECON 3509, PSCI 4104, PSCI 4105, INAF 4202/ PSCI 4409;
  3. 1.0 credit in Development Studies Electives at the 4000-level;
  4. 2.5 credits in Development Studies Electives;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
5. 1.0 credit from (PSCI 2701 and PSCI 2702), COMM 2001 [1.0] or (ECON 2201 and ECON 2202);
  6. 1.0 credit from (LAWS 2501 and LAWS 2502) or (LAWS 2601 and LAWS 3604);
  7. 1.5 credits in ECON 1000 [1.0], BUSI 3602;
  8. 1.0 credit from (PSCI 2002 and PSCI 2003) or (PSCI 2101 and PSCI 2102);
  9. 1.0 credit from HIST 1300 [1.0], HIST 1002 [1.0] or HIST 1705 [1.0];
  10. 4.0 credits in free electives;
- C. Additional Requirement:**
11. The language requirement of the B.P.A.P.M. must be satisfied.

**Development Studies Electives**

Note: With the permission of the Director, students may include among their Specialization Electives 1.0 credit in a language related to their specialization work, beyond the language requirements for the B.PAPM degree.

*Environment and Development*

ECON 3804, EURR 4005, GEOG 3209, GEOG 4004, LAWS 4800

*Gender and Development*

ANTH 2040, PSCI 3502, PSCI 4501

*Indigenous Peoples and Development*

ANTH 3600, ANTH 4601, HIST 3503, PSCI 4002, PSCI 4206, SOWK 4102

*Social and Political Development Issues*

ANTH 2850, EURR 4002, INAF 4102, PSCI 4505, SOWK 4104

**Regional Foci**

*Africa*

HIST 2705[1.0], PSCI 3100, PSCI 3101, PSCI 4203, PSCI 4207, PSCI 4802

*Asia/Middle East*

HIST 2708[1.0], HIST 2805[1.0], PSCI 3102, PSCI 3103, PSCI 3203, PSCI 3700, PSCI 3701, PSCI 3702, PSCI 4804

*Central and Eastern Europe*

ECON 3808, ECON 4806, ECON 4807, EURR 4002, EURR 4006, EURR 4100, GEOG 3600, HIST 3600[1.0], PSCI 3208, PSCI 3209, PSCI 3704, PSCI 3705

*Latin America and the Caribbean*

HIST 2307[1.0], PSCI 3204, PSCI 3205, PSCI 4607

**Public Affairs and Policy Management with Specialization in Human Rights  
B.P.A.P.M. (20.0 credits)**

- A. Credits Included in the Major CGPA (10.5 credits):**
1. 4.0 credits in PAMP 1000 [1.0], PAMP 2000 [1.0], PAMP 3000, PAMP 4000, PAMP 4908 [1.0];
  2. 3.0 credits in LAWS 2105, PHIL 2103, LAWS 3503, LAWS 3602, PSCI 3307; SOWK 3207;
  3. 0.5 credit in LAWS 3604 or PSCI 3600;
  4. 0.5 credit in PSCI 4109 or LAWS 3509;
  5. 0.5 credit from LAWS 3101, PHIL 2101, PSCI 3109;
  6. 0.5 credit in Human Rights Electives at the 4000-level;
  7. 0.5 credit in Human Rights Electives at the 3000-level or above;
  8. 1.0 credit in Human Rights Electives;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
9. 1.0 credit from (PSCI 2701 and PSCI 2702) or COMM 2001[1.0];
  10. 1.0 credit in LAWS 2501 and LAWS 2502;
  11. 1.5 credits in ECON 1000 [1.0], BUSI 3602;
  12. 1.0 credit from (PSCI 2002 and PSCI 2003) or (PSCI 2101 and PSCI 2102);
  13. 1.0 credit from HIST 1300 [1.0], HIST 1002 [1.0] or HIST 1705 [1.0];
  14. 4.0 credits in free electives;
- C. Additional Requirement:**
15. The language requirement of the B.P.A.P.M. must be satisfied.

**Human Rights Electives**

*Law Applications*

LAWS 2601, LAWS 3401, LAWS 3501, LAWS 3504, LAWS 4304, LAWS 4309, LAWS 4603, LAWS 4605, LAWS 4606, LAWS 4607

*Practice and Organizations*

EURR 4002, LAWS 4800, PSCI 3006, PSCI 3802, PSCI 4205, PSCI 4505, SOWK 3205, WOMN 2801

*Social, Cultural and Ethical Dimensions*

EURR 4008, HIST 2801, HIST 3506, PHIL 2101, PHIL 2102, PHIL 2104, PHIL 2106, PHIL 3103, PHIL 3300[1.0], PSCI 3109, PSCI 3805, PSCI 4206, SOWK 4300, SOCI 2010, SOCI 3010, SOCI 4750, SOCI 2020/ANTH 2020, SOCI 3020/ANTH 3020, WOMN 2800

*Theories and Approaches*

LAWS 3105, LAWS 4101, LAWS 4102, LAWS 4105, ANTH 3025

**Public Affairs and Policy Management with Specialization in International Studies**

**B.P.A.P.M. (20.0 credits)**

- A. **Credits Included in the Major CGPA (10.5 credits):**
  - 1. 4.0 credits in PAMP 1000 [1.0], PAMP 2000 [1.0], PAMP 3000, PAMP 4000, PAMP 4908 [1.0];
  - 2. 3.0 credits in PSCI 2601, PSCI 2602, INAF 3000 [1.0], ECON 3601 and ECON 3602;
  - 3. 1.0 credit from PSCI 4603, PSCI 4604, PSCI 4800 and PSCI 4801;
  - 4. 0.5 credit from INAF 4101, INAF 4102, INAF 4103;
  - 5. 2.0 credits in International Studies Electives;
- B. **Credits Not Included in the Major CGPA (9.5 credits):**
  - 6. 1.0 credit from (PSCI 2701 and PSCI 2702), COMM 2001 [1.0] or (ECON 2201 and ECON 2202);
  - 7. 1.0 credit in LAWS 2601 and LAWS 3604;
  - 8. 1.5 credits in ECON 1000 [1.0], BUSI 3602;
  - 9. 1.0 credit from (PSCI 2002 and PSCI 2003) or (PSCI 2101 and PSCI 2102);
  - 10. 1.0 credit from HIST 1300 [1.0], HIST 1002 [1.0] or HIST 1705 [1.0];
  - 11. 4.0 credits in free electives;
- C. **Additional Requirement:**
  - 12. In addition to satisfying the French language requirement, students registered in the International Studies Specialization must successfully complete 1.0 credit in a language (or possess an equivalent level of proficiency as demonstrated by successfully completing a language test). The language may be either French at a higher level than FREN 1100, or, with the permission of the Director, another language directly relevant to their studies. Students registered in the International Studies Specialization will be required to use one of their elective credits if they satisfy this additional language requirement through course work.

**International Studies Electives**

*International Conflict, War and Strategic Studies*

EURR 4008, EURR 4104, INAF 4101, PSCI 3107, PSCI 3203, PSCI 3603, PSCI 3702, PSCI 4008, PSCI 4602, PSCI 4806

*Global Political Economy*

BUSI 3703, ECON 3804, ECON 3808, ECON 4806, ECON 4807, EURR 4003, EURR 4005, EURR 4006, HIST 3703, INAF 4103, PSCI 3703, PSCI 4500, PSCI 4603, PSCI 4604, PSCI 4805

*International Law and Organization*

LAWS 3207, LAWS 3208, LAWS 4603, LAWS 4604, LAWS 4606, LAWS 4903, PSCI 3600, PSCI 4807

*International Relations and Comparative Political Issues*

EURR 4101, HIST 3800, HIST 3801, INAF 4102, PSCI 3601, PSCI 3605, PSCI 4505, PSCI 4605, PSCI 4800, PSCI 4801

**Area Studies**

*Africa*

PSCI 3101, PSCI 4203, PSCI 4207, PSCI 4802

*Asia*

HIST 3805, HIST 3806, PSCI 3102, PSCI 3103, PSCI 3700, PSCI 3701, PSCI 4803, PSCI 4804

*Europe and Russia*

EURR 4003, EURR 4008, EURR 4100, EURR 4101, EURR 4104, EURR 4106, GEOG 3600, GEOG 3603, HIST 3605, HIST 4602, PSCI 3206, PSCI 3207, PSCI 3208, PSCI 3209, PSCI 3704, PSCI 3705, PSCI 4601, PSCI 4608, PSCI 4609

*North and South America*

HIST 3304, HIST 3306, HIST 3400, HIST 3706, HIST 3709, PSCI 3200, PSCI 3201, PSCI 3204, PSCI 3205, PSCI 3606, PSCI 3607, PSCI 4606, PSCI 4607

**Public Affairs and Policy Management with Specialization in Public Policy and Administration**

**B.P.A.P.M. (20.0 credits)**

- A. **Credits Included in the Major CGPA (10.5 credits):**
  - 1. 4.0 credits in PAMP 1000 [1.0], PAMP 2000 [1.0], PAMP 3000, PAMP 4000, PAMP 4908 [1.0];
  - 2. 1.5 credits in LAWS 3506, ECON 3403 and ECON 3405;
  - 3. 1.0 credit in PADM 3105, PADM 4412;
  - 4. 1.0 credit from (BUSI 1001 and BUSI 1002) or (ECON 2001 and ECON 2101) or (ECON 2002 and ECON 2102);
  - 5. 1.0 credit in PSCI 3401 and one of PSCI 3404 or PSCI 3405;
  - 6. 1.0 credit from PADM 4213, PADM 4214, PADM 4220, PADM 4221, PADM 4224, PADM 4225, PADM 4226, PADM 4227, PADM 4228, PADM 4611, PADM 4612, PADM 4615, PADM 4616, PADM 4817;
  - 7. 1.0 credit from BUSI 3102, BUSI 4105, BUSI 4107, BUSI 4108, BUSI 4112, BUSI 4400, BUSI 4607, LAWS 3005, LAWS 3401, LAWS 3405, LAWS 3503, LAWS 4402, LAWS 4507, PSCI 3406, PSCI 4408;
- B. **Credits Not Included in the Major CGPA (9.5 credits):**
  - 8. 1.0 credit from (PSCI 2701 and PSCI 2702), COMM 2001 [1.0] or ECON 2201 and ECON 2202;
  - 9. 1.0 credit in LAWS 2501 and LAWS 2502;
  - 10. 1.5 credits in ECON 1000 [1.0], BUSI 3602;

Programs

11. 1.0 credit from (PSCI 2002 and PSCI 2003) or (PSCI 2101 and PSCI 2102);
  12. 1.0 credit from HIST 1300 [1.0], HIST 1002 [1.0] or HIST 1705 [1.0];
  13. 4.0 credits in free electives;
- C. Additional Requirement:**
14. The language requirement of the B.P.A.P.M. must be satisfied.

Note: as the courses in Item 6 above are also taken by M.A. students, undergraduate enrolment in each one normally will be limited to five B.P.A.P.M. students who are in the P.P.A. Specialization.

**Public Affairs and Policy Management with Specialization in Social Policy B.P.A.P.M. (20.0 credits)**

- A. Credits Included in the Major CGPA (10.5 credits):**
1. 4.0 credits in PAMP 1000 [1.0], PAMP 2000 [1.0], PAMP 3000, PAMP 4000, PAMP 4908 [1.0];
  2. 1.0 credit in ECON 3403 and ECON 3405;
  3. 1.0 credit in SOWK 2100 and SOCI 2010;
  4. 0.5 credit from PSCI 3006 or PSCI 3401;
  5. 0.5 credit from PADM 4213, PADM 4221, PADM 4224, PADM 4227, PADM 4228, PADM 4817;
  6. 1.0 credit in Social Policy Law Electives;
  7. 0.5 credit in Social Policy Political Science Electives;
  8. 0.5 credit in Social Policy Business, Social Work or Sociology Electives;
  9. 0.5 credit in Social Policy, Social Work or Sociology Electives;
  10. 1.0 credit in Social Policy Electives of any type;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
11. 1.0 credit from (PSCI 2701 and PSCI 2702), COMM 2001 [1.0] or (ECON 2201 and ECON 2202);
  12. 1.0 credit in LAWS 2501 and LAWS 2502;
  13. 1.5 credits in ECON 1000 [1.0], BUSI 3602;
  14. 1.0 credit from (PSCI 2002 and PSCI 2003) or (PSCI 2101 and PSCI 2102);
  15. 1.0 credit from HIST 1300 [1.0], HIST 1002 [1.0] or HIST 1705 [1.0];
  16. 4.0 credits in free electives;
- C. Additional Requirement:**
17. The language requirement of the B.P.A.P.M. must be satisfied.

**Social Policy Electives**

*Business*

BUSI 3102, BUSI 4105, BUSI 4107, BUSI 4203

*Economics*

ECON 3360, ECON 3402, ECON 3801, ECON 3810

*Law*

LAWS 3000, LAWS 3001, LAWS 3006, LAWS 3305, LAWS 3306, LAWS 3307, LAWS 3401, LAWS 3402, LAWS 3405, LAWS 3503, LAWS 3504, LAWS 3506,

LAWS 3508, LAWS 3804, LAWS 4001, LAWS 4305, LAWS 4402, LAWS 4504, LAWS 4507, LAWS 4607

*Political Science*

PSCI 3006, PSCI 3109, PSCI 3401, PSCI 3402, PSCI 3404, PSCI 3405, PSCI 3409, PSCI 4107, PSCI 4109, PSCI 4407

*Social Work*

SOWK 3100, SOWK 3206, SOWK 3207, SOWK 4102, SOWK 4103, SOWK 4105, SOWK 4204, SOWK 4300

*Sociology*

SOCI 3010, SOCI 3050, SOCI 3055, SOCI 3300, SOCI 3400, SOCI 3410, SOCI 3420, SOCI 3810, SOCI 4055, SOCI 4410, SOCI 4420, SOCI 4430, SOCI 4810

**Public Affairs and Policy Management with Specialization in Strategic Public Opinion and Policy Analysis B.P.A.P.M. (20.0 credits)**

- A. Credits Included in the Major CGPA (10.5 credits):**
1. 4.0 credits in PAMP 1000 [1.0], PAMP 2000 [1.0], PAMP 3000, PAMP 4000, PAMP 4908 [1.0];
  2. 1.5 credits in JOUR 2205 and COMM 3001, COMM 3002;
  3. 0.5 credit from BUSI 2204 or BUSI 2400;
  4. 2.0 credits from BUSI 3205, BUSI 3207 COMM 3301, COMM 3302, PSCI 3004, PSCI 3402, PSCI 3405, PSCI 3406, or PSCI 3407;
  5. 1.0 credit from PSCI 4701, COMM 4000, or COMM 4002;
  6. 1.5 credits from JOUR.4000 [1.0], PSCI 4000 [1.0], PSCI 4003, PSCI 4204, PSCI 4407 or PSCI 4408;
- B. Credits Not Included in the Major CGPA (9.5 credits):**
7. 1.0 credit from PSCI 2701 and PSCI 2702, or COMM 2001 [1.0];
  8. 1.0 credit from (LAWS 2501 and LAWS 2502) or (LAWS 2601 and LAWS 3604);
  9. 1.5 credits in ECON 1000 [1.0], BUSI 3602;
  10. 1.0 credit in either (PSCI 2002 and PSCI 2003) or (PSCI 2101 and PSCI 2102);
  11. 1.0 credit from HIST 1300 [1.0], HIST 1002 [1.0] or HIST 1705 [1.0];
  12. 4.0 credits in free electives;
- C. Additional Requirement:**
13. The language requirement of the B.P.A.P.M. must be satisfied.

Programs

## Certificate in Nunavut Public Service Studies (C.N.P.S.S.)

School of Public Policy and Administration  
(Faculty of Public Affairs)

1001 Dunton Tower

613-520-2547

carleton.ca/spa

This section presents the requirements for:

- **Certificate in Nunavut Public Service Studies - C.N.P.S.S.**

This Certificate program is designed primarily for prospective or practicing public employees in Nunavut who seek special training in public service subjects at the undergraduate level.

Courses taken for the Certificate may be credited towards a Bachelor of Arts degree. A transfer student from the Certificate program into the Bachelor of Arts program normally will be required to take at least 10.0 further credits. At least 5.0 of the credits required for the degree must be completed after awarding of the Certificate.

### Admission Requirements

The OSSD or the equivalent, with an average of 68 percent or better, calculated on the six best OACs or Grade 12 U or M (U/C) courses, including an OAC or Grade 12 U course in English (or *anglais*) with a grade of 60 percent or better. Equivalent courses may be substituted between the OAC and new curriculum courses. For applicants whose first language is not English, the requirement of OAC English can also be met under the conditions outlined in the section "English Language Requirements" in the Admissions Requirements and Procedures section of this Calendar. Special consideration will be extended to other applicants under Mature Applicant regulations (see Mature and Special Admissions, in the Admissions Regulations and Procedures section of this Calendar).

Candidates may be admitted with advanced standing, but must take at least 3.0 credits for the Certificate from Carleton University.

### Academic Standing

A candidate for the Certificate must obtain a grade of C or better in at least half of the credits taken at Carleton University for the Certificate.

### Program Requirements

#### Certificate in Nunavut Public Service Studies C.N.P.S.S. (5.0 credits)

The following courses are required:

1. 0.5 credit in PADM 1501 and PADM 1502;
2. 0.5 credit in PADM 1502 or another course as approved by the School of Public Policy and Administration;
3. 1.0 credit in ENGL 1005 [1.0];
4. 1.0 credit in BUSI 1001 and BUSI 2101;
5. 1.0 credit in ECON 1000 [1.0];
6. 0.5 credit in HIST 1010;
7. 0.5 credit in PSCI 1002.

## Certificate in Public Service Studies (C.P.S.S.)

School of Public Policy and Administration  
(Faculty of Public Affairs)

1001 Dunton Tower

613-520-2547

carleton.ca/spa

This section presents the requirements for:

- **Certificate in Public Service Studies – C.P.S.S.**

The Certificate program is designed primarily for public employees who seek special training in public service subjects at the undergraduate level.

Courses taken for the Certificate may be credited towards a Bachelor of Arts degree. A student transferring into a Bachelor of Arts program will normally be required to take at least 9.0 further credits. At least 5.0 of the credits required for the degree must be completed after the awarding of the Certificate.

Full-time candidates for the Certificate are invited to inquire about possible financial aid.

### Admission Requirements

The basic admission requirement is the completion of the OSSD or the equivalent, with an overall average of 60 percent or better on the six best OACs or Grade 12 U or M (U/C) courses. Equivalent courses may be substituted between the OAC and new curriculum courses. Special consideration will be extended to other applicants under Mature Applicant regulations (see Mature and Special Admissions, in the Admissions Regulations and Procedures section of this Calendar).

Candidates may be admitted with advanced standing, but must complete at least 4.0 credits at Carleton, including all required courses, to obtain the Certificate from Carleton University. Students who have completed an undergraduate degree are not eligible for admission to this program.

### Academic Standing

To qualify for the Certificate, the candidate must obtain a grade of C or better in at least half of the credits taken at Carleton University for the certificate.

### Program Requirements

#### Certificate in Public Service Studies C.P.S.S. (6.0 credits)

The following courses are required and the following order is suggested:

1. 1.0 credit in (PSCI 1001 and PSCI 1002) or PSCI 1000 [1.0];
2. 1.0 credit in ECON 1000 [1.0];
3. 1.0 credit from HIST 1300[1.0], HIST 2303[1.0], HIST 2304[1.0] or HIST 2305[1.0];
4. 1.0 credit in (PSCI 2002 and PSCI 2003), or PSCI 2000[1.0];
5. 0.5 credit in PSCI 3401;
6. 1.5 credits chosen in consultation with the Director of the School, according to the needs of the student.



## Religion

College of the Humanities  
(Faculty of Arts and Social Sciences)  
2A39 Paterson Hall  
613-520-2100  
carleton.ca/chum/religion

This section presents the requirements for:

- Religion B.A. Honours
- Religion B.A. General
- Religion B.A. Combined Honours
- Minor in Religion
- Minor in Jewish Studies
- Minor in Muslim Studies

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the Academic Regulations of the University in this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars (see the Academic Regulations for the Bachelor of Arts Degree).

Students should consult the Discipline when planning their program and selecting courses.

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### Program Requirements

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#### Religion

##### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):
  1. 1.0 credit in RELI 1710 and RELI 1711;
  2. 1.0 credit in RELI at the 2000-level;
  3. 1.0 credit in RELI at the 3000-level;
  4. 2.0 credits in RELI at the 4000-level:
    - a) 0.5 credit in RELI 4740;
    - b) 1.5 credit at the 4000-level;
  5. 4.0 credits in RELI;
- B. Credits Not Included in the Major CGPA (11.0 credits):
  6. 9.0 credits in electives not in RELI;
  7. 2.0 credits in free electives (may be in RELI).

#### Religion

##### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Religion Major CGPA (6.0 credits):
  1. 1.0 credit in RELI 1710 and RELI 1711;
  2. 1.0 credit in RELI at the 2000-level;
  3. 1.0 credit in RELI at the 3000-level;
  4. 0.5 credit in RELI 4740;
  5. 1.0 credits in RELI at the 4000-level;
  6. 1.5 credits in RELI;
- B. Additional Requirements (14.0 credits):
  7. The requirements for B.A. Combined Honours in the other discipline;
  8. 5.0 credits in electives not in RELI or the other discipline;
  9. Sufficient elective credits to make up 20.0 credits total for the program.

#### Religion

##### B.A. General (15.0 credits)

- A. Credits Included in the Major CGPA (6.0 credits):
  1. 1.0 credit in RELI 1710 and RELI 1711;
  2. 1.0 credit in RELI at the 2000-level;
  3. 1.0 credit in RELI at the 3000-level;
  4. 3.0 credits in RELI;
- B. Credits Not Included in the Major CGPA (9.0 credits):
  5. 7.0 credit not in RELI;
  6. 2.0 credits in free electives (may be in RELI).

#### Minor in Religion

Open to all undergraduate degree students not in Religion programs.

##### Requirements (4.0 credits):

1. 1.0 credit in RELI at the 1000-level;
2. 1.0 credit in RELI at the 2000-level or above;
3. 1.0 credit in RELI at the 3000-level or above;
4. 1.0 credit in RELI;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

#### Minor in Jewish Studies

Open to all undergraduate degree students. For students in Religion a maximum of 2.0 credits may count toward both the Minor and the Major of the student's Religion program.

##### Requirements (4.0 credits):

1. 0.5 credit in RELI 1710;
2. 2.0 credits from RELI 2120, RELI 2110, RELI 2122, RELI 2322 [1.0], RELI 3120, RELI 2121, RELI 2125, RELI 2130, RELI 3130, RELI 3131, RELI 2842, RELI 3842;

Programs - Religion

- 3. 1.5 credits in RELI or another discipline on a Jewish theme (see **Note**, below);
- 4. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Note:** approval of the Religion Coordinator is required when selecting courses for **Item 3** above.

**Minor in Muslim Studies**

Open to all undergraduate degree students. A maximum of 2.0 credits may count toward both the Minor and the Major of the student's program where the credits can meet requirements in both.

**Requirements (4.0 credits)**

- 1. 0.5 credit in RELI 1710;
- 2. 2.0 credits from RELI 2310, RELI 2320, RELI 2322 [1.0], RELI 2330, RELI 2843, RELI 3320, RELI 3321, RELI 3325, RELI 3330, RELI 3331, RELI 3340, RELI 3350, RELI 3843;
- 3. 1.5 credits in RELI or another discipline on a Muslim theme (see **Note**, below);
- 4. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Note:** approval of the Religion Coordinator is required when selecting courses for **Item 3** above.

## Sexuality Studies (Minor)

Institute of Interdisciplinary Studies  
(Faculty of Arts and Social Sciences)  
2201 Dunton Tower  
613-520-2368

carleton.ca/iis/programs-of-study/sexuality-studies

This section presents the requirements for the programs:

- Minor in Sexuality Studies

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar).
- the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

Students should consult with the Institute when planning their program and selecting courses.

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### Program Requirements

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#### Minor in Sexuality Studies

This minor is available to all undergraduate degree students.

#### Requirements (4.0 credits):

- 1.0 credit in SXST 2101 and SXST 4101;
- 1.0 credit from Approved Sexuality Studies Electives at the 2000-level or higher;
- 1.0 credit from Approved Sexuality Studies Electives at the 3000-level or higher;
- 1.0 credit from Approved Sexuality Studies;
- The remaining requirements of the major discipline(s) and degree must be satisfied.

#### Notes:

- Courses used to fulfil **Items 2 through 4** above must be from more than one discipline.
- Other courses may be substituted for the credits specified in item two, when material on sexuality is central to the course. Such substitutions must be individually approved by the Institute of Interdisciplinary Studies (IIS). Students are encouraged to consult course descriptions of Special Topics courses.

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### Approved Sexuality Studies Electives

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**Note:** access to these courses is not guaranteed, and may depend on space availability and the satisfaction of other requirements such as course prerequisites.

#### Anthropology

ANTH 2040, ANTH 4780

#### Art History

ARTH 3600, ARTH 3601, ARTH 4600

#### Canadian Studies

CDNS 3400, CDNS 3600

#### Communication Studies

COMM 3505

#### English Language and Literature

ENGL 2109

#### Film Studies

FILM 3301

#### First Year Seminars

FYSM 1402, FYSM 1403, FYSM 1600

#### Geography

GEOG 4207, GEOG 4401

#### History

HIST 2505, HIST 3106, HIST 3107, HIST 3406, HIST 3505, HIST 3602, HIST 3707, HIST 4505

#### Human Rights

HUMR 1001, HUMR 2301, HUMR 4301, HUMR 4302

#### Law

LAWS 3001, LAWS 3503, LAWS 3804, LAWS 4001, LAWS 4002, LAWS 4604, LAWS 5302, LAWS 5008/ SOCI 5204

#### Music

MUSI 3302, MUSI 4303

#### Philosophy

PHIL 1500, PHIL 2306

#### Political Science

PSCI 2500, PSCI 3109, PSCI 3303, PSCI 3500, PSCI 3502, PSCI 4200, PSCI 4201, PSCI 4205, PSCI 4208, PSCI 4402, PSCI 4500, PSCI 4501, PSCI 4605

#### Psychology

PSYC 3603

#### Sexuality Studies

SXST 3101, SXST 3102

#### Social Work

SOWK 2004, SOWK 3804, SOWK 4202, SOWK 4206

#### Sociology

SOCI 2043, SOCI 2045, SOCI 2700, SOCI 3040, SOCI 3044, SOCI 3050, SOCI 3420, SOCI 3780, SOCI 4040, SOCI 4043

#### Women's and Gender Studies

WGST 1808, WGST 2800, WGST 2803, WGST 2804, WGST 3004

## Social Work

School of Social Work  
(Faculty of Public Affairs)  
509 Dunton Tower  
613-520-5601  
carleton.ca/ssw

This section presents the requirements for

- Bachelor of Social Work – B.S.W.

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### Graduation Requirements

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In addition to the program requirements listed below, students must satisfy the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar).

Students should consult with the School when planning their program and selecting courses.

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### Community College Applicants

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Articulation agreements between the School of Social Work at Carleton University and several community colleges have been negotiated to facilitate the application of their graduates in their human or social service worker programs to Carleton's Bachelor of Social Work. Agreements have been established with Algonquin College, Sir Sanford Fleming College and St. Lawrence College (Cornwall and Kingston). Contact the School for more details.

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### Academic Performance Evaluation for Social Work

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Students in the Bachelor of Social Work program are assessed by the standard process of Academic Performance Evaluation with the following exception:

*Good Standing* in the B.S.W. requires:

1. If the number of credits included in the Overall CGPA is at most 15.0, the Overall CGPA must be at least 6.00 and the Major CGPA must be at least 6.00.
2. If the number of credits included in the Overall CGPA is at least 15.5, the Overall CGPA must be at least 6.00 and the Major CGPA must be at least 6.50.

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### Program Requirements

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#### Bachelor of Social Work B.S.W. (20.0 credits)

##### A. Credits Included in the Major CGPA (10.5 credits):

1. 4.5 credits in SOWK 1000 [1.0], SOWK 2000 [1.0], SOWK 2100, SOWK 3100, SOWK 3200, SOWK 3201 and SOWK 4200;
2. 1.0 credit in SOWK 2501 and SOWK 2502 or approved substitute;
3. 2.0 credits in SOWK 3600 or SOWK 3601 [2.0];

4. 2.0 credits in either SOWK 4600 [2.0] or (SOWK 4601 [1.0] and SOWK 4602 [1.0]);
5. 1.0 credit in SOWK 4908 [1.0] or two half-credit (0.5 credit) courses in SOWK at the 4000-level or higher;

##### B. Credits Not Included in the Major CGPA (9.5 credits):

6. 1.0 credit in PSYC;
7. 1.0 credit in SOCI;
8. 6.0 credits not in SOWK;
9. 1.5 credits in free electives.

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### Work Experience and Credit for Practicum I (SOWK 3600, SOWK 3601)

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On admission to the B.S.W. program, students who have four or more years of human service may apply to the B.S.W. Field Co-ordinator for waiver of the requirement for SOWK 3600 or SOWK 3601. If successful, they will be granted 1.0 elective credit in Social Work and will be required to take 1.0 additional elective credit in Social Work in lieu of SOWK 3600 or SOWK 3601. Applications must be received by September 1 of each year.

## Sociology and Anthropology

Department of Sociology and Anthropology  
(Faculty of Arts and Social Sciences)  
B742 Loeb Bldg.  
613-520-2582  
carleton.ca/socanth

This section presents the requirements for:

- Sociology - B.A. Honours
- Sociology - B.A. Combined Honours
- Anthropology –B.A. Honours
- Anthropology - B.A. Combined Honours
- Sociology – B.A. General
- Anthropology – B.A. General
- Minor in Sociology
- Minor in Anthropology
- Mention : français
- Articulation Agreement - B.A. General (Carleton)/  
Police Foundations (Algonquin)

Co-operative Education Option is available (see the Co-operative Education section of this Calendar for details).

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the common regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree*).

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### First Year Courses

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Students may receive credit for both SOCI 1000 [1.0] (no longer offered) or SOCI 1001 and SOCI 1002 or SOCI 1003 [1.0] and ANTH 1000 [1.0] (no longer offered) or ANTH 1001 and ANTH 1002 or ANTH 1003 [1.0]. Only one of these credits will be included in the Major CGPA, the other will count against the total number of credits in sociology and/or anthropology.

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### Program Requirements - B.A. Honours

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#### Sociology

##### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):
1. 1.0 credit from SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0];
  2. 2.0 credits in SOCI 2001, SOCI 2002 and SOCI 3003 [1.0];
  3. 2.0 credits in SOCI 2005 [1.0] and SOCI 3005 [1.0];
  4. 2.0 credits in SOCI and/or ANTH at the 4000- or 5000-level;

5. 2.0 credits in SOCI and/or ANTH at the 2000-level or above;
- B. Credits Not Included in the Major CGPA (11.0 credits):
6. 3.0 credits in one discipline excluding Anthropology and Sociology chosen in consultation with the Co-ordinator of the B.A. Honours program in Sociology;
  7. 0.5 credit ANTH 1001;
  8. 5.0 credits not in SOCI or ANTH;
  9. 2.5 credits in free electives.

#### Sociology

##### B.A. Combined Honours (20.0 credits)

- A. Credits Included in the Sociology Major CGPA (7.0 credits):
1. 1.0 credit from SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0];
  2. 2.0 credits in SOCI 2001, SOCI 2002 and SOCI 3003 [1.0];
  3. 1.0 credit in SOCI 2005 [1.0];
  4. 2.0 credits in SOCI and/or ANTH at the 4000- or 5000-level;
  5. 1.0 credit in SOCI and/or ANTH at the 2000-level or above;
- B. Additional Requirements (13.0 credits):
6. The requirements for the other discipline must be satisfied;
  7. 5.0 credits not in SOCI or ANTH or the other discipline;
  8. Sufficient credits in free electives to make 20.0 credits for the degree.

#### Anthropology

##### B.A. Honours (20.0 credits)

- A. Credits Included in the Major CGPA (9.0 credits):
1. 1.0 credit from ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0];
  2. 2.0 credits in ANTH 2001 [1.0] and ANTH 4900 [1.0];
  3. 1.0 credit from ANTH 2610, ANTH 2620, ANTH 2630, ANTH 2640, ANTH 2650, ANTH 2660 or ANTH 2690;
  4. 1.0 credit from ANTH 3005, ANTH 3006 or ANTH 3007;
  5. 2.5 credits in ANTH and/or SOCI at the 2000-level or above;
  6. 1.5 credits in ANTH and/or SOCI at the 4000- or 5000-level;
- B. Credits Not Included in the Major CGPA (11.0 credits):
7. 0.5 credit in SOCI 1001;
  8. 8.0 credits not in SOCI or ANTH;
  9. 2.5 credits in free electives.

**Anthropology  
B.A. Combined Honours (20.0 credits)**

- A. Credits Included in the Anthropology Major CGPA (7.0 credits):**
1. 1.0 credit from ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0];
  2. 1.0 credit in ANTH 2001 [1.0];
  3. 1.0 credit from ANTH 2610, ANTH 2620, ANTH 2630, ANTH 2640, ANTH 2650 or ANTH 2690;
  4. 1.0 credit from ANTH 3005, ANTH 3006 or ANTH 3007;
  5. 1.0 credit in ANTH and/or SOCI at the 2000-level or above;
  6. 1.0 credit in ANTH and/or SOCI at the 4000- or 5000-level;
  7. Either:
    - a) 1.0 credit in ANTH 4900 [1.0];
    - or
    - b) 1.0 credit in ANTH at the 2000-level or higher if an Honours Essay is completed in the other discipline;
- B. Additional Requirements (13.0 credits):**
8. The requirements for the other discipline must be satisfied;
  9. 5.0 credits not in SOCI or ANTH or the other discipline;
  10. Sufficient credits in free electives to make 20.0 credits for the degree;
  11. Students are required to complete an Honours Essay. In those cases where the second discipline does not require an Honours Essay, alternative arrangements may be considered by the Co-ordinator of Honours (Anthropology).

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**Program Requirements - B.A. General**

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**Sociology  
B.A. General (15.0 credits)**

- A. Credits Included in the Major CGPA (6.0 credits):**
1. 1.0 credit from SOCI 1001 and SOCI 1002 or SOCI 1003 [1.0];
  2. 1.0 credit in SOCI 2003 [1.0];
  3. 1.0 credit in SOCI 2005 [1.0];
  4. 1.5 credits in SOCI at the 3000-level or above;
  5. 1.5 credits in SOCI at the 2000-level or above;
- B. Credits Not Included in the Major CGPA (9.0 credits):**
6. 0.5 credit ANTH 1001;
  7. 7.0 credits not in SOCI or ANTH;
  8. 1.5 credits in free electives.

**Anthropology  
B.A. General (15.0 credits)**

- A. Credits Included in the Major CGPA (6.0 credits):**
1. 1.0 credit from ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0];
  2. 1.0 credit in ANTH 2001 [1.0];
  3. 1.0 credit from ANTH 2610, ANTH 2620, ANTH 2630, ANTH 2640, ANTH 2650 or ANTH 2690;
  4. 1.0 credit from ANTH 3005, ANTH 3006 or ANTH 3007;
  5. 1.0 credit in ANTH at the 2000-level or above;
  6. 1.0 credit in ANTH at the 3000-level or above;
- B. Credits Not Included in the Major CGPA (9.0 credits):**
7. 0.5 credit SOCI 1001;
  8. 7.0 credits not in ANTH or SOCI;
  9. 1.5 credits in free electives.

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**Minors**

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**Minor in Sociology**

Open to all undergraduate degree students in programs other than Sociology. Students in any Anthropology major should select courses carefully if they wish to use courses from the major in their minor Sociology. Such students should always consult the department.

**Requirements (4.0 credits):**

1. 1.0 credit from SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0];
2. 1.0 credit from SOCI 2001 and SOCI 2002 or SOCI 2005 [1.0];
3. 2.0 credits in SOCI at the 2000-level or above;
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Minor in Anthropology**

Open to all undergraduate degree students in programs other than Anthropology. Students in any Sociology major should select courses carefully if they wish to use courses from the major in their minor Anthropology. Such students should always consult the department.

**Requirements (4.0 credits):**

1. 1.0 credit from ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0];
2. 1.0 credit in ANTH 2001 [1.0];
3. 2.0 credits in ANTH at the 2000-level or above.
4. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Mention : Français**

Students who wish to qualify for the *Mention: Français* notation in Sociology-Anthropology may do so by including the following pattern of courses in their degree program:

1. 1.0 credit in the advanced study of the French language (FREN 1100 [1.0]).
2. 1.0 credit in French-Canadian culture and heritage (FREN 2200 and FREN 2300).
3. 1.0 credit at the 2000- or 3000-level in Sociology and/or Anthropology taught in French at Carleton or at another University, and approved by the B.A. General or B.A. Honours Program Co-ordinators.
4. In addition, for B.A. Honours Sociology or Anthropology, 1.0 credit at the 4000-level in Sociology or Anthropology taught in French at Carleton or at another University, as approved by the respective B.A. Honours Program Co-ordinator.

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**Articulation Agreement  
B.A. General (Carleton)/  
Police Foundations (Algonquin)**


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An articulation agreement between Carleton University and Algonquin College of Applied Arts and Technology permits graduates with a Diploma in Police Foundations from Algonquin College to apply for admission into the B.A. General program at Carleton University. Successful applicants will be granted 5.0 credits on admission towards the completion of a B.A. General in either Criminology, or Law, or Psychology, or Sociology/Anthropology.

To be eligible for admission according to this Articulation Agreement, students must have completed the Diploma in Police Foundations at Algonquin College with an overall B average (Grade Point Average of 3.0). They will then be considered for admission to a B.A. General program at Carleton in one of Criminology, Law, Psychology, or Sociology/Anthropology.

Course transfers: 2.0 credits in Law, 2.0 credits in Sociology, and 0.5 in Political Science and 0.5 in Psychology.

## Technology, Society, Environment Studies

### Technology, Society, Environment Studies Committee

(Faculties of Arts and Social Sciences, Engineering and Design, Public Affairs, Science)

2201 Herzberg Bldg.

613-520-2600 ext. 4483

carleton.ca/tse

This section presents the requirements for:

- **Minor in Technology, Society, Environment Studies (TSE)**

Students may also submit a coherent pattern of courses in TSE Studies for a B.A. Honours or B.A. General in Directed Interdisciplinary Studies, in accordance with the procedures described in the *Academic Regulations for the Bachelor of Arts Degree* section of this Calendar. Assistance in planning such a pattern is available from members of the TSE Committee.

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### Graduation Requirements

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In addition to the requirements listed below, students must satisfy:

- i) the University regulations including the process of Academic Performance Evaluation (see the *Academic Regulations of the University* section of this Calendar).

Students should consult with the Institute when planning their program and selecting courses.

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### Program Requirements

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#### Minor in Technology, Society, Environment Studies (TSE)

This minor is available to all degree students.

##### Requirements (4.0 credits):

1. 1.0 credit in ENSC 2001 and ISCI 2002;
2. 1.0 credit in TSES 3001 and TSES 3002;
3. 1.0 credit from (ISCI 1001 and ISCI 2000), TSES 2305 [1.0], or CLCV 2305 [1.0];
4. 1.0 credit from TSES 4001, TSES 4002, TSES 4003, TSES 4005, TSES 4006, TSES 4007, TSES 4008, TSES 4009, TSES 4010, TSES 4011, TSES 4012;
5. The remaining requirements of the major discipline(s) and degree must be satisfied.

**Note:** this Minor is designed for all degree students. There are no requirements for OAC Science credits or University level credits in Natural Sciences. Students with one or more OAC and/or university credits in science can replace ISCI 1001 and ISCI 2000 with TSES 2305, and/or additional half-credit 4000-level TSE courses. Students who have taken courses equivalent to ISCI 2001 and/or ISCI 2002 can also replace all or part of requirement 1 with 4000-level TSE courses. Any substitution requires permission of the Chair of TSE.



## Undeclared

### Bachelor of Arts Bachelor of Science

Degree students may begin their studies in the B.A. or in the B.Sc. degree as Undeclared Students. This means that they have not yet chosen a program within the degree. Undeclared students normally must apply to enter a program before beginning their second year of study. The Student Academic Success Centre offers support to Undeclared students in making this decision.

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### Academic Standing for Undeclared Students

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For purposes of Academic Performance Evaluation, Undeclared students are assessed using only the Overall CGPA.

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### Course Selection for Undeclared Students

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To give themselves the greatest range of choices when selecting a program, Undeclared students should conform to the following guidelines in selecting their courses.

#### Bachelor of Arts

Undeclared B.A. students should register in:

1. A B.A. First-year seminar (FYSM);
2. Courses in at least three different disciplines leading to programs within the B.A.

#### Bachelor of Science

Undeclared B.Sc. students should register in:

1. 2.0 credits in Experimental Science;
2. 1.0 credit in mathematics;
3. 1.0 credit in mathematics, Experimental Science or computer science;
4. 1.0 credit chosen from NSCI 1000 Seminar in Science and/or Approved Arts or Social Sciences.

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### Course Categories

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- **Experimental Science Courses**

#### Biology

BIOL 1003, BIOL 1004, BIOL 1103, BIOL 1104

#### Chemistry

CHEM 1001, CHEM 1002, CHEM 1005, CHEM 1006

#### Earth Sciences

ERTH 1006, ERTH 1009

#### Physics

PHYS 1001 and PHYS 1002, PHYS 1003 and PHYS 1004, PHYS 1007 and PHYS 1008

- **Appropriate Mathematics Courses**

#### Calculus

MATH 1002 [1.0], MATH 1007

#### Algebra

MATH 1102[1.0], MATH 1107

- **Appropriate Computer Science Courses**

COMP 1004, COMP 1005, COMP 1006

- **Approved Arts or Social Sciences**

Approved Arts or Social Sciences courses are specified in the *Academic Regulations for the Bachelor of Science Degree* section of this Calendar.

## Women's and Gender Studies

Pauline Jewett Institute of Women's and Gender Studies

(Faculty of Arts and Social Sciences)

1501 Dunton Tower

613-520-6645

carleton.ca/womenstudies

This section presents the requirements for:

- Women's and Gender Studies - B.A. Honours
- Women's and Gender Studies - B.A. Combined Honours
- Women's and Gender Studies - B.A. General
- Minor in Women's and Gender Studies

### Graduation Requirements

In addition to the program requirements listed below, students must satisfy:

- i) the University regulations (see the *Academic Regulations of the University* section of this Calendar),
- ii) the Faculty regulations applying to all B.A. students including those relating to First-Year Seminars and Breadth requirements (see the *Academic Regulations for the Bachelor of Arts Degree* section of this Calendar).

Students should consult with the Institute when planning their program and selecting courses.

### Program Requirements

#### Women's and Gender Studies

##### B.A. Honours (20.0 credits)

###### A. Credits included in the Major CGPA (9.0 Credits):

1. 1.0 credit from WGST 1808 [1.0] or FYSM 1402 [1.0] or FYSM 1403 [1.0];
2. 1.0 credit in WGST 2800 and WGST 2801;
3. 1.0 credit in WGST 3809 and WGST 3810;
4. 3.0 credits from: WGST 3003, WGST 3004, WGST 3005, WGST 4901, WGST 4902, WGST 4903, WGST 4904 [1.0], WGST 4906, WGST 4909, WGST 4910;
5. One of:
  - a) WGST 4905 [1.0] Honours Research Project (see **Note**, below)
  - or
  - b) 1.0 credit from WGST 4901, WGST 4902, WGST 4903, WGST 4904, WGST 4906, WGST 4909, WGST 4910 (Note: courses used to fulfil Item 4 above may not be used to fulfil this requirement);
6. 2.0 credits electives from WGST courses or WGST-approved courses in other disciplines;

###### B. Credits not included in the Major CGPA (11.0 credits):

7. 8.0 credits not in WGST;
8. 3.0 credits in free electives.

Note: registration in Item 5a) above, WGST 4905 requires a major CGPA of at least 11.00.

#### Women's and Gender Studies

##### B.A. Combined Honours (20.0 credits)

###### A. Credits Included in the Women's and Gender Studies Major CGPA (7.0 credits):

1. 1.0 credit in WGST 1808 [1.0] or FYSM 1402 [1.0] or FYSM 1403 [1.0];
2. 1.0 credit in WGST 2800 and WGST 2801;
3. 1.0 credit in WGST 3809 and WGST 3810;
4. 3.0 credits from: ANTH 2040, ARTH 3601, CDNS 3400, COMM 3601, ECON 3380, ENGL 2108, ENGL 2109, FILM 3301, HIST 2506, HIST 3505, HIST 3106, HIST 3112, HIST 3406, HIST 3603, HIST 3711, HIST 3713, HUMR 2301, LAWS 3001, LAWS 3503, LAWS 3804, MUSI 3302, PHIL 2306, PHIL 2307, PSCI 2500, PSCI 3303, PSCI 3500, PSCI 3502, PSYC 3603, RELI 2235, RELI 3131, SOCI 2043, SOCI 2045, SOCI 3040, SOCI 3044, SOCI 3420, SOWK 2004, SOWK 3204, SOWK 3804, SXST 2101, SXST 3101, SXST 3102, WGST 2802, WGST 2803, WGST 2804, WGST 3003, WGST 3004, WGST 3005;
5. 1.0 credit from: ARTH 4600, BUSI 4107, BUSI 4602, HIST 4505 [1.0], HUMR 4301, JOUR 4307, LAWS 4001, LAWS 4002, MUSI 4303, PADM 4213, PHIL 4603, PHIL 4604, PSCI 4208, PSCI 4402, PSCI 4403, PSCI 4500, PSCI 4501, PSCI 4506, PSCI 4605, SOCI 4040, SOCI 4420, SOWK 4206, SXST 4101, WGST 4900, WGST 4901, WGST 4902, WGST 4903, WGST 4904 [1.0], WGST 4905, WGST 4906, WGST 4909, WGST 4910;

###### B. Additional Requirements:

6. The requirements for Combined Honours in the other discipline must be met;
7. 5.0 credits in electives not in WGST or the other discipline;
8. Sufficient electives to make a total of 20.0 credits for the degree.

Note: other courses may be substituted for the credits specified above in **Items 4 and 5** above when material on gender and/or women is central to the course. Such substitutions must be individually approved by the Institute of Women's and Gender Studies.

#### Women's and Gender Studies

##### B.A. General (15.0 credits)

###### A. Credits Included in the Major CGPA (6.0 credits):

1. 1.0 credit in WGST 1808 [1.0] or FYSM 1402 [1.0] or FYSM 1403 [1.0];
2. 1.0 credit in WGST 2800 and WGST 2801;
3. 1.0 credit in WGST 3809 and WGST 3810;
4. 1.0 credit from: ARTH 3601, CDNS 3400, ECON 3380, FILM 3301, HIST 3106, HIST 3112, HIST 3406, HIST 3505, HIST 3603, HIST 3711, HIST 3713, LAWS 3001, LAWS 3503, LAWS 3804, MUSI 3302, PSCI 3303, PSCI 3500, PSCI 3502, PSYC 3603, RELI 3131, SOCI 3040, SOCI 3044, SOCI 3420, SOWK 3204, SOWK 3804, SXST 3101, SXST 3102, WGST 3003, WGST 3004, WGST 3005;

5. 2.0 credits from the courses in **Item 4** and:  
 ANTH 2040, ENGL 2108, ENGL 2109, HIST 2506,  
 HUMR 2301, PHIL 2306, PHIL 2307, PSCI  
 2500, RELI 2235, SOCI 2043, SOCI 2045, SOWK  
 2004, SXST 2101, WGST 2802, WGST 2803,  
 WGST 2804;
- B. Credits Not Included in the Major CGPA  
 (9.0 credits):**
6. 7.0 credits in electives not in WGST;
7. 2.0 credits in free electives;

**Note:** other courses may be substituted for the credits specified above in items 4 and 5 above when material on gender and/or women is central to the course. Such substitutions must be individually approved by the Institute of Women's and Gender Studies.

### Minor in Women's and Gender Studies

#### Requirements (4.0 credits):

1. 1.0 credit in WGST 1808 [1.0] or  
 FYSM 1402 [1.0] or FYSM 1403 [1.0];
2. 1.0 credit in WGST 2800 and WGST 2801;
3. 1.0 credit from: ARTH 3601, CDNS 3400,  
 COMM 3601, ECON 3380, FILM 3301,  
 HIST 3106, HIST 3112, HIST 3406, HIST 3505,  
 HIST 3603, HIST 3711, HIST 3713, LAWS 3001,  
 LAWS 3503, LAWS 3804, MUSI 3302, PSCI 3303,  
 PSCI 3500, PSCI 3502, PSYC 3603, RELI 3131,  
 SOCI 3040, SOCI 3044, SOCI 3420, SOWK 3204,  
 SOWK 3804, SXST 3101, SXST 3102, WGST 3003,  
 WGST 3004, WGST 3005;
4. 1.0 credit from the courses in **Item 3**, or  
 ANTH 2040, ENGL 2108, ENGL 2109,  
 HIST 2506, HUMR 1001 [1.0], HUMR 2301,  
 PHIL 2306, PHIL 2307, PSCI 2500, RELI 2235,  
 SOCI 2043, SOCI 2045, SOWK 2004, WGST 2802,  
 WGST 2803, WGST 2804, SXST 2101;
5. The remaining requirements of the major  
 discipline(s) and degree must be satisfied.

**Note:** other courses may be substituted for the credits specified above when material on gender and/or women is central to the course. Such substitutions must be individually approved by the Institute of Women's and Gender Studies.

### Approved Women's and Gender Studies Electives

The following course offerings are listed for the convenience of students. Detailed course descriptions will be found under the appropriate departmental course listings.

**Note:** Special Topics courses and other courses offered by units throughout the University may in any given year contain substantial material on gender and/or women's experience. Recent examples include certain courses in art history, geography, history, journalism and sociology.

#### Faculty of Arts and Social Sciences

##### *Art History*

ARTH 3601, ARTH 4600

##### *Canadian Studies*

CDNS 3400

##### *English Language and Literature*

ENGL 2108, ENGL 2109

##### *Film Studies*

FILM 3301

##### *History*

HIST 2506, HIST 3106, HIST 3112, HIST 3406, HIST  
 3505, HIST 3603, HIST 3711, HIST 3713, HIST 4505

##### *Human Rights*

HUMR 1001, HUMR 2301, HUMR 4301

##### *Music*

MUSI 3302, MUSI 4303

##### *Philosophy*

PHIL 2306, PHIL 2307, PHIL 4603, PHIL 4604

##### *Psychology*

PSYC 3603

##### *Religion*

RELI 2235, RELI 3131

##### *Sociology-Anthropology*

ANTH 2040, SOCI 2043, SOCI 2045, SOCI 3040,  
 SOCI 3044, SOCI 3420, SOCI 4040, SOCI 4420

#### Faculty of Public Affairs

##### *Communication Studies*

COMM 3601

##### *Economics*

ECON 3380

##### *Journalism*

JOUR 4307

##### *Law*

LAWS 3001, LAWS 3503, LAWS 3804, LAWS 4001,  
 LAWS 4002

##### *Political Science*

PSCI 2500, PSCI 3303, PSCI 3500, PSCI 3502,  
 PSCI 4208, PSCI 4402, PSCI 4403, PSCI 4500,  
 PSCI 4501, PSCI 4506, PSCI 4605

##### *Public Administration*

PADM 4213

##### *Sexuality Studies*

SXST 2101, SXST 3101, SXST 3102, SXST 4101

##### *Social Work*

SOWK 2004, SOWK 3204, SOWK 3804, SOWK 4206

#### Sprott School of Business

##### *Business*

BUSI 4107, BUSI 4602

Programs



## Aerospace Engineering (AERO)

### Department of Mechanical and Aerospace Engineering Faculty of Engineering

AERO 3002 [0.5 credit]

#### Aerospace Design and Practice

Design approach and phases. Design integration. Influence of mission and other requirements on vehicle configuration. Trade-off studies, sizing and configuration layout. Flight vehicle loads, velocity-load factor diagram. Structural design: overall philosophy, role in design process, methods.

Prerequisites: MAAE 2001 and third-year status in Engineering.

Lectures three hours a week, problem analysis three hours a week.

AERO 3101 [0.5 credit]

#### Lightweight Structures

Structural concepts; theory of elasticity; bending, torsion and shear in thin-walled beams having single or multi-cell sections; work and energy principles; deformation and force analysis of advanced structures, including stiffened thin-wall panels; finite element methods. Stability and buckling of thin-walled structures.

Prerequisite: MAAE 3202.

Lectures three hours a week; problem analysis and laboratories one hour a week.

AERO 3240 [0.5 credit]

#### Orbital Mechanics

Review of rigid body dynamics, orbital elements, Keplerian two-body problem, orbit transfers, rendezvous, time of flight, interplanetary trajectories, manoeuvres (flyby, capture). Orbit determination and perturbations. Advanced topics: restricted three body problem, Lagrange's planetary equations.

Prerequisite: MAAE 2101

Lectures three hours per week, tutorial one hour per week.

AERO 3700 [0.5 credit]

#### Aerospace Materials

Properties, behaviour and manufacturing methods for metals, polymers and ceramics used in aerospace applications. Specialty alloys for gas turbines. Properties and manufacture of aerospace composites. Behaviour of materials in space.

Prerequisite: MAAE 2700.

Lectures three hours a week; problem analysis and laboratories one hour a week.

AERO 3841 [0.5 credit]

#### Spacecraft Design

Design of spacecraft and spacecraft subsystems with emphasis on mission requirements and current design methods: spacecraft configuration, payload, structural, attitude control, thermal, power, and other related subsystems. Spacecraft integration and testing.

Precludes additional credit for AERO 4801.

Prerequisite: MAAE 2001 and AERO 3240.

Lectures three hours a week, tutorials or laboratories three hours per week.

AERO 4003 [0.5 credit]

#### Aerospace Systems Design

Stress and deflection analysis; fatigue, safe life, damage tolerant design. Propulsion systems integration; landing gear; control and other subsystems. Mechanical component design. Airworthiness regulations and certification procedures. Weight and cost estimation and control. System reliability. Design studies of aircraft or spacecraft components.

Prerequisite: MAAE 3202 and AERO 3002.

Lectures three hours a week, problem analysis three hours a week.

AERO 4009 [0.5 credit]

#### Aviation Management and Certification

Product development, quality control. Strategic organizational analysis and design. Airworthiness, type certification and planning, delegation of authority, airplane flight manual. Aerospace system design and safety.

Prerequisite: fourth-year status in Engineering.

Lectures three hours per week.

AERO 4300 [0.5 credit]

#### Acoustics and Noise Control

Behaviour of compressible fluids, sound waves and properties of sound sources; measurement of sound; human perception of sound; prediction methods based on energy considerations; sound propagation in realistic environments: outdoors, rooms, ducts; absorption and transmission loss, noise control; case studies.

Prerequisite: MATH 3705 and fourth-year status in Engineering.

Lectures three hours a week.

AERO 4302 [0.5 credit]

#### Aerodynamics & Heat Transfer

Differential equations of motion. Viscous and inviscid regions. Potential flow: superposition; thin airfoils; finite wings; compressibility corrections. Viscous flow: thin shear layer approximation; laminar layers; transition; turbulence modeling. Convective heat transfer: free versus forced convection; energy and energy integral equations; turbulent diffusion. Also offered at the graduate level, with additional or different requirements, as MECH 5000, for which additional credit is precluded.

Prerequisite: MAAE 3300.

Lectures three hours a week.

AERO 4304 [0.5 credit]

#### Computational Fluid Dynamics

Differential equations of motion. Numerical integration of ordinary differential equations. Potential flows: panel methods; direct solution; vortex-lattice methods. Finite-difference formulations: explicit versus implicit methods; stability. Parabolized and full Navier-Stokes equations; conservation form. Transonic and supersonic flows: upwind differencing. Grid transformations. Computer-based assignments.

Prerequisite: AERO 4302.

Lectures three hours a week.

AERO 4306 [0.5 credit]

#### Aerospace Vehicle Performance

Morphology of aircraft and spacecraft. Performance analysis of fixed wing aircraft: drag estimation, propulsion, take-off, climb and landing, endurance, payload/range, manoeuvres; operational economics. Performance analysis of rotor craft: rotor-blade motion, hovering and vertical ascent, forward flight, and autorotation. Rocket propulsion; escape velocity; orbital dynamics.

Prerequisite: MAAE 3300.

Lectures three hours a week.

AERO 4308 [0.5 credit]

#### Aircraft Stability & Control

Static stability and control: equilibrium requirements; longitudinal stability requirements; neutral points; manoeuvring flight; control forces and control requirements; lateral static stability certification requirements. Dynamic stability: axis systems; governing equations; phugoid and short period modes; lateral dynamic modes. Closed-loop control. Also offered at the graduate level, with additional or different requirements, as MECH 5101, for which additional credit is precluded.

Prerequisites: MAAE 3300 and MAAE 4500 or MAAE 3502 (taken before 1999-2000).

Lectures three hours a week.

AERO 4402 [0.5 credit]

**Aerospace Propulsion**

Propulsion requirements, effects of Mach Number, altitude, and application; basic propeller theory; propeller, turboshaft, turbojet, turbofan and rocket; cycle analysis and optimization for gas turbine power plant; inter-relations between thermodynamic, aerodynamic and mechanical designs; rocket propulsion; selection of aeroengines.

Precludes additional credit for MECH 4401.

Prerequisites: MAAE 2400 and MAAE 3300.

Lectures three hours a week.

AERO 4442 [0.5 credit]

**Transatmospheric and Spacecraft Propulsion**

Planetary/interplanetary environments and effects. Launch and spacecraft propulsion: liquid/solid/hybrid rockets, ram/scramjets, combined cycle engines, electrothermal, electromagnetic, electrostatic, nuclear, and propellantless propulsion. Trajectory analysis, multi-staging, separation dynamics. Advanced engine concepts.

Prerequisite: AERO 4302 or AERO 4446 or MECH 4406.

Lectures three hours a week.

AERO 4446 [0.5 credit]

**Heat Transfer for Aerospace Applications**

Fundamentals of heat transfer with emphasis on aerospace systems design. Conduction, convection and radiation modes of heat transfer. Radiation exchange between surfaces and view factors. Radiation in spacecraft thermal control. High speed flight and reentry heating.

Prerequisite: MAAE 2400, MAAE 3300.

Precludes additional credit for MECH 4406.

Lectures three hours a week.

AERO 4540 [0.5 credit]

**Spacecraft Dynamics and Control**

Rigid body dynamics. The dynamic behavior of spacecraft. Environmental torques. The design of attitude control systems. Gravity gradient, spin, and dual spin stabilization. Attitude manoeuvres. The design of automatic control systems. Impacts of attitude stabilization techniques on mission performance.

Prerequisite: MATH 3705, AERO 3240 and SYSC 3600.

Lectures three hours a week.

AERO 4602 [0.5 credit]

**Introductory Aeroelasticity**

Review of structural behaviour of lifting surface elements; structural dynamics, Laplace Transforms, dynamic stability; modal analysis; flutter, Theodorsen's theory; flutter of a typical section; wing flutter, T-tail flutter, propeller whirl flutter; gust response; buffeting, limit cycle flutter.

Prerequisites: MAAE 3004, MAAE 3300 and SYSC 3600.

Lectures three hours a week.

AERO 4607 [0.5 credit]

**Rotorcraft Aerodynamics & Performance**

Rotorcraft history and fundamentals. Momentum theory: hover, axial climb and descent, autorotation, forward flight, momentum theory for coaxial and tandem rotors. Blade element analysis. Rotor airfoil aerodynamics. Rotor blade dynamics and trim. Helicopter performance, height-velocity curves, conceptual design. High-speed rotorcraft.

Prerequisite: MAAE 3300 and MAAE 3004.

Lectures three hours per week.

AERO 4608 [0.5 credit]

**Composite Materials**

Reinforcing mechanisms in composite materials; material properties. Strength and elastic constants of unidirectional composites; failure criteria. Analysis of laminated plates; bending and eigenvalue problems. Environmental effects and durability. Damage tolerance.

Design of composite structures.

Prerequisite: MAAE 3202.

Lectures three hours a week.

AERO 4609 [0.5 credit]

**Joining of Materials**

Design for joining: base material and component geometry. Selection of joining method and filler material; Adhesive bonding; Soldering; Brazing; Diffusion bonding; Resistance welding; Fusion welding (GTAW, EB, laser and plasma arc); Friction welding; NDE. Emphasis on Aerospace materials and applications.

Prerequisite: AERO 3700 or MECH 3700.

Lectures three hours per week.

AERO 4801 [0.5 credit]

**Spacecraft Design**

Types of spacecraft. Fundamentals of orbital mechanics. The design of spacecraft and spacecraft subsystems with emphasis on mission requirements and current design methods: spacecraft configuration, payload, structural, propulsion, attitude control, thermal, power, communication and other related subsystems. Spacecraft integration and testing.

Precludes additional credit for AERO 3841.

Prerequisite: AERO 3002 or MECH 3002.

Lectures three hours a week.

AERO 4802 [0.5 credit]

**Space Mission Analysis and Design**

History of space exploration. Review of solar system. Space mission design. Space mission geometry. Space mission analysis: orbit design, orbit transfers and interplanetary trajectories. Space environment and its effect on spacecraft design. Space propulsion and launch vehicle design. Launch sequence, launch windows and launch cost. Reusable launch systems. Also offered at the graduate level, with additional or different requirements, as MECH 5106, for which additional credit is precluded.

Precludes additional credit for AERO 4842, MAAE 4906B (1994-2004 inclusive), MECH 5802 (2002-2004 inclusive), MECH 5700 Section "L" (1994-1997 inclusive), MECH 5805 (1999-2002 inclusive).

Prerequisite: AERO 3002 or MECH 3002.

AERO 4842 [0.5 credit]

**Space Mission Design**

Space mission elements. System view of spacecraft. Requirements definition. Space mission geometry. Orbit selection. Space environment and its effect on spacecraft design. Launch vehicle design and selection. Mission operations. Space systems design examples.

Precludes additional credit for AERO 4802.

Prerequisite: AERO 3841.

Lectures three hours a week, tutorials or laboratories one hour per week.

AERO 4907 [1.0 credit]

**Aerospace Engineering Project**

Participation in team projects dealing with design and development of an aerospace vehicle or system. One or more such projects will be undertaken each year. Opportunities to exercise initiative, engineering judgment, self-reliance and creativity, in a team environment similar to industry. Oral presentations and reports.

Prerequisites: Completion of or concurrent registration in AERO 4003 or AERO 4842, and fourth-year status in Engineering.

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## African Studies (AFRI)

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### Institute of African Studies (Faculty of Arts and Social Sciences and Faculty of Public Affairs)

AFRI 1001 [0.5 credit]

#### **Introduction to African Studies I**

Introduction to African studies, including history, geography, literature, and the arts. Lecture three hours per week, or two-hour lecture and one hour discussion group per week.

AFRI 1002 [0.5 credit]

#### **Introduction to African Studies II**

Introduction to contemporary political, economic, and social dimensions of Africa. Lecture three hours per week., or two-hour lecture and one-hour discussion group per week.

AFRI 3100 [0.5 credit]

#### **African Studies Abroad: Selected Topics**

Based at one of Carleton's partner universities in Africa, course will include lectures, seminars, guest speakers, field visits and group research projects to examine a topic in African studies, as selected by the instructor. Topic and location may change annually.

Prerequisites: third-year standing and approval by the Director of the Institute of African Studies.

AFRI 3900 [0.5 credit]

#### **Placement**

Placement for one term with an African focus.

Prerequisite: permission of the Institute of African Studies.

AFRI 4000 [0.5 credit]

#### **Advanced Topics in African Studies**

Seminar examining a specialized topic in African studies. The topic will vary from year to year.

Prerequisite: fourth-year standing in the combined honours program in African Studies or permission of the Institute of African Studies.

Seminar three hours per week.

AFRI 4050 [0.5 credit]

#### **Selected Topics in African Studies**

Selected topics in African studies not ordinarily treated in the regular course program. The choice of topic varies from year to year. Students should check with the institute regarding the topic offered.

Prerequisites: AFRI 1001 and AFRI 1002 and fourth-year standing.

## American Sign Language (ASLA)

School of Linguistics and Language Studies  
Faculty of Arts and Social Sciences

### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

ASLA 1010 [0.5 credit]

#### First-Year American Sign Language I

For students with little or no knowledge of the language or culture of deaf people. Basic communicative competence in American Sign Language. Anthropological, sociolinguistic, and sociocultural aspects of deaf culture. Compulsory attendance.

Precludes additional credit for ASLA 1000, or ALSS 1901.

Four hours a week.

ASLA 1020 [0.5 credit]

#### First-Year American Sign Language II

Continuation of first-year American Sign Language. Basic communicative competence plus anthropological, sociolinguistic, and sociocultural aspects of deaf culture. Compulsory attendance.

Precludes additional credit for ASLA 1000, or ALSS 1901.

Prerequisite: grade of C or higher in ASLA 1010, or permission of the School.

Four hours a week.

ASLA 1110 [1.0 credit]

#### Intensive First-Year American Sign Language

For students with little or no knowledge of the language or culture of deaf people. Basic communicative competence in American Sign language. Anthropological, sociolinguistic, and sociocultural aspects of deaf culture. Compulsory attendance.

Precludes additional credit for ALSS 1901, ASLA 1000 (no longer offered), ASLA 1010, or ASLA 1020.

Eight hours a week (one term).

ASLA 2010 [0.5 credit]

#### Second-Year American Sign Language I

Study of American Sign Language beyond the elementary level. Study of targeted lexical and grammatical features, as well as specific conversational skills. Further exploration of the culture of deaf people. Compulsory attendance.

Precludes additional credit for ASLA 2000.

Prerequisite: grade of C or higher in ASLA 1000, ASLA 1020, ALSS 1901, or permission of the School.

Four hours a week.

ASLA 2020 [0.5 credit]

#### Second-Year American Sign Language II

Continuation of second-year American Sign Language. Study of targeted lexical and grammatical features, as well as specific conversational skills. Further exploration of the culture of deaf people. Compulsory attendance.

Precludes additional credit for ASLA 2000.

Prerequisite: grade of C or higher in ASLA 2010, or permission of the School.

Four hours a week.

ASLA 2110 [1.0 credit]

#### Intensive Second-Year American Sign Language

Further study of American Sign Language to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. Compulsory attendance.

Precludes additional credit for ASLA 2000 (no longer offered), ASLA 2010 and ASLA 2020.

Prerequisite: grade of C or higher in ASLA 1020, ASLA 1110 or permission of the School.

Eight hours a week (one term).

ASLA 3010 [0.5 credit]

#### Third-Year American Sign Language I

Receptive and expressive mastery of grammar and lexicon of American Sign Language. Advanced conversation skills across different registers. Advanced insight into the culture of the deaf community. Compulsory attendance.

Precludes additional credit for ASLA 3000.

Prerequisite: grade of C or higher in ASLA 2000, ASLA 2020, ASLA 2110, or permission of the School.

Three hours a week.

ASLA 3020 [0.5 credit]

#### Third-Year Advanced American Sign Language II

Continuation of third-year American Sign Language. Receptive and expressive mastery of grammar and lexicon of American Sign Language. Advanced conversation skills across different registers. Advanced insight into the culture of the deaf community. Compulsory attendance.

Precludes additional credit for ASLA 3000.

Prerequisite: grade of C or higher in ASLA 3010, or permission of the School.

Three hours a week.

ASLA 4010 [0.5 credit]

#### Fourth-Year American Sign Language I

Focus on the development of receptive and productive skills above what is expected in everyday conversation. Skills in specific contexts such as social services, health, business and government. Compulsory attendance.

Precludes additional credit for ASLA 4000.

Prerequisite: grade of C or higher in ASLA 3000, ASLA 3020, or permission of the School.

Three hours a week.

ASLA 4020 [0.5 credit]

#### Fourth-Year American Sign Language II

Continuation of fourth-year American Sign Language. Focus on the development of receptive and productive skills above what is expected in everyday conversation. Skills in specific contexts such as social services, health, business and government. Compulsory attendance.

Precludes additional credit for ASLA 4000.

Prerequisite: grade of C or higher in ASLA 4010, or permission of the School.

Three hours a week.

ASLA 4900 [1.0 credit]

#### Independent Study

Research in a topic in American Sign Language or deaf culture under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing in the Minor in American Sign Language, grade of C or higher in ASLA 4020 or equivalent, or permission of the School.

ASLA 4901 [0.5 credit]

#### Independent Study

Research in a topic in American Sign Language or deaf culture under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing in the Minor in American Sign Language, grade of C or higher in ASLA 4020 or equivalent, or permission of the School.



## Anthropology (ANTH)

### Department of Sociology and Anthropology Faculty of Arts and Social Sciences

ANTH 1001 [0.5 credit]

#### Introduction to Anthropology

An examination of a range of anthropological approaches to the study of humankind and culture; may include discussions of human evolution, the study of cultures and societies past and present, and the study of language and symbolism.

Precludes additional credit for ANTH 1000, ANTH 1003 [1.0], and HUMS 1005.

Students in any Sociology and/or Anthropology program should consult that program section of this Calendar. Lectures three hours a week.

ANTH 1002 [0.5 credit]

#### Introduction to Issues in Anthropology

Examination of anthropological issues in the study of social institutions such as the family, economy, politics and belief systems. Debates about gender, development, cultural differences, health and the environment may also be examined.

Precludes additional credit for ANTH 1000 and ANTH 1003 [1.0].

Students in any Sociology and/or Anthropology program should consult that program section of this Calendar. Lectures three hours a week.

ANTH 1003 [1.0 credit]

#### Introduction to Anthropological Perspectives

Examination of various anthropological approaches to the study of humankind and culture focusing on a particular theme. Introduction to anthropological perspective on human evolution, social institutions, economic practices, politics and belief systems with a particular social-cultural phenomenon as the threading theme.

Precludes additional credit for ANTH 1000, ANTH 1001, ANTH 1002, and HUMS 1005.

Lectures three hours a week.

ANTH 2001 [1.0 credit]

#### Foundations in Socio-Cultural Anthropology

Exploration of basic anthropological concepts and analytical strategies through case studies. Emphasis is on socio-cultural diversity as documented by ethnographic research with attention to the role of culture in articulating gender, kinship, economic and political relations.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0].

Lectures and discussions three hours a week.

ANTH 2004 [0.5 credit]

#### Anthropological Theory and Methods

Introduction to the logic of inquiry. General methodological issues in anthropological research. Topics include the relation between theory and observation, problems of research design and fundamental techniques of ethnographic research, qualitative and quantitative data collection and analysis.

Precludes additional credit for ANTH 2003.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures three hours a week.

ANTH 2020 [0.5 credit]

#### Race and Ethnicity

Introduction to some of the recent theoretical literature and research on the issues of race, racism and ethnicity. Concepts, controversies and definitions dealing with race and ethnicity from the Canadian context and internationally.

Also listed as SOCI 2020.

Precludes additional credit for SOAN 2304.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

ANTH 2035 [0.5 credit]

#### Science and Technology Studies

A survey of the changing nature of knowledge, information and the social shaping of science and technologies and their impact on perception, notions of truth, forms of interaction and modes of relations at scales from the local to the global.

Also listed as SOCI 2035.

Precludes credit for SOCI 2400.

Prerequisites: ANTH 1001 or ANTH 1002, or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

ANTH 2040 [0.5 credit]

#### Anthropology and Gender

Examines certain aspects of anthropology and gender, such as: the role of men and women in non-Western societies, over time; gender and the division of labour; gender and kinship; gender and symbols; gender and anthropological methods and theories; and/or gender and "development."

Precludes credit for ANTH 2408.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

ANTH 2500 [0.5 credit]

#### Culture and Symbols

The representation and construction of culture through symbols. Topics may include material culture, rituals, archetypes, myths and myth making.

Precludes additional credit for ANTH 3304.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

ANTH 2510 [0.5 credit]

#### Theories of Human Nature

Critical, cross-cultural exploration of theories of human nature. Begins with a survey of western anthropological models of human consciousness and examines scientific, philosophical and religious perspectives with reference to ethnographic research on myth, religion and science produced by western and non-western cultures.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and discussion three hours a week.

ANTH 2550 [0.5 credit]

**Religion and Society**

Cross-cultural survey of religious institutions, focussing on theories and methodologies in the study of religion. Topics may include myth, totemism, cults, ritual, belief systems, altered states of consciousness, new religious and/or new age movements and the relationship of religion with other social institutions and processes. Also listed as RELI 2736.

Precludes additional credit for SOAN 2403 and RELI 2403.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

ANTH 2610 [0.5 credit]

**Studies in Indigenous Peoples of North America: Current Issues in Anthropological Research**

Examination of a range of issues related to particular indigenous communities and regions of North America. Topics include political, socio-economic, and cultural transformations, Aboriginal title and rights, collaborative research, and other topics relevant to indigenous communities and indigenous - non-indigenous relations.

Precludes additional credit for ANTH 3610.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lecture three hours a week.

ANTH 2620 [0.5 credit]

**Studies in Contemporary Sub-Saharan Africa: Current Issues in Anthropological Research**

Examination of selected areas of contemporary Sub-Saharan Africa through current anthropological research. Topics may include war and displacement, religion, politics, international development, history, popular culture, colonialism, witchcraft, health and kinship.

Precludes additional credit for ANTH 3620.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lecture three hours a week.

ANTH 2630 [0.5 credit]

**Studies in Asian Societies: Current Issues in Anthropological Research**

Examination of contemporary Asia through anthropological research. Topics may include cultural practices, religion, health issues, economics, politics, history, colonialism and social change. Emphasis will vary by sub-region from year to year, e.g., focusing on South, East or Southeast Asia.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and discussion three hours a week.

ANTH 2640 [0.5 credit]

**Andean Ethnography**

Ethnographic survey of the Andes that pays particular attention to the formation of "indigenous" communities and their relation to urban centres and nation-states. Topics covered may include state formation, social movements, agrarian reform, the political economy of food, class, ethnicity and racism, rural-urban migration, community organization, kinship, gender, religion, ritual, dance and music.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and discussion three hours a week.

ANTH 2650 [0.5 credit]

**Ethnography of Mesoamerica**

Ethnographic survey of Mexico and Guatemala that focuses on a variety of rural and urban communities throughout the area with particular emphasis on indigenous groups. Topics covered may include nationalism, ethnicity, social organization, gender, cosmology and material culture.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and discussion three hours a week.

ANTH 2660 [0.5 credit]

**Ethnography of North Africa**

Introduction to societies and cultures of North Africa. Topics covered may include: history and socio-cultural role of Islam, the relations between Arabs and Berbers, ethnography of religious institutions, ritual practices, everyday life, gender, colonialism and post-colonialism, problems of state and religion.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and discussion three hours a week.

ANTH 2690 [0.5 credit]

**Ethnography of A Selected Area**

Ethnography of a selected area. Area to be announced.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and discussion three hours a week.

ANTH 2815 [0.5 credit]

**Selected Topics in Anthropology**

Selected topics in anthropology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lecture three hours a week.

ANTH 2825 [0.5 credit]

**Selected Topics in Anthropology**

Selected topics in anthropology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lecture three hours a week.

ANTH 2850 [0.5 credit]

**Development and Underdevelopment**

International development and its socio-cultural practices with consequences at local, national and international levels. Topics may include modernization, dependency, globalization, and development as discourse, political ecology, gender, indigenous knowledge, social movements, and non-governmental organizations.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

ANTH 2915 [0.5 credit]

**Course-Related Tutorials in Anthropology**

Consult the Department for information.

ANTH 2925 [0.5 credit]

**Course-Related Tutorials in Anthropology**

Consult the department for information.

ANTH 3005 [0.5 credit]

**Ethnographic Research Methods**

Exploration of methodological issues in ethnographic research through lectures, discussion and individual research projects. Research design, ethical review, participant observation, ethnographic interviewing, writing and analyzing fieldnotes, and examining how a researcher's subject position and relation to the community under study influence the creation of ethnographic knowledge.

Precludes additional credit for ANTH 2003.

Prerequisites: ANTH 2001 [1.0] and third-year standing.

Lectures three hours a week.

ANTH 3006 [0.5 credit]

**Contemporary Theories in Anthropology**

Contemporary trends in anthropological analyses. Discussion of anthropological theory in its contemporary, interdisciplinary context.

Precludes additional credit for ANTH 3100.

Prerequisites: ANTH 2001 [1.0] and third-year standing.

Lectures three hours a week.

ANTH 3007 [0.5 credit]

**History of Anthropological Theory**

Analysis of the development of anthropological thought since the end of the eighteenth to the mid-twentieth century. The development of various theoretical approaches within their historical, social, intellectual and biographical contexts. The implications of these issues may be explored through ethnographies.

Precludes additional credit for ANTH 2005 and ANTH 3100.

Prerequisites: ANTH 2001 [1.0] and third-year standing.

Lectures three hours a week.

ANTH 3020 [0.5 credit]

**Studies in Race and Ethnicity**

Race, racism and ethnicity in Canada and internationally. Critical perspectives on race and ethnicity as they intersect with other social relations. Racism, Eurocentrism, Orientalism, nationalism, colonialism, international migration, citizenship, and diasporic cultures.

Also listed as SOCI 3020.

Prerequisites: ANTH 2020 or SOCI 2020.

Lectures three hours a week.

ANTH 3025 [0.5 credit]

**Anthropology and Human Rights**

Examines the concepts of "cultural relativism" and "universalism." What are human rights? Who has them? How do notions of "human rights" evolve? What about other, non-Western concepts of "individual," "collectivity," "rights" and "responsibilities"? What about human rights violations and abuses?

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or HUMR 1001 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3027 [0.5 credit]

**Studies in Globalization and Human Rights**

Examination of the various dimensions and meanings of globalization and its relationship with human rights. Main emphasis will be on the implications of the emerging global economy for economic, social, political and cultural rights.

Also listed as SOCI 3027 and PSCI 3802.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or HUMR 1001 [1.0], and third-year standing.

Lectures three hours a week.

ANTH 3033 [0.5 credit]

**Science, Technology and the Environment**

Introduction to the socio-cultural study of science, technology and the environment including the cultural character of contemporary technology, the generation and cultural construction of knowledge through science, and the implications of science and technology for cultural livelihood and ecological sustainability.

Also listed as SOCI 3033.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lectures and discussion three hours a week.

ANTH 3035 [0.5 credit]

**Studies in Information Technologies**

The social contexts, networks and local embeddedness of knowledge and information in comparative context. The social and cultural contexts of information. Topics may include the relation of knowledge and information; information and complex organization, the political economy of information, and information production and consumption.

Also listed as SOCI 3035.

Precludes additional credit for SOAN 3003.

Prerequisites: ANTH 2035 or SOCI 2035 and third-year standing.

Lecture three hours a week.

ANTH 3037 [0.5 credit]

**Studies in Information Systems and Social Power**

Knowledge/power relations in historical and comparative perspective, with attention to information devices, techniques, and practices.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3045 [0.5 credit]

**Studies in Children and Childhood**

A socio-historical and cross-cultural exploration of constructions, deconstructions, and the experience of childhood in Canada and internationally. Compulsory schooling, child labour, protection and regulation in law, the commodification and equalization of childhood, children's social movements, and the emergence of children's rights discourses.

Also listed as SOCI 3045.

Precludes additional credit for SOAN 3106.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3215 [0.5 credit]

**Selected Topics in Anthropology**

Topics not ordinarily treated in the regular course program. The choice of topics varies from year to year. Check with the Department regarding the topic offered.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lecture three hours a week.

Courses - Anthropology (ANTH)

ANTH 3225 [0.5 credit]

**Selected Topics in Anthropology**

Topics not ordinarily treated in the regular course program. The choice of topics varies from year to year. Check with the Department regarding the topic offered.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3310 [0.5 credit]

**Studies in Medical Anthropology**

Cross-cultural study of the body, illness, healing, health and well-being. Sociocultural factors in the causation, diagnosis, management and meaning of illness. Biocultural and political-economic dimensions of ill health. Ritual and symbolic healing. Ethical concerns and public health applications of anthropology.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3355 [0.5 credit]

**Studies in Cultural Adaptations and the Environment**

Cultural adaptations to the environment are set within globalization processes. New ecologies, symbolic, historical and political, arise out of prevailing models. The advocacy role of applied ecological anthropology and the consequences of Western cultures' adaptive capacities.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lectures three hours a week.

ANTH 3500 [0.5 credit]

**Studies in Culture and Symbols**

An exploration of theories, methods and techniques for the analysis of symbols. The course will explore a range of issues and debates through a critical reading of the texts that have contributed to anthropological understandings of symbolic processes.

Prerequisites: ANTH 2500 and third-year standing.

Lecture three hours a week.

ANTH 3510 [0.5 credit]

**Ritual**

Cross-cultural study of ritual, religious and secular, its role in various social processes and its relation to other activities. Exploration of the variability of ritual and the range of theories that have been developed to account for what ritual does, including intellectualist, functionalist and performative approaches.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third year standing.

Lectures and discussion three hours a week.

ANTH 3550 [0.5 credit]

**Studies in Visual Anthropology**

Examination of the anthropological experience as reflected in film/video and still photography. A number of problems are considered, including selectivity, bias, the effect of the observer's presence, and problems in reconstructing past events in film. Issues of media-literacy will be examined.

Precludes additional credit for ANTH 3107.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3570 [0.5 credit]

**Studies in Art, Culture and Society**

Thematic investigation of genres, forms and styles of art, culture and society. Topics may include current debates on social structure and artistic creativity; ideology, cultural memory and politics, patronage and art; cross-cultural representations, taste, social mobility and art; modernism and the avant-garde.

Also listed as SOCI 3570.

Precludes additional credit for SOAN 3803.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or an introductory course in Art History, and third-year standing.

Lecture three hours a week.

ANTH 3580 [0.5 credit]

**Anthropology of Material Culture and Museums**

Examination of how diverse societies are materialized in a wide range of cultural materials from clothing, housing and memorials to more ephemeral materializations such as food, gardens, dance, ritual props and music-making. Emphasis is placed on museum practices and the cultural politics of display and visiting

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0] and third year standing.

Lectures and discussion three hours a week.

ANTH 3600 [0.5 credit]

**Studies in Anthropology and Indigenous Peoples**

Problems in the interpretation and analysis of various forms of encounters between indigenous peoples and colonizing powers will be examined. Topics may include patterns and practices of contact, cultural syncretism, conquest, domination, relations of ruling, cultural hegemony, resistance and non-compliance.

Precludes additional credit for ANTH 3109.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3800 [0.5 credit]

**Studies in Applied and Participatory Anthropology**

History, significant approaches, and key topics of applied anthropology and participatory research. Participatory and non-participatory anthropological research on social problems within activities of intervention, which may include policy processes, development projects, evaluation exercises, impact assessments, and advocacy work.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

ANTH 3901 [0.0 credit]

**Work Term 1**

Prerequisite: Registration in the Co-operative Education Program option in the B.A. Honours Anthropology Program.

ANTH 3902 [0.0 credit]

**Work Term 2**

Prerequisite: Registration in the Co-operative Education Program option in the B.A. Honours Anthropology Program.

ANTH 3903 [0.0 credit]

**Work Term 3**

Prerequisite: Registration in the Co-operative Education Program option in the B.A. Honours Anthropology Program.

ANTH 3904 [0.0 credit]

**Work Term 4**

Prerequisite: Registration in the Co-operative Education Program option in the B.A. Honours Anthropology Program.

ANTH 3915 [0.5 credit]

**Course-Related Tutorials in Anthropology**

Consult the Department for information.

ANTH 3925 [0.5 credit]

**Course-Related Tutorials in Anthropology**

Consult the Department for information.

ANTH 4000 [0.5 credit]

**Field Placement in Anthropology**

Students spend up to one day a week participating in a research organization, and prepare a report on their placement experience. Consult the Honours Anthropology Co-ordinator.

Prerequisites: fourth-year Honours Anthropology standing and permission of the Department.

ANTH 4007 [0.5 credit]

**Advanced Studies in Anthropological Theory and Methods**

The course examines debates in theory and methodology currently facing the discipline through a survey of leading-edge issues and approaches. Topics in evolutionary anthropology/psychology, transpersonalism, traditional knowledge systems, gender, and ethnohistorical research may be explored.

Prerequisites: ANTH 3005 and ANTH 3006, and fourth-year standing.

Seminar three hours a week.

ANTH 4009 [0.5 credit]

**The Ethnographic Enterprise**

Examination of premises underlying particular cases of empirical work in anthropology. The value of various anthropological paradigms for the solution of standard ethnographic problems.

Prerequisite: fourth-year Honours Anthropology standing.

Seminar three hours a week.

ANTH 4020 [0.5 credit]

**Advanced Studies in Race and Ethnicity**

An advanced seminar that explores selected topics in race and ethnicity in an international context. Specific topics will vary according to instructors' research interests.

Also listed as SOCI 4020.

Prerequisites: ANTH 3020 or SOCI 3020, and fourth-year standing.

Seminar three hours a week.

ANTH 4035 [0.5 credit]

**Advanced Studies in Information Technologies**

A critical social perspective on knowledge and information traditions, forms, theories and techniques using comparative case studies of specific rituals, technologies and other assemblages which code and decode information.

Also listed as SOCI 4035.

Prerequisites: ANTH 3035 or SOCI 3035, and fourth-year standing.

Seminar three hours a week.

ANTH 4036 [0.5 credit]

**Advanced Studies in Science, Technology and Innovation**

Studies in the generation, validation and maintenance of scientific knowledge claims. Topics may include issues in the practices of science, scientific expertise, the ownership of scientific knowledge, the comparison of science and indigenous knowledge, and knowledge claims that lie outside of Western science.

Also listed as SOCI 4036.

Precludes additional credit for SOCI 4401.

Prerequisites: ANTH 3035 or SOCI 3035, and fourth-year standing.

Seminar three hours a week.

ANTH 4215 [0.5 credit]

**Selected Topics in Anthropology**

Topics not ordinarily treated in the regular course program. The choice of topic varies from year to year. Check with the department regarding the topic offered.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and fourth-year standing.

Seminar three hours a week.

ANTH 4225 [0.5 credit]

**Selected Topics in Anthropology**

Topics not ordinarily treated in the regular course program. The choice of topic varies from year to year. Check with the department regarding the topic offered.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and fourth-year standing.

Seminar three hours a week.

ANTH 4500 [0.5 credit]

**Advanced Studies in Culture and Symbols**

The course explores contemporary debates in theory and methods regarding analysis of the symbolic processes.

Precludes additional credit for ANTH 4705.

Prerequisites: ANTH 2500 or ANTH 3500 and fourth-year standing.

Seminar three hours a week.

ANTH 4550 [0.5 credit]

**Advanced Studies in Visual Anthropology**

Critical examination of contemporary anthropological research on the production and/or analysis of film/video, still photography and other audio-visual media. Examination of the media's role in the dissemination of anthropological research and as the subject of anthropological analysis. Focus on filmic portrayals of the cultural other.

Prerequisites: ANTH 3550 and eligibility for third-year standing.

Seminar three hours a week.

ANTH 4610 [0.5 credit]

**Advanced Studies in Indigenous Peoples of North America: Current Issues in Anthropological Research**

This research-based seminar focuses on specific conceptual and methodological issues pertaining to contemporary anthropological research involving Indigenous communities of North America.

Prerequisites: ANTH 2610 or ANTH 3600 and fourth-year standing.

Seminar three hours a week.

ANTH 4620 [0.5 credit]

**Advanced Studies in Contemporary Sub-Saharan Africa: Current Issues in Anthropological Research**

Research-based seminar that explores the issues and debates related to anthropological research in contemporary sub-Saharan Africa with emphasis on theoretical, methodological, analytical, ethical, practical and applied problems in anthropological research in that area.

Prerequisites: ANTH 2620 or ANTH 3600, and fourth-year standing.

Seminar three hours a week.

## Courses - Anthropology (ANTH)

ANTH 4730 [0.5 credit]

**Colonialism and Post-Colonialism**

Comparative ethnographic and historical approaches to colonialism including topics such as the formation of colonial regimes, colonial governmentality, servile labour systems, missionization, anti-colonial resistance, cultural hybridization and post-colonial memory. Exploration of debates over the relation between colonialism and the production of social scientific knowledge.

Also listed as SOCI 4730.

Prerequisite: fourth year standing.

Seminar three hours a week.

ANTH 4750 [0.5 credit]

**Advanced Studies in Globalization and Citizenship**

Selected topics on the confluence of processes of globalization, development and citizenship. Examination of debates about the meaning and impact of globalization on patterns of inequality and citizenship both internationally and within Canada, and about strategies for progressive development.

Also listed as SOCI 4750.

Prerequisite: fourth-year standing.

Seminar three hours a week.

ANTH 4780 [0.5 credit]

**Anthropology of Personhood**

Exploration of anthropological approaches to personhood and diversity in constructions of the self in various socio-cultural and historical contexts.

Prerequisites: ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and fourth-year standing.

Seminar three hours a week.

ANTH 4800 [0.5 credit]

**Advanced Studies in Applied and Participatory Anthropology**

Critical examination of anthropological contributions to the methodological, ethical, and epistemological debates and issues within currently popular applied spheres of knowledge. These spheres may include civil society organizations, indigenous knowledge, social movements, stakeholder analysis, social policy, human rights, empowerment, peace and conflict resolution.

Prerequisites: ANTH 2850 or ANTH 3800 and fourth-year standing.

Seminar three hours a week.

ANTH 4900 [1.0 credit]

**Honours Research Paper in Anthropology**

In their final year, Honours candidates are required to present a major research essay. Students develop their essay proposal and Honours Research Paper through discussion and criticism in seminars. Common problems of style, sources, conceptualization, research design, analysis and interpretation are discussed.

Prerequisite: fourth-year Honours standing.

ANTH 4915 [0.5 credit]

**Tutorial in Anthropology**

Consult the Department for information.

ANTH 4925 [0.5 credit]

**Tutorial in Anthropology**

Consult the Department for information.

## Applied Linguistics and Discourse Studies (ALDS)

### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

ALDS 1001 [0.5 credit]

#### Introduction to Applied Linguistics and Discourse Studies

First and second language acquisition; sign language; language teaching and assessment; language in society; language, identity and power; discourse analysis; written language and literacy.  
Precludes additional credit for LALS 1000 and LALS 1002 (no longer offered).  
Lectures three hours a week.

ALDS 2201 [0.5 credit]

#### Analysis of Oral Language Use

Introduction to the analysis of oral language in use; distinctions between spoken and written language; theoretical and methodological approaches such as speech act theory, ethnography of communication, conversation analysis, and discourse analysis; classroom interaction; interaction in first- and second-language acquisition; analysis of spoken language corpora.  
Precludes additional credit for LALS 2201 (no longer offered).  
Prerequisites: LALS 1000 or (LALS 1001 and LALS 1002), or (ALDS 1001 and LING 1001).  
Lectures three hours a week.

ALDS 2202 [0.5 credit]

#### Analysis of Written Language Use

Introduction to the analysis of written language in use, including theoretical and methodological approaches such as rhetorical genre studies (including academic and workplace writing); adult literacy studies; text-structure analysis; discourse analysis (including critical discourse analysis); analysis of textual corpora.  
Precludes additional credit for LALS 2202 (no longer offered).  
Prerequisite: LALS 1000 or (LALS 1001 and LALS 1002) or (ALDS 1001 and LING 1001).  
Lectures three hours a week.

ALDS 2203 [0.5 credit]

#### Linguistic Theory and Second-Language Learning

A critical study of linguistic theory and description applied to second-language learning. Includes a brief consideration of similarities and differences in first- and second-language development, bilingualism and types of linguistic error and their significance.  
Precludes additional credit for LALS 2203 (no longer offered).  
Lectures three hours a week.

ALDS 2701 [0.5 credit]

#### Language in Society

The place of language within society; bilingual and multilingual communities; language, social mobility and social stratification; sociolinguistic factors in language change.  
Precludes additional credit for LALS 2701 (no longer offered).  
Lectures three hours a week.

ALDS 2704 [0.5 credit]

#### Bilingualism

The linguistic nature of bilingualism. The structure of bilingual societies and the relation between societal and individual bilingualism. The role of bilingualism in language education.  
Precludes additional credit for LALS 2704 (no longer offered).  
Prerequisite: second-year standing.  
Lectures three hours a week.

ALDS 2705 [0.5 credit]

#### Language, Ideology and Power

How social conditions engender different linguistic choices. Attention to linguistic resources for expressing ideological beliefs and for maintaining and reinforcing power structures in institutional and social sites.  
Precludes additional credit for FYSM 1205 or LALS 2705 (no longer offered).  
Lectures three hours a week.

ALDS 3201 [0.5 credit]

#### Cross-Cultural Communication

Introduction to cross-cultural communication in social, academic and professional settings. Application of theoretical perspectives to case study analysis; pedagogical/training topics as relevant to students' disciplines; collaborative work with other language and cultural groups as feasible.  
Prerequisite: third-year standing, and one of LING 1001 or ALDS 1001, or permission of the School.  
Lectures three hours a week.

ALDS 3401 [0.5 credit]

#### Research and Theory in Academic Writing

Study of contemporary research and theory (1970s to present) on academic writing in elementary, secondary and post-secondary school, with emphasis on writing in university. Consideration of what academic writing entails, how writing fosters learning, and how instruction can help students develop their writing abilities. (Also listed as ENGL 3908.)  
Precludes additional credit for LALS 2407 [1.0], ENGL 2907, LALS 3400, LALS 3401, ENGL 3907.  
Prerequisite: third-year standing or permission of the instructor.  
Lectures three hours a week.

ALDS 3402 [0.5 credit]

#### Research and Theory in Workplace Writing

Study of contemporary research and theory (1980s to present) in writing in workplace settings. Consideration of how writing is used in accomplishing work, how novices learn to write effectively, and what the implications are for pedagogy. (Also listed as ENGL 3909.)  
Precludes additional credit for LALS 2407 [1.0], ENGL 2907, LALS 3400, LALS 3402, ENGL 3907.  
Prerequisite: third-year standing or permission of the instructor.  
Lectures three hours a week.

ALDS 3405 [0.5 credit]

#### Second Language Writing

Theory and practice of second language (L2) writing: how people learn to write in a second language, and how L2 writing courses for specific groups of learners can be designed.  
Precludes additional credit for LALS 3405 (no longer offered).  
Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor.  
Lectures three hours a week.

ALDS 3701 [0.5 credit]

#### Corpus Linguistics

Computer-assisted analysis of electronic collections of naturally occurring language. Applications in such areas as language variation, grammar, lexicology, phraseology, translation, and learner language.  
Precludes additional credit for LALS 3701 (no longer offered).  
Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor.  
Lectures three hours a week.

ALDS 3705 [0.5 credit]

**Adult Literacy**

The extent and social contexts of restricted literacy in Canadian society; approaches to and debates surrounding the teaching and learning of adult literacy. Precludes additional credit for LALS 4906 (if taken in 1994-95 or 1995-96) and LALS 3705 (no longer offered). Prerequisite: third-year standing or permission of the instructor.

Lectures three hours a week.

ALDS 3706 [0.5 credit]

**Discourse Analysis**

Principles of and studies in discourse analysis, including both conversational and textual/documentary analysis. The major focus is on language use in structuring social relationships.

Precludes additional credit for LALS 3706 or LALS 4203 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor. Lectures three hours a week.

ALDS 3803 [0.5 credit]

**Methods and Practice in Language Pedagogy**

Integrates theory and description of language learning with practical work in one of the languages offering the Minor. Requires observation in a language classroom and practical work facilitating in-class or language lab activities, and possibly developing teaching materials. Prerequisites: registration in the Minor of the language in question, completion of the prerequisites for 4010 of that language, and concurrent registration in Independent Study (4900 or 4901) in that language; completion of ALDS 2203, or permission of the School. Permission of the language instructor mentor/Independent Study supervisor must be obtained prior to registration in this course.

ALDS 3900 [1.0 credit]

**Independent Study**

Research under the supervision of a member of the School. Normally available only to third- and fourth-year students in Applied Linguistics and Discourse Studies. Prerequisite: permission of the instructor.

ALDS 3901 [0.5 credit]

**Independent Study**

Research under the supervision of a member of the School. Normally available only to third- and fourth-year students in Applied Linguistics and Discourse Studies. Prerequisite: permission of the instructor.

ALDS 3903 [0.5 credit]

**Special Topic in Applied Linguistics and Discourse Studies**

Selected topics in Applied Linguistics and Discourse Studies not ordinarily treated in the regular course program.

Prerequisite: LALS 1000 (or LALS 1001 and LALS 1002) or (ALDS 1001 and LING 1001), or permission of the instructor.

Lectures and discussion three hours per week.

ALDS 4201 [0.5 credit]

**Language Testing**

The principles of test construction as applied to testing language proficiency, achievement and aptitude. Structural, notional, discrete point and integrative tests are covered. Students are expected to create, analyze and evaluate language tests.

Precludes additional credit for LALS 4201 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor. Lectures three hours a week.

ALDS 4205 [1.0 credit]

**Teaching English as a Second Language:**

**Methodology**

Classification of classroom teaching methods and materials; adaptation of teaching materials for particular situations; creation of teaching materials; teaching techniques and strategies.

Also offered at the graduate level, with additional or different requirements, as ALDS 5205, for which additional credit is precluded.

Precludes additional credit for LALS 4205 or LALS 5205 (no longer offered).

Prerequisite: fourth-year standing in the concurrent CTESL program, or enrolment in the post-graduate CTESL program.

Lectures three hours a week.

ALDS 4206 [1.0 credit]

**Practicum in Teaching ESL**

Investigates the processes of classroom learning with observation and some teaching experience in ESL classes. Normally taken concurrently with ALDS 4205. Precludes additional credit for LALS 4206 (no longer offered).

Prerequisites: fourth-year standing in the concurrent CTESL program, or enrolment in the post-graduate CTESL program.

ALDS 4207 [0.5 credit]

**ESL Literacy**

The nature of everyday literacy and literacy skills. Analyzing the structure of everyday literacy texts and demands. Issues in literacy for second-language learners.

Precludes additional credit for LALS 4207 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor. Lectures three hours a week.

ALDS 4208 [0.5 credit]

**Languages for Specific Purposes**

An introduction to Languages for Specific Purposes – language instruction tailored to specific groups of learners, e.g. English for Science, for Business, for the Workplace, for Academic Purposes. Research and teaching methodology. Emphasis on EAP/ESP research and instruction at Carleton. Also offered at the graduate level, with additional or different requirements, as ALDS 5208, for which additional credit is precluded.

Precludes additional credit for LALS 4208 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor. Lectures three hours a week.

ALDS 4209 [0.5 credit]

**Foreign Language Teaching**

An introduction to the principles of teaching language in a foreign-language context; review of teaching approaches; practical examination, development and evaluation of instructional materials. Students will have the option of completing a placement in an overseas setting subsequent to the end of the course.

Precludes additional credit for LALS 4209 (no longer offered).

Prerequisite: fourth-year standing in the concurrent CTESL program, enrolment in the post-graduate CTESL program, or permission of the instructor.

Lectures three hours a week.



ALDS 4403 [0.5 credit]

**Writing and Knowledge-Making in the Disciplines**

The role of writing in constructing knowledge in academic disciplines, as viewed from contemporary socio-cultural perspectives. Consideration of how the goals, values, and assumptions of different disciplines shape their writing in distinctive ways and what implications this holds for pedagogy. (Also listed as ENGL 4909.)

Precludes additional credit for LALS 5406 or LALS 5602.

Prerequisite: third-year standing.

Lectures three hours a week.

ALDS 4405 [0.5 credit]

**Teaching Writing in School and the Workplace**

Introduction to approaches for teaching writing in elementary and secondary school, in university, and in the workplace, with a focus on socio-cultural theories of language and learning. Discussion of applications of these approaches to classroom and workplace teaching. (Also listed as ENGL 4145.)

Prerequisite: third-year standing, or permission of the instructor.

Lectures three hours a week.

ALDS 4602 [0.5 credit]

**Second Language Acquisition**

Current issues in second language acquisition; factors influencing success in acquiring a second or additional language, discourse and culture. Emphasis on theoretical concepts, empirical research, and practical implications for language teaching.

Precludes additional credit for LALS 4602 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor.

Lectures three hours a week.

ALDS 4709 [0.5 credit]

**Systemic-Functional Linguistics**

Functions of language in the exchange of meanings between people in a wide variety of communicative situations. Semantic and syntactic resources at risk in these different contexts. Interactions between language and the social context. Also offered at the graduate level, with additional or different requirements, as ALDS 5102, for which additional credit is precluded.

Precludes additional credit in LALS 4709 or LALS 5102 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or Linguistics, or Journalism, or Communication Studies, or permission of the instructor.

Lectures three hours a week.

ALDS 4801 [0.5 credit]

**Major Structures of English**

This course is intended to familiarize students with the structure of the English language, highlighting important contrasts between English and other languages as well as grammatical difficulties for ESL learners. Also offered at the graduate level, with different requirements, as ALDS 5103, for which additional credit is precluded.

Precludes additional credit for LALS 4801 or LALS 5103 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor.

Lectures three hours a week.

ALDS 4802 [0.5 credit]

**Language Contact and Language Spread**

This course considers the development and spread of creoles and pidgins, introduces principles of language policy and planning, and analyzes the emergence of New Englishes.

Precludes additional credit for LALS 4805 or LALS 4802 (no longer offered).

Prerequisite: third-year standing in Applied Linguistics and Discourse Studies, or in Linguistics, or enrolment in the CTESL program, or permission of the instructor.

Lectures and discussion three hours a week.

ALDS 4900 [1.0 credit]

**Independent Study**

Permits fourth-year Honours students to pursue their interests in a selected area of Applied Linguistics and Discourse Studies.

Prerequisite: permission of the instructor.

ALDS 4901 [0.5 credit]

**Independent Study**

Permits fourth-year Honours students to pursue their interests in a selected area of Applied Linguistics and Discourse Studies.

Prerequisite: permission of the instructor.

ALDS 4906 [0.5 credit]

**Special Topic in Applied Language Studies**

Selected topics in applied language studies. Contents of this course vary from year to year.

Prerequisite: third- or fourth-year standing or enrolment in the CTESL program.

Lectures three hours a week.

ALDS 4908 [1.0 credit]

**Honours Project in Applied Linguistics and Discourse Studies**

Individually designed intensive practicum or research experience. May involve (a) a practicum or work study placement in writing or literacy studies, language syllabus design or test development; (b) intensive research activity in an area of Applied Language Studies. All projects will include substantial written work.

Prerequisite: fourth-year standing in Applied Linguistics and Discourse Studies, a CGPA of 9.00 or better, or permission of the School.

Tutorial hours arranged.

## Arabic (ARAB)

School of Linguistics and Language Studies  
Faculty of Arts and Social Sciences

### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

ARAB 1110 [1.0 credit]

#### Intensive First-Year Arabic

For students with no knowledge of Arabic. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for ALSS 1300 (no longer offered).  
Eight hours a week (one term).

ARAB 2110 [1.0 credit]

#### Intensive Second-Year Arabic

Further study of Arabic to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for ALSS 1300 (no longer offered).  
Prerequisite: grade of C or higher in ARAB 1110 or permission of the School.  
Eight hours a week (one term).

ARAB 3010 [0.5 credit]

#### Third-Year Arabic I

Further study of Arabic to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.  
Prerequisite: grade of C or higher in ARAB 2110, or permission of the School.  
Three hours a week.

ARAB 3020 [0.5 credit]

#### Third-Year Arabic II

Continuation of third-year Arabic to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.  
Prerequisite: grade of C or higher in ARAB 3010, or permission of the School.  
Three hours a week.

## Architecture

(ARCH, ARCC, ARCU, ARCN, ARCS)

Azrieli School of Architecture and Urbanism

- Theory/History (ARCH)
- Technical (ARCC)
- Urban (ARCU)
- Techniques (ARCN)
- Design Studios/Design Thesis/Research (ARCS)

- Theory/History (ARCH)

ARCH 1000 [0.5 credit]

#### Intro. to Architecture

Architecture in the matrix of human conditions: linkages among architecture, fine arts, humanities, social sciences, physical sciences, mathematics and philosophy. Architectural ideas will be introduced through a discussion of cities, buildings and landscapes. (Core Course)  
Lectures three hours a week.

ARCH 1001 [0.5 credit]

#### Philosophy and Criticism Seminar 1

Overview of the aesthetic branch of philosophy, with emphasis on 19th- and 20th-century sources. This history of aesthetics will focus on aspects of architecture and urbanism. (Core Course)  
Prerequisite: second-year standing in B.A.S. (Philosophy and Criticism) or permission of the School.  
Lecture and seminar three hours a week.

ARCH 1005 [0.5 credit]

#### Contemporary Society

The relationship of architecture, architectural thought and the architectural profession to the societies in which they exist (and which they must serve). Topics are selected to emphasize key issues. (Elective Course)  
Lectures and seminars, three hours a week.

ARCH 2001 [0.5 credit]

#### Philosophy and Criticism Seminar 2

Overview of the ethical branch of philosophy, with emphasis on 19th- and 20th-century sources; aspects of professionalism in the design fields. The history of architecture will be considered as the history of ethics. (Core Course)  
Prerequisite: ARCH 1001.  
Lecture and seminar three hours per week.

ARCH 2006 [0.5 credit]

#### The History and Theory of Industrial Design

Theoretical overview including: definitions and dimensions of design and industrial design, its nature and historical evolution; quality; quality aspects in synthetic objects; formal qualities as determinants for categories of design; design methods; design management in industry; professional industrial design and its promotion. Practicing industrial designers are invited to present case studies of their activities. (Elective Course) (Also listed as IDES 1000.)  
Lectures three hours a week.

ARCH 2101 [0.5 credit]

#### Industrial Design Analysis

Analysis of various industrial design problems, including: relationship with principal techniques and mass-production technology; uniformity and variety; specialty and versatility in production; tolerances; ergonomics and anthropometrics; industrial design and environment; future industrial design approaches to pollution and resource conservation; adaptation of value-analyses to industrial design. (Elective Course) (Also listed as IDES 1001.)  
Prerequisite: ARCH 2006 or IDES 1000.  
Lectures three hours a week.

ARCH 2300 [0.5 credit]

**Intro. to Modern Architecture**

Architectural and urban ideals of modernism with emphasis upon the development of the avant-garde in the early twentieth century. The phenomenon of modern architecture within the broader framework of the development of western thought. (Core Course)

Precludes additional credit for ARCH 3009.

Prerequisites: BAS students require ARTH 1100 and ARTH 1101 or permission of the School. B.Eng. Architectural Conservation and Sustainability students require ARCC 1202.

Lectures three hours a week.

ARCH 3001 [0.5 credit]

**Philosophy and Criticism Seminar 3**

Overview of the phenomenology of architecture, with a major overview of the theories and texts of 20th century philosophies of sense and bodily experiences. (Core course)

Prerequisites: ARCH 2001.

Lecture and seminar three hours per week.

ARCH 3208 [0.5 credit]

**Urban Space Architecture**

Design explorations that are directed towards the search for aesthetic form and meaning in urban space, with particular application to the Canadian context. Project-oriented. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCH 3902 [0.5 credit]

**Theory of Architecture**

Workshop focuses on one specific aspect of architecture in the area of theory and history. Workshop offerings change from year to year. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCH 4002 [0.5 credit]

**Canadian Architecture**

Canadian architecture from the seventeenth century to the present day, covering both stylistic and technological developments. Building styles, methods, and materials in the context of social and economic conditions and construction techniques. (Theory/History Elective) (Also listed as ARTH 3002.)

Precludes additional credit for ARCH 3002.

Prerequisite: ARCH 2300 or permission of the School.

Lectures, seminars three hours a week.

ARCH 4004 [0.5 credit]

**Architectural Theory**

An exploration of architectural intentions in the early period of Western history, with special emphasis on Renaissance treatises and ideas. Architectural intentions in relation to shifting world-views, as a basis of historical interpretation. (Theory/History Elective)

Precludes additional credit for ARCH 3007.

Prerequisite: ARCH 2300 or permission of the School.

Lectures three hours a week.

ARCH 4006 [0.5 credit]

**Origins of Modernism**

Exploration of architectural theories with special emphasis on the European context from the seventeenth century to the late nineteenth century. (Theory/History Elective)

Precludes additional credit for ARCH 3008.

Prerequisite: ARCH 2300 or permission of the School.

Lectures three hours a week.

ARCH 4008 [0.5 credit]

**Foundations of Modernism**

Major critical perspectives as applied to architecture as a fine art. The debate between classicism and romanticism with consideration of its cultural roots. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.

Lectures three hours a week.

ARCH 4009 [0.5 credit]

**Theory of the Avant-Garde**

Exploration of architectural theories with special emphasis on the development of the avant-garde in the early twentieth century, looking at the avant-garde within the larger framework of modernism. (Theory/History Elective)

Precludes additional credit for ARCH 3009.

Prerequisite: ARCH 2300 or permission of the School.

Lectures three hours a week.

ARCH 4105 [0.5 credit]

**Theories of Landscape Design**

Introduction to landscape architecture as the organization of outdoor space. Historical, cultural, economic and political factors as a basis for interpreting spatial organization in urban and rural areas of human settlement. Emphasis on the period from the fifteenth to the nineteenth century. (Theory/History Elective)

Precludes additional credit for ARCH 3105.

Prerequisite: ARCH 2300 or permission of the School.

Lectures three hours a week.

ARCH 4200 [0.5 credit]

**Architectural Conservation Philosophy and Ethics**

Analysis of philosophical theories and related approaches to the material transformation of buildings. Micro-histories in architectural conservation theory and practice; overview of historical and contemporary concepts in architectural conservation. Preservation, restoration, rehabilitation, reconstruction, adaptive re-use, conservation anamnesis, diagnosis.

Precludes additional credit for ARCH 3100 (no longer offered).

Prerequisites: third-year standing B.A.S. or third-year status in B.Eng. (Architectural Conservation and Sustainability).

Lectures three hours a week.

ARCH 4201 [0.5 credit]

**History of Modern Housing**

Study of housing as a function of social organization, demographics, market demand and public policy. Topics include the evolution of housing form, the role of the state, and the participation of architects in the housing marketplace in the 19th and 20th century. (Theory/History Elective)

Prerequisite: third-year standing in the B.A.S. program or permission of the School.

Lectures three hours a week.

ARCH 4203 [0.5 credit]

**Society and Shelter**

Buildings and shelter as human and social products. Topics such as the perception and cognition of the built environment and its impact on social processes; the design, construction and use of buildings as social processes; the design professions; shelter and social stratification. (Theory/History Elective) (Also listed as SOCI 3309.)

Prerequisite: ARCH 2300 or permission of the School.

Lectures three hours, seminars three hours a week.

ARCH 4204 [0.5 credit]

**The Design Professions**

Architecture and design professions in relation to traditional professions and to occupations in art and design. Professions in the development of culture and society; education, career and work; knowledge in the design professions; and the nature of design practice. (Elective Course) (Also listed as SOCI 4204.)

Prerequisite: third-year standing in the B.A.S. program; fourth-year standing in Sociology; fourth-year standing in the B.A. Honours Architecture/Art History program; or permission of the School.  
Seminar three hours a week.

ARCH 4205 [0.5 credit]

**User-Building Synopsis**

Projects to develop skills in the analysis of building performance. Examination of occupancy analysis, safety and risk assessment, post-occupancy evaluation, and social impact assessment. (Workshop)

Prerequisite: permission of the School.  
Lecture, seminar, lab or field work six hours a week.

ARCH 4206 [0.5 credit]

**Recycling Architecture in Canada and Abroad**

Concepts of mediating old and new architecture at the scale of the city through to the detail of the construction joint. Issues in sustainability and cultural identity illuminated by recycled architecture and adaptive reuse are explored through readings, drawings and case studies. (Theory/History Elective)

Prerequisite: third-year standing in the B.A.S. program or by permission of the instructor or fourth-year standing in the B.Eng. Architectural Conservation and Sustainability program.  
Lectures three hours a week.

ARCH 4300 [0.5 credit]

**Neo-Classical Architecture**

18<sup>th</sup>- and 19<sup>th</sup>- century architecture and urban form in Western Europe. Emphasis on the cultural and philosophical framework of rising modernity to illuminate architectural production and theory as well as the development of urban form. (Theory/History Elective)

Precludes additional credit for ARCH 1201 and ARCH 2200.  
Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4301 [0.5 credit]

**Post-War Architecture**

Theoretical, ideological and artistic debates that have influenced the development of world architecture since 1950. (Theory/History Elective) (Also listed as ARTH 4604.)

Prerequisite: ARCH 2300 or ARTH 3609 or permission of the instructor.  
Lecture or seminar three hours per week.

ARCH 4302 [0.5 credit]

**Pre-Columbian Architecture**

Monumental temples of the ancient Mesoamericans are compared with other world traditions at similar levels of cultural development. Selected examples considered in terms of morphology, technology, iconography, social/political context, world view and general architectural theory. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4303 [0.5 credit]

**Greek Architecture**

Architecture of Greek antiquity and its relationship to its philosophical, artistic, and mythical contexts. The development of the idea of the city; the presence of architecture within its symbolic landscape. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4304 [0.5 credit]

**The Architecture of Rome**

Rome in its classical to late-antique periods. Its founding mythologies and landscape. In-depth analysis of Rome, with special attention to its public buildings. Early Christian architecture within the Roman context. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4305 [0.5 credit]

**Medieval Architecture**

Gothic architecture and its relation to its philosophic and artistic predecessors. Special attention to the coexistence of the monastic tradition, late Romanesque building, and new experiments in gothic during this period, marked by intellectual and political ferment. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4306 [0.5 credit]

**Renaissance Theory**

The rise of architectural theory within the context of the Italian Renaissance. Canonic texts explored and compared in the context of the architectural developments of the period. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4307 [0.5 credit]

**Muslim Architecture**

Historical and theoretical discussions about the architecture of Muslim cultures. Selected sites and monuments from eighth to eighteenth century, covering the vast geography from North Africa to Southeast Asia. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4308 [0.5 credit]

**Asian Architecture**

Anthropological history of the architecture of the Near and Far East. The architecture and urban form of Ancient Egypt, Anatolia, Sumer and Persia; ancient China and India. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4309 [0.5 credit]

**Mesoamerican Architecture**

Selected works of Mesoamerican architecture in terms of iconography, morphology, technology, function, historical development, and concept. Mesoamerican architectural features compared with other world traditions. Emphasis on design. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School.  
Lectures three hours a week.

ARCH 4400 [0.5 credit]

**Theory**

A survey of the architectural and urban history of a specific culture. These discussions address the present reality of a country, region or city being visited by the fourth year of the program. (Elective Course)

Prerequisite: clear standing to fourth year and permission of the School.  
Lectures three hours a week.

ARCH 4502 [0.5 credit]

**Research and Criticism**

Preparation for the independent research and design work. Work related to the nature of research and criticism in architecture, with emphasis on current issues. (Theory/History Elective)

Lectures and seminars three hours a week.

ARCH 4505 [0.5 credit]

**Seminar in Theory and History**

History and theory of architecture. Topics will vary from year to year. Limited enrolment. (Elective Course)

Prerequisite: fourth-year standing in the B.A.S. or B.A. (Honours) Architecture/Art History programs, or permission of the School.

Lectures three hours a week.

ARCH 4801 [0.5 credit]

**Theory of Architecture**

An aspect of architecture in the area of theory and history. Topics vary from year to year. (Theory/History Elective)

Prerequisite: ARCH 2300 or permission of the School. Lectures three hours a week.

ARCH 4808 [0.5 credit]

**Independent Study**

(Elective Course)

ARCH 4900 [0.5 credit]

**Directed Reading**

Supervised readings and research projects. Guidelines must be obtained from BAS Academic Advisors prior to registration. (Core course)

Prerequisites: fourth-year standing in B.A.S (Philosophy and Criticism).

ARCH 4909 [1.0 credit]

**Honours Project**

Students propose a topic of study in Philosophy and Criticism for approval and produce a substantial research project, supervised by BAS faculty. (Core course)

Prerequisites: fourth-year standing in B.A.S (Philosophy and Criticism).

• **Technical (ARCC)**

ARCC 1202 [0.5 credit]

**History of Structures**

A survey of the history, theory, and science of structures pertaining to buildings and civic works. Structural systems, construction techniques, materials and details, and the cultural factors involved in the synthesis of traditional structural design.

Prerequisites: registration in B.A.S. or B.Eng. Architectural Conservation and Sustainability.

Lectures three hours a week, laboratory is block scheduled.

ARCC 1305 [0.5 credit]

**The Behaviour of Materials**

Introduction to organizational patterns, forms and properties of materials such as cohesion, elasticity, strain energy, work of fracture, crack stopping, and the general theory of strength; a survey of the metallic and non-metallic traditions, plastics, composites, and materials of the future. (Elective Course)

Lectures three hours a week.

ARCC 2001 [0.5 credit]

**Structures in Architecture**

Survey of structural planning, including a historical survey of structural systems, details and the study of the factors involved in the synthesis of a suitable structural scheme. The course is intended as a survey of the science and the structural properties of materials. (Elective Course)

Precludes additional credit for ARCC 1103.

Lectures three hours a week, laboratory is block scheduled.

ARCC 2202 [0.5 credit]

**Architectural Technology 1**

Case studies of vernacular buildings from different climatic regions: issues of human comfort, construction, and materials. Site orientation, foundations, structure and envelope in terms of their response to local climate: sun (light and heat), wind, moisture. (Core Course)

Prerequisite: permission of the School.

Lectures three hours a week.

First offered 1999-2000.

ARCC 2203 [0.5 credit]

**Architectural Technology 3**

Wood frame, post and beam, steel and concrete systems and construction techniques. Structural systems and building envelope principles and practise are explored in conjunction with mechanical and electrical systems in smaller buildings. Emphasis on precedent, tradition and methodology of architectural detailing for construction.

Prerequisite: CIVE 2005 and third-year standing for B.A.S. students, or ECOR 1101 and second-year standing for students in B.Eng. Architectural Conservation and Sustainability.

Lectures three hours a week.

ARCC 3004 [0.5 credit]

**Workshop: Energy and Form**

Relationship between environmental factors, energy and architectural form. Ways in which buildings and building elements can be planned and designed to take advantage of natural cycles in order to minimize the need for supportive energy inputs. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCC 3202 [0.5 credit]

**Architectural Technology 4**

Medium-scale steel and concrete structured buildings as case studies to explore approaches to site resources, building envelope, daylighting design, water supply, HVAC, electric lighting, room and environmental acoustics, fire protection, with focus on sustainable design strategies. (Core Course)

Prerequisite: ARCC 2203 and fourth-year standing for B.A.S. students or ARCC 2203 and third-year standing for students in B.Eng. Architectural Conservation.

Lectures three hours a week.

ARCC 3305 [0.5 credit]

**Materials Application**

Application of building materials, including the forming of building parts and the design of joints for performance and assembly. Practical constructions using new technology are emphasized. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCC 3902 [0.5 credit]

**Architectural Technology**

A specific aspect of architecture in the area of architectural technology. Offerings vary from year to year. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCC 4100 [0.5 credit]

**Lighting for Architecture**

A study of daylighting and/or lighting design techniques, with a focus on project-based learning. (Workshop)

Prerequisite: ARCC 2203 or permission of the School.

Lecture, seminar, workshop or field work six hours a week.

ARCC 4102 [0.5 credit]

**Acoustics in Architecture**

Sound in enclosures, including interior design of auditoria and special applications. Sound reproduction and reinforcement systems. Acoustic privacy and protection, sound control in buildings, materials for noise control, community noise, industrial noise. Acoustic measurements and instrumentation. (Elective Course)

Precludes additional credit for ARCC 3002.

Lectures two hours, laboratory two hours a week.

ARCC 4103 [0.5 credit]

**Energy and Form**

Energy as a criterion in decision-making for architectural design. Conventional energy resources and state-of-the-art alternative energy resource systems with respect to building shape, size, materials, openings, orientation, siting, and use. (Elective Course)

Precludes additional credit for ARCC 3003.

Lectures three hours a week.

ARCC 4200 [0.5 credit]

**Structural Morphology**

Interdisciplinary study of structural and developmental morphology focusing on dynamic generative design processes, integrative systems, spatial modulations and fundamental generative principles of spatial form and structure as it relates to architecture. (Workshop)

Lectures, seminar, workshop or field work six hours a week.

ARCC 4202 [0.5 credit]

**Wood Engineering**

Introduction to structural design in timber. Properties, anatomy of wood, wood products, factors affecting strength and behaviour, strength evaluation and testing. Design of columns, beams and beam-columns. Design of trusses, frames, glulam structures, plywood components, formwork, foundations, connections and connectors. Inspection, maintenance and repair. (Elective Course) (Also listed as CIVE 4202)

Prerequisite: fourth-year registration or permission of the School.

Lectures three hours a week, problem analysis three hours alternate weeks.

ARCC 4208 [0.5 credit]

**Workshop: Structure and Form**

Study of structural nature of non-conventional space enclosure systems like cable structures, membranes, shells, submerged structures, excavated structural forms and lunar structures. (Workshop)

Prerequisite: ARCC 4200 or permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCC 4300 [0.5 credit]

**Building Materials**

Materials available for building, with emphasis on their structure, properties, application and sustained performance over the life of a building. (Elective Course)

Precludes additional credit for ARCC 3300.

Laboratories, lectures, field trips four hours a week.

ARCC 4400 [0.5 credit]

**Design for Construction**

Design in relation to materials and building construction including the effects of building codes, zoning bylaws, approvals, processes and legislation, the organization of the building industry, and cost estimating control. (Elective Course)

Prerequisite: ARCC 3300 or permission of the School.

Lectures, seminars, field work three hours a week.

ARCC 4500 [0.5 credit]

**Design Economics**

Principles of building economics. Determinants and prediction of building costs. Uncertainty and investment economics. Creative cost control for buildings during schematic design, design development, construction document preparation and construction. Economic evaluation during all phases of design process; emphasis on sustainable strategies.

Precludes additional credit for ARCC 3500.

Prerequisite: fourth-year standing in the B.A.S. program or permission of the School or third-year standing in the B.Eng Architectural Conservation and Sustainability program.

Three hours a week.

ARCC 4801 [0.5 credit]

**Architectural Technology**

A specific aspect of architecture in the area of architectural technology. Topics vary from year to year. (Elective Course)

Prerequisite: permission of the School.

ARCC 4808 [0.5 credit]

**Independent Study**

(Elective Course)

ARCC 4900 [0.5 credit]

**Directed Reading**

Supervised readings and research projects. Guidelines must be obtained from BAS Academic Advisors prior to registration.

Prerequisite: fourth-year standing in BAS (Conservation and Sustainability).

ARCC 4909 [1.0 credit]

**Honours Project**

Students propose a topic of study in Conservation & Sustainability for approval and produce a substantial research project, supervised by BAS faculty. (Core Course)

Prerequisites: fourth-year standing in BAS (Conservation and Sustainability).

• **Urban (ARCU)**

ARCU 3100 [0.5 credit]

**The Morphology of the City**

Primary structural, spatial and formal organization and elements that characterize the morphology of cities; historical and contemporary significance for architecture and urban design. (Core)

Precludes additional credit for ARCH 2004, ARCH 3100, ARCH 4100, and ARCU 4100.

Prerequisite: permission of the School of Architecture.

Lectures three hours a week.

ARCU 3203 [0.5 credit]

**Landscape Architecture**

Practical significance of landscape elements as they relate to built-form by integrating structure and site. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCU 3301 [1.0 credit]

**Urbanism in Practice 1: Infrastructure Planning and Policy**

The relationship between urban form and the planning of highway, transit, and utility infrastructure. Impact of zoning, annexation and assessment districts on urban growth. Case studies include Ottawa's 2020 plan. Digital drawings and models are used to explore impact of codes, covenants, policies and regulations. (Core course) Precludes additional credit for ARCU 3101 (no longer offered).

Prerequisites: ARCN 2105 and third-year standing in BAS (Urbanism) or permission of the School.

Lecture and workshop eight hours per week.

ARCU 3302 [1.0 credit]

**Urbanism in Practice 2: Urban Ecology, Revitalization and Intensification**

Urban intensification and neighbourhood revitalization. Sustainability and smart growth principles, development standards, architectural codes, and the new LEED Standards for Neighbourhood Development, using case studies in Ottawa and elsewhere. Digital drawings and models are used to explore impact of codes, covenants, policies and regulations.

Precludes additional credit for ARCU 3102 (no longer offered).

Prerequisite: ARCN 2105 and third-year standing in BAS (Urbanism) or permission of the School.

Lecture and workshop eight hours per week.

ARCU 3405 [0.5 credit]

**Urban Design**

Project-based workshop investigating current design attitudes and solutions affecting the physical morphology of cities. Formally sophisticated urban design projects. Various procedures and basic urban design ideas. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCU 3409 [0.5 credit]

**City Organization and Planning Processes**

Interdisciplinary investigation, analysis and synthesis of the institutions, processes, environments and demography of Canadian cities. Guest lecturers. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCU 3902 [0.5 credit]

**Urban Studies**

A specific aspect of architecture in the area of urban studies. Topics vary from year to year. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCU 4300 [0.5 credit]

**History of Theories of Urbanism**

Theories of urbanism throughout history; emphasis on schools of post-WWII academic thought. The impact of Marxist theory, location and systems theory; the expanding array of models, tools and techniques that have contributed to various theorizations of urbanism.

Prerequisites: ARCU 3100.

Lecture three hours per week

ARCU 4400 [0.5 credit]

**City Organization and Planning**

Structure, form and functioning of cities. Infra-structure, facilities and networks, ecosystems, demographic and social organization, government, quality of life, goals and perceptions, urban management, development, regulation and codes, design, planning and policy-making. (Elective Course)

Precludes additional credit for ARCU 3400.

Three hours a week.

ARCU 4500 [0.5 credit]

**Human Shelter**

Background factors pertaining to housing in both industrial and developing countries; traditional and contemporary housing approaches; social housing; and people's right to adequate housing. Guest lecturers. (Elective Course)

Precludes additional credit for ARCU 3500.

Three hours a week.

ARCU 4600 [0.5 credit]

**Post-WWII Urbanism**

Urban renewal in the post-war period in response to housing shortages, suburbanization, transportation infrastructure and other factors. Gentrification and the emerging form of the post-industrial city, including "edge-cities", new urbanism, and sustainable communities. Case studies from Canada, Europe and the U.S. (Theory/History Elective)

Prerequisite: fourth-year standing in the B.A.S. program or permission of the School

Lectures three hours a week.

ARCU 4700 [0.5 credit]

**Urban Utopias**

Urban utopias throughout history, with emphasis on the 20th century. Garden Cities, anti-urbanism and radical decentralization, the city in the region, Italian Rationalist cities, Le Corbusier and CIAM, post-WWII New Towns (England, Scandinavia and the US), Sustainable Urbanism.

Prerequisites: ARCU 4600.

Lecture three hours per week.

ARCU 4801 [0.5 credit]

**Selected Topics in Urbanism**

Advanced seminar in selected topics related to urbanism. Topics may include Dutch planning and housing, New Urbanism, public housing, suburbanization, real estate development, Title I urban renewal, post-unification Berlin. (Core course)

Prerequisites: fourth-year standing in B.A.S. (Urbanism).

Lecture three hours per week.

ARCU 4808 [0.5 credit]

**Independent Study**

(Elective Course)

ARCU 4909 [1.0 credit]

**Honours Project**

Students propose a topic of study in Urbanism for approval and produce a substantial research project. Students work independently. (Core course)

Prerequisites: ARCU 4300 and fourth-year standing in BAS-Urbanism.

• **Techniques (ARCN)**

ARCN 1001 [0.0 credit]

**Work Term 1**

Prerequisites: registration in the Co-op Option of the Bachelor of Architectural Studies Program

ARCN 2001 [0.0 credit]

**Work Term 2**

Prerequisites: registration in the Co-op Option of the Bachelor of Architectural Studies Program

ARCN 2105 [0.5 credit]

**Computer Modeling of Form**

Computer modeling as a medium of architectural analysis, documentation, and presentation. Principles and techniques of 2D drawing and 3D modeling. Extensive practical work using appropriate applications. (Core Course)

Precludes additional credit for ARCN 1101.

Prerequisite: second-year B.A.S. standing or permission of the School.

Lectures three hours a week.

ARCN 2106 [0.5 credit]

**Introduction to Multimedia**

Analogue and digital systems and graphic processes used in the making of images. Fundamentals of still photography and videography combined with current computer technologies in the application of visual communication techniques.

Precludes additional credit for IDES 2106.

Lectures three hours a week, laboratory three hours a week.

Courses - Architecture (ARCH, ARCC, ARCU, ARCN, ARCS)

ARCN 3001 [0.0 credit]

**Work Term 3**

Prerequisites: registration in the Co-op Option of the Bachelor of Architectural Studies Program.

ARCN 3003 [0.5 credit]

**Theatre Production**

Design and fabrication of theatre productions, one of which is staged on campus. Visiting directors, designers, technical consultants and others. Visits to theatres and production facilities. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCN 3206 [0.5 credit]

**Computer Applications**

Application of existing software and programming techniques to various architectural problems. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCN 3302 [0.5 credit]

**The Anatomy of Architecture**

The architectural anatomy of selected contemporary buildings. Use of graphic techniques of analysis to develop an understanding of their basic compositional principles and language. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCN 3303 [0.5 credit]

**Architecture as Painting**

Analysis of architecture for its elemental, formal and narrative properties. These relationships "re-represented" through the medium of painting. Architecture as analogy to painting. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCN 3400 [0.5 credit]

**Visual Design**

Development of the capacity to visualize and communicate in several graphic media. Development of sensitivity to form, structure, space, texture and colour. May involve historical investigation. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCN 3401 [0.5 credit]

**Photography**

Traditional and alternative techniques for image making and manipulation. Basic image formation techniques, advanced darkroom manipulations, past-darkroom imaging, and digital imaging within a theoretical overview of current photographic processes and techniques. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCN 3901 [0.5 credit]

**Architectural Techniques**

A specific aspect of architecture in the area of architectural techniques. Topics vary from year to year. (Elective Course)

Prerequisite: permission of the School.

ARCN 3902 [0.5 credit]

**Architectural Techniques**

A specific aspect of architecture in the area of architectural techniques and cooperative problem solving. Topics vary from year to year. (Workshop)

Prerequisite: permission of the School.

Lecture, seminar, lab or field work six hours a week.

ARCN 4001 [0.0 credit]

**Work Term 4**

Prerequisites: Registration in the Co-op Option of the Bachelor of Architectural Studies Program.

ARCN 4100 [0.5 credit]

**Historic Site Recording and Assessment**

Methods of heritage building documentation including hand recording, photography, rectified photography, total station, gps, photogrammetry, and laser scanning. Non-destructive testing techniques; environmental assessment tools for determining air quality and energy efficiency. Multidisciplinary teams for all project work. (Also listed as CIVE 3207).

Prerequisite: permission of the School.

Prerequisites: third-year standing in B.A.S. Conservation and Sustainability or third-year standing in B.Eng. in Architectural Conservation and Sustainability.

Lectures three hours a week, lab or field work two hours a week.

ARCN 4102 [0.5 credit]

**Problems in Computing**

Various types of non-numeric data, their representation within primary and secondary storage, and the manipulation of various representations. Comparative evaluation of languages for non-numeric problems. (Elective Course)

Prerequisite: permission of the School.

Prerequisites: third-year standing in B.A.S. Conservation and Sustainability or third-year standing in B.Eng. in Architectural Conservation and Sustainability.

Lectures two hours a week, laboratory two hours a week.

ARCN 4200 [0.5 credit]

**Building Pathology and Rehabilitation**

Deterioration mechanisms for concrete, timber, steel and masonry structures. Identification of design deficiencies; criteria for selection and design of rehabilitation systems. Design techniques to reduce deterioration in new construction and historical structures. (Also listed as CIVE 4601).

Prerequisites: fourth-year standing in B.A.S. Conservation and Sustainability or fourth-year status in B.Eng. Architectural Conservation and Sustainability program.

Lectures three hours a week, lab/field work two hours a week.

ARCN 4808 [0.5 credit]

**Independent Study**

(Elective Course)

ARCN 4901 [0.5 credit]

**Work Term 5**

Prerequisites: Registration in the Co-op Option of the Bachelor of Architectural Studies Program.

• **Design Studios/Design Thesis/Research (ARCS)**

ARCS 1005 [0.5 credit]

**Drawing**

Free-hand drawing as a way of observing and understanding the world. Various media and techniques introduced through a wide range of studio and outdoor exercises. (Core Course)

Prerequisite: registration in the B.A.S. program.

Six hours a week.

ARCS 1105 [1.0 credit]

**Studio 1**

Spatial and temporal experience of architecture through various drawings and modeling exercises. Observation of existing and imagination of possible architectural environments. On location at selected sites. (Core Course)

Prerequisite: registration in the B.A.S. program.

Studio eight hours a week.



ARCS 2105 [1.5 credits]

**Studio 2**

Development of cultural imagination within the field of architecture. Inhabitation and spatial definition are explored through analysis and design of small-scale environments. Representational skills developed, including the conventions of architectural drawing and modeling. (Core Course)

Prerequisite: ARCS 1105.

Twelve hours studio, plus one hour lecture per week.

ARCS 2106 [1.5 credits]

**Studio 3**

Small-scale building projects explore architectural design as a form of cultural expression. Consideration of site, program, and the materials of building as the means for shaping architecture. (Core Course)

Prerequisite: ARCS 2105.

Twelve hours studio, plus one hour lecture per week.

ARCS 3105 [1.5 credits]

**Studio 4**

Sensory components of architecture: their use, effect, and symbolic potential. Light and lighting, sound, the sensation of heat and cold, and related phenomena studied in modest building proposals. Social considerations of architecture. The conventions of architectural drawing. (Core Course)

Prerequisite: ARCS 2106.

Twelve hours studio, plus one hour lecture per week.

ARCS 3106 [1.5 credits]

**Studio 5**

Building materials and practices within the context of increasingly complex building programs. Social context of architecture in relation to material expression. Modeling is stressed. (Core Course)

Prerequisite: ARCS 2106.

Twelve hours studio, plus one hour lecture per week.

ARCS 4105 [1.5 credits]

**Studio 6**

Issues of program and site as the culturally defining aspects of architectural practice within complex urban and social situations, using difficult sites and hybrid programs. Projects brought to a high degree of formal and graphic resolution. (Core Course)

Prerequisite: ARCS 3106.

Twelve hours studio, plus one hour lecture per week.

ARCS 4106 [1.5 credits]

**Studio 7**

The role of architecture in culture, stressing site and program with respect to their historic, social, and ecological implications. Synthesis of issues, methods and techniques of the undergraduate studio program. (Core Course)

Prerequisite: ARCS 4105.

Twelve hours studio, plus one hour lecture per week.

## Art History (ARTH)

School for Studies in Art and Culture  
Faculty of Arts and Social Sciences

ARTH 1100 [0.5 credit]

### Art and Society: Prehistory to the Renaissance

A survey of art, architecture and artifacts from prehistory to the Renaissance. Ways of understanding visual culture through this span of history. Precludes additional credit for ARTH 1000.

Lectures two hours a week, tutorial one hour a week.

ARTH 1101 [0.5 credit]

### Art and Society: Renaissance to the Present

A survey of art, architecture and related visual forms in their expanding contexts from the Renaissance to the present. Ways of understanding visual culture through this span of history.

Precludes additional credit for ARTH 1000.

Lectures two hours a week, tutorial one hour a week.

ARTH 1105 [0.5 credit]

### Art as Visual Communication

A variety of visual material is organized topically to examine the elements of art (line, shape, value, colour, texture, space), the principles of pictorial organization, the materials and techniques of art, and recurrent tendencies in artistic styles and outlooks.

Lectures three hours a week.

ARTH 1200 [0.5 credit]

### Introduction to Architectural History

A survey of architecture including principles of structure and form, vernacular traditions and the architecture of high culture in Asia and the West up to 1600.

Lectures two hours a week, tutorial one hour a week.

ARTH 2002 [0.5 credit]

### Canadian Historical Art

A survey of historical Canadian art, examining the intersections between craft and fine art, amateur and professional artists, art training, gender, nationalism, regionalism and ethnicity. Local and national collections in Ottawa may be drawn on extensively.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2003 [0.5 credit]

### Canadian Twentieth-Century and Contemporary Art

A survey of twentieth-century and contemporary Canadian art in a variety of media within social, political and cultural contexts. Regionalism, multiculturalism, nationalism, gender, race and identity will be considered in relation to local and national collections in Ottawa.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2005 [0.5 credit]

### Arts of the First Peoples: The Woodlands, the Plains and the Subarctic

Introduction to the visual arts of Aboriginal peoples of the eastern and central regions of North America. A post-colonial perspective will be used to consider selected examples of creative production from time immemorial to the present.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2006 [0.5 credit]

### Arts of the First Peoples: The Southwest, the West Coast and the Arctic

Introduction to the visual arts of Aboriginal peoples of the western and northern regions of North America. A post-colonial perspective will be used to consider selected examples of visual materials from time immemorial to the present.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2007 [0.5 credit]

### Asian Art

Surveys Asian art from second-century China to post-war Japan. Representational strategies of court artists and artists from the capital are compared with artists on the periphery. Articulation of power in tombs, palaces and war propaganda is examined, as is the individual and the eccentric.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2008 [0.5 credit]

### Inuit Art

Survey of visual art produced by Canadian Inuit from the circumpolar area.

Precludes additional credit for ARTH 3104.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2100 [0.5 credit]

### Greek and Roman Art and Archaeology

The art, architecture and archaeology of Greece and Rome. Vase painting, sculpture, Greek and Roman architecture, town planning and analogous arts. (Also listed as CLCV 2302.)

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2202 [0.5 credit]

### Medieval Architecture and Art

A survey of architecture and art in Europe from ca. 313-1500 C.E. Sacred, secular, and domestic works will be discussed with reference to cultural meaning, social function, structure, and form.

Precludes additional credit for ARTH 2200 and ARTH 2201.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2300 [0.5 credit]

### Italian Renaissance Art

An examination of major works of art and architecture, issues and themes in the Italian Renaissance; emphasis on the fifteenth and sixteenth centuries, with a look at roots in the fourteenth.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2403 [0.5 credit]

### European Art from 1600-1750

Painting, sculpture and architecture in Europe from 1600-1750.

Precludes additional credit for ARTH 2401 and ARTH 2402.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2502 [0.5 credit]

**European Art from 1750-1900**

Major artistic movements in Europe from about 1750-1900; Neo-Classicism, Romanticism and Realism. Precludes additional credit for ARTH 2402 and ARTH 2500.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2600 [0.5 credit]

**Modern European Art 1900-1945**

Major artistic movements in Europe from about 1900 to 1945.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2601 [0.5 credit]

**History and Theory of Photography**

Issues, themes, movements in photography and individual photographers from the origins of the medium to the present.

Prerequisite: second-year standing or permission of the Discipline.

Lectures three hours a week.

ARTH 2608 [0.5 credit]

**History and Theory of Architecture**

Selected examples of world architecture from c. 1600 to the present day. Included are theories and methodological approaches to architectural history and criticism.

Precludes additional credit for ARTH 1201.

Lectures two hours a week, tutorial one hour a week.

ARTH 2807 [0.5 credit]

**Philosophy of Art**

Philosophical approaches to the study of art. Topics such as: the nature of art and artistic value; representation and symbolism in art; art and artifice; art and the emotions; art, culture and ideology; post-structuralism and art; theories of creativity; relationship between artworks and audiences. (Also listed as PHIL 2807.)

Lectures three hours a week.

ARTH 3000 [0.5 credit]

**Themes in Canadian Historical Art**

Selected aspects of historical Canadian art in a variety of media. Local and national collections in Ottawa may be drawn on extensively.

Prerequisite: ARTH 2002 or ARTH 2003 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3001 [0.5 credit]

**Issues in Contemporary Art Practice**

Selected aspects of art from the 1980s to the present. Installation art, body art, video, new media and recent developments in painting, photography and sculpture may be considered. Ottawa collections, exhibitions and events may be used.

Prerequisite: ARTH 2003 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3002 [0.5 credit]

**Canadian Architecture**

Canadian architecture from the seventeenth century to the present day, covering both stylistic and technological developments. Building styles, methods, and materials in the context of social and economic conditions and construction techniques. (Also listed as ARCH 4002.)

Prerequisites: ARTH 1100 and ARTH 1101, or ARTH 1200 and ARTH 2608 (or ARTH 1201), or ARCH 1002 and ARCH 1201, and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3005 [0.5 credit]

**American Architecture**

The cultural history of the United States as expressed through its architectural heritage. Selected buildings and complexes from the earliest settlements through the early twentieth century are examined.

Prerequisite: ARTH 2608 or ARTH 1201 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3006 [0.5 credit]

**American Painting and Sculpture**

A study of painting, sculpture and other forms of visual culture from colonial times to the twentieth century.

Prerequisite: ARTH 1101 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3007 [0.5 credit]

**Modern Asian Art**

Modern and contemporary art in East Asia, beginning in Japan with the 1868 Meiji revolution, and the 1911 revolution in China. How did both countries define modernity? How did they articulate hybrid artistic identities between modernity and tradition?

Prerequisite: second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3101 [0.5 credit]

**Studies in Greek and Roman Art and Archaeology**

Period or theme in the art and archaeology of Ancient Greece and Rome. Topics may vary from year to year. (Also listed as CLCV 3305 and RELI 3731.)

Prerequisite: second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3106 [1.0 credit]

**History and Methods of Art History**

The study of the history of art history and the methodologies and research tools employed by art historians.

Prerequisites: third-year Honours standing or higher in Art History, or permission of the Discipline.

Seminar three hours a week.

ARTH 3201 [0.5 credit]

**Issues in Medieval Art and Architecture**

Issues and themes in the arts and architecture of the medieval period.

Prerequisite: ARTH 1100 or ARTH 2202 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3301 [0.5 credit]

**Visibility, Image and Identity in Pre-Modern Europe**

Art and the spectator, visual modes, gender, image and identity, art of civic life, narrative and space, and regionalism. Topics vary. Concentration on the fourteenth to sixteenth centuries, although periods discussed may span antiquity to the seventeenth century.

Prerequisite: ARTH 2300 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3505 [0.5 credit]

**French Impressionism: Art, Leisure and Society**

Selected Impressionist and Neo-Impressionist artists, such as Manet, Monet, Degas, Caillebotte, Cézanne and Seurat; emphasis on social context, including issues of class, gender and modernity.

Lectures three hours a week.

ARTH 3506 [0.5 credit]

**Themes and Issues in Early Modern Art**

Typical topics include "Myth and Legend in Art: 1848-1914" and "Religion and the Occult in Art: 1848-1914"

Prerequisite: second-year standing or higher.

Lectures three hours a week.

ARTH 3507 [0.5 credit]

**The Artist in Context**

An examination of one artist's or group of artists' life and work. Relevant artistic, intellectual, social, political and theoretical contexts are considered.

Prerequisite: ARTH 1101 or ARTH 2502 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3600 [0.5 credit]

**Modern Art from c. 1945 to c. 1980**

International post-WWII art from Abstract Expressionism to the emergence of post-modernism, with emphasis on Europe and the United States.

Prerequisite: ARTH 2600.

ARTH 3601 [0.5 credit]

**Women, Art and Society**

The work by women artists in Western Europe and North America; emphasis on the social, economic and political contexts for women's artistic production.

Prerequisite: second-year standing or higher or permission of the Discipline.

Lectures three hours a week.

ARTH 3602 [0.5 credit]

**History and Theory of Photography in Canada**

Issues, themes, movements in photography and individual photographers from the arrival of the medium in Canada to the present.

Prerequisite: ARTH 2601 and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3603 [0.5 credit]

**Visual Art and Popular Culture**

Ways in which popular visual culture and fine art have been mutually influential; diverse methodological approaches in the study of a variety of visual forms.

Prerequisite: second-year standing or higher.

Lectures three hours a week.

ARTH 3609 [0.5 credit]

**Twentieth-Century Architecture**

Developments in architectural form and culture through the course of the twentieth century, with emphasis on the formation and subsequent critique of the Modern Movement.

Precludes additional credit for ARCH 3009.

Prerequisites: ARTH 1200 or ARTH 2608 (or ARTH 1201) and second-year standing or higher, or permission of the Discipline.

Lectures three hours a week.

ARTH 3705 [0.5 credit]

**Selected Museum Exhibition**

This seminar complements a major exhibition held at a local museum. Students enrolled in this course are expected to bear all travel and other costs arising from required visits to the museum.

Prerequisite: second-year standing or higher or permission of the Discipline.

Seminar and/or lectures three hours a week.

ARTH 3809 [0.5 credit]

**Topics in Art History and Theory**

Selected aspects of art history and/or theory from ancient times to the present.

Prerequisite: second-year standing or higher, or permission of the Discipline.

Lecture three hours a week.

ARTH 3900 [0.5 credit]

**Practicum in Art History**

Practical experience gained by working on specific projects under the supervision of the staff of one of the museums and cultural institutions in the Ottawa area. A maximum of 1.0 credit of practicum may be offered in fulfilment of Art History requirements.

Prerequisite: B.A. or B.A. (Honours) Art History registration with third-year standing or higher and a CGPA of 9.00 or better in Art History courses, or permission of the Discipline.

ARTH 4000 [0.5 credit]

**Topics in Historical Canadian Art**

Selected topics in historical Canadian art, such as colonialism, national identity, race, gender, class, cultural policy and public art. Local and national collections in Ottawa may be drawn on extensively.

Prerequisite: one of ARTH 2002, ARTH 2003, ARTH 3000 and third-year standing or higher, or permission of the Discipline.

Seminars three hours a week.

ARTH 4001 [0.5 credit]

**Aspects of Modern and Contemporary Art Practice in Canada**

Examination of a selected issue/theme in modern and contemporary Canadian art. Focus on works in public collections in Ottawa with emphasis on current exhibitions in the National Capital region.

Prerequisite: ARTH 3001 and third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4005 [0.5 credit]

**Topics in Contemporary Aboriginal Art**

This course will use critical theory to examine aspects of contemporary visual art created by the Inuit and First Peoples in North America.

Prerequisite: ARTH 2005 or ARTH 2006 or ARTH 3104 or ARTH 3103 and third-year standing or permission of the Discipline.

Seminar three hours a week.

ARTH 4007 [0.5 credit]

**Topics in Asian Art**

A selected topic in East Asian Art, which may include 19th century Ukiyo-e woodblock prints, The Gutai Group, performance art in China and Japan, and contemporary Chinese art.

Prerequisite: third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4008 [0.5 credit]

**Transnational Theory**

Critical examination of transnational theories of cultural analysis, including Orientalism, Post-Colonial theory, translation theory and theories of cultural hybridity.

Precludes additional credit for ARTH 3103. Prerequisite: third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4202 [0.5 credit]

**Topics in Medieval Art and Architecture**

Selected aspects of Medieval Art and Architecture.

Prerequisite: ARTH 2202 and third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4305 [0.5 credit]

**Topics in Renaissance Art**

Selected aspects of Renaissance art and society.

Prerequisite: ARTH 2300 and third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4400 [0.5 credit]

**Topics in Baroque and Rococo Art**

Selected aspects of art between 1600 and 1750.

Prerequisite: ARTH 2403 and third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4505 [0.5 credit]

**Topics in Nineteenth-Century European Art**

Selected aspects of nineteenth-century European art.

Prerequisite: ARTH 2502 or ARTH 3505 and third-year standing or higher, or permission of the Discipline.

Lectures and/or seminar three hours a week.

ARTH 4600 [0.5 credit]

**Feminist and/or Gender Issues in Art**

Selected aspects of gender issues in Art History and/or feminist approaches to it.

Prerequisite: third-year standing or higher, or permission of the Discipline.

Precludes additional credit for ARTH 4601 (with the same topic).

Seminar three hours a week.

ARTH 4602 [0.5 credit]

**Issues in the Theory and History of Photography**

Relates the themes of selected theoretical texts on photography to specific examples of photographic practice. (Also listed as JOUR 4602.)

Prerequisite: ARTH 2601 and third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4603 [0.5 credit]

**Contemporary Environmental Art**

Contemporary inflections of "land-art", from 1960s Earthworks to more recent "Eco-Art" with overt ecological meaning or function; historical and prehistoric antecedents.

Precludes additional credit for ARTH 4601 (with the same topic).

Prerequisite: ARTH 3600, or third-year standing or higher, or permission of the Discipline.

Lectures and/or seminars three hours a week.

ARTH 4604 [0.5 credit]

**Architecture in the Post-War Period**

Theoretical, ideological and artistic debates that have influenced the development of world architecture since 1950. (Also listed as ARCH 4301.)

Prerequisite: ARTH 3609 or ARCH 2300 or permission of the Discipline.

Lectures or seminars three hours a week.

ARTH 4700 [0.5 credit]

**Being Digital: Art, Art History, and the Art Museum in the Critical Space of the WWW**

An introduction to the use of WWW as a research resource, to art museums' uses of the WWW, and to contemporary artists' WWW projects. Students will "publish" their own WWW projects, including a virtual exhibition of artworks from Carleton University Art Gallery.

Prerequisites: ARTH 3106, fourth-year standing in Art History, and permission of the Discipline.

Seminars three hours a week.

ARTH 4705 [0.5 credit]

**Seminar: Selected Museum Exhibition**

Studies a major exhibition held at a local museum. Students enrolled in this course are expected to bear all travel and other costs arising from required visits to the museum.

Prerequisites: fourth-year Honours standing in Art History and permission of the Discipline.

Lectures and/or seminar three hours a week.

ARTH 4800 [0.5 credit]

**Topics in Architectural History**

Selected aspects of architectural history from ancient times to the present.

Prerequisite: third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4807 [0.5 credit]

**Topics in Art Criticism**

Major problems and theories in art criticism and whether the theories can be accepted.

Prerequisite: third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4809 [0.5 credit]

**Topics in Art History**

Selected aspects of art history from ancient times to the present.

Prerequisite: third-year standing or higher, or permission of the Discipline.

Seminar three hours a week.

ARTH 4900 [0.5 credit]

**Directed Readings and Research**

Supervised readings and research projects. Guidelines must be obtained from the Supervisor of Undergraduate Studies prior to registration. A written project outline, approved by the supervising Art History faculty member, must be submitted to the Supervisor of Undergraduate Studies by the last day for course changes.

Prerequisites: fourth-year Honours standing in Art History and permission of the Discipline.

ARTH 4909 [1.0 credit]

**Honours Research Essay**

An essay of approximately 10,000 words, resulting from independent research, supervised by Art History faculty.

Prerequisites: fourth-year Honours standing in Art History with a CGPA of 9.00 or better calculated over all courses in Art History; and permission of the Discipline.

## Biochemistry (BIOC)

### Institute of Biochemistry Faculty of Science

BIOC 2200 [0.5 credit]

#### Cell Physiology and Biochemistry

Cellular functions and their interrelationships. Introduction to thermodynamics, membrane structure and function, transport mechanisms, basic metabolic pathways, energy production and utilization, communications between cells. Also listed as BIOL 2200.

Prerequisites: (BIOL 1003 and BIOL 1004) or (BIOL 1103 and BIOL 1104), (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006), or permission of the Department. Lectures three hours a week, laboratory or tutorial four hours a week.

It is strongly recommended that Biology Majors and Honours students take this course in their second year of study.

BIOC 2300 [0.5 credit]

#### Physical Biochemistry

Energy of biological systems, molecular interactions, diffusion principles, introduction to protein folding, structure and thermodynamics, ligand binding and nucleic acid structures; experimental design and data management.

Precludes additional credit for CHEM 2103.

Prerequisites: BIOC 2200 (can be taken concurrently with BIOC 2300) and MATH 1007 and MATH 1107, and (PHYS 1007 and PHYS 1008) or (PHYS 1003 and PHYS 1004).

Lectures three hours a week, tutorials three hours a week.

BIOC 2400 [0.5 credit]

#### Independent Research I

Students carry out a laboratory research project under the supervision of a faculty member from the Institute of Biochemistry. A research report must be submitted by the last day of classes for evaluation by the Director and Faculty supervisor.

Prerequisites: restricted to Honours students of second-year standing in a Biochemistry program with a GPA of 10.0 or higher in first year, and approval of the Director and a Faculty supervisor.

Laboratory research for at least three hours a week over two terms.

BIOC 2909 [0.0 credit]

#### Co-operative Work Term Report 1

Practical experience for students enrolled in the co-operative option. Students must receive a satisfactory evaluation from their work term employer; and present a written report describing their work term project. Graded Sat/Uns.

Prerequisites: registration in the Biochemistry co-operative option and permission of the Institute.

Four-month work term.

BIOC 3006 [1.0 credit]

#### Practical Biochemistry

Introduction to experimental biochemistry and the theory and concepts dealt with in BIOC 3101 and BIOC 3102.

Prerequisites: BIOC 2200/BIOL 2200 and CHEM 2203 or permission of the Institute. CHEM 2204 and BIOC 2300 or CHEM 2103 are also recommended. It is recommended that BIOC 3101 and BIOC 3102 be taken concurrently. Laboratory four hours a week.

BIOC 3008 [0.5 credit]

#### Bioinformatics

A practical exploration in the application of information technology to biochemistry and molecular biology. Insight into biological knowledge discovery via molecular structure and function prediction, comparative genomics and biological information management. (Also listed as COMP 3308.)

Prerequisites: BIOC 2200 or BIOL 2200; or permission of the Institute.

Lecture 1.5 hours a week, computer workshop three hours a week.

BIOC 3101 [0.5 credit]

#### General Biochemistry I

Chemistry, structure and function of proteins, lipids, carbohydrates and nucleic acids. Monomers, linkages and types of biochemical polymers that are formed. Mechanism of action of enzymes, regulatory control mechanisms of proteins and integration of biochemical pathways.

Precludes additional credit for BIOC 3100 and CHEM 3401.

Prerequisites: BIOC 2200 or BIOL 2200, CHEM 2203 and CHEM 2204 or permission of the Institute.

Lectures three hours a week.

BIOC 3102 [0.5 credit]

#### General Biochemistry II

Anabolic and catabolic processes. Regulation of cell compartment (membranes, mitochondria, chloroplast, peroxisome, nuclei) composition. Genetic controls of transcription, translation and post-translational modification of protein structure and function. Biochemical processes of disease, development, and toxicology.

Precludes additional credit for BIOC 3100.

Prerequisites: BIOC 3101 and BIOL 2104.

Lectures three hours a week.

BIOC 3202 [0.5 credit]

#### Biophysical Techniques and Applications

Theory and applications of current biochemical/biophysical instrumentation and techniques including biophysical spectroscopy, molecular structure determination, calorimetry, and mass spectrometry.

Precludes additional credit for BIOC 4002.

Prerequisites: BIOC 2200 or permission of the Institute. Lectures three hours a week.

BIOC 3400 [0.5 credit]

#### Independent Research II

Students carry out a laboratory research project under the supervision of faculty member from the Institute of Biochemistry. A research report must be submitted by the last day of classes for evaluation by the Director and Faculty supervisor.

Prerequisites: restricted to Honours students of third-year standing in a Biochemistry program with a GPA of 10.0 or higher in second year, and approval of the Director and Faculty supervisor.

Laboratory research for at least three hours a week over two terms.

BIOC 3909 [0.0 credit]

#### Co-operative Work Term Report 2

Practical experience for students enrolled in the co-operative option. Students must receive a satisfactory evaluation from their work term employer; and present a written report describing their work term project. Graded Sat/Uns.

Prerequisites: registration in the Biochemistry co-operative option and permission of the Institute.

Four-month work term.

BIOC 4001 [0.5 credit]

**Methods in Biochemistry**

Principles and applications of modern biochemical methodology, including use of radioisotope tracers, ultracentrifugation, electrophoresis and ion-exchange chromatography.

Prerequisite: BIOC 3006 or permission of the Institute. Lectures and discussion two hours, laboratory six hours a week.

BIOC 4004 [0.5 credit]

**Industrial Biochemistry**

The application of biochemistry to the production of biological compounds useful in nutrition, medicine, and the food and chemical industries. General strategies for efficient production of these compounds by controlling the activities of living cells or enzymes.

Prerequisite: BIOC 3101 and BIOC 3102 (these may be taken concurrently with BIOC 4004), or permission of the Institute.

BIOC 4005 [0.5 credit]

**Biochemical Regulation**

Regulation at the transcriptional, translational and metabolic level; regulation of cell and subcellular organelle function and other timely topics may be included.

Precludes additional credit for BIOC 4003.

Prerequisite: BIOC 3101 and BIOC 3102.

Lectures three hours a week.

BIOC 4007 [0.5 credit]

**Membrane Biochemistry**

Biochemical and biophysical aspects of biomembrane structure and function. Topics may include: membrane lipids and proteins, lipid polymorphism, model membranes, liposomes, membrane biogenesis, the membrane cytoskeleton, membrane trafficking, membrane fusion, exocytosis and signal transduction across membranes.

Prerequisite: BIOL 2200 or BIOC 2200, or BIOC 3101 (which may be taken concurrently with BIOC 4007), or permission of the Institute.

Lectures two hours a week and workshop two hours a week.

BIOC 4008 [0.5 credit]

**Computational Systems Biology**

Modeling and simulation of metabolic and regulatory networks towards understanding complex and highly dynamic cellular systems. Biotechnological applications include metabolic engineering, synthetic biology, and drug discovery. Also listed as COMP 4308.

Prerequisites: BIOC 3101 or permission of the Institute. Lecture 1.5 hours per week, workshop 1.5 hours a week.

BIOC 4009 [0.5 credit]

**Biochemistry of Disease**

The biochemical basis of disease including genetic and metabolic disorders such as cancer, neurological degenerative conditions, diabetes, stroke and microbial infections.

Prerequisites: BIOC 3101 and BIOC 3102, or permission of the Institute.

Lectures three hours a week.

BIOC 4200 [0.5 credit]

**Immunology**

The organization and function of the immune system, including the anatomy of the immune system, the properties and behaviour of cells of the immune system, and the molecular and genetic bases of the immune response. Also listed as BIOL 4200.

Precludes additional credit for BIOL 4302 (BIOC 4302).

Prerequisites: BIOL 3201 or permission of the Department.

Lectures three hours a week.

BIOC 4201 [0.5 credit]

**Animal Cell Culture: Methods and Applications**

Complementary to BIOC 4200 (BIOL 4200). Theory and practice of animal cell culture; the use of cultured cells in studies of immune function; the applications of products of the immune system, such as antibodies. Also listed as BIOL 4201.

Precludes additional credit for BIOC 4302 (BIOL 4302).

Prerequisites: BIOC 4200 (BIOL 4200), which may be taken concurrently, or permission of the Department. Laboratory four hours per week.

BIOC 4202 [0.5 credit]

**Mutagenesis and DNA Repair**

A mechanistic study of mutagenesis and DNA repair. Topics include DNA structure perturbations, spontaneous and induced mutagenesis, the genetics and biochemistry of DNA repair and recombination, and the role of mutations in the development of genetic disease and cancer. Also listed as BIOL 4202.

Prerequisites: BIOL 3104 and one of: BIOL 2200,

BIOL 2200, BIOC 3102 (BIOC 3102 may be taken concurrently with BIOC 4202); or permission of the Institute.

Lectures two hours a week and workshop two hours a week.

BIOC 4203 [0.5 credit]

**Advanced Metabolism**

Structure, biochemical derivation and function of secondary metabolites such as toxins and antibiotics. Examples from plant, fungal and animal systems.

Prerequisites: BIOC 3101 and BIOC 3102, or permission of the Institute.

Lectures three hours a week.

BIOC 4204 [0.5 credit]

**Protein Biotechnology**

An advanced lecture, discussion and seminar course covering the theory, development and current techniques of protein and enzyme engineering. Topics to be discussed may also include applications in biotechnology, nanotechnology and new frontiers in basic and applied research.

Precludes additional credit for BIOC 4002.

Prerequisite: BIOC 3202 (may be taken concurrently), or permission of the Institute.

Lectures two hours a week, workshop two hours a week.

BIOC 4400 [0.5 credit]

**Nuclear Dynamics and the Cell Cycle**

Molecular cell biology of nuclear functions and the eukaryotic cell cycle. Topics may include chromosome architecture and dynamics; nucleocytoplasmic exchange; pre-mRNA processing; ribosome biogenesis; mitotic and meiotic nuclear disassembly and reassembly; regulation of cell proliferation and cell death. (Also listed as BIOL 4400.)

Prerequisites: BIOL 3201, or BIOC/BIOL 2200 and (BIOC 3101 and BIOC 3102), or permission of the Department.

Lectures two hours per week; workshop two hours per week.

BIOC 4708 [0.5 credit]

**Principles of Toxicology**

Basic theorems of toxicology with examples of current research problems. Toxic risk is defined as the product of intensive hazard and extensive exposure. Each factor is assessed in scientific and social contexts and illustrated with many types of experimental material. Also offered at the graduate level, with additional or different requirements, as BIOL 6402 and CHEM 5708, for which additional credit is precluded.

Prerequisite: BIOC 3101 and BIOC 3102, or CHEM 2204, CHEM 2303, FOOD 3001, and FOOD 3005, or permission of the Institute.

Lectures three hours a week.

## Courses - Biochemistry (BIOC)

BIOC 4901 [0.5 credit]

**Selected Topics in Biochemistry**

Selected topics of current interest in biochemistry are offered upon approval by the Director in consultation with members of the Institute.

BIOC 4906 [1.0 credit]

**Interdisciplinary Research Project**

Collaborative, interdisciplinary research project approved by the Director. Requires co-supervision, with at least one faculty member from the Institute of Biochemistry. A report must be submitted to the co-supervisors by the last day of classes, and will be examined by committee.

Precludes additional credit for BIOC 4907 [1.0] and BIOC 4908 [1.0].

Prerequisites: BIOC 3006, (BIOC 3101 and BIOC 3102) or equivalent, eligibility to continue in Honours Biochemistry or in Biochemistry and Biotechnology, permission of the Institute.

BIOC 4907 [1.0 credit]

**Honours Essay and Research Proposal**

An independent research study using library resources. The candidate will prepare a critical review of a topic approved by a faculty adviser. Evaluation will be based on a written report and a poster presentation of the project.

Precludes additional credit for BIOC 4906 [1.0] and BIOC 4908 [1.0].

Prerequisite: fourth-year standing in an Honours Biochemistry program and permission of the Institute.

BIOC 4908 [1.0 credit]

**Research Project**

Students carry out a research project approved by the Director, under the supervision of a faculty member of the Institute, in either the Biology or Chemistry departments. A report must be submitted to the supervisor by the last day of classes, and will be examined by committee.

Precludes additional credit for BIOC 4906 [1.0] and BIOC 4907 [1.0].

Prerequisites: BIOC 3005 and (BIOC 3101 and BIOC 3102) or equivalent, and eligibility to continue in Honours Biochemistry or in Biochemistry and Biotechnology.

BIOC 4909 [0.0 credit]

**Co-operative Work Term Report 3**

Practical experience for students enrolled in the co-operative option. Students must receive a satisfactory evaluation from their work term employer; and present a written report describing their work term project. Graded Sat/Uns.

Prerequisites: registration in the Biochemistry co-operative option and permission of the Institute.

Four-month work term.



## Biology (BIOL)

Faculty of Science  
Faculty of Arts and Social Sciences

### Notes:

More detailed information regarding Biology courses taken in second and later years, and topics for Honours research projects (BIOL 4908), may be obtained from *Outlines of advanced biology and biochemistry courses* and *Suggested topics for BIOL 4908 research projects* for the current year, available from the Biology Department office. All students are strongly advised to consult them when planning their course patterns.

Note that BIOL 1003 and BIOL 1004 are intended primarily for students wishing to major in Biology or take a Science degree. Other students who wish to take Biology courses should consider BIOL 1010, BIOL 1902 and/or BIOL 2106.

BIOL 1003 [0.5 credit]

### Introductory Biology I

A lecture and laboratory course focusing on the cell. The course emphasizes the organization of cells, cellular metabolism, classical and molecular genetics and the reproduction of cells and organisms. This course is for students who are not enrolled in B.Sc Honours programs in Biological Sciences.

Precludes additional credit for BIOL 1103.

Prerequisite: Ontario 4U/M in Biology (or equivalent), or Ontario 4U/M in Chemistry (or equivalent).

Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 1004 [0.5 credit]

### Introductory Biology II

A lecture and laboratory course focusing on organisms and populations. The course emphasizes diversity of life forms, evolution and ecology. This course is for students who are not enrolled in B.Sc Honours programs in Biological Sciences.

Precludes additional credit for BIOL 1104.

Prerequisite: Ontario 4U/M in Biology (or equivalent) or BIOL 1003.

Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 1005 [0.5 credit]

### Introduction to Quantitative Methods in Biology

This course addresses the formulation of research questions, experimental design, data management, data transformations, and statistical analysis. Emphasis on developing confidence in the practical use of personal computers and appropriate software as they relate to quantitative methods in the biological sciences.

Preclusion: this course should be taken in first year, as credit will not be given if taken after BIOL/BIOC 2200 or BIOL 2600.

Prerequisites: Ontario 4U/M in Biology (or equivalent), or BIOL 1003 or BIOL 1103 or permission of the instructor.

Lectures three hours a week, computer laboratory 1.5 hours a week.

BIOL 1010 [0.5 credit]

### Biotechnology and Society

A course for students interested in the science behind recent advances in biotechnology. The different ways in which biotechnology is being applied in agriculture, health care, and the environment will be examined.

Preclusion: credit will not be given if taken concurrently with, or after BIOL 2200 or BIOC 2200. Students in Biology and Biochemistry programs may only take this course as a free elective.

Lectures three hours a week.

BIOL 1103 [0.5 credit]

### Foundations of Biology I

A lecture and laboratory course focusing on the cell. A specialist course emphasizing the organization of cells, cellular metabolism, classical and molecular genetics and the reproduction of cells and organisms. This course is for students who are enrolled in the B.Sc Honours programs in Biological Sciences.

Precludes: BIOL 1003

Prerequisite: Ontario 4U/M in Biology (or equivalent), or Ontario 4U/M in Chemistry (or equivalent).

Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 1104 [0.5 credit]

### Foundations of Biology II

A lecture and laboratory course focusing on organisms and populations. A specialist course emphasizing diversity of life forms, evolution and ecology. This course is for students who are enrolled in B.Sc Honours programs in Biological Sciences.

Precludes: BIOL 1004

Prerequisite: Ontario 4U/M in Biology (or equivalent) or BIOL 1103

Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 1902 [0.5 credit]

### Natural History

A course designed primarily for students in non-biology programs to investigate the natural history of plants and animals, and the communities in which they occur. Particular attention is paid to the Ottawa region, but appropriate examples from other locales are also included.

Lectures three hours a week.

BIOL 2001 [0.5 credit]

### Animals: Form and Function

An introduction to the diverse structures of animals (both invertebrates and vertebrates) in relationship to their functions, discussed within an evolutionary framework.

Precludes additional credit for BIOL 2000.

Prerequisites: (BIOL 1003 and BIOL 1004) or (BIOL 1103 and BIOL 1104) or permission of the Department.

Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 2002 [0.5 credit]

### Plants: Form and Function

An introduction to the structure and development of higher plants (at cellular, morphological and organism levels) discussed in relation to their function.

Precludes additional credit for BIOL 2000.

Prerequisites: (BIOL 1003 and BIOL 1004) or (BIOL 1103 and BIOL 1104) or permission of the Department.

Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 2005 [0.5 credit]

### Human Physiology

Topics may include: neurophysiology, sensory reception, muscular contraction, the cardiovascular system, the respiratory system, and the gastrointestinal system.

Preclusion: credit will not be given if taken concurrently with, or after BIOL 3305 or BIOL 3306. Students in Biology and Biochemistry programs may only take this course as a free elective.

Prerequisites: BIOL 1003 or BIOL 1103 and (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) or permission of the Department.

Lectures three hours a week, laboratory or tutorial three hours a week.

BIOL 2104 [0.5 credit]

**Introductory Genetics**

A lecture and laboratory course on the mechanisms of inheritance and the nature of gene structure, composition and function, introducing both classical Mendelian genetics and modern molecular genetics. Precludes additional credit for BIOL 2105. Credit for BIOL 2106 will only be given if taken before BIOL 2104.

Prerequisites: (BIOL 1003 and BIOL 1004) or (BIOL 1103 and BIOL 1104) or permission of the Department.

Lectures three hours a week, laboratory or tutorial three hours a week.

It is strongly recommended that this course be taken by Biology majors in their second year of study.

BIOL 2106 [0.5 credit]

**Human Genetics and Evolution**

Designed for students interested in learning about the genetic mechanisms involved in human development (embryogenesis, reproduction and aging), diseases, cancer, behaviour. Environmental adaptation and evolution.

Not a Science continuation course. Available to students in a Biology or other Science program only as free elective, but credit will be given for BIOL 2106 only if taken before BIOL 2104.

Prerequisite: Ontario 4U/M in Biology (or equivalent) or BIOL 1003 or BIOL 1103.

Lectures three hours a week.

BIOL 2200 [0.5 credit]

**Cell Physiology and Biochemistry**

Cellular functions and their interrelationships. Introduction to thermodynamics, membrane structure and function, transport mechanisms, basic metabolic pathways, energy production and utilization, communications between cells. Also listed as BIOC 2200.

Prerequisites: (BIOL 1003 and BIOL 1004) or (BIOL 1103 and BIOL 1104), (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006), or permission of the Department. Lectures three hours a week, laboratory or tutorial four hours a week.

It is strongly recommended that Biology Majors and Honours students take this course in their second year of study.

BIOL 2303 [0.5 credit]

**Microbiology**

The biology of the bacteria, Archaea, Viruses and Protozoans, from the fundamentals of cell chemistry, molecular biology, structure and function, to their involvement in ecological and industrial processes and human disease.

Precludes additional credit for BIOL 3301.

Prerequisite: BIOL 1003 or BIOL 1103 or (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006) or CHEM 1101.

Lectures three hours a week.

BIOL 2600 [0.5 credit]

**Introduction to Ecology**

The scientific study of interactions of living organisms and their environment, and how these affect the distribution and abundance of life. Topics include energy transformation and flow, nutrient cycling, population and community dynamics, human impacts on ecosystems, conservation issues. Laboratory includes field and computer exercises.

Prerequisites: (BIOL 1003 and BIOL 1004), or (BIOL 1103 and BIOL 1104) or permission of the Department.

Lectures three hours a week, laboratory or tutorial four hours a week.

BIOL 2903 [0.5 credit]

**Natural History of Ontario**

Introduction to the remarkable diversity and ecological relationships of Ontario's flora and fauna, which are explored in a habitat context.

Precludes additional credit for BIOL 1903 (no longer offered).

Prerequisite: BIOL 1902.

Lectures three hours a week.

BIOL 2909 [0.0 credit]

**Co-operative Work Term Report**

Practical experience for students enrolled in the Co-operative Option. Students must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded *Sat* or *Uns*.

Prerequisites: registration in the Biology Co-operative Option and permission of the Department.

Four-month work term.

BIOL 3004 [0.5 credit]

**Insect Diversity**

An introductory field, laboratory, seminar and lecture course on sampling, identification, diversity and biology of insects. Designed for anyone who will use insects in any teaching, research or natural history capacity.

Precludes additional credit for BIOL 4601.

Prerequisites: BIOL 2001.

Lectures two hours a week, laboratory four hours a week.

BIOL 3102 [0.5 credit]

**Mycology**

This introductory course will cover the morphology, physiology, life cycles, evolution, ecology and biotechnology of the fungi.

Precludes additional credit for BIOL 3101.

Prerequisites: BIOL 2104.

Lectures three hours a week.

BIOL 3104 [0.5 credit]

**Molecular Genetics**

A lecture course dealing with modern advances in molecular genetics.

Precludes additional credit for BIOL 2105.

Prerequisite: BIOL 2104 or permission of the Department.

Lectures three hours a week.

BIOL 3201 [0.5 credit]

**Cell Biology**

A lecture and laboratory course on the structure, composition, and function of eukaryotic cells.

Prerequisites: BIOL 2104 and BIOL 2200/BIOC 2200, or permission of the Department.

Lectures three hours a week, laboratory four hours a week.

BIOL 3202 [0.5 credit]

**Principles of Developmental Biology**

Introduction to the underlying principles and mechanisms governing development in multicellular animals and plants. Differentiation, growth, morphogenesis, and patterning will be examined at the organismal, cellular, and molecular levels to provide a balanced view of developmental phenomena in key model organisms.

Prerequisites: BIOL 2104 and one of BIOL 2001 or BIOL 2002, or permission of the Department.

Lectures three hours a week.

BIOL 3205 [0.5 credit]

**Plant Biochemistry and Physiology**

A lecture and laboratory course consisting of selected topics in metabolism and physiology of plants, including photosynthesis, nutrient uptake and transport, intermediary and secondary metabolism, germination, growth and development.

Prerequisites: BIOL 2002 and BIOL 2200/BIOC 2200, or permission of the Department.

Lectures three hours a week, laboratory four hours a week.

BIOL 3303 [0.5 credit]

**Experimental Microbiology**

Intensive training in laboratory techniques in microbiology, using bacteria and other microorganisms to demonstrate processes of cell growth, metabolism, gene expression, rapid evolution, gene transfer, microbial community dynamics and interactions with other organisms.

Precludes additional credit for BIOL 3301.

Prerequisites: BIOL 2104, BIOL 2200/BIOC 2200 and BIOL 2303, or permission of the Department.

Lecture/tutorial 1.5 hours a week, laboratory four hours a week.

BIOL 3305 [0.5 credit]

**Human and Comparative Physiology**

The properties of physiological systems and components of animals with emphasis on their physico-chemical bases.

Precludes additional credit for BIOL 3306.

Prerequisites: BIOL 2200/BIOC 2200 and BIOL 2001.

Lectures three hours a week, laboratory four hours a week.

BIOL 3306 [0.5 credit]

**Human Anatomy and Physiology**

The anatomy and physiology of the neuromuscular, cardiovascular, respiratory, and excretory systems of humans with comparison to other animals.

Precludes additional credit for BIOL 3305.

Prerequisites: (BIOL 1003 and BIOL 1004) or (BIOL 1103 and BIOL 1104), and (CHEM 1001 and CHEM 1002) or (CHEM 1005 and CHEM 1006).

Lectures three hours per week.

BIOL 3307 [0.5 credit]

**Advanced Human Anatomy and Physiology**

The anatomy and physiology of the endocrine, skeletal, digestive, immunological, and reproductive systems, with additional emphasis on the embryological origins of the major physiological systems.

Prerequisites: BIOL 3305 or BIOL 3306.

Lectures three hours per week, workshop or laboratory three hours per week.

BIOL 3501 [0.5 credit]

**Biomechanics**

Properties of muscles, tendons, bones, joints and the coordinated use of these structures. Human locomotion and fitness, bird flight, especially the soaring of the vulture and the albatross, and animal migration.

Prerequisites: (BIOL 1003 and BIOL 1004) or (BIOL 1103 and BIOL 1104).

Lectures three hours a week, workshop two hours a week.

BIOL 3601 [0.5 credit]

**Ecosystems and Environmental Change**

Exploration of the unique contribution of the ecosystem approach to ecology, and of early key literature in ecosystem ecology through to current work on global environmental change.

Prerequisite: BIOL 2600.

Lectures three hours a week, laboratory four hours a week in six sessions.

BIOL 3602 [0.5 credit]

**Conservation Biology**

The science of biology as applied to the problem of maintaining species diversity. Topics include: history of conservation biology, valuation of species, indices of biodiversity, extinction, conservation genetics, conservation planning in parks and reserves, landscape ecology and case studies of conservation problems.

Prerequisite: BIOL 2600 or permission of the Department.

Lectures three hours a week and laboratory/workshop three hours a week.

BIOL 3604 [0.5 credit]

**Analysis of Ecological Relationships**

Introduction to the analysis of ecological data. Students analyze real ecological data sets in weekly laboratory sessions. Methods introduced include simple linear, polynomial, and multiple regression analysis, analysis of variance, nonparametric tests, tests of independence and logistic regression analysis.

Prerequisites: BIOL 2600 and STAT 2507. For students in the Environmental Engineering program, ENVE 2002, ENVE 3002, and STAT 3502, which may be taken concurrently.

Lectures one and one-half hours and laboratory two and one-half hours a week.

BIOL 3605 [0.5 credit]

**Field Course I**

An intensive study of living organisms under natural conditions. Credit is based on two weeks of full-time fieldwork with attendant assignments. A wide range of modules is available. Transportation and room and board costs are borne by the student. Also listed as PSYC 3203, for animal behaviour modules only.

Students make take both BIOL 3605 and BIOL 3606 for credit, but neither may be used to repeat a particular module.

Prerequisites: at least one course in BIOL beyond the 1000-level and written permission of the Department. All day, approximately six days a week.

BIOL 3606 [0.5 credit]

**Field Course II**

An intensive study of living organisms under natural conditions. Credit is based on two weeks of full-time fieldwork with attendant assignments. A wide range of modules is available. Transportation and room and board costs are borne by the student. Students may take both BIOL 3605 and BIOL 3606 for credit, but neither can be used to repeat a particular module.

Prerequisites: at least one course in BIOL beyond the 1000-level and written permission of the Department. All day, approximately six days a week.

BIOL 3608 [0.5 credit]

**Principles of Biogeography**

Contemporary and past controls on distribution of plants and animals at global, regional and local scales; significance of these distributions. (Also listed as GEOG 3104.)

Prerequisite: BIOL 2600 or GEOG 1010 or permission of the Department.

BIOL 3609 [0.5 credit]

**Evolutionary Concepts**

Evolution is the change in population properties across generations. Genetic variation, mutation, selection, drift, gene flow, genome evolution, speciation, development, biodiversity, fossils, and macro-evolution.

Prerequisites: BIOL 2104 or permission of the instructor.

Lectures three hours a week.

Courses - Biology (BIOL)

BIOL 3611 [0.5 credit]

**Evolutionary Ecology**

The term "adaptation" is meaningful only with respect to an ecological context. Ecological contexts lead to evolutionary outcomes such as diverse mating systems, ageing, sexual reproduction, sexual dimorphism, geographic variation, phenotypic plasticity, and diverse life histories.

Precludes additional credit for BIOL 4608.

Prerequisite: BIOL 2600.

Lectures three hours a week; one field trip.

BIOL 3612 [0.5 credit]

**Computational Methods in Ecology and Evolution**

Introduction to the development and use of computer programs to address biological problems. Topics include the development of programs to analyse ecological data, models of population dynamics, deterministic chaos, cellular automata, simulations of foraging behaviour and evolutionary computation.

Prerequisites: BIOL 2600 or permission of the Department.

Lectures two hours per week, workshop three hours per week.

BIOL 3801 [0.5 credit]

**Plants and Herbivores**

Exploration of the chemical, physiological, ecological and evolutionary interactions that underlie the relationship between plants and their insect herbivores.

Prerequisites: BIOL 2001 and BIOL 2002.

Lectures/seminars three hours a week.

BIOL 3802 [0.5 credit]

**Animal Behaviour**

Advanced study of animal behaviour including the environmental, genetic, and neural influences on behaviour. Topics such as predator-prey interactions, mating behaviour, migration, parental care and social interactions are interpreted in an evolutionary context.

Prerequisites: BIOL 2001 and BIOL 2600, or permission of the Department.

Lectures three hours a week and workshop/tutorials three hours a week.

BIOL 3804 [0.5 credit]

**Social Evolution**

Diversity in social behaviour from evolutionary and ecological perspectives. Topics include ecological determinants of social living, social networks, social foraging, inclusive fitness, kin selection, altruism, cooperation, and mating systems and strategies.

Prerequisites: BIOL 2001 and BIOL 2600, or permission of the Department.

Lectures: three hours a week.

BIOL 3909 [0.0 credit]

**Co-operative Work Term Report**

Practical experience for students enrolled in the Co-operative Option. Students must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded *Sat* or *Uns*.

Prerequisites: registration in the Biology Co-operative Option and permission of the Department.

Four-month work term.

BIOL 4008 [0.5 credit]

**Molecular Plant Development**

Recent advances in plant development including molecular, biochemical, genomics, and proteomics studies.

Precludes additional credit for BIOL 4100.

Prerequisites: BIOL 2002 or permission of the Department.

Lectures three hours a week.

BIOL 4102 [0.5 credit]

**Molecular Ecology**

The interface of molecular biology, ecology and population biology. Topics include experimental design and a survey and critique of molecular genetic methods to study ecology.

Prerequisite: BIOL 2104 and BIOL 2600; BIOL 3104 or one of BIOL 3601, BIOL 3602 (may be taken concurrently), or permission of the Department.

BIOL 4103 [0.5 credit]

**Population Genetics**

Evolution of gene frequencies, including selection, mutation, genetic drift, inbreeding, gene flow, and population structure.

Precludes additional credit for BIOL 4108.

Prerequisite: BIOL 2104 or permission of the Department. A course in statistics is highly recommended.

Lectures and seminars three hours a week.

BIOL 4104 [0.5 credit]

**Evolutionary Genetics**

A continuation of BIOL 4103 dealing with molecular evidence of evolution, speciation as well as the analysis of biometrical traits.

Precludes additional credit for BIOL 4108.

Prerequisite: BIOL 4103 and BIOL 3609, or permission of the Department. A course in statistics is highly recommended.

Lectures and seminars three hours a week.

BIOL 4106 [0.5 credit]

**Methods in Molecular Genetics**

Review of the use of current techniques in molecular genetics and examination of some innovative new approaches to problems in molecular and cellular biology and biochemistry. Emphasis on genomics and proteomics.

Prerequisites: BIOL 2303 and (BIOL 3104 or BIOL 3201).

Lectures and seminars three hours a week.

BIOL 4109 [0.5 credit]

**Laboratory Techniques in Molecular Genetics**

This laboratory course is complementary to BIOL 4106 and designed to provide practical familiarity with methodology in molecular genetic techniques. The laboratory is suitable for students with a developing interest in problems of molecular and cellular biology and biochemistry.

Prerequisites: BIOL 2200/BIOC 2200 and BIOL 2303 and BIOL 3104 or permission of the Department.

Lecture/laboratory six hours a week in two sessions.

BIOL 4200 [0.5 credit]

**Immunology**

The organization and function of the immune system, including the anatomy of the immune system, the properties and behaviour of cells of the immune system, and the molecular and genetic bases of the immune response. Also listed as BIOC 4200.

Precludes additional credit for BIOL 4302 (BIOC 4302).

Prerequisites: BIOL 3201 or permission of the Department.

Lectures three hours a week.

BIOL 4201 [0.5 credit]

**Animal Cell Culture: Methods and Applications**

Theory and practice of animal cell culture; the use of cultured cells in studies of immune function; and the applications of products of the immune system, such as antibodies. Complementary to BIOL 4200/BIOC 4200. Also listed as BIOC 4201.

Precludes additional credit for BIOL 4302 (BIOC 4302).

Pre-requisites: BIOL 4200/BIOC 4200, which may be taken concurrently, or permission of the Department.

Laboratory four hours per week, tutorial one hour a week.

BIOL 4202 [0.5 credit]

**Mutagenesis and DNA Repair**

A molecular study of mutagenesis and DNA repair. Topics include DNA structure perturbations, spontaneous and induced mutagenesis, the genetics and biochemistry of DNA repair and recombination, and the role of mutagens in the development of genetic disease and cancer. Also listed as BIOC 4202.

Prerequisites: BIOL 3104 and one of: BIOL 2200/BIOC 2200, BIOC 3102 (may be taken concurrently) or permission of the Department.

Lectures two hours a week and workshop two hours a week.

BIOL 4203 [0.5 credit]

**Evolution of Sex**

The evolution of sex, including meiosis, syngamy, sex determination, sex chromosomes, and gender from organismal, genetic, and developmental perspectives; the origin, maintenance, function, and ubiquity of sex.

Prerequisites: one of BIOL 2104 or BIOL 2106, and one of BIOL 3609, BIOL 3611, or BIOL 4103.

Lectures three hours a week.

BIOL 4209 [0.5 credit]

**Advanced Plant Physiology**

An advanced course dealing with recent developments in selected topics of plant physiology.

Precludes additional credit for BIOL 4205.

Prerequisites: BIOL 3205 and CHEM 2203, CHEM 2204 or permission of the Department.

Lectures/discussion three hours a week.

BIOL 4300 [0.5 credit]

**Applied and Environmental Microbiology**

Studies of microbial ecology, physiology, biochemistry and genetics as they apply to microorganisms and microbial communities functioning in natural, agricultural and industrial environments.

Prerequisites: BIOL 2200/BIOC 2200 and BIOL 2303, or permission of the Department.

Lectures and tutorial three hours a week.

BIOL 4301 [0.5 credit]

**Current Topics in Biotechnology**

Explorations of developing biotechnologies in areas such as microbial products, protein engineering, plant genetic engineering, environmental remediation, pharmaceuticals production and medical diagnostics and therapy.

Prerequisites: BIOL 2104 and BIOL 2200/BIOC 2200 or permission of the department.

Lectures and tutorials three hours a week.

BIOL 4306 [0.5 credit]

**Animal Physiology**

A course dealing with recent advances made in particular areas of animal physiology.

Precludes additional credit for BIOL 4305.

Prerequisites: BIOL 3305, CHEM 2203 and CHEM 2204, or permission of the Department.

Lectures two hours a week, workshops or laboratory four hours a week.

BIOL 4317 [0.5 credit]

**Neuroethology: The Neural Basis of Animal Behaviour**

The proximate mechanisms underlying animal behaviour are examined focusing on how nervous systems evolve in response to environmental selection pressures. Topics include genetic and hormonal influences on behaviour (e.g. maternal care), unique sensory worlds (e.g. magnetic), and various levels of neural integration, from simple reflexes to complex social behaviour.

Prerequisites: BIOL 3305, or permission of the Department.

Lectures three hours a week.

BIOL 4318 [0.5 credit]

**Adaptations to Extreme Environments**

Lectures, discussions and student presentations will be used to examine adaptations of animals to extreme environments (e.g. desert) or lifestyles (e.g. diving), at the physiological, biochemical and molecular levels. Emphasis on becoming familiar with the current primary literature.

Prerequisites: BIOL 3305, or permission of the Department.

Lectures three hours a week, workshop two hours a week.

BIOL 4400 [0.5 credit]

**Nuclear Dynamics and The Cell Cycle**

Molecular cell biology of nuclear functions and the eukaryotic cell cycle. Topics may include chromosome architecture and dynamics; nucleocytoplasmic exchange; pre-mRNA processing; ribosome biogenesis; mitotic and meiotic nuclear disassembly and reassembly; and regulation of cell proliferation and cell death. Also listed as BIOC 4400.

Prerequisites: BIOL 3201, or BIOC 3102, or permission of the Department.

Lectures two hours per week; workshop two hours per week.

BIOL 4500 [0.5 credit]

**Ornithology I**

Introduction to ornithology, the study of birds; the evolution of birds, migration, geographic variation, adaptations for flight, feeding, reproduction; extinction and preservation.

Prerequisite: BIOL 2001.

Lectures three hours per week.

BIOL 4501 [0.5 credit]

**Ornithology II**

The taxonomy of birds and species identification are learned through the use of study skins in the lab. Field excursions allow first-hand study of wintering species. Participants must acquire a pair of binoculars and one of the recommended field guides.

Prerequisite: BIOL 4500.

Laboratory/field excursions four hours per week.

BIOL 4503 [0.5 credit]

**Fish Ecology, Conservation and Management**

Introduction to the diversity and environmental biology of the world's fishes. Applied issues in fisheries management, conservation, and aquaculture. Workshops expose students to techniques in fisheries science through hands-on demonstrations and field excursions.

Prerequisites: BIOL 2600 or permission of the Department.

Lectures/seminars two hours a week, plus labs/workshops two hours a week.

BIOL 4603 [0.5 credit]

**Insect Evolution and Biology**

Major questions on the origin, evolution and adaptation of structures and physiology of terrestrial arthropods, especially insects.

Precludes additional credit for BIOL 4600.

Prerequisite: BIOL 3004, or permission of the Department. Lectures two hours a week, laboratory four hours a week.

## Courses - Biology (BIOL)

BIOL 4604 [0.5 credit]

### **Landscape Ecology**

Landscape ecology is the study of how landscape structure affects the abundance and distribution of organisms. The focus of this course is on research methods and results in landscape ecology. Applications in forestry, agriculture, and species conservation. Prerequisites: BIOL 2600 or equivalent, BIOL 3601 or BIOL 3602 or BIOL 3608 or equivalent, and honours standing in Biology, Geography, or Environmental Sciences.

Lecture three hours a week.

BIOL 4802 [0.5 credit]

### **Advanced Animal Behavior**

Contemporary issues in behavioral ecology. Topics may include the relevance of behavioral ecology to conservation biology, to new insights into human social behavior, and will be selected through consultation between professor and students.

Prerequisites: BIOL 3802 or permission of the Department.

Lectures two hours a week, laboratory four hours a week.

BIOL 4900 [1.0 credit]

### **Directed Special Studies and Seminar**

Prerequisite: permission of the Department.

BIOL 4901 [0.5 credit]

### **Directed Special Studies**

Independent or group study, open to third- and fourth-year students to explore a particular topic, in consultation with a Faculty supervisor. May include directed reading, written assignments, tutorials, laboratory or field work.

Prerequisite: permission of the Department. Students normally may not offer more than 1.0 credit of Directed Special Studies in their program.

BIOL 4907 [1.0 credit]

### **Honours Essay and Research Proposal**

An independent critical review and research proposal, using library resources, under the direct supervision of a Faculty advisor. Evaluation is based on a written report and a poster presentation.

Precludes additional credit for BIOL 4908.

Prerequisite: fourth-year standing in an Honours Biology program and permission of the Department.

BIOL 4908 [1.0 credit]

### **Honours Research Thesis**

An independent research project undertaken in the field and/or the laboratory, under the direct supervision of a faculty adviser. Evaluation is based on a written thesis and a poster presentation.

Precludes additional credit for BIOL 4907.

Prerequisite: fourth-year standing in an Honours Biology program and permission of the Department.

BIOL 4909 [0.0 credit]

### **Co-operative Work Term Report**

Practical experience for students enrolled in the Co-operative Option. Students must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded *Sat* or *Uns*.

Prerequisites: registration in the Biology Co-operative Option and permission of the Department.

Four-month work term.

## Business (BUSI)

### Eric Sprott School of Business

#### Notes:

1. B.Com. and B.I.B. students should use Business (BUSI) prefix for registering in courses that are cross-listed with other Carleton units.
2. Business courses listed below are not open to all students. They are offered according to priority set by the school for the year of offering. The priority table can be found at: [sprott.carleton.ca/student-services/advising/printable/registration-priority/](http://sprott.carleton.ca/student-services/advising/printable/registration-priority/)

BUSI 1001 [0.5 credit]

#### Principles of Financial Accounting

Discussion of the concepts of asset valuation and income measurement underlying the preparations and interpretation of financial statements.

Precludes additional credit for BUSI 1004.

Lectures three hours a week.

BUSI 1002 [0.5 credit]

#### Management Accounting

An introduction to the use of accounting data for the purposes of planning and control of operations.

Precludes additional credit for BUSI 1005.

Prerequisite: BUSI 1001.

Lectures three hours a week.

BUSI 1003 [0.5 credit]

#### Survey of Accounting

Introduction to accounting information, the basic accounting cycle, and consideration of selected financial statement topics. Analysis of cost behavior and the uses and limitations of accounting information in planning, controlling and decision-making processes.

No credit for students in B.Com., BIB or B.A. (Honours Economics, Concentration in Financial Economics).

Precludes additional credit for BUSI 1001, 1002, 1004 and 1005.

Lectures three hours a week.

BUSI 1004 [0.5 credit]

#### Financial Accounting for Business Students

Introduction to accounting for business organizations. The student will be introduced to the accounting process and the preparation and analysis of the balance sheet, income statement, and cash flow statement.

Precludes additional credit for BUSI 1001.

Prerequisite: restricted to students registered in the B.Com. and B.I.B.

Lectures three hours and tutorial one hour a week.

BUSI 1005 [0.5 credit]

#### Managerial Accounting for Business Students

Introduction to the development and use of accounting information within a business organization for effective management including: planning, directing, motivating, and controlling activities and behaviours.

Precludes additional credit for BUSI 1002.

Prerequisite: BUSI 1004. Restricted to students registered in B.Com. and B.I.B.

Lectures three hours and tutorial one hour a week.

BUSI 1402 [0.5 credit]

#### Introduction to Business Information and Communication Technologies

Introduction to ICT in organizations. Topics may include spreadsheets, databases, statistical software, website design and implementation, collaboration software including wikis, blogs and social networking, GPS, m-Commerce.

Lectures three hours and tutorials one hour a week.

BUSI 1701 [0.5 credit]

#### Introduction to International Business

An introduction to the principles and practices of international business. Topics include political and cultural differences, trade theory, global marketing, global human resource management and global strategy.

Precludes additional credit for BUSI 2701.

Prerequisite: registration in B.I.B.

Lectures three hours a week.

BUSI 1704 [0.5 credit]

#### Quantitative Methods in Business I

Quantitative tools used in business and economics. Basic review of required concepts. Financial mathematics; linear algebra, linear optimization with applications and matrix algebra with business applications. Basic preparation for the study of calculus.

Precludes additional credit for MATH 0107 and MATH 1119.

Prerequisite: registration in B.I.B.

Lectures three hours and tutorials one hour a week.

BUSI 1705 [0.5 credit]

#### Quantitative Methods in Business II

Differential calculus with applications. Introduction to integral calculus and differential equations with business applications. Notions of probability with application to decision analysis.

Precludes additional credit for MATH 0007 and MATH 1009.

Prerequisite: registration in B.I.B.

Lectures three hours and tutorials one hour a week.

BUSI 1800 [0.5 credit]

#### Introduction to Business

Introduction to contemporary businesses in a complex economy, their role in the society, their history. The various functions that come together to define a business will be examined. All forms of business communications emphasized.

Prerequisite: first-year standing in B.Com.

Lectures three hours, tutorials two hours a week.

BUSI 2001 [0.5 credit]

#### Intermediate Accounting I

An examination of accounting and reporting issues related primarily to asset valuation and revenue recognition.

Prerequisites: BUSI 1001 and BUSI 1002, or BUSI 1004 and BUSI 1005 with a grade of C or higher in each.

Lectures three hours and tutorial one hour a week.

BUSI 2002 [0.5 credit]

#### Intermediate Accounting II

An examination of accounting and reporting issues related primarily to liabilities and equities.

Prerequisite: BUSI 2001 and BUSI 2504 with a grade of C or higher in each.

Lectures three hours and tutorial one hour a week.

BUSI 2005 [0.5 credit]

#### Income Tax Fundamentals

A foundation course that aims to introduce the fundamental concepts of income tax laws and regulations as significant elements in the planning and decision making process of taxpayers and managers. Problems, issues and planning associated with the Income Tax Act are discussed.

Precludes additional credit for BUSI 3005 and BUSI 4005.

Prerequisite: BUSI 1001 or BUSI 1004 with a grade of C- or higher.

Courses - Business (BUSI)

Lecture three hours a week.

BUSI 2101 [0.5 credit]

**Introduction to Organizational Behaviour**

Models of individual and small group behaviour in organizations. Topics include motivation, communication, job design, leadership and group dynamics to provide systematic explanations of employee and managerial behaviour in organizations.

Precludes additional credit for BUSI 3602.

Lectures three hours a week.

BUSI 2204 [0.5 credit]

**Basic Marketing**

Basic problems and practices in marketing. Marketing planning tools and strategies of firms.

Precludes additional credit for BUSI 2208. May not be used for credit toward B.Com. or B.I.B.

Prerequisite: restricted to students enrolled in B.I.D., B.P.A.P.M., Minor in Business, Management Concentration in Engineering, or B.C.S. (Business Stream).

Lectures three hours a week.

BUSI 2208 [0.5 credit]

**Introduction to Marketing**

Overview of the marketing function within the firm. Introduction to key marketing concepts and principles. Covers business environment analysis, strategic decision making (segmentation, targeting, positioning), marketing mix planning (product, price, place promotion). Analysis of marketing problems using cases and major project.

Precludes additional credit for BUSI 2204.

Prerequisites: BUSI 1004, ECON 1000 and one of BUSI 1701, PSYC 1001, PSYC 1002, SOCI 1001, SOCI 1002.

Restricted to students enrolled in B.Com. or B.I.B.

Lectures three hours a week.

BUSI 2301 [0.5 credit]

**Introduction to Operations Management**

Concepts, models, and managerial issues in planning, designing, operating and controlling systems of manufacturing goods or providing services. Emphasis on basic ideas and tools.

Precludes additional credit for BUSI 3300 (no longer offered).

Prerequisite: second-year standing and STAT 2606 (may be taken concurrently).

Lectures three hours a week.

BUSI 2400 [0.5 credit]

**Foundations of Information Systems**

Management issues associated with information systems in organizations. Definition, description, fundamental technologies impacts and development of information systems, and associated ethical issues.

Prerequisite: second-year standing.

Lectures three hours and tutorial one hour a week.

BUSI 2402 [0.5 credit]

**Business Applications Development**

Introduction to programming. Fundamentals of structured and object-oriented programming using an OO programming language. Treatment of objects, abstraction and inheritance, event-driven programming, iteration, sequence and selection. Consideration of algorithms for searching, sorting, string processing and numerical analysis. Emphasis on the development of business applications.

Prerequisite: second-year standing.

Lectures three hours and tutorial one hour a week.

BUSI 2503 [0.5 credit]

**Basic Finance for Non-Business Majors**

Basic issues and practices in finance for students not in the B.Com. or BIB programs. Survey of business firms' financing, investment, and payout decisions. Emphasis on understanding the principals, resources and trade-offs in the financial arena of a business.

No credit for students in B.Com., BIB or B.A. Honours Economics, Concentration in Financial Economics.

Precludes additional credit for BUSI 2504.

Prerequisite: enrolment in Minor in Business or Bachelor of Computer Science (Management and Business Systems Stream).

Lecture three hours a week.

BUSI 2504 [0.5 credit]

**Business Finance I**

Business firms' financing, capital investment, and dividend policy decisions, cost of capital and short-term asset management problems (Also listed as ECON 2504.)

Precludes additional credit for BUSI 2503.

Prerequisites: ECON 1000 or ECOR 3800, BUSI 1002 or BUSI 1005 and registration in B.Com., B.I.B. or B.A. Honours in Economics or Applied Economics with Concentration in Financial Economics, Engineering, B.C.S.

Lectures three hours and tutorial one hour a week.

BUSI 2505 [0.5 credit]

**Business Finance II**

Capital investment and financing decisions in the context of risk and return tradeoffs. Primary and derivative securities, and their role in risk management. Mergers, corporate restructuring, the theory of principal-agent relationships, and financial planning, forecasting, and control. (Also listed as ECON 2505.)

Prerequisites: BUSI 1002 or BUSI 1005, BUSI 2504 with a grade of C or higher in each; ECON 1000 with a grade of C- or higher and one of: (MATH 1009 and MATH 1119) with a grade of C- or higher in each, or (BUSI 1704 and BUSI 1705) with a grade of C or higher in each.

Lectures three hours a week.

BUSI 2601 [0.5 credit]

**Business Law**

The legal system and legal ordering as they affect those engaged in business activities. Emphasis on the law of tort, law of contract, agency and bailment, business associations (partnerships/proprietorships/corporations) and real estate.

Prerequisite: restricted to students enrolled in B.Com. or B.I.B.

Lectures three hours a week.

BUSI 2701 [0.5 credit]

**Fundamentals of International Business**

Introduction to the context and operation of international business. Topics include international trade theory, trade agreements and blocs, international finance, global marketing, international human resource management and global strategy.

Precludes additional credit for BUSI 1701 and BUSI 2702.

Lectures three hours a week.

BUSI 2702 [0.5 credit]

**Introduction to International Management**

Implications of international business for individual and organizational behavior, including the strategy of international business and its effects on organizational structure. Introduces concepts of cross-cultural communication.

Precludes additional credit for BUSI 2701.

Prerequisites: second-year standing and BUSI 1701.



BUSI 3001 [0.5 credit]

**Accounting for Business Combinations**

Accounting problems associated with business combinations, with attention to the preparation of consolidated financial statements. Discussion may extend to financial reporting and diversified companies, reorganizations, etc. Selection of topics may vary from year to year.

Prerequisite: BUSI 2002 with a grade of C- or higher.  
Lectures three hours and tutorials one hour a week.

BUSI 3005 [0.5 credit]

**Taxation I**

Federal income tax laws and regulations and their impact on an individual's financial and business decisions. Problems, issues and planning associated with the Income Tax Act and concerned with the computation of taxable income and taxes payable by an individual are discussed.

Precludes additional credit for BUSI 2005.

Prerequisite: BUSI 2001 with a grade of C- or higher.  
Lectures three hours a week.

BUSI 3007 [0.5 credit]

**Auditing I**

Auditing theory, methodology and application.

Precludes additional credit for BUSI 4007 (no longer offered).

Prerequisite: third-year standing and BUSI 2002 (may be taken concurrently).

Lectures three hours a week.

BUSI 3008 [0.5 credit]

**Intermediate Management Accounting and Control**

The use of accounting information for cost control and performance evaluation. Emphasis is on cost accumulation systems, performance evaluation, control models and analytical tools.

Prerequisites: BUSI 1002 or BUSI 1005 and ECON 2202 or STAT 2607 with a grade of C- or higher in each.

Lectures three hours and tutorial one hour a week.

BUSI 3100 [0.5 credit]

**Behavioural Research and Intervention**

An exploration of research methods in organizations including selecting a mode of data collection, sampling, survey design and execution, survey and interview instruments, interviewing techniques, focus groups and case studies. Implications of various methods for the implementation of their results.

Precludes additional credit for BUSI 3207.

Prerequisites: third-year standing in B.Com and BUSI 2101 with a grade of C or higher, ECON 2201 or STAT 2606, with a grade of C- or higher.

Lecture and laboratory three hours a week.

BUSI 3102 [0.5 credit]

**Introduction to Human Resources Management**

Human Resource Management function in large formal organizations. Topics include human resources planning, recruitment, selection, performance evaluation, career development and training, compensation and benefits and the role of the professional personnel manager.

Prerequisite: second-year standing and one of BUSI 2101, BUSI 2702 or BUSI 3602.

Lectures three hours a week.

BUSI 3103 [0.5 credit]

**Introduction to Organization Theory**

Macro-organization theory. Structuring of organizations in a complex global economy. Effects of the external environment, technology, culture and organizational goals on the structure, processes and effectiveness of the organization.

Precludes additional credit for BUSI 3602.

Prerequisites: second-year standing, and BUSI 2101 or BUSI 2702.

Lectures three hours a week.

BUSI 3104 [0.5 credit]

**Managing Individuals**

The skills of supervising and working with other people, including such topics as interaction styles, self-awareness, listening, persuasive communication, providing feedback, goal setting, delegating, creativity, and managing stress. Extensive use is made of experiential learning.

Prerequisites: third-year standing in B.Com (MPO Concentration), and BUSI 2101 with a grade of C or higher.

Lectures and laboratory three hours a week.

BUSI 3105 [0.5 credit]

**Managing Groups**

The skills of supervising and working with other people, including such topics as group dynamics, leadership, building teams, running meetings, handling conflict, negotiating, and influencing others. Extensive use is made of experiential learning.

Prerequisites: third-year standing in B.Com. (MPO Concentration) and BUSI 2101 with a grade of C or higher.

Lectures and laboratory three hours a week.

BUSI 3204 [0.5 credit]

**Marketing: New Tools and Approaches**

Introduction and assessment of key new marketing tools and approaches, including internet marketing, relationship marketing, direct marketing; effective adoption and implementation of these tools and approaches across industries and organizations.

Prerequisites: third-year standing, and BUSI 2204 or BUSI 2208 with a grade of C- or higher.

Lectures three hours a week.

BUSI 3205 [0.5 credit]

**Marketing Communications**

Promotion as communication process and marketing tool. Integrating advertising, direct/digital marketing, interactive media, sales promotion, public relations, personal selling through strategic planning (research, budgeting, organizing, creative and media strategy), execution, and campaign evaluation. Regulatory, ethical, social issues considerations.

Prerequisite: BUSI 2208 or BUSI 2204 with a grade of C- or higher.

Lectures three hours a week.

BUSI 3207 [0.5 credit]

**Marketing Research**

Concepts essential for understanding and conducting applied marketing research. Methods for collecting, analyzing, and interpreting data relevant to marketing decision-making. Experience in research techniques through case studies, exercises and project.

Precludes additional credit for BUSI 3100.

Prerequisites: BUSI 2204 or BUSI 2208 with a grade of C or higher; STAT 2607 with a grade of C- or higher.

Lectures three hours a week.

BUSI 3208 [0.5 credit]

**Business-to-Business Marketing**

Theories and practice of marketing in business-to-business markets with emphasis on high technology businesses, including strategic marketing management, buyer behaviour and competitive analysis, sales management, new product management, and international issues.

Prerequisite: third-year standing and BUSI 2204 or BUSI 2208 with a grade of C- or higher

Lectures three hours a week.

Courses - Business (BUSI)

BUSI 3301 [0.5 credit]

**Supply Chain Fundamentals**

Managing networks of organizations from suppliers to end-users. Planning and coordination of all activities involved in procurement, conversion, and logistics in the global environment.

Prerequisites: second-year standing; BUSI 2301 or BUSI 3300 (no longer offered), with a grade of C or higher each and STAT 2606 with a grade of C- or higher.

Precludes additional credit for BUSI 4303 (no longer offered).

Lecture three hours a week; tutorials as needed.

BUSI 3305 [0.5 credit]

**Logistics and Transportation**

Overview of logistics and transportation concepts, their roles in creating overall supply chain value. Strategic management and integration on the global basis of core activities, functions, and processes; network design and planning, performance metrics, recent trends in logistics and transportation.

Prerequisite: third-year standing; BUSI 3301 with a C- grade or higher.

Lecture three hours a week, tutorials as needed.

BUSI 3308 [0.5 credit]

**Simulation Methods in Business**

Concepts of computer simulation through case studies, worked examples and hands-on project experience. Generation of random variables, input modeling, model design, analysis of output, and experimental design. Emphasizes static simulations with spreadsheets and discrete-event simulations with specialized software.

Prerequisite: BUSI 2300 with a grade of C or higher and one of ECON 2202 or STAT 2607 with a grade of C- or higher.

Lectures: three hours a week.

BUSI 3309 [0.5 credit]

**Project Management**

Identification, selection, initiation, and organization of projects; risk assessment; project scheduling, performance monitoring and control, and termination. Emphases on foundations, principles and supporting techniques.

Prerequisite: third-year standing, BUSI 2301 and STAT 2606.

Lecture three hours a week, tutorials as needed.

BUSI 3400 [0.5 credit]

**Data and Information Management**

Information management, database administration, Entity-Relationship Model, database development life cycle: planning, analysis, design, implementation, and maintenance of database management systems. Construction of a database. Introduction to SQL, distributed databases, object-oriented databases, and data warehousing.

Precludes additional credit for COMP 3005.

Prerequisites: BUSI 2400 with a grade of C or higher.

Lectures three hours, tutorials one hour a week.

BUSI 3401 [0.5 credit]

**Applications Development for Online Environments**

Analysis, design and implementation of electronic business systems. Topics include advanced object-oriented programming, advanced SQL programming, XML, using ASP.NET, MTS and SQL Server.

Precludes additional credit for BUSI 4401 (no longer offered).

Prerequisites: BUSI 2402 and BUSI 3400, or COMP 1002 and COMP 3005 (with a grade of C- or higher in each).

Lectures three hours a week.

BUSI 3402 [0.5 credit]

**Systems Analysis and Design**

Methods of analysis of computer-based information systems. The systems development life cycle, planning, analysis, design, implementation and maintenance. Structured and object-oriented methods will be used. Use of a CASE tool.

Precludes additional credit for SYSC 3100, BUSI 3403 (no longer offered) and BUSI 3404 (no longer offered).

Prerequisite: one of BUSI 2400, COMP 2004, COMP 2404, or SYSC 2004 (with a grade of C or higher).

Lectures three hours and tutorials one hour a week.

BUSI 3405 [0.5 credit]

**Enterprise Architecture**

Exploration of the significance of cross-functional business processes in the context of e-business transformation. Includes process analysis and modeling techniques. Also considers the application of enterprise resource planning systems, workflow technologies, intranets, and extranets to facilitate process flows inside and outside the organization.

Prerequisite: BUSI 2400 and BUSI 3103 with a grade of C- or higher.

Lectures three hours a week.

BUSI 3500 [0.5 credit]

**Applied Corporate Finance**

An examination of the major issues in corporate finance and applied financial management. Topics include: introduction to portfolio theory, the capital asset pricing model, cost of capital, capital structure and dividend policy, lease financing, capital budgeting under uncertainty, mergers and consolidations.

Prerequisites: BUSI 2504 and BUSI 2505 with a grade of C+ or higher in each, ECON 2020 and STAT 2607 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 3502 [0.5 credit]

**Investments**

Procedures and methods of investment analysis. Stock and bond markets. Government regulation of securities markets. Valuation of common stocks and fixed income securities. Options, warrants, convertibles and commodities.

Prerequisites: BUSI 2504 and BUSI 2505 with a grade of C+ or higher in each and STAT 2607 with a grade of C- or higher.

Lectures three hours a week.

BUSI 3504 [0.5 credit]

**International Finance**

Management of corporate finance as it is affected by the requirements of international business. Issues related to international acquisitions, global investments, volatile exchange rates and hedging techniques. Role of international markets in financing corporate activity.

Prerequisite: BUSI 2504 and BUSI 2505 with a grade of C+ or higher in each.

Lectures three hours a week.

BUSI 3600 [0.5 credit]

**Small Business Management**

Socio-economic functions and activities of the owner-manager entrepreneur and examines the operations and nature of small businesses. Methods and models that are useful in the analysis of a small business enterprise.

Prerequisites: BUSI 2204 or BUSI 2208, and BUSI 2503 or BUSI 2504 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 3601 [0.5 credit]

**Business and its Environment**

Dynamic conditions influencing Canadian business, its organization, management and operations: consumerism and other social groups, technological developments, economic conditions, politico-governmental actions and legislation and contemporary issues such as ecology and pollution.

Prerequisites: ECON 1000 and BUSI 3103 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 3602 [0.5 credit]

**Designing Organizational Systems: An Overview**

Key models and theories of organizational strategy, structure, processes, effectiveness, and individual and group behavior in organizations. Organizational structure, goals, and effectiveness; leadership, motivation and job design.

Precludes additional credit for BUSI 2101 or BUSI 3103. B.P.A.P.M. students with a Minor in Business may count this course as a substitute for BUSI 2101.

Prerequisite: third-year standing in the B.P.A.P.M. program.

BUSI 3700 [0.5 credit]

**Cross-cultural Communication**

Principles of communication across cultural boundaries are applied to both interpersonal and commercial interactions. Critical incidents and commentary are analyzed. Students submit periodic reports, evaluated by the instructor at Carleton.

Prerequisites: restricted to Business students who are participating in an academic exchange of at least one semester.

BUSI 3703 [0.5 credit]

**International and Comparative Management**

Focus on managing large organizations spanning national boundaries, including both domestic firms with international markets and multinational corporations. Difficulties of maintaining communication and control in international operations in disparate cultural settings.

Prerequisites: second-year standing and BUSI 2101 with a grade of C or higher.

Lectures three hours a week.

BUSI 3704 [0.5 credit]

**The Environment of International Business**

Theories linking environmental factors and business strategy as a basis for study of some major factors and institutions shaping international business strategy. International trade patterns, regionalization, shifts in international finance, research and development and transnational data flows.

Prerequisites: third-year standing, and BUSI 2101 or BUSI 2702 with a grade of C or higher and ECON 1000 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 3705 [0.5 credit]

**International Buyer Behaviour**

Behaviour of end-consumers, business and government buyers, and investors in the international context. National, cross-national, and subnational segments and behaviour differences. Adaptation vs. standardisation strategies in the context of socio-psychological, legal, technological, international procurement rules, and other constraints and opportunities.

Prerequisites: third-year standing in B.Com. or B.I.B., BUSI 2204 or BUSI 2208, and BUSI 2702 or BUSI 3703. Lectures three hours a week.

BUSI 3706 [0.5 credit]

**International Business Negotiations**

Introduction to theory and practice of negotiation in the international business context. Analysis of techniques of conflict resolution and improving ways to reach agreements.

Prerequisites: second-year standing and BUSI 2701 or BUSI 2702 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 3800 [0.5 credit]

**Business Case Analysis**

Analysis, solution and presentation of complex business issues through cases.

Prerequisites: minimum 7.0 Major CGPA in B.Com. or B.I.B. and permission of the School.

BUSI 3901 [0.0 credit]

**Co-operative Work Term Report 1**

A comprehensive report is due on the lessons learned in the first work term.

Prerequisites: registration in the Co-op Education Option of the Bachelor of Commerce program and permission of the School of Business.

BUSI 3902 [0.0 credit]

**Co-operative Work Term Report 2**

A comprehensive report is due on the lessons learned in the second work term.

Prerequisites: registration in the Co-op Education Option of the Bachelor of Commerce program, successful completion of BUSI 3901 and permission of the School of Business.

BUSI 3903 [0.0 credit]

**Co-operative Work Term Report 3**

A comprehensive report is due on the lessons learned in the third work term.

Prerequisites: registration in the Co-op Education Option of the Bachelor of Commerce program, successful completion of BUSI 3902 and permission of the School of Business.

BUSI 3904 [0.0 credit]

**Co-operative Work Term Report 4**

A comprehensive report is due on the lessons learned in the fourth work term.

Prerequisites: registration in the Co-op Education Option of the Bachelor of Commerce program, successful completion of BUSI 3903 and permission of the School.

BUSI 3905 [0.0 credit]

**Co-operative Work Term Report 5**

A comprehensive report is due on the lessons learned in the fifth work term.

Prerequisites: registration in the Co-op Education Option of the Bachelor of Commerce program, successful completion of BUSI 3904 and permission of the School of Business.

BUSI 4000 [0.5 credit]

**Accounting Theory**

Evolution of accounting theory with emphasis on concepts of income and current issues.

Prerequisites: BUSI 2002, BUSI 2504, and one of ECON 2202 or STAT 2607 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4002 [0.5 credit]

**Advanced Accounting Problems**

Discussion, analysis, and integration of accounting, auditing, and income tax issues and problems encountered in professional practice. This course builds upon and integrates the knowledge and skills developed in preceding courses.

Prerequisite: fourth-year standing and BUSI 2002 with a grade of C- or higher.

Lectures three hours a week.

## Courses - Business (BUSI)

BUSI 4005 [0.5 credit]

**Taxation II**

An intensive review of federal income tax laws and regulations as significant elements in the planning and decision making process of taxable Canadian corporations. Emphasis on the tax planning function of corporate management and the associated accounting and reporting aspects.

Precludes additional credit for BUSI 2005.

Prerequisite: BUSI 3005 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4008 [0.5 credit]

**Advanced Management Accounting and Control**

Builds on concepts covered in management and cost accounting courses. Integrates relevant issues from other functional areas: strategic uses of cost management, budgeting, and performance evaluation systems in managerial planning and control.

Prerequisite: BUSI 3008 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4009 [0.5 credit]

**Auditing II**

The audit of advanced EDP systems, computer-assisted audit techniques and applications of sampling theory to auditing. Current topics will be discussed.

Prerequisites: BUSI 2400 or COMP 1008, and BUSI 4007 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4103 [0.5 credit]

**Organization Design and Restructuring**

An investigation of macro factors such as organizational structure, coordination and control, power, authority, organizational politics and corporate culture and their impact on effectiveness. Discussion of relevant theories, generation and evaluation of design alternatives and field applications.

Prerequisites: fourth-year standing in B.Com. (MPO Concentration) or B.I.B. (IHRM Concentration), BUSI 3103 with a grade of C- or higher in each

Lectures three hours a week.

BUSI 4104 [0.5 credit]

**Strategic Human Resources Management**

Systems, strategies and practices used to effectively leverage human capital in organizations. How to think strategically about managing human assets, and what must be done to successfully implement these systems, strategies and practices.

Prerequisites: fourth-year standing in MPO Concentration, and BUSI 3102 and BUSI 3103 (with a grade of C- or better in each).

Lecture and field work as needed.

BUSI 4105 [0.5 credit]

**Managing Change**

An overview of current thinking about change management. Topics covered include understanding the forces for and barriers to change, diagnosing the environment around change and implementing change.

Prerequisites: fourth-year standing and BUSI 3103 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4107 [0.5 credit]

**Managing Workforce Diversity**

Issues confronting managers of a diverse workforce. Gender, ethnic diversity, disability, and sexual orientation. Practices which can help organizations to accommodate and benefit from workforce diversity.

Prerequisite: BUSI 3103 or BUSI 3602.

Lectures three hours a week.

BUSI 4108 [0.5 credit]

**Organizational Learning**

Contemporary training and development challenges facing individuals, organizations, and communities and the role of information technology in enhancing individual and collective skills development, capabilities, core competencies, intellectual capital and competitiveness.

Prerequisites: BUSI 3102 and BUSI 3103 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4112 [0.5 credit]

**Organizational Leadership**

Critical examination of theories of leadership and trends in contemporary research; discussion of practical methods for building leadership capacity.

Prerequisites: BUSI 2101 or BUSI 2702, and BUSI 3103 with a grade of C- or higher in each.

Lecture and field work as needed.

BUSI 4119 [0.5 credit]

**Practicum in Management**

Students work on real organizational problems. This experience will allow students to integrate and apply the material learned in previous courses and learn how to manage client relationships.

Precludes additional credit for BUSI 4109 (no longer offered).

Prerequisites: fourth-year standing in B.Com or B.I.B. and BUSI 3103 with a grade of C- or higher.

Lecture and field work as needed.

BUSI 4203 [0.5 credit]

**Marketing In Not-for-Profit Organizations**

Theories and practices of marketing in not-for-profit organizations including government. Similarities and differences between marketing in not-for-profit and for-profit organizations, and the key issues faced by marketers in developing marketing strategies in not-for-profit organizations.

Prerequisite: third-year standing and BUSI 2204 or BUSI 2208 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4205 [0.5 credit]

**International Marketing**

The marketing function in international markets from a managerial perspective. Environments of foreign markets in relation to the marketing management functions of product, price, distribution and communication strategy and marketing research. International expansion methods, joint ventures and other business alliances, and international marketing.

Prerequisites: third-year standing and BUSI 2204 or BUSI 2208 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4206 [1.0 credit]

**Consumer Behaviour**

Traditional socio-psychological theories of consumer behaviour. Current literature and the fundamental theories and concepts from various disciplines. Motivation, personality, perception, learning, communication of innovations, attitude theory, role theory, lifestyle analysis, consumerism.

Prerequisites: third-year standing, and BUSI 2204 or BUSI 2208 with a grade of C or higher.

Lectures three hours a week.

BUSI 4208 [0.5 credit]

**Marketing Management**

In depth analysis and applications of the managerial aspects of marketing. Marketing strategy development and implementation theory and practice.

Prerequisite: BUSI 2208, BUSI 3205 or BUSI 3207 with a grade of C or higher.

Lectures three hours a week.

BUSI 4301 [0.5 credit]

**Decision Models for Managers**

Management science concepts for decision-making with less risk and better outcomes. Emphasis on practical applications in the context of SCM. Model formulation and solving, solutions interpretation and managerial insights. Role of management science in achieving sustainable competitive advantage.

Prerequisite: third-year standing and BUSI 2301 (with a grade of C- or higher).

Precludes additional credit for BUSI 2300, ECON 4005  
Lectures three hours a week.

BUSI 4302 [0.5 credit]

**Management of Quality**

Quality concepts and methods surrounding the definition, mapping, implementation, improvement of business processes in organizations and global supply chains.

Prerequisite: third-year standing, BUSI 3301 and STAT 2606 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4304 [0.5 credit]

**Procurement and Contracting**

Core supply chain procurement processes in the private and public sectors involved in the acquisition of goods and services, including sourcing, purchasing, contracting, supplier collaboration and relationship development and management. Emphasis on concepts, principles, practices, and techniques.

Prerequisite: third-year standing; BUSI 3305 with a C-grade or higher.

Lecture three hours a week.

BUSI 4308 [0.5 credit]

**Construction/Project Management**

Systems approach to project planning and control. Analysis of alternative network planning methods: CPM, precedence and PERT; planning procedure; computer techniques and estimating; physical, economic and financial feasibility; implementation feedback and control; case studies. (Also listed as CIVE 4400.)

Precludes additional credit for BUSI 3309.

Prerequisite: fourth-year standing.

Lectures three hours a week, problem analysis three hours alternate weeks.

BUSI 4309 [0.5 credit]

**Practicum in Supply Chain Management**

Students engage in supply chain management projects for outside clients, perform a systematic audit of the current performance and identify ways in which performance can be improved. The projects provide a thorough in-depth analysis and recommendations.

Prerequisites: fourth-year standing and permission of the School.

Lecture and field work/trip as needed.

BUSI 4400 [0.5 credit]

**IS Strategy, Management and Acquisition**

Comprehensive treatment of current trends and management issues associated with information systems within organizations of local, national and international scope. Issues and techniques of information systems planning, administration, resource management and new technology adoption. Case studies are used.

Prerequisites: fourth-year standing, BUSI 2400 and BUSI 3103 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4402 [0.5 credit]

**Information Systems Practicum**

Students form teams to design and implement a typical business information system. Projects are drawn from actual problems suggested by local business and institutions.

Prerequisites: fourth-year standing and BUSI 3402 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4404 [0.5 credit]

**IT Infrastructure**

Challenges and issues managers face in assembling the infrastructure for IT service delivery. IT Service levels, data communications, networks (LAN, MAN, WAN, wireless), internetworking, SOA, web services, SaaS, server and storage virtualization, network security, business continuity and disaster recovery.

Prerequisites: third-year standing and BUSI 2400 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4406 [0.5 credit]

**Decision Making and Support Systems**

Framework, processes and technology components for building decision support systems. Planning and organizing for DSS, system design and integrating DSS into the organization. Group support systems, expert systems and artificial intelligence, data warehousing and mining. High-level Modeling languages are used.

Prerequisites: fourth-year standing and BUSI 2400 with a grade of C or higher.

Lectures three hours a week.

BUSI 4431 [0.5 credit]

**E-Supply Chain Technology and Management**

The strategic and operational issues of SCM driven by information and communication technologies (ICT). Internet-enabled technology to support the SCM processes both within the firm and across the supply chain in sourcing, producing and delivering.

Prerequisites: third year standing and BUSI 2400 and BUSI 3305 with a grade of C- or higher in each.

Lecture three hours a week and tutorial one hour a week.

BUSI 4500 [0.5 credit]

**Advanced Corporate Finance**

An in-depth examination of some of the major theoretical issues in corporate finance. This course requires analyses and presentations of both articles from the finance literature and case studies. (Also listed as ECON 4500.)

Prerequisite: BUSI 3500 and BUSI 3502 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4502 [0.5 credit]

**Portfolio Management**

Analysis of investment requirements for individuals and institutional investors: liquidity, risk and return; portfolio design, construction, management and control; performance measurement; capital market theory. (Also listed as ECON 4502.)

Prerequisite: BUSI 3500 and BUSI 3502 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4510 [0.5 credit]

**Mergers and Acquisitions**

The theory and practice of mergers and acquisitions; the best ways to analyze, design and implement mergers and acquisitions transactions. A highly practical "planning-based approach" to managing the acquisition process will be employed.

Prerequisite: BUSI 3500 and BUSI 3502 with a grade of C- or higher in each.

Lectures three hours per week.

BUSI 4511 [0.5 credit]

**Fixed Income Analysis**

Valuation of fixed income securities and interest rate derivatives including bonds, mortgage- and asset-based securities. Analytic tools used in bond portfolio and interest rate risk management including yield curve construction, duration and convexity, and term structure models.

Prerequisite: BUSI 3500 and BUSI 3502 with a grade of C- or higher in each.

Lectures three hours per week.

Courses - Business (BUSI)

BUSI 4512 [0.5 credit]

**Derivatives**

Derivative instruments and their use for speculation and hedging. Analysis of different markets where instruments trade, and their characteristics. Pricing models highlighted to determine how individuals and corporations can better manage risk; exotics and newer innovations.

Prerequisite: BUSI 3500 and BUSI 3502 with a grade of C- or higher in each.

Lectures three hours per week.

BUSI 4600 [0.5 credit]

**Entrepreneurial Culture**

The study of entrepreneurs, entrepreneurial companies and business models at the beginning of the 21st century. Steps to success are explored, using the examples of industry leaders and analysis of their common traits. Case studies, guest speakers, and independent student research.

Prerequisite: BUSI 3600.

Lectures three hours a week.

BUSI 4601 [0.5 credit]

**Business Ethics**

Use of ethical reasoning to analyze business decisions. The ethical content of these decisions. The role of ethics in business situations. Practice in ethical reasoning. Major ethical systems.

Precludes additional credit for BUSI 4705.

Prerequisite: fourth-year standing in B.Com.

Lectures three hours a week.

BUSI 4602 [0.5 credit]

**Women in Management**

Organizational and personal challenges arising from changing gender roles and the increased participation of women in management and professional organizational roles.

Prerequisites: third-year standing, and one of: (BUSI 2101 and BUSI 3103) or WOMN 1808 [1.0] with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4604 [0.5 credit]

**European Integration and the Business Environment in East/Central Europe**

The economic and legal environment for business in Central and Eastern Europe in the context of European integration. Regulatory structures, patterns of foreign trade, market characteristics, scientific and technological base and business culture. (Also listed as EURR 4006.)

Prerequisite: fourth-year standing and ECON 3808, PSCI 3207, or BUSI 3601 or permission of the Institute.

Seminar three hours a week.

BUSI 4607 [0.5 credit]

**Management of Technology and Innovation**

Integration of technology and strategy; design of technological strategy; development of new business around new technology; and management of corporate research and development, including pre-competitive consortia.

Prerequisites: third-year standing, and BUSI 2204 or BUSI 2208, and BUSI 3103 with a grade of C- or higher in each.

Lectures three hours a week.

BUSI 4608 [0.5 credit]

**Canadian Business History**

The place of business in Canadian society, economics and politics. The internal dynamics of Canadian business (organization, strategy, the rise of the manager), and its external implications (competition, foreign investment, business-government relations). (Also listed as HIST 3205.)

Prerequisite: fourth-year standing in B.Com. or B.I.B.

Lectures three hours a week.

BUSI 4609 [0.5 credit]

**Strategic Management**

Analysis and evaluation of the organization's corporate and business strategies; integration and synthesis of knowledge acquired in the program by application of acquired functional skills to strategic decision making. Precludes additional credit for BUSI 4709.

Prerequisite: fourth-year standing in B.Com. and successful completion of all 2000- and 3000- level courses in the Major requirement.

Lectures three hours a week.

BUSI 4705 [0.5 credit]

**Ethics and Cross-cultural Interaction**

Perceptions and behaviors that characterize interactions among individuals from various cultural backgrounds, with emphasis on ethical issues that may arise when business crosses cultural boundaries. Various systems, both organizational and individual, for dealing with contrasting expectations are discussed.

Precludes additional credit for BUSI 4601.

Prerequisite: fourth-year standing in B. Com. (International Business Concentration) or B.I.B., and BUSI 2702 or BUSI 3703.

Lectures three hours a week.

BUSI 4706 [0.5 credit]

**International Human Resource Management**

Theoretical and process issues in the recruitment, selection, training, evaluation and repatriation of personnel in multi-country organizations. Issues are examined from the perspective of organizations, expatriates and local employees of multinational firms.

Prerequisite: third-year standing in B.Com. (International Business Concentration) or B.I.B., and BUSI 3102, and one of BUSI 2702 or BUSI 3703.

Lectures three hours a week.

BUSI 4707 [0.5 credit]

**Regionalism and Globalization**

Trends in globalization versus supra- and sub-national regionalism. Role of international institutions (e.g. OECD, WTO). Strategy adaptation and integration within and across trade blocs (e.g. NAFTA, EU, Mercosur, ASEAN). Strategies for sub-national markets with similarities across different countries.

Prerequisite: third-year standing in B.Com. or B.I.B., and BUSI 3703 or BUSI 2702.

Lectures three hours a week.

BUSI 4708 [0.5 credit]

**International Expansion and Operations**

Internationalization process. Methods of international expansion including exporting, greenfield investment, acquisition, joint venture, and licensing. Theories of international market selection, investment location, and market service.

Prerequisite: fourth-year standing in B.Com. or B.I.B., and BUSI 2702 or BUSI 3703.

Lectures three hours a week.

BUSI 4709 [0.5 credit]

**Strategic Management for International Business**

Analysis and evaluation of the organization's global and national strategies. Emphasis on firms' market-entry strategies and on the unique problems of managing in distant and different cultures.

Precludes additional credit for BUSI 4609. Prerequisites: fourth-year standing in B.Com. (International Business Concentration) or B.I.B., and successful completion of all 2000- and 3000-level courses in the Major requirement.

Lectures three hours a week.

BUSI 4717 [0.5 credit]

**Managing Globalization in Emerging Economies**

Critical examination of the managerial and institutional issues of globalization from the perspectives of emerging economies. Indigenous and international institutions' role in the evolution of a competitive and inclusive global economy and society. Discerning lessons of experience for newly globalizing societies.

Prerequisites: fourth year standing in B.Com, BIB, or Minor in Business; ECON 1000

Preclude additional credit for BUSI 4902 (taken in the academic year of 2002-2003, 2003-2004, and 2004-2005).

Lectures three hours a week.

BUSI 4900 [0.5 credit]

**Auditing III**

The fundamental role of auditing and the issues and challenges facing the profession such as comprehensive auditing and auditing small businesses and non-profit organizations. Integration of topics from this course and its prerequisites is accomplished primarily through applications problems.

Prerequisite: BUSI 4007 with a grade of C- or higher.

Lectures three hours a week.

BUSI 4901 [0.5 credit]

**Topics in Management Studies I**

A selected topics course may be offered. Eligibility for this course to serve as an option for specific concentrations is to be established by the School.

Prerequisite: permission of the School of Business.

BUSI 4902 [0.5 credit]

**Topics in Management Studies II**

A selected topics course in a concentration area that may be offered. Eligibility for this course to serve as an option for a specific concentration is to be established by the School.

Prerequisite: permission of the School of Business.

BUSI 4904 [1.0 credit]

**Directed Studies I**

This course provides provide qualified students with the opportunity of carrying out a major research project under the supervision of a faculty member. Students should inquire about procedures for Directed Studies, and about the possibility of counting this credit toward a specified concentration's requirements, in advance of the term in which they intend to register for the course.

Prerequisites: fourth-year standing in B.Com. or B.I.B. and a major CGPA of 10.00 or higher and permission of the School of Business.

BUSI 4905 [0.5 credit]

**Directed Studies II**

This course provides qualified students with the opportunity of carrying out a minor (one-term) research project under the supervision of a faculty member. Students should inquire about procedures for Directed Studies, and about the possibility of counting this credit toward a specified concentration's requirements, in advance of the term in which they intend to register for the course.

Prerequisites: fourth-year standing in B.Com. or B.I.B. and a Major CGPA of 10.00 or higher and permission of the School of Business.

## Canadian Studies (CDNS)

### School of Canadian Studies Faculty of Arts and Social Sciences

CDNS 1000 [1.0 credit]

#### Introduction to Canadian Studies

Introduction to interdisciplinary Canadian Studies and diversity's role in defining Canada. Examination of the relationship between national identity and values in an evolving Canada. Topics include: Indigenous peoples, language and ethnicity, race, technology, gender, the arts, and international relations.

Two hour lecture, one hour weekly discussion group.

CDNS 2000 [0.5 credit]

#### Debating Canada

An in-depth examination of key debates that have shaped the nature of Canada, focusing on major thinkers and the debates their ideas produced. Topics vary annually. Prerequisite: second-year standing or permission of the School of Canadian Studies.

Lectures/groups three hours a week.

CDNS 2210 [0.5 credit]

#### Introduction to the Study of Canadian Culture

The challenges of constructing a national culture in Canada. Topics may include: colonialism and its cultural legacies, cultural nationalism, cultural policies and institutions, popular culture, technology, regionalism, fears of Americanization, gender, multiculturalism, globalization and cultural hybridity.

Precludes additional credit for CDNS 2200.

Prerequisite: second-year standing or permission of the School of Canadian Studies.

Lectures/groups three hours a week.

CDNS 2300 [0.5 credit]

#### Critical Nationalism

This course questions whether a national identity is possible or even desirable within an increasingly diverse and complex Canada. Examination of the construction of Canadian identities, competing nationalisms within Canadian borders and critical evaluation of the role of nationalism.

Prerequisite: second-year standing or permission of the School of Canadian Studies.

Lectures/groups three hours a week.

CDNS 2400 [0.5 credit]

#### Heritage Conservation in Canada

Approaches to heritage conservation. Topics include built heritage, movable heritage, collections and museums, and intangible heritage. Heritage as a source of memory and identity in Canadian and Aboriginal life.

Prerequisite: second-year standing or permission of the School of Canadian Studies.

Lectures/groups three hours a week.

CDNS 2510 [0.5 credit]

#### Introduction to Québec Society

Survey of geographic, historical, demographic, cultural, political and social developments in Québec, from the colonial period to the present. Topics may include the evolving structures and values of Quebec society, cultural productions and policies, relations with English Canada and debates on identity and nationalism. (Also listed as FINS 2510).

Prerequisite: second-year standing or permission of the School of Canadian Studies.

Lectures/groups three hours a week.

CDNS 3000 [0.5 credit]

#### Interdisciplinarity and Canadian Studies Theory and Methods

The development of Canadian Studies and main debates in the field. Study of interdisciplinarity, research ethics, and methodologies. Emphasis on effective writing

and effective verbal communication in relation to the research process.

Prerequisite: third-year standing in Canadian Studies or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3400 [0.5 credit]

#### Feminists and Feminism in Canada

Interdisciplinary examination of feminism's impact on Canadian history, culture and politics, and Canadian approaches to feminism in a global context. Surveys the role of feminist thinkers, activists and organizations in shaping Canadian society.

Prerequisite: third-year standing or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3550 [0.5 credit]

#### Interfaces between English and French Canadian Cultures

Exploration of intercultural encounters between French and English Canadians in political, popular and "official" cultures, through an examination of media, art, music, literature, cinema and the built environment. (Also listed as FINS 3550.)

Precludes additional credit for CDNS 2500 and FINS 2500

Prerequisite: third-year standing or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3600 [0.5 credit]

#### Cultural Politics and Identities in Canada

Interdisciplinary study of questions related to identity, belonging, and Canadianness. Intersections of individual and group dimensions of "being Canadian" and state efforts to define the Canadian identity. Topics may include: religion, sexuality, immigrant and diasporic relations, race and ethnicity, region, nationalisms, and multiculturalism.

Prerequisite: third-year standing or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3610 [0.5 credit]

#### The Canadian Political Economy Tradition

An examination of the political economy tradition in Canada, looking at explanations of Canada's political, economic, social and cultural development, and Canada's evolving position in the global economy.

Prerequisite: third-year standing or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3700 [0.5 credit]

#### Cultural Traditions in Canada

Aspects of cultural heritage, folklore and/or cultural traditions in Canadian folk art, music, dance, storytelling and performance. The genesis of these various expressions, and the cultural contexts that have ensured their survival.

Prerequisite: third-year standing or permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 3901 [0.5 credit]

#### Selected Topics in Canadian Studies

Topics vary from year to year.

Prerequisite: permission of the School of Canadian Studies.

Seminar three hours a week.

CDNS 4000 [0.5 credit]

#### Capstone Seminar in Advanced Research in Canadian Studies

Emphasis on refining analytic and research skills, including teamwork skills and using knowledge to solve problems outside the university. Students will engage in a collective research project in partnership with a local, national or international organization.



Prerequisite: CDNS 3000 and fourth-year standing in Canadian Studies or permission of the School of Canadian Studies.  
Seminar three hours a week.

CDNS 4010 [0.5 credit]

**Language, Culture, and Power in Canada**

The relationship between language use and political, economic, and cultural power in Canada. Topics may include cultural and linguistic pluralism, bilingualism, Aboriginal language revitalization, discourses of endangerment, the role of media and the state and in legitimizing language use.

Prerequisite: fourth-year standing or permission of the School of Canadian Studies.  
Seminar three hours a week.

CDNS 4200 [0.5 credit]

**Canadian Popular Culture**

An interdisciplinary seminar using cultural studies methods to explore how popular cultural texts, images, rituals and practices are constructed, disseminated, regulated, consumed and reappropriated by Canadian institutions, corporations, cultural groups and individuals.

Prerequisite: fourth-year honours standing, or permission of the School.  
Seminar three hours a week.

CDNS 4300 [0.5 credit]

**Communities in Canada**

Exploration of the concepts of community in a Canadian context. Analysis of the diverse communities that define contemporary society and major issues such as community development, cultural survival and integration versus assimilation.

Prerequisite: fourth-year honours standing or permission of the School of Canadian Studies.  
Seminar three hours a week.

CDNS 4400 [0.5 credit]

**Cultural Landscape and Cultural Identity in Canada**

Cultural landscape appreciation and the development of Canadian individual and collective cultural identities, through the lenses of history, geography, planning, and representational/literary sources of expression. Cultural landscapes as a tool for understanding physical and mental landscapes and their shaping of identity.

Precludes additional credit for CDNS 3200.  
Prerequisite: fourth-year honours standing or permission of the School of Canadian Studies.  
Seminar three hours a week.

CDNS 4500 [0.5 credit]

**Canada and the World**

Interdisciplinary examination of Canada's role in the global political economy and its impact on issues such as work, community, public services, and the state.

Precludes additional credit for CDNS 3301.  
Prerequisite: fourth-year honours standing or permission of the School of Canadian Studies.  
Seminar three hours a week.

CDNS 4510 [0.5 credit]

**Québec Studies**

Advanced seminar focusing on selected aspects of Québec history, society, culture and/or politics. (Also listed as FINS 4510.)

Precludes additional credit for CDNS 3510 or FINS 3510  
Prerequisite: Fourth-year standing and CDNS 3500, FINS 3500 or permission of the School of Canadian Studies.  
Seminar three hours a week.

CDNS 4800 [1.0 credit]

**Internship Practicum**

Practicum placements are available in institutional settings, primarily in the Ottawa area. Students must meet regularly with the academic evaluator and submit a final written report. A maximum of 1.0 practicum credits may be taken in fulfillment of Canadian Studies requirements.

Precludes additional credit for CDNS 3800, CDNS 3801, CDNS 3802 and CDNS 3803

Prerequisite: permission of the School and fourth-year Honours standing in a Canadian Studies program.

CDNS 4801 [0.5 credit]

**Internship/Practicum**

For course description, see CDNS 4800.

Precludes additional credit for CDNS 3800, CDNS 3801, CDNS 3802 and CDNS 3803.

Prerequisites: permission of the School and fourth-year Honours standing in a Canadian Studies program.

CDNS 4802 [0.5 credit]

**Internship/Practicum**

For course description, see CDNS 4800.

Precludes additional credit for CDNS 3800, CDNS 3801, CDNS 3802 and CDNS 3803.

Prerequisite: permission of the School and 4th year Honours standing in a Canadian Studies program.

CDNS 4901 [0.5 credit]

**Selected Topics in Canadian Studies**

Topics vary from year to year.

Prerequisite: permission of the School of Canadian Studies.

CDNS 4902 [0.5 credit]

**Selected Topics in Canadian Studies**

Topics vary from year to year.

Prerequisite: permission of the School of Canadian Studies.

CDNS 4903 [0.5 credit]

**Études dirigées I**

Cours facultatif offert seulement aux étudiants de quatrième année Honours en Études canadiennes (*Mention : Français*). Ce cours comprend des lectures dirigées et des travaux écrits dans un domaine relié aux Études canadiennes.

Prerequisite: permission of the School of Canadian Studies.

CDNS 4904 [0.5 credit]

**Études dirigées II**

Cours facultatif offert seulement aux étudiants de quatrième année Honours en Études canadiennes (*Mention : Français*). Ce cours comprend des lectures dirigées et des travaux écrits dans un domaine relié aux Études canadiennes.

Prerequisite: permission of the School.

CDNS 4905 [0.5 credit]

**Directed Studies I**

An optional course normally restricted to fourth-year Honours students in Canadian Studies and to Qualifying-year Graduate students. Includes supervised reading and written work in a Canadian Studies area.

Prerequisite: permission of the School of Canadian Studies.

CDNS 4906 [0.5 credit]

**Directed Studies II**

An optional course normally restricted to fourth-year Honours students in Canadian Studies and to Qualifying-year graduate students. Includes supervised reading and written work in a Canadian Studies area.

Prerequisite: permission of the School of Canadian Studies.

CDNS 4907 [1.0 credit]

**Directed Studies III**

An optional course normally restricted to fourth-year Honours students in Canadian Studies and to Qualifying-year graduate students. Includes supervised reading and written work in a Canadian Studies area.

Prerequisite: permission of the School of Canadian Studies.

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## Centre for Initiatives in Education (CIED)

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**Centre for Initiatives in Education  
Faculty of Arts and Social Sciences**

CIED 2100 [1.0 credit]

**Academic Discourse: Theory and Practice**

Inquiry into the theoretical nature of academic language, with emphasis on the social nature of academic writing. Incorporates practical strategies for understanding and enhancing growth in writing.

Prerequisite: restricted to returning students in the Enriched Support Program.

Seminar three hours a week.

## Chemistry (CHEM)

Department of Chemistry  
Faculty of Science

CHEM 1001 [0.5 credit]

### General Chemistry I

This maths-intensive course covers introduction to periodicity, gas laws, equilibrium, bonding, electrochemistry, and organic chemistry. This is a specialist course for students intending to take second year chemistry.

Precludes additional credit for CHEM 1000 (no longer offered), CHEM 1005, CHEM 1101.

Prerequisite: Ontario 4U/M in Chemistry or equivalent. Lectures three hours a week, laboratory and tutorial three hours a week.

CHEM 1002 [0.5 credit]

### General Chemistry II

This maths-intensive course covers an introduction to solution chemistry, acids and bases, thermodynamics, and kinetics. Specialist course for students intending to take second year chemistry.

Precludes additional credit for CHEM 1000 (no longer offered), CHEM 1006.

Prerequisite: CHEM 1001 or CHEM 1005 with a minimum grade of B-.

Lectures three hours a week, laboratory and tutorial three hours a week.

CHEM 1003 [0.5 credit]

### The Chemistry of Food, Health and Drugs

Aspects of chemistry relating to food, food additives, drugs (both illicit and beneficial) and their relation to metabolism and health. Topics may include: proteins, carbohydrates, fats, vitamins and cofactors, enzymes, steroids, electrolyte and pH balance, trace elements.

Available only as a free option for Science students.

Prerequisite: a course in Chemistry (e.g. Ontario Grade 11).

Lectures three hours a week.

CHEM 1004 [0.5 credit]

### Drugs and the Human Body

Intended for students with little or no background in Science. Topics include the pharmaceutical industry, the placebo effect, origin of drugs, laws, metabolism, drug dependence, over the counter medications, antibiotics, pain killers, stimulants, alcohol, caffeine and nicotine, marijuana, hallucinogens, birth control and steroids. Available as a free elective only for Science students. Lectures three hours a week.

CHEM 1005 [0.5 credit]

### Elementary Chemistry I

Introduction to stoichiometry, periodicity, gas laws, equilibrium, bonding, and organic chemistry with emphasis on examples of relevance to the life sciences. For students who lack the prerequisite for CHEM 1001 or who are not intending to take upper year chemistry. Precludes additional credit for CHEM 1000 (no longer offered), CHEM 1001, CHEM 1101.

Lectures three hours a week, laboratory and tutorial three hours a week.

CHEM 1006 [0.5 credit]

### Elementary Chemistry II

Introduction to solution chemistry, acids and bases, thermodynamics, and kinetics, with emphasis on examples of relevance to the life sciences. For students who lack the prerequisite for CHEM 1002 or who are not intending to take upper year chemistry.

Precludes additional credit for CHEM 1000 (no longer offered), CHEM 1002.

Prerequisite: CHEM 1001 or CHEM 1005.

Lectures three hours a week, laboratory and tutorial three hours a week.

CHEM 1007 [0.5 credit]

### Chemistry of Art and Artifacts

Aspects of chemistry relating to art history and archaeology. Topics include the properties of materials of historical and cultural importance, the nature of colour, the properties of such materials and the chemical and physical processes leading to their deterioration. The course requires only minimal previous chemistry, and gives descriptions which are aimed at students who do not have an extensive science background. Available only as a free elective for Science students.

Lectures three hours a week.

CHEM 1101 [0.5 credit]

### Chemistry for Engineering Students

Topics include stoichiometry, atomic and molecular structure, thermodynamics and chemical equilibrium, acid-base chemistry, carbon dioxide in water, alkalinity, precipitation, electrochemistry, kinetics and basic organic chemistry. Laboratory component emphasizes techniques and methods of basic experimental chemistry.

Precludes additional credit for CHEM 1000 (no longer offered), CHEM 1001, and CHEM 1005.

Prerequisites: Ontario 4U/M in Chemistry or equivalent.

Lectures three hours a week, laboratory three hours a week.

CHEM 2103 [0.5 credit]

### Physical Chemistry I

Basic principles of thermodynamics. Development of the laws of thermodynamics, enthalpy, entropy and free energy, and their applications to phase equilibria, electrochemistry, and kinetics. Brief introduction to quantum mechanics.

Precludes additional credit for BIOC 2300, CHEM 2101 and CHEM 2102. Students presenting both CHEM 2103 and CHEM 2207 or CHEM 2203 will not receive additional credit for CHEM 2800. Students in the B.Sc. program with CHEM 2203 may use CHEM 2800 only as a free elective.

Prerequisites: CHEM 1002 or CHEM 1006 with a minimum grade of B-, MATH 1007 and MATH 1107, Grade 12 Physics or PHYS 1007, and PHYS 1008.

Lectures three hours a week, problems one hour a week, laboratory three hours a week.

CHEM 2203 [0.5 credit]

### Organic Chemistry I

Structure, organization, and scope of organic chemistry including molecular structures of well-known and important organic chemicals, types of chemical reactions, and spectroscopic methods used in identification. Training in the handling and purification of organic compounds, organic chemical reactions, and the use of infrared spectroscopy.

Precludes additional credit for CHEM 2200 and CHEM 2207. Students presenting both CHEM 2203 and CHEM 2101 will not be able to receive additional credit for CHEM 2800. Students in the B.Sc. program with CHEM 2203 will only be able to use CHEM 2800 in the free elective category, except for students in the Environmental Science Program, who may include CHEM 2203 in the Approved Science Course category while maintaining CHEM 2800 as a mandatory course requirement.

Prerequisite: CHEM 1002 or CHEM 1006 with a minimum grade of B-.

Lectures three hours a week, laboratory and tutorial three hours a week.

CHEM 2204 [0.5 credit]

**Organic Chemistry II**

Further discussion of chemical bonding in organic compounds, nomenclature, stereochemistry, and a systematic coverage of the chemical reactions of organic functional groups. Laboratory experience in organic chemical reactions, use of infrared spectroscopy and other techniques to determine the structure of unknown organic compounds. Precludes additional credit for CHEM 2208 and CHEM 2206.

Prerequisite: CHEM 2200 or CHEM 2203.

Lectures three hours a week, laboratory and tutorial three hours a week.

CHEM 2206 [0.5 credit]

**Organic Chemistry IV**

Further discussion of the chemical bonding in organic compounds, nomenclature, stereochemistry, and a systematic coverage of the chemical reactions of the organic functional groups. The laboratory consists of computational experiments and calculations on organic structures and reactions.

Precludes additional credit for CHEM 2200, CHEM 2204, and CHEM 2208.

Prerequisite: CHEM 2203 or CHEM 2207.

Lectures three hours a week, laboratory and tutorial three hours a week.

CHEM 2207 [0.5 credit]

**Introduction to Organic Chemistry I**

Structure, organization, and scope of organic chemistry, including molecular structures of well-known and important organic chemicals, types of chemical reactions, and spectroscopic methods used in identification.

Precludes additional credit for CHEM 2200 and CHEM 2203. Students presenting both CHEM 2207 and CHEM 2101 will not be able to receive additional credit for CHEM 2800. Students in the B.Sc. program with CHEM 2207 will only be able to use CHEM 2800 in the free elective category, except for students in the Environmental Science Program, who may include CHEM 2207 in the Approved Science Course category while maintaining CHEM 2800 as a mandatory course requirement.

Prerequisites: CHEM 1002 or CHEM 1006 with a minimum grade of B-.

Lectures three hours, tutorial one hour a week.

CHEM 2208 [0.5 credit]

**Introduction to Organic Chemistry II**

Further discussion of the chemical bonding in organic compounds, nomenclature, stereochemistry, and a systematic coverage of chemical reactions of the organic functional groups.

Precludes additional credit for CHEM 2200, CHEM 2204 and CHEM 2206.

Prerequisite: CHEM 2207 or CHEM 2203.

Lectures three hours a week, tutorial one hour a week.

CHEM 2302 [0.5 credit]

**Analytical Chemistry**

Analytical measurement process. Sampling and sample preparation techniques. Instrumental methods of analysis including absorption spectrophotometry (UV-visible, IR), molecular fluorimetry, atomic spectrometry, inductively coupled plasma atomic emission and ion chromatography. Experimental methodologies for various organic, inorganic, geological and industrial analyses.

Precludes additional credit for CHEM 2300.

Prerequisites: CHEM 1002 or CHEM 1006 with a minimum grade of B- , or CHEM 1101, MATH 1007 and MATH 1107.

Lectures three hours a week, laboratory three hours a week.

CHEM 2303 [0.5 credit]

**Analytical Chemistry**

Analytes in biological and environmental matrices are separated by solvent or solid phase extraction, before they are determined by chromatographic, mass spectrometric and electrochemical methods. Topics of social and economic interests will be covered, including drugs, food, lipids, proteins, pesticides, dioxins, and PCBs.

Precludes additional credit for CHEM 2300 and CHEM 2301.

Prerequisites: CHEM 1002 or CHEM 1006 with a minimum grade of B- , or CHEM 1101, MATH 1007 and MATH 1107.

Lectures three hours a week, laboratory three hours a week.

CHEM 2501 [0.5 credit]

**Introduction to Inorganic and Bioinorganic Chemistry**

The basic concepts of inorganic chemistry, including the origins of elemental properties, simple theories of bonding, intermolecular forces, main group and transition metal chemistry, coordination chemistry. Inorganic ions in biochemistry, including ion transport and storage, oxygen carriers and hydrolases, redox proteins.

Precludes additional credit for CHEM 3506.

Prerequisite: CHEM 1002 or CHEM 1006 with a minimum grade of B-.

Lectures three hours a week, tutorial one hour a week.

CHEM 2800 [0.5 credit]

**Foundations for Environmental Chemistry** A basis of chemistry needed to understand the environment: composition of the atmosphere and natural waters; equilibrium; surface properties; kinetics and spectroscopy; physical and chemical properties of chemicals in the environment. This is a limited enrolment course; therefore top priority will be given to students registered in the Environmental Science program.

Students in the B.Sc. program with CHEM 2203 or CHEM 2207 will only be able to use CHEM 2800 in the free elective category, except for students in the Environmental Science program, who may include CHEM 2203 or CHEM 2207 in the Approved Science Course category while maintaining CHEM 2800 as a mandatory course requirement.

Prerequisites: CHEM 1002 or CHEM 1006 with a minimum grade of B- , or CHEM 1101, MATH 1007.

Lectures three hours a week, laboratory three hours a week.

CHEM 2909 [0.0 credit]

**Co-operative Work Term Report 1**

These work terms provide practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer and in their written and oral reports. Graded *Sat* or *Uns*.

Prerequisites: Registration in the Chemistry Co-operative option and permission of the Department.

CHEM 3100 [0.5 credit]

**Physical Chemistry II**

Further development of thermodynamic equations and their applications to mass changes, chemical potential, chemical equilibria, transport properties and advanced phase equilibria. Use of partial differentials and development of Maxwell's relations will also be covered.

Precludes additional credit for CHEM 2102.

Prerequisite: CHEM 2103 or BIOC 2300, and MATH 1005 or MATH 2007.

Lectures three hours a week, problems one hour a week, laboratory three hours a week.

CHEM 3101 [0.5 credit]

**Quantum Chemistry**

Classical equations of motion, harmonic oscillator, diatomic and polyatomic molecules, molecular mechanics, quantum mechanics, Schrödinger equation and wave functions, vibrational spectra, hydrogen atom, quantum numbers, electronic spectra, bonding in small molecules.

Prerequisites: CHEM 2103, MATH 2007 and MATH 2008.

Lectures and problems three hours a week.

CHEM 3102 [0.5 credit]

**Methods of Computational Chemistry**

Molecular orbital theory of organic and inorganic chemistry. Applications of computational chemistry to chemical bonding, aromaticity, molecular spectra. Semi-empirical and ab initio electronic structure theory. Comparison of theoretical methods used to obtain molecular properties. Introduction to statistical thermodynamics.

Prerequisite: CHEM 3101.

Lectures and problems three hours a week.

CHEM 3106 [0.5 credit]

**Computational Chemistry Methods Laboratory**

Industry-standard quantum chemistry software is used for Hartree-Fock, density functional, and post Hartree-Fock correlation calculations. Results are applied to problems in molecular structure, thermodynamics, vibrational spectroscopy, and kinetics. The UNIX operating system, Bourne-shell programming, and Python scripting are also introduced.

Prerequisite: CHEM 3102 (may be taken concurrently).

Laboratory four hours a week.

CHEM 3107 [0.5 credit]

**Experimental Methods in Nanoscience**

Thin film production and characterization, scanning electron microscopy, synthesis of metal nanoparticles and particle size determination, computational modeling of nanostructures.

Prerequisites: CHEM 3100.

Laboratories and tutorials four hours a week.

CHEM 3201 [0.5 credit]

**Advanced Organic Chemistry I**

Instrumental methods for determining organic structures. Selected organic reactions with emphasis on mechanisms and reactive intermediates.

Prerequisite: CHEM 2204 or CHEM 2206 or CHEM 2208.

Lectures three hours a week.

CHEM 3202 [0.5 credit]

**Advanced Organic Chemistry II**

Continued mechanistic survey of additional organic reactions with emphasis on synthetic usefulness and stereochemistry. Interspersed with selected topics such as instrumental methods, photochemistry, literature of organic chemistry, natural and synthetic polymers, heterocycles, terpenes and alkaloids.

Prerequisite: CHEM 3201 or equivalent.

Lectures three hours a week.

CHEM 3205 [0.5 credit]

**Experimental Organic Chemistry**

A laboratory-based course including advanced concepts and techniques in organic synthesis, structure determination, and the rates and mechanisms of reactions. Students are responsible for literature surveys, acquisition of theoretical background, and design of experimental procedures.

Prerequisite: CHEM 2204 or CHEM 2206, CHEM 3201 or BIOC 3101 (may be taken concurrently).

Note: withdrawal from CHEM 3201 will require deregistration from CHEM 3205.

Laboratory four hours a week.

CHEM 3305 [0.5 credit]

**Advanced Analytical Chemistry Laboratory**

Advanced instrumentally based techniques of analysis. Emphasis on identification and quantitation of low-level contaminants in environmental matrices using chromatographic and spectroscopic methods, including sampling, cleanup, measurement and reporting of results.

Prerequisites: CHEM 2302 and CHEM 2303.

Laboratory four hours a week.

CHEM 3401 [0.5 credit]

**Physical Aspects of Biochemistry**

Chemistry, structure and function of nucleic acids, proteins, carbohydrates, and lipids. Thermodynamics of biological systems, chemical mechanisms and organic transformations. Intended for Chemistry Majors.

Prerequisite: CHEM 2103 and CHEM 2204

Precludes additional credit for BIOC 2200, BIOL 2200, and BIOC 3101

Lectures three hours a week.

CHEM 3503 [0.5 credit]

**Inorganic Chemistry I**

Symmetry, identification of Raman and infrared active vibrations, symmetry-adapted molecular orbital theory of polyatomic molecules, electron deficient bonding, bonding in coordination complexes, solid state bonding, ionic lattices. Laboratory will introduce the student to a range of synthetic techniques and physical methods of characterization.

Precludes additional credit for CHEM 3507.

Prerequisite: CHEM 2501.

Lectures three hours a week, laboratory and tutorial four hours a week.

CHEM 3504 [0.5 credit]

**Inorganic Chemistry II**

Physical properties of coordination complexes, ligand substitutions and electron transfer reaction mechanisms, organometallic chemistry: bonding, nomenclature and catalysis. Laboratory will introduce the student to a range of synthetic techniques and physical methods of characterization.

Precludes additional credit for CHEM 3508.

Prerequisite: CHEM 3503.

Lectures three hours a week, laboratory and tutorials four hours a week.

CHEM 3507 [0.5 credit]

**General Inorganic Chemistry I**

Symmetry, identification of Raman and infrared active vibrations, symmetry-adapted molecular orbital theory of polyatomic molecules, electron deficient bonding, bonding in coordination complexes, solid state bonding, ionic lattices.

Precludes additional credit for CHEM 3503.

Prerequisite: CHEM 2501.

Lectures three hours a week, tutorial one hour a week.

CHEM 3508 [0.5 credit]

**General Inorganic Chemistry II**

Physical properties of coordination complexes, ligand substitutions and electron transfer reaction mechanisms, organometallic chemistry: bonding, nomenclature and catalysis.

Precludes additional credit for CHEM 3504.

Prerequisite: CHEM 3503 or CHEM 3507.

Lectures three hours a week, tutorial one hour a week.

CHEM 3600 [0.5 credit]

**Introduction to Nanotechnology**

Nanoscale units, bulk vs. nanoproperties, electrons, atoms and ions, metals, band structure, electrical conduction, biosystems, molecular devices, quantum mechanics and optics, tools for measuring nanostructures. Production of nanostructures: self assembly, nanoscale crystal growth, polymerization. Applications to sensors, magnets, electronics, drug delivery. Toxicology of nanostructures.

Prerequisites: CHEM 3100.

Lectures three hours a week.

CHEM 3700 [0.5 credit]

**Industrial Applications of Chemistry**

Uses of chemistry in a number of industries: fertilizers, electrochemical, metallurgical, petrochemical, pulp and paper, plastics, pharmaceutical. Interaction of chemistry with economic, political, engineering, environmental, health, legal considerations. Guest lecturers.

Prerequisite: CHEM 2103 and one of CHEM 2207 or CHEM 2203.

CHEM 3800 [0.5 credit]

**The Chemistry of Environmental Pollutants**

Inorganic and organic environmental pollutants: their toxicology, production, use pattern and known effects on the environment. Aspects of risk and regulation. Chemistry involved in water and sewage treatment.

Prerequisite: CHEM 2207 or CHEM 2203 or CHEM 2800.

Lectures three hours a week.

CHEM 3909 [0.0 credit]

**Co-operative Work Term Report 2**

These work terms provide practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer and in their written and oral reports. Graded *Sat* or *Uns*. Prerequisites: registration in the Chemistry Co-operative option and permission of the Department.

CHEM 4100 [0.5 credit]

**Advanced Topics in Physical Chemistry I**

Principles of Group Theory as applied to Chemistry. Point groups, character tables, symmetry orbitals, molecular orbitals, aromaticity, allowed and forbidden reactions, sandwich complexes. Selection rules in spectroscopy, molecular vibrations.

Prerequisites: CHEM 3102 or PHYS 3602.

Lectures three hours a week.

CHEM 4102 [0.5 credit]

**Advanced Topics in Physical Chemistry II**

Statistical thermodynamics, energy states, equilibrium, partition functions for diatomic molecules. Chemical kinetics: rate laws, solution of differential equations, transition state theory, bimolecular reactions in gases and in solution, chain reactions, catalysis, atmospheric chemical reactions and photochemistry.

Prerequisite: CHEM 3102.

Lectures and seminars three hours a week.

CHEM 4103 [0.5 credit]

**Surface Chemistry and Nanostructures**

Surface structure, thermodynamics and kinetics, specifically regarding adsorption/desorption and high vacuum models. Nanoscale structures and their formation, reactivity and characterization. Thin films, carbon nanotubes, self-assembled monolayers and supramolecular aggregates.

Prerequisites: CHEM 3600 and CHEM 3107.

Lectures three hours a week.

CHEM 4104 [0.5 credit]

**Physical Methods of Nanotechnology**

An overview of methods used in nanotechnology. Principles of scanning probe techniques ranging from surface physics to biology. State of the art methods to create nanostructures for future applications in areas such as nanolithography, nanoelectronics, nano-optics,

data storage and bio-analytical nanosystems.

Prerequisites: CHEM 3600 and CHEM 3107.

Lectures three hours a week.

CHEM 4201 [0.5 credit]

**Macromolecular Nanotechnology**

Biological and synthetic macromolecules related to nanoscale phenomena. Challenges and opportunities associated with natural and synthetic polymers on the nanoscale. Molecular recognition, self-assembled nanostructures, scaffolds and templates, functional nanomaterials, amphiphilic architectures, nanocomposites, and nanomachines. Applications to sensing, biomaterials, drug delivery, and polymer based devices.

Prerequisite: CHEM 3600 or permission of the department.

CHEM 4203 [0.5 credit]

**Synthetic Organic Chemistry**

The application of reactions to the synthesis or organic molecules. Emphasis on design of synthetic sequences, new reagents, and stereoselectivity. Topics include advanced methods for synthesis and reactions of alkenes, carbonyls, and enolates. Functional group interconversion, oxidation and reduction, protecting groups, rearrangements, and metal-catalyzed cross-coupling are also discussed.

Prerequisites: CHEM 3201 and CHEM 3202. Lectures and seminars three hours a week.

CHEM 4204 [0.5 credit]

**Organic Polymer Chemistry**

Introduction to basic principles of polymer chemistry, industrial and synthetic polymers, different types of polymerization and polymer characterization. Study of commodity plastics, engineering thermoplastics, and specialty polymers, with emphasis on their synthesis. Also offered at the graduate level, with additional or different requirements, as CHEM 5406, for which additional credit is precluded.

Prerequisites: CHEM 3201 or equivalent. Lectures three hours a week.

CHEM 4205 [0.5 credit]

**Reactivity and Mechanism in Organic Chemistry**

The application of frontier molecular orbital theory (HOMO-LUMO interactions) to organic reactions, including thermal and photochemical cycloadditions of pi-systems (including 1,3-dipoles) and rearrangements. Reactions of radicals and carbenes; conformational analysis, stereochemical effects, and methods for the determination of reaction mechanisms.

Prerequisites: CHEM 3202 and CHEM 3503 (may be taken concurrently).

Lectures and seminars three hours a week.

CHEM 4206 [0.5 credit]

**Natural Products Chemistry**

A survey of the major classes of natural products with respect to their structural elucidation, synthesis, biosynthesis and bioactivity, with emphasis on compounds that have medicinal importance.

Prerequisites: CHEM 3201 and CHEM 3202,

Lectures and seminars three hours a week.

CHEM 4301 [0.5 credit]

**Advanced Topics in Analytical Chemistry I**

Trace and ultratrace analytical chemistry. Sampling and sample preservation. The problems of the blank. Trace and ultratrace analysis. Sampling and sample preparation. Atomic absorption, fluorescence and emission spectroscopy.

Prerequisites: CHEM 2103 and one of CHEM 2302 or CHEM 2303.

Lectures and seminars three hours a week.

CHEM 4302 [0.5 credit]

**Advanced Topics in Analytical Chemistry II**

Solutions and separations in analytical chemistry. Stability of aqueous solutions of standards and samples. Complex formation, multi-step and competing equilibria and their application to the design of selective methods of separation and determination. Electroanalytical techniques. Electroanalytical chemistry of aqueous solutions. Phase equilibria and solvent extraction.

Prerequisites: CHEM 2103 and one of CHEM 2302 or CHEM 2303.

Lectures and seminars three hours a week.

CHEM 4304 [0.5 credit]

**Advanced Applications In Mass Spectrometry**

Detailed breakdown of the physical, electrical and chemical operation of mass spectrometers. Examination of the different mass spectrometric geometries / configurations that are currently employed. Applications in mass spectrometry ranging from the analysis of small volatile organic molecules to large non-volatile biological macromolecules. Descriptions of the use of mass spectrometry in industry as well as commercial opportunities in the field.

Prerequisites: CHEM 2103 or BIOC 2300, and one of CHEM 2302 or CHEM 2303.

Lectures and seminars three hours a week.

CHEM 4406 [0.5 credit]

**Pharmaceutical Drug Design**

Important elements of rational drug design. Ligand-receptor interactions, structure-activity relationships, molecular modeling of pharmacophores, structure and mechanism-based approaches to drug design. Enzyme inhibition in chemotherapy and design of anti-viral drugs.

Prerequisite: CHEM 2103 and (CHEM 2203 or CHEM 2207), BIOC 3101 and (BIOC 3102 or BIOC 3008).

Lectures and laboratory five hours a week.

CHEM 4407 [0.5 credit]

**Polymer Modeling**

Polymer architectures; Flexible and rigid rod polymers; Rotational isomeric states (RIS); Molecular mechanics, Ramachandran Map, Helix parameters; internal and external parameters; regular and random coil structures; molecular dynamics; calculation of end-to-end distance, NMR chemical shifts; conformational entropy and properties.

Prerequisite: MATH 1107 and CHEM 2204 or permission of the department.

Lectures three hours per week.

CHEM 4502 [0.5 credit]

**Radiochemistry**

A study of nuclear stability and decay; chemical studies of nuclear phenomena. Applications of radioactivity.

Prerequisites: CHEM 2302, CHEM 2303, and CHEM 3100, or permission of the Department.

Lectures and seminars three hours a week.

CHEM 4503 [0.5 credit]

**Advanced Topics in Inorganic Chemistry I**

Static and dynamic structures of inorganic coordination compounds. Group-theoretical description of vibrational and electronic excited states. Ligand-field, parameters, bond covalence, prediction of inorganic reaction paths.

Precludes additional credit for CHEM 4500.

Prerequisite: CHEM 3504 or equivalent.

Lectures three hours a week.

CHEM 4504 [0.5 credit]

**Advanced Topics in Inorganic Chemistry II**

Reactivity of inorganic coordination compounds. Thermodynamic and kinetic factors affecting reactivity. Industrial and biochemical processes catalyzed by metal coordination compounds. Experimental methodologies, data analysis and rate law evaluation used to obtain reaction mechanisms leading to improved methods of catalysis.

Prerequisite: CHEM 3504 or equivalent.

Lectures three hours a week.

CHEM 4700 [0.5 credit]

**Special Topics in Chemistry**

A topic of current interest in any branch of chemistry. Only one special topics course may be presented for credit.

Prerequisite: permission of the Department.

CHEM 4800 [0.5 credit]

**Atmospheric Chemistry**

Properties of natural atmospheric constituents; biogeochemical cycles involving gases; chemical reactions in the atmosphere; anthropogenic atmospheric pollutants (e.g., chlorofluorocarbons, sulphur and nitrogen oxides, photochemical smog sources and effects on the biosphere. Relation between the structure of molecules and their spectral and reactive properties.

Prerequisite: CHEM 2103 or CHEM 2800.

Lectures three hours a week.

CHEM 4907 [1.0 credit]

**Honours Essay and Research Proposal**

An independent research study using library resources. The candidate will prepare a critical review of a topic approved by a faculty advisor.

Precludes additional credit for CHEM 4908 [1.0], FOOD 4907 [1.0] and FOOD 4908 [1.0].

Prerequisite: fourth year standing in an Honours Chemistry program and permission of the department.

CHEM 4908 [1.0 credit]

**Research Project and Seminar**

Senior students in Honours Chemistry carry out a research project under the direction of one of the members of the Department. A written report and an oral presentation of the work are required before a grade can be assigned.

Precludes additional credit for CHEM 4907, FOOD 4907 and FOOD 4908.

Prerequisites: any two of CHEM 3106, CHEM 3107, CHEM 3205, CHEM 3305 and CHEM 3504.

Laboratory and associated work equivalent to at least eight hours a week for two terms.

CHEM 4909 [0.0 credit]

**Co-operative Work Term Report 3**

These work terms provide practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer and in their written and oral reports. Graded *Sat* or *Uns*.

Prerequisites: registration in the Chemistry Co-operative option and permission of the Department.

## Child Studies (CHST)

Child Studies Committee  
Institute of Interdisciplinary Studies  
Faculty of Arts and Social Sciences

CHST 1000 [0.5 credit]

### Childhood in the Global Context

How diversity, complexity, and changes in the community, home, and school environments impact on children's lives. Socio-political perspectives, cultural belief systems, and the global community will be examined within the framework of different discourses of childhood and youth.

Lecture three hours per week.

CHST 2503 [0.5 credit]

### Issues in Child Studies I

An interdisciplinary approach to Child Studies focusing on issues associated with children and childhood. Emphasis is on developing academic skills and understanding methods of study employed by various disciplines, including psychology and sociology. Precludes additional credit for CHST 2501 or CHST 2502 (no longer offered).

Prerequisite: restricted to students in the Child Studies program.

Seminar three hours a week.

CHST 2504 [0.5 credit]

### Issues in Child Studies II

An interdisciplinary approach to issues in the area of Child Studies focusing on issues associated with children and childhood. Topics may include theoretical approaches to childhood, children's rights, and the impact of gender on childhood, non-traditional families and childhood sexuality. Research ethics are introduced. Precludes additional credit for CHST 2501 or CHST 2502 (no longer offered).

Prerequisite: restricted to students in the Child Studies program.

Seminar three hours a week.

CHST 3100 [0.5 credit]

### Seminar on Special Research Problems in Social Sciences

This is a research-oriented honours seminar that focuses on special problems in the Social Sciences.

Prerequisite: third-year Honours in Child Studies or permission of the Institute.

CHST 3901 [0.5 credit]

### Themes in Interdisciplinary Inquiry

Examination of topics of interest to a number of disciplines, along with various methods and styles of thought used to study them. Students will synthesize the various perspectives.

Prerequisite: third-year standing in Child Studies or permission of the Institute.

Seminar three hours a week.

CHST 4908 [1.0 credit]

### Honours Project

Interdisciplinary research project for Honours students in the fourth year of Child Studies. In selecting a project, students must consult their program coordinator. Only the program coordinator can assign a supervisor or grant approval to register in this course.

Prerequisite: fourth-year standing in the B.A. Honours Child Studies program and permission of the program coordinator.

## Chinese (CHIN)

School of Linguistics and Language Studies  
Faculty of Arts and Social Sciences

### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

CHIN 1010 [0.5 credit]

### First-Year Mandarin Chinese I

For students with no knowledge of Mandarin. Oral skills; basic reading and writing skills. Placement test for non-literate speakers of other Chinese languages. Not open to students already literate in any Chinese language. Compulsory attendance.

Precludes additional credit for CHIN 1100 (no longer offered) and CHIN 1110.

Four hours a week (one term).

CHIN 1020 [0.5 credit]

### First-Year Mandarin Chinese II

Continuation of first-year Mandarin Chinese. Oral skills; basic reading and writing skills. Compulsory attendance.

Precludes additional credit for CHIN 1100 (no longer offered) and CHIN 1110.

Prerequisite: grade of C or higher in CHIN 1010, or permission of the School.

Four hours a week (one term).

CHIN 1110 [1.0 credit]

### Intensive First-Year Mandarin Chinese

For students with no knowledge of Mandarin Chinese. Oral skills; basic reading and writing skills. Placement test for non-literate speakers of other Chinese languages. Not open to students already literate in any Chinese language. Compulsory attendance.

Precludes additional credit for CHIN 1100 (no longer offered), CHIN 1010 and CHIN 1020.

Eight hours a week (one term).

CHIN 2110 [1.0 credit]

### Intensive Second-Year Mandarin Chinese

Further study of Mandarin Chinese to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance.

Precludes additional credit for CHIN 1100 and CHIN 1101 (no longer offered).

Prerequisite: grade of C or higher in CHIN 1020 or CHIN 1110, or permission of the School.

Eight hours a week (one term).

CHIN 3010 [0.5 credit]

### Third-Year Mandarin Chinese I

Continuation of the study of Mandarin Chinese to reach a more advanced level, including ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.

Precludes additional credit for CHIN 2100 (no longer offered).

Prerequisite: grade of C or higher in CHIN 1100, CHIN 1101, or CHIN 2110, or permission of the School.

Three hours a week.



CHIN 3020 [0.5 credit]

**Third-Year Mandarin Chinese II**

Continuation of third-year Mandarin Chinese. Progress toward reaching a more advanced level, including ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance. Precludes additional credit for CHIN 2100 (no longer offered).

Prerequisite: grade of C or higher in CHIN 3010, or permission of the School.  
Three hours a week.

CHIN 4010 [0.5 credit]

**Fourth-Year Mandarin Chinese I**

Development of speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes and in specific contexts such as the academic, business and technical domains. Compulsory attendance.

Precludes additional credit for CHIN 3100 (no longer offered).

Prerequisite: grade of C or higher in CHIN 3020 or CHIN 2100, or permission of the School.

Three hours a week.

CHIN 4020 [0.5 credit]

**Fourth-Year Mandarin Chinese II**

Continuation of fourth-year Mandarin Chinese. Further development of speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes and in specific contexts such as the academic, business and technical domains. Compulsory attendance.

Precludes additional credit for CHIN 3100 (no longer offered).

Prerequisite: grade of C or higher in CHIN 4010, or permission of the School.

Three hours a week.

CHIN 4210 [0.5 credit]

**Functional Contemporary Mandarin Chinese I**

Further study of Mandarin Chinese to reach a more advanced level, aimed at developing speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes in contexts such as the academic, business and technical domains.

Precludes additional credit for CHIN 4100 (no longer offered).

Prerequisite: grade of C or higher in CHIN 3100 (no longer offered), CHIN 4020 or permission of the School.

Three hours a week.

CHIN 4220 [0.5 credit]

**Functional Contemporary Mandarin Chinese II**

Continuation of CHIN 4210. Further development of speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes in contexts such as the academic, business and technical domains.

Precludes additional credit for CHIN 4100 (no longer offered).

Prerequisite: grade of C or higher in CHIN 4210 or permission of the School.

Three hours a week.

CHIN 4900 [1.0 credit]

**Independent Study**

Research in a topic in Mandarin Chinese language, literature or linguistics under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing in the Minor in Mandarin Chinese, grade of C or higher in CHIN 4020 or CHIN 3100 or equivalent, and permission of the School.

CHIN 4901 [0.5 credit]

**Independent Study**

Research in a topic in Mandarin Chinese language, literature or linguistics under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing in the Minor in Mandarin Chinese, grade of C or higher in CHIN 4020 or CHIN 3100 or equivalent, and permission of the School.

## Civil Engineering (CIVE)

### Civil and Environmental Engineering Faculty of Engineering

CIVE 2004 [0.5 credit]

#### GIS, Surveying, and Graphics

Engineering geometry and spatial graphics. Structural engineering drawings and computer aided drafting. Fundamentals of surveying, measuring horizontal and vertical distances and angles. Topographic and construction surveys. GPS and electronic surveying. Geographic information systems, data, data structure and processing, spatial referencing, cartographic modeling, application software.

Precludes additional credit for CIVE 1004.

Lectures three hours a week, problem analysis and laboratories three hours a week.

CIVE 2005 [0.5 credit]

#### Architectural Technology 2

Technical issues involved in architectural design of buildings from ancient times to the present. Technological innovation and materials related to structural developments, and the organization and design of structures. Basic concepts of calculus, equilibrium, and mechanics of materials.

Precludes additional credit for CIVE 1005.

Prerequisite: ARCC 2202.

Lectures three hours a week, laboratory three hours a week.

CIVE 2101 [0.5 credit]

#### Mechanics II

Plane trusses. Virtual work. Friction. Relative motion of particles. Kinematics of a rigid body: translation, rotation; general plane motion; absolute and relative motion. Kinetics of a rigid body: equations of motion; work-energy; impulse-momentum; conservation of momentum and energy. Conservative forces and potential energy.

Precludes additional credit for MAAE 2101 and ECOR 2101.

Prerequisites: ECOR 1101 and MATH 1004 and MATH 1104.

Lectures three hours a week, problem analysis three hours a week.

CIVE 2200 [0.5 credit]

#### Mechanics of Solids I

Stress and strain. Stress-strain relationship: Hooke's law. Torsion of circular shafts. Bending moment and shear force distribution. Flexural stresses. Deflection. Shear stress in beams. Stresses in thin-walled cylinders. Transformation of 2D stress and strain: Mohr's circle. Buckling of columns.

Precludes additional credit for MAAE 2202.

Prerequisite: ECOR 1101 for B.Eng. students or CIVE 2005 for B.A.S. with Concentration in Conservation and Sustainability.

Lectures three hours a week, problem analysis and laboratory three hours a week.

CIVE 2700 [0.5 credit]

#### Civil Engineering Materials

Introduction to material science. Structure of atoms. Crystallography. Crystal Imperfections. Characteristics, behaviour and use of Civil Engineering materials: steel, concrete, asphalt, wood, polymers, composites. Specifications. Physical, chemical and mechanical properties. Quality control and material tests.

Fatigue. Corrosion. Applications in construction and rehabilitation of structures.

Prerequisites: CHEM 1002 or CHEM 1101 or equivalent, MATH 1004, and PHYS 1004 for students in an Engineering program or second-year standing in B.A.S. major in Conservation and Sustainability.

Lectures three hours a week, problem analysis and laboratory three hours a week.

CIVE 3202 [0.5 credit]

#### Mechanics of Solids II

Shear flow. Definition of shear centre, Saint Venant and warping torsional constants. Behaviour, governing differential equations and solutions for torsion, beam-columns, lateral torsional buckling of doubly symmetric beams, axially loaded doubly symmetric, singly symmetric and asymmetric columns. Failure criterion, fatigue and fracture.

Precludes additional credit for CIVE 4404 and MAAE 3202.

Prerequisite: CIVE 2200.

Lectures three hours a week, laboratory/problem analysis three hours alternate weeks.

CIVE 3203 [0.5 credit]

#### Introduction to Structural Analysis

Concepts and assumptions for structural analysis: framed structures; joints; supports; compatibility and equilibrium; stability and determinacy; generalized forces and displacements. Principle of Virtual Work: unknown force calculations; influence lines. Complementary Virtual Work: displacement calculations, indeterminate analysis. Introduction to the Stiffness Method of Analysis.

Prerequisite: CIVE 2200 and MATH 1004.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 3204 [0.5 credit]

#### Introduction to Structural Design

Building systems and structural form. Design Philosophy and design process. Limit states design. National Building Code of Canada. Determination of dead, live, snow, wind, and earthquake loads.

Prerequisite: CIVE 2200 (concurrent).

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 3205 [0.5 credit]

#### Design of Structural Steel Components

Introduction to CAN/GSA - S16, design and behaviour concepts; shear lag, block shear, local plate buckling, lateral torsional buckling, instantaneous centre, inelastic strength and stability. Design of tension members, axially loaded columns, beams, beam-columns, simple bolted and welded connections.

Prerequisites: CIVE 2200 and CIVE 3204.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 3206 [0.5 credit]

#### Design of Reinforced Concrete Components

Introduction to CAN/CSA - A23.3; design and behaviour concepts; flexural analysis at service loads; shear, bond, Whitney stress block, under and over reinforced behaviour, ultimate strength. Flexural design of singly reinforced, doubly reinforced T-beams, and one-way slabs. Shear design for beams. One-way and two-way slab building systems, columns.

Prerequisites: CIVE 2200 and CIVE 3204.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 3207 [0.5 credit]

#### Historic Site Recording and Assessment

Methods of heritage documentation including hand recording, photography, rectified photography, total station, gps, photogrammetry, and laser scanning. Non-destructive testing techniques; environmental

assessment tools for determining air quality and energy efficiency. Multidisciplinary teams for all project work. (Also listed as ARCN 3100.)

Prerequisites: third-year standing in B.Eng. in Architectural Conservation and Sustainability or third-year standing in B.A.S. Concentration in Conservation and Sustainability.

Lectures three hours a week, lab or field work two hours a week.

CIVE 3208 [0.5 credit]

#### **Geotechnical Mechanics**

Soil composition and soil classification. Soil properties, compaction, seepage and permeability. Concepts of pore water pressure, capillary pressure and hydraulic head. Principle of effective stress, stress-deformation and strength characteristics of soils, consolidation, stress distribution with soils, and settlement. Laboratory testing. (Also listed as EARTH 4107).

Prerequisites: EARTH 2404 or equivalent and third-year standing in Engineering, or permission of the Department.

Lectures three hours a week, laboratory three hours alternate weeks.

CIVE 3304 [0.5 credit]

#### **Transportation Engineering and Planning**

Transportation and the socio-economic environment; modal and intermodal systems and components; vehicle motion, human factors, system and facility design; traffic flow; capacity analysis; planning methodology; environmental impacts; evaluation methods. (Also listed as GEOG 4304.)

Prerequisite: third-year standing in Engineering, or permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4200 [0.5 credit]

#### **Matrix Analysis of Framed Structures**

Review of basic structural concepts. Betti's law and applications. Matrix flexibility method, flexibility influence coefficients. Development of stiffness influence coefficients. Stiffness method of analysis: beams; plane trusses and frames; space trusses and frames. Introduction to the finite element method.

Prerequisite: CIVE 3203.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4201 [0.5 credit]

#### **Finite Element Methods in Structural Analysis**

Introduction to theory of elasticity. Simple finite elements. Virtual Work formulation of equilibrium of structure and element. Lagrange interpolation and basis for displacement shape functions. Considerations in finite element modeling. Plate bending theories and analysis. Shell theories and analysis.

Also offered, at the graduate level with additional or different requirements, as CIVE 5103 for which additional credit is precluded.

Prerequisite: CIVE 4200.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4202 [0.5 credit]

#### **Wood Engineering**

Structural design in timber. Properties, anatomy of wood, wood products, factors affecting strength and behaviour, strength evaluation and testing. Design of columns, beams and beam-columns. Design of trusses, frames, glulam structures, plywood components, formwork, foundations, connections and connectors. Inspection, maintenance and repair. (Also listed as ARCC 4202.)

Prerequisite: fourth-year status in Engineering or permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4208 [0.5 credit]

#### **Geotechnical Engineering**

Strength of soils, steady state seepage, flownets and piping. Stress distribution in soils. Earth pressures: at rest, active and passive. Design of flexible and rigid retaining structures. Stability of excavations, slopes and embankments. Settlement of foundations. Bearing capacity of footings.

Prerequisite: CIVE 3208.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4209 [0.5 credit]

#### **Highway Engineering**

Highway planning; highway location and geometric design; traffic engineering; highway capacity; soil classifications; subgrade and base materials; highway drainage; frost action; structural design of rigid and flexible pavements; highway economics and finance; maintenance and rehabilitation.

Prerequisites: CIVE 2004, CIVE 3304 and CIVE 3208.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4301 [0.5 credit]

#### **Foundation Engineering**

A critical study of the theories in soil mechanics and their application to the solution of geotechnical engineering problems. Field investigations, laboratory and field testing, shallow foundations, special footings, mat foundations, pile foundations and excavations. Discussion of new methods and current research.

Prerequisite: CIVE 4208.

Lectures three hours a week, laboratory three hours alternate weeks.

CIVE 4302 [0.5 credit]

#### **Reinforced and Prestressed Concrete Design**

Reinforced concrete shear and torsion design. Two-way slab design by Direct Design and Equivalent Frame Method. Behaviour and design of slender reinforced concrete columns. Prestressed concrete concepts; flexural analysis and design; shear design; anchorage zone design; deflection and prestress loss determination.

Prerequisite: CIVE 3203 and CIVE 3206.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4303 [0.5 credit]

#### **Urban Planning**

A systematic approach to urban planning; urban sprawl; data collection; forecasting; standards; space requirements; land use; zoning; transportation; land development; site selection; land capability; layout; evaluation; housing; urban renewal and new towns. (Also listed as GEOG 4303.)

Prerequisite: third-year status in Engineering, or permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4307 [0.5 credit]

#### **Municipal Hydraulics**

Fluid flow fundamentals. Hydraulics of pipe systems. Open channel flow. Prediction of sanitary and storm sewage, flow rates. Design of water distribution systems, culverts, sanitary and storm sewers. Pumps and measuring devices. Hydraulic and flow control structures.

Prerequisite: MAAE 2300.

Lectures three hours a week, problem analysis 1.5 hours each week.

CIVE 4308 [0.5 credit]

#### **Behaviour and Design of Steel Structures**

Behaviour and design of open web steel joists, steel

Courses - Civil Engineering (CIVE)

and composite decks, composite beams and columns, stud girders, and plate girders. Design of moment connections, base plates and anchor bolts, and bracing connections. Stability of rigid and braced frames. Design for lateral load effects.

Prerequisites: CIVE 3205 and fourth-year status in Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4400 [0.5 credit]

**Construction/Project Management**

Systems approach to project planning and control. Analysis of alternative network planning methods: CPM, precedence and PERT; planning procedure; computer techniques and estimating; physical, economic and financial feasibility; implementation feedback and control; case studies. (Also listed as BUSI 4308.)

Prerequisite: fourth-year status in Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4403 [0.5 credit]

**Masonry Design**

Introduction to structural design in masonry. Properties of masonry materials and assemblages. Behaviour and design of beams, walls and columns. Selected topics including veneer wall systems, differential movement, workmanship, specifications, inspection, maintenance and repair. Lowrise and highrise building design.

Also offered, at the graduate level with additional or different requirements, as CIVE 5200, for which additional credit is precluded. Prerequisite: fourth-year status in Engineering or permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4407 [0.5 credit]

**Municipal Engineering**

Introduction to fundamentals of municipal engineering. Water quality: physical, chemical and biological parameters. Water treatment: softening mixing, flocculation, sedimentation, filtration, disinfection, fluoridation. Biological processes. Wastewater treatment: primary, secondary and tertiary treatment. Sludge disposal and wastewater reuse. Solid waste management.

Prerequisite: fourth-year status in Engineering.

Lectures three hours a week, problem analysis 1.5 hours each week.

CIVE 4500 [0.5 credit]

**Computer Methods in Civil Engineering**

Advanced software development for Civil Engineering applications. Examples may be chosen from surveying, transportation, geotechnical and/or structural engineering. Software technologies include object-oriented programming, data base management, Internet-based applications and graphical user interfaces. Also offered, at the graduate level with additional or different requirements, as CIVE 5602 for which additional credit is precluded.

Prerequisites: ECOR 2606 and fourth-year status in Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

CIVE 4601 [0.5 credit]

**Building Pathology and Rehabilitation**

Deterioration mechanisms for concrete, timber, steel and masonry structures. Identification of design deficiencies; criteria for selection and design of rehabilitation systems. Design techniques to reduce deterioration in new construction and historical structures. (Also listed as ARCN 4200.)

Prerequisites: fourth-year standing in B.Eng. in Architectural Conservation and Sustainability or

fourth-year standing in B.A.S. concentration in Conservation and Sustainability.

Lectures three hours a week, lab/field work two hours a week.

CIVE 4614 [0.5 credit]

**Building Fire Safety**

Understanding fire-structure interaction and the concepts of fire severity and resistance; behaviour of steel, concrete, and timber buildings exposed to fires; compartment fire dynamics; correlations and computer models to predict fire dynamics; fire retardants; laboratory-scale fire experiments; performance-based approach for building fire safety design.

Prerequisites: fourth-year status in Engineering, or permission of the Department.

Lectures three hours a week, problem analysis and laboratories three hours alternate weeks.

CIVE 4907 [1.0 credit]

**Engineering Project**

A major project in engineering analysis, design, development or research carried out by individual students or small teams. The objective is to provide an opportunity to develop initiative, self-reliance, creative ability and engineering judgment. A project proposal, an interim report, an oral presentation, and a comprehensive final report are required.

Prerequisites: fourth-year status in Engineering, or permission of the department.

CIVE 4908 [0.5 credit]

**Design Project**

Teams of students develop professional level experience through a design project that incorporates fundamentals acquired in previous mathematics, science, engineering, and complementary studies courses. A final report and oral presentations are required.

Prerequisite: fourth-year status in Engineering.

Lectures one hour a week, problem analysis three hours a week.

## Classical Civilization (CLCV)

College of the Humanities  
Faculty of Arts and Social Sciences

CLCV 1002 [0.5 credit]

### Survey of Greek Civilization

Introduction to the study of Greek antiquity and the discipline of Classics and its methodologies. Greek culture and society are set in their historical contexts and studied through readings from representative ancient authors (in English translation) and through the art and architecture of the period.

Precludes additional credit for CLCV 1000, and CLCV 1109.

Lecture three hours a week.

CLCV 1003 [0.5 credit]

### Survey of Roman Civilization

An introduction to the study of Roman antiquity and the discipline of Classics and its methodologies. The culture and society will be set in their historical context and studied through readings from representative ancient authors (in English translation) and through the art and architecture of the period.

Precludes additional credit for CLCV 1000 and CLCV 1109.

Lecture three hours a week.

CLCV 2000 [1.0 credit]

### Classical Mythology

A study of Greek and Roman myths, emphasizing their use in Classical literature, art and religion. Some discussion of the influence of Classical myth in Western tradition and modern theoretical approaches to the study of myth. (All texts used are in English). (Also listed as ENGL 2007).

Prerequisite: second-year standing or registration in the B.Hum. program or permission of the unit.

Lecture three hours a week.

CLCV 2009 [1.0 credit]

### Greek & Roman Literary Genres

A study through English translation of the various genres of Greek and Latin literature, especially those which influenced later European writings: epic, drama, the ode, pastoral poetry, satire. (Also listed as ENGL 2009.)

Prerequisite: second-year standing or permission of the unit.

Lecture three hours a week.

CLCV 2102 [0.5 credit]

### Graeco-Roman Religions

A study of religion in the ancient Mediterranean, concentrating on the rise of individualism, life after death, mystery religions, hero cults, gnosticism, asceticism, and magic. (Also listed as RELI 2734.)

Lecture three hours a week.

CLCV 2300 [1.0 credit]

### Introduction to Archaeology

The interrelation of archaeology and anthropology, history, classics, art history, etc. Techniques of field archaeology such as stratigraphy, air photography, surveying, Carbon 14, typology and seriation, underwater archaeology, laboratory analysis; and the organization and administration of a major excavation.

Prerequisite: second-year standing or permission of the unit.

Lecture three hours a week.

CLCV 2302 [0.5 credit]

### Greek & Roman Art & Archaeology

The art, architecture and archaeology of Greece and Rome. Vase painting, sculpture, Greek and Roman architecture, town planning and analogous arts are studied. (Also listed as ARTH 2100.)

Prerequisite: second-year standing or permission of the Department.

Lecture three hours a week.

CLCV 2305 [1.0 credit]

### Ancient Science and Technology

The development and application of ancient science and technology in the fields of ancient engineering, machinery, metallurgy, transport, building, agriculture and Hippocratic medicine; the social position of craftsmen and artisans, the attitude of intellectuals to science and manual labour, the effects of slavery. This course is suitable for students with no previous knowledge of Greece or Rome. (Also listed as TSES 2305).

Prerequisite: second-year standing or permission of the Department.

Lecture three hours a week.

CLCV 2405 [0.5 credit]

### Greek and Roman Sexuality

Examination of attitudes to sexuality in Ancient Greece and Rome, and how they constructed notions of gender. Prerequisites: second-year standing or permission of the Department.

Lecture three hours a week.

CLCV 2600 [0.5 credit]

### Old Persian

Old Persian grammar and reading cuneiform and transliterated texts. Assumes no prior knowledge of Old Persian.

Prerequisite: permission of the department.

Lecture three hours per week.

CLCV 2900 [1.0 credit]

### History of Ancient Greece

The history of classical Greece to the conquest of Asia by Alexander with special attention to the development of its characteristic institutions. (Also listed as HIST 2900.)

Prerequisite: second-year standing or permission of the unit.

Lecture three hours a week.

CLCV 2901 [1.0 credit]

### History of Ancient Rome

The history of ancient Rome, its organization and expansion especially during the late Republic and early Empire. (Also listed as HIST 2901.)

Prerequisite: second-year standing or permission of the unit.

Lecture three hours a week.

CLCV 3002 [1.0 credit]

### The Later Roman Empire

The study of major developments - administrative, ecclesiastical, cultural and societal - of the later Roman Empire. (Also listed as HIST 3002.)

Prerequisite: a 2000-level Classical Civilization course.

Lecture three hours a week.

CLCV 3201 [0.5 credit]

### Studies in Greek History

Contents of this course vary from year to year. (Also listed as HIST 3009.)

Prerequisite: CLCV 2900 or permission of the unit.

Lecture three hours a week.

Courses - Classical Civilization (CLCV)

CLCV 3202 [0.5 credit]

**Studies in Roman History**

Contents of this course vary from year to year. (Also listed as HIST 3101.)

Prerequisite: CLCV 2901 or permission of the unit.

Lecture three hours a week.

CLCV 3300 [1.0 credit]

**Archaeological Field Work I**

Students will participate for a minimum of five weeks in the excavation of an archaeological site. In addition they will study stratigraphic analysis and the recording and processing of finds. Written reports on specific aspects of the particular excavation are required.

Prerequisites: CLCV 2300 (old CLCV 2301) and permission of the School, or permission of the unit.

CLCV 3305 [0.5 credit]

**Studies in Greek and Roman Art**

A study of a period or theme in the art and archaeology of Ancient Greece and Rome. Topics may vary from year to year. (Also listed as ARTH 3101 and RELI 3731.)

Precludes additional credit for RELI 3306 (if taken summer 2005, summer 2006, summer 2007).

Prerequisite: second-year standing or permission of the unit.

Lecture three hours a week.

CLCV 3400 [0.5 credit]

**Greek and Roman Studies Abroad**

This course combines academic study in Canada with first hand examination of museum collections and sites of the ancient world, normally in Greece and Italy. Course content varies from year to year and students are allowed to take the course more than once.

Prerequisites: 1.0 credit in Greek and Roman Studies, any level (CLCV, GREK, or LATN) and permission of the department.

Hours to be arranged.

CLCV 3701 [0.5 credit]

**Studies in Greek Literature**

A study of an author or topic in Greek literature. Contents of this course vary from year to year. (Also listed as ENGL 3008).

Prerequisite: CLCV 2009 or permission of the unit

Lecture three hours a week.

CLCV 3702 [0.5 credit]

**Studies in Roman Literature**

A study of an author or topic in Roman literature. (Also listed as ENGL 3009).

Prerequisite: CLCV 2009 or permission of the unit.

Lecture three hours a week.

CLCV 3900 [0.5 credit]

**Directed Studies**

Supervised readings and research projects chosen in consultation with the Supervisor of Undergraduate Studies.

Prerequisite: third-year standing or permission of the unit.

CLCV 3901 [0.5 credit]

**Directed Studies**

Supervised readings and research projects chosen in consultation with the Supervisor of Undergraduate Studies.

Prerequisite: third-year standing or permission of the unit.

CLCV 4207 [1.0 credit]

**Topics in Classics**

A seminar on historical and literary aspects of a particular period of antiquity. Intended for third- and fourth-year students.

Prerequisites: CLCV 2009, one of CLCV 2900, CLCV 2901, CLCV 3201, CLCV 3202; and permission of the unit.

Seminar three hours a week.

CLCV 4208 [1.0 credit]

**Topics in Ancient Literature**

Intended for third- and fourth-year students.

Prerequisites: CLCV 2009 and permission of the unit.

Seminar three hours a week.

CLCV 4209 [1.0 credit]

**Topics in Ancient History**

Intended for Honours students in History and Classics who should normally be in the third- or fourth-years. (Also listed as HIST 4209.)

Prerequisites: CLCV 2900 or CLCV 2901 or CLCV 3201 or CLCV 3202 and permission of the unit.

Seminar three hours a week.

CLCV 4300 [1.0 credit]

**Archaeological Field Work II**

Students will participate for a minimum of five weeks in a position of responsibility in the excavation of an archaeological site. They will be responsible for excavating and for the recording, processing and analysis of finds. A specialized report on a particular aspect of the excavation is required.

Prerequisites: CLCV 3300 and permission of the unit.

CLCV 4800 [0.5 credit]

**Seminar in Greek and Roman Studies**

Prerequisite: fourth-year standing in the Greek and Roman Studies B.A. program, or permission of the department.

Seminar three hours a week.

CLCV 4801 [0.5 credit]

**Seminar in Greek and Roman Studies**

Prerequisite: fourth-year standing in the Greek and Roman Studies B.A. program, or permission of the department.

Seminar three hours a week.

CLCV 4900 [0.5 credit]

**Directed Readings and Research**

These courses consist of supervised readings and research projects in a specific area of Classical Civilization to be chosen in consultation with the Honours Supervisor.

Prerequisites: fourth-year Honours standing and permission of the unit.

CLCV 4901 [0.5 credit]

**Directed Readings and Research**

These courses consist of supervised readings and research projects in a specific area of Classical Civilization to be chosen in consultation with the Honours Supervisor.

Prerequisites: fourth-year Honours standing and permission of the unit.

CLCV 4902 [0.5 credit]

**Directed Readings and Research**

These courses consist of supervised readings and research projects in a specific area of Classical Civilization to be chosen in consultation with the Honours Supervisor.

Prerequisites: fourth-year Honours standing and permission of the unit.

• **Language Courses**

Study of an ancient language other than Classical Greek or Latin. These courses are offered according to the availability of faculty members. Students interested in taking these courses should consult the Greek and Roman Studies Co-ordinator.

CLCV 1004 [0.5 credit]

**Elementary Language Tutorial I**

Elementary study of an ancient language.

Prerequisite: Permission of the department.

Tutorial two hours a week plus out-of-class requirements.

CLCV 1005 [0.5 credit]

**Elementary Language Tutorial II**

Elementary study of an ancient language.

Prerequisite: Permission of the department.

Tutorial two hours a week plus out-of-class requirements.

CLCV 2004 [0.5 credit]

**Intermediate Language Tutorial I**

Intermediate study of an ancient language.

Prerequisite: Permission of the department.

Tutorial two hours a week plus out-of-class requirements.

CLCV 2005 [0.5 credit]

**Intermediate Language Tutorial II**

Intermediate study of an ancient language.

Prerequisite: Permission of the department.

Tutorial two hours a week plus out-of-class requirements.

## Cognitive Science (CGSC)

**Cognitive Science Committee**  
**Institute of Cognitive Science**  
**Faculty of Arts and Social Sciences**

CGSC 1001 [0.5 credit]

### **Mysteries of the Mind**

Challenges faced in understanding the mind, and some of the approaches cognitive science has brought to bear on them. Topics may include the nature of knowledge, how we learn, the extent to which human thinking is rational, biases in thinking, and evolutionary influences on cognition.

Lectures three hours per week.

CGSC 2001 [0.5 credit]

### **Introduction to Cognitive Science**

An integrated background of the discipline of Cognitive Science, with an historical overview (1940's onward) and examination of the extent to which the discipline has assimilated the collective knowledge of contributing disciplines (e.g., psychology, philosophy, linguistics, artificial intelligence and neuroscience).

Prerequisite: second-year standing or permission of the Institute.

Lectures three hours a week.

CGSC 2002 [0.5 credit]

### **Theories and Methods in Cognitive Science**

Selected topics in cognitive science covered from the perspectives of psychology, computer science, linguistics, philosophy, and other related disciplines. Students may be required to complete independent research projects.

Prerequisite: CGSC 2001, second year standing, and two of PSYC 1001, LALS 1001, COMP 1005, PHIL 1301 or PHIL 2501, or permission of the Institute. Restricted to honours students in Cognitive Science.

Seminars and tutorials six hours per week.

CGSC 3001 [0.5 credit]

### **Honours Seminar in Cognitive Science I**

Major theories and empirical approaches within Cognitive Science are examined through a detailed consideration of selected topics. Students are required to complete independent research projects to prepare for their fourth-year honours projects.

Prerequisites: CGSC 2001 and CGSC 2002 and enrolment in B.A. Hons. Cognitive Science.

Seminars and tutorials six hours per week.

CGSC 3002 [0.5 credit]

### **Honours Seminar in Cognitive Science II**

Major theories and empirical approaches within Cognitive Science are examined through a detailed consideration of selected topics. Students are required to complete independent research projects to prepare for their fourth-year honours projects.

Prerequisites: CGSC 2001 and CGSC 2002 and enrolment in B.A. Hons. Cognitive Science.

Seminars and tutorials six hours per week.

CGSC 3004 [0.5 credit]

### **Philosophy and Cognitive Science**

Cognitive science from a philosophical perspective. Topics may include: the proper methodology for studying the mind, prospects for naturalizing consciousness and intentionality, assessing competing models of the mind.

Prerequisites: third-year year standing and 0.5 credit in PHIL at the 2000-level or above.

Seminar three hours per week.

CGSC 3100 [0.0 credit]

### **Co-operative Work Term Report 1**

A comprehensive report is due on what was learned during the first work term.

Prerequisites: Registration in the Co-op Education Option of the Cognitive Science program of Interdisciplinary Studies and permission of the Co-ordinator.

CGSC 4001 [0.5 credit]

### **Artificial Intelligence for Cognitive Scientists**

An introduction to the contribution of artificial intelligence and computer modeling of cognitive processes to cognitive science.

Prerequisites: third-year standing and CGSC 2002.

Seminars and labs six hours per week.

CGSC 4100 [0.0 credit]

### **Co-operative Work Term Report 2**

A comprehensive report is due on what was learned during the second work term.

Prerequisites: registration in the Co-op Education Option of the Cognitive Science program of Interdisciplinary Studies, successful completion of CGSC 3100, and permission of the Co-ordinator.

CGSC 4101 [0.0 credit]

### **Co-operative Work Term Report 3**

A comprehensive report is due on what was learned during the third work term.

Prerequisites: registration in the Co-op Education Option of the Cognitive Science program of Interdisciplinary Studies, successful completion of CGSC 4100, and permission of the Co-ordinator.

CGSC 4801 [0.5 credit]

### **Independent Study**

A reading or research course for selected students who wish to investigate a particular topic of interest. Normally students may not offer more than one credit of independent study in their total program (including independent study credits taken through other departments).

Prerequisite: third- or fourth-year standing and permission of the Institute.

CGSC 4802 [0.5 credit]

### **Independent Study**

A reading or research course for selected students who wish to investigate a particular topic of interest. Normally students may not offer more than one credit of independent study in their total program (including independent study credits taken through other departments).

Prerequisite: third- or fourth-year standing and permission of the Institute.

CGSC 4900 [0.5 credit]

### **Special Topics in Cognitive Science**

The topic of this course will vary from year to year. Students may register in more than one section of CGSC 4900 but may register in each section only once.

Prerequisites: each section will have its own prerequisites and permission of the department if is required.

Seminar three hours per week.

CGSC 4908 [1.0 credit]

### **Honours Thesis**

Interdisciplinary thesis. In developing a thesis, students must consult the Undergraduate Supervisor. Only the Undergraduate Supervisor can assign a supervisor or grant approval to register in this course. Faculty regulations governing Honours Research Essays and Honours Theses apply.

Prerequisite: CGSC 3001 and CGSC 3002 and fourth-year standing in B.A. Hons. Cognitive Science.



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## Communication Courses for Disciplines and Professions (CCDP)

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### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

CCDP 2000 [0.5 credit]

#### **Communication Skills for Computer Science**

##### **Students**

Development of competence in written and oral communication in computer science. Focus on professional written documents (reports, technical descriptions, manuals, proposals, memos, letters) and related oral work (oral communication in university and workplace settings). Attendance and participation are compulsory. Precludes additional credit for ALSS 2000.

Prerequisite: enrolment in Bachelor of Computer Science and successful completion of all ESLR requirements. This course may not be taken concurrently with any ESLA course.

Lectures and tutorials three hours a week.

CCDP 2100 [0.5 credit]

#### **Communication Skills for Engineering Students**

Development of competence in written and oral communication in engineering. Focus on professional written documents (process descriptions, proposals, reports, engineering literature reviews and responses); written responses to engineering communications; related oral work. Attendance and participation are compulsory.

Precludes additional credit and weight for ECOR 2000 and ALSS 1000.

Prerequisite: enrolment in Bachelor of Engineering and successful completion of all ESLR requirements. This course may not be taken concurrently with any ESLA course.

Lectures and tutorials three hours a week.

## Communication Studies (COMM)

### School of Journalism and Communication Faculty of Public Affairs

COMM 1101 [1.0 credit]

#### Introduction to Communication Studies

The scope of communication studies including the history and structure of mass media, their relationship to social and cultural change, and basic issues of communication and cultural policy.

Lectures and discussion groups three hours a week.

COMM 2001 [1.0 credit]

#### Communication Research

Introduction to quantitative and qualitative methods of communication research: statistical and computer analysis, field research, policy and document analysis, historical/archival research.

Prerequisites: COMM 1101 or JOUR 1000 and second-year standing in Communication Studies, or PAMP 1000 and registration in the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lecture two hours a week, laboratory one hour a week.

COMM 2101 [1.0 credit]

#### Communication Studies: Theory and Foundations

Theoretical and empirical foundations of communication studies. Analysis of selected theories with a view to assessing the contribution they make to the understanding of communication and media.

Prerequisites: COMM 1101 or JOUR 1000 and second-year standing in Communication Studies, or PAMP 1000 and registration in the Communication Information Technology Policy specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures and discussion groups three hours a week.

COMM 2301 [0.5 credit]

#### Persuasion and Public Life

A study of the modes of persuasion used in commerce, government and civil society.

Prerequisite: COMM 1101 or JOUR 1000 and second-year standing in Communication Studies, or PAMP 1000 and registration in the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 2401 [0.5 credit]

#### Communication and Cultural Institutions in Ottawa

The role of Ottawa-based institutions engaged in the development of communication and cultural policies, including public, private and third sector institutions such as the CRTC, CBC, Rogers Media, the National Gallery, and the Media Awareness Network.

Prerequisites: COMM 1101 or JOUR 1000 and second-year standing in Communication Studies, or PAMP 1000 and registration in the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 2501 [0.5 credit]

#### Communications Law I

A survey of laws that affect the Canadian media including the development of freedom of expression, the Charter of Rights and Freedoms, and statutory and common-law limitations on freedoms of the press, including publication bans, libel and contempt of court. (Also listed as JOUR 2501.)

Precludes additional credit for MCOM 3501, JOUR 3501 (no longer offered).

Prerequisite: COMM 1101 or JOUR 1000, or PAMP 1000 and registration in the Communication Information Technology Policy specialization of the Bachelor of

Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures and discussion three hours a week.

COMM 2504 [0.5 credit]

#### Language and Communication

Some of the central topics in the study of language and communication as pursued by linguists and philosophers, including the nature of meaning, the connections between language, communication and cognition, and language as a social activity. (Also listed as LALS 2504 and PHIL 2504.)

Precludes additional credit for LALS 2800, COMM 2800 and PHIL 2800.

Prerequisite: second-year standing.

Lectures three hours a week.

COMM 2601 [0.5 credit]

#### Media Depictions of Society

Media's role in constructing our social reality; examination of media practices, historical and contemporary issues.

Prerequisites: COMM 1101 or JOUR 1000 and second-year standing in Communication Studies, or PAMP 1000 and registration in the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3001 [0.5 credit]

#### Quantitative Research Methods

Examination of quantitative research methods relevant to the study of communication.

Precludes additional credit for MCOM 3000 (no longer offered).

Prerequisite: COMM 2001 or PSCI 2701 and PSCI 2702, and either third-year standing in Communication Studies, or registration in the Strategic Public Opinion and Policy Analysis specialization within the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3002 [0.5 credit]

#### Qualitative Research Methods

Examination of qualitative research methods relevant to the study of communication.

Precludes additional credit for MCOM 3000 (no longer offered).

Prerequisite: COMM 2001 or PSCI 2701 and PSCI 2702, and either third-year standing in Communication Studies, or registration in the Strategic Public Opinion and Policy Analysis specialization within the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3106 [0.5 credit]

#### Image, Politics and Persuasion

Critical perspectives and ethical issues related to advertising, social marketing, public relations, propaganda and political communication.

Prerequisite: COMM 2101, and third-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures and discussion groups three hours a week.

COMM 3108 [0.5 credit]

#### Media Industries and Institutions

Theories and major issues relating to media industries and institutions in Canada and internationally.

Prerequisite: COMM 2101, and third year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures and discussion groups three hours a week.

COMM 3109 [0.5 credit]

**Communication and Identity**

Ways in which media and communication shape and contribute to the formation of group and individual identity.

Prerequisite: COMM 2101, and third year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures and discussion groups three hours a week.

COMM 3200 [0.0 credit]

**Co-operative Work Term**

Prerequisite: registration in the Communication Studies Honours Co-operative Option, completion of the Co-op preparation classes offered by the Co-op Office and permission of the School of Journalism and Communication.

COMM 3201 [0.0 credit]

**Co-operative Work Term**

Prerequisite: registration in the Communication Studies Honours Co-operative Option and permission of the School of Journalism and Communication.

COMM 3202 [0.0 credit]

**Co-operative Work Term**

Prerequisite: registration in the Mass Communication Honours Co-operative Option and permission of the School of Journalism and Communication.

COMM 3203 [0.0 credit]

**Co-operative Work Term**

Prerequisite: registration in the Mass Communication Honours Co-operative Option and permission of the School of Journalism and Communication.

COMM 3301 [0.5 credit]

**Communication and Social Marketing**

The application of marketing principles to the challenges faced by public and not-for-profit organizations seeking to promote socially beneficial behaviour. Students will learn communications strategies and tactics that support social marketing initiatives.

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3302 [0.5 credit]

**Communication and the Political Process**

The relationship between various kinds of communication and political activity in a variety of different contexts. Case studies will be drawn from speeches, political campaigns, debates, using a variety of media forms, from photographs to web sites.

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3303 [0.5 credit]

**Rhetoric**

History, development and major elements of rhetorical communication.

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3308 [0.5 credit]

**Advertising: A Critical Perspective**

Critical analysis of some of the major constructs and basic mechanisms of the advertising system, including an examination of the social, political-economic and cultural implications of advertising.

Precludes additional credit for MCOM 3408 (no longer offered).

Prerequisite: COMM 2101 and third-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lecture three hours a week.

COMM 3309 [0.5 credit]

**Special Topic in Image, Politics and Persuasion**

Prerequisite: COMM 2101, and third-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3401 [0.5 credit]

**Communications Regulation in Canada**

Historical and contemporary issues in the regulation of communication practices and institutions in Canada.

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3403 [0.5 credit]

**Communication Technology and Culture**

The relationship between communication technology and society. Factors that contribute to changes in the collection, storage and distribution of information and their cultural implications.

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or PADM 2000 and registration in the Communication Information Technology Policy specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lecture three hours a week.

COMM 3404 [0.5 credit]

**Music Industries**

An introduction to the structure and history of the music industries. (Also listed as MUSI 3403.)

Prerequisite: second-year standing.

Lectures three hours a week.

COMM 3405 [0.5 credit]

**Communication in a Global Context**

Structures and flow of global communication and information and its impact on our views of the world. (Also listed as JOUR 3405.)

Precludes additional credit for MCOM 3005 (no longer offered) and JOUR 3005.

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or third- or fourth-year B.J.(Honours) standing, or PADM 2000 and registration in the Communication Information Technology Policy specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3407 [0.5 credit]

**Comparative Media Studies**

The comparative study of one or more media organizations and/or types of media content with reference to their operation, audiences, and impacts. (Also listed as JOUR 3407.)

Precludes additional credit for MCOM 3006 (no longer offered) or JOUR 3006.

Prerequisite: COMM 2101 as well as third-year standing in Communication Studies, or third- or fourth-year B.J.(Honours) standing, or PADM 2000 and registration in the Communication Information Technology Policy specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3409 [0.5 credit]

**Special Topic in Media Industries and Institutions**

Prerequisite: COMM 2101 and third-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3601 [0.5 credit]

**Media and Gender**

A critical interrogation of the intersection of media and gender, including constructions of femininity, masculinity, and other issues of sexuality. Precludes additional credit for MCOM 3505 (no longer offered).

Prerequisite: COMM 2101 and third-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3602 [0.5 credit]

**Media and Race**

A critical study of the ways in which issues of race and ethnicity intersect with contemporary media. Prerequisite: COMM 2101 and third-year standing in Communication Studies, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 3609 [0.5 credit]

**Special Topic in Communication and Identity**

Prerequisite: COMM 2101 and third-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4000 [0.5 credit]

**Applied Quantitative Research Methods**

Quantitative research methods relevant to the study of communication at an advanced level. Students will work on individual research projects.

Prerequisites: COMM 3001 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year Honours standing in Communication Studies, or COMM 3001 and registration in the Strategic Public Opinion and Policy Analysis specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4002 [0.5 credit]

**Applied Qualitative Research Methods**

Qualitative research methods relevant to the study of communication at an advanced level. Students will work on individual research projects.

Prerequisites: COMM 3001 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year Honours standing in Communication Studies, or COMM 3002 and registration in the Strategic Public Opinion and Policy Analysis specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4003 [0.5 credit]

**Semiotics**

Theory and methods of semiotics in the interpretation of images and texts.

Prerequisite: COMM 2001 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4004 [0.5 credit]

**Communication and Discourse**

The development of the theory and methods related to discourse and their use in the analysis of images and texts.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4304 [0.5 credit]

**Critical Perspectives on Public Relations**

A critical examination of some of the major aspects of public relations.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4306 [0.5 credit]

**Media and Conflict**

Media representations of conflict such as war and terrorism, and its influence on the collective imagination.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4307 [0.5 credit]

**Publicity and the State**

Issues and trends in political communication, including the shift of government communication from information to promotion and reliance on public relations.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4309 [0.5 credit]

**Special Topic in Image, Politics and Persuasion**

Prerequisite: COMM 3106 and fourth-year standing in the Image, Politics and Persuasion concentration in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4310 [0.5 credit]

**Communication and Community**

The role of communication in community development. Working with local organizations, students will formulate, implement, analyze and present research that seeks to effect positive social change.

Prerequisite: COMM 3002 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4401 [0.5 credit]

**International Communications Regulation**

The history, recent major issues and the process of international communication regulation such as those resulting from globalization, neoliberalism and imperial politics in the 21st century.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4402 [0.5 credit]

**Media and Entertainment**

Issues facing the entertainment industries. Topics may include transformations in leisure time, the construction of celebrity, and the distribution and consumption of popular culture.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies, or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4403 [0.5 credit]

**Political Economy of Media**

Critical and institutional approaches to the political economy of the media; the unique qualities of informational and cultural commodities, media ownership and new technologies.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4404 [0.5 credit]

**Broadcast and Digital Media**

The social, economic, and political properties of broadcast and digital communication media; the history of these media, their legal and regulatory constitution, online communities, and the interaction of "old" and "new" media.

Prerequisite: COMM 2101, COMM 3403, one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4409 [0.5 credit]

**Selected Topic in Media Industries and Institutions**

Prerequisite: COMM 3108 and fourth-year standing in Media Industries and Institutions concentration in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4601 [0.5 credit]

**Nation and Nationalism**

A study of the influence of media, culture and policy in shaping national and other state-based identities.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4602 [0.5 credit]

**Children, Youth and Media**

The historical and contemporary ways in which children and youth relate to the media and popular culture, and vice versa.

Precludes additional credit for MCOM 4200 (no longer offered).

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year Honours standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4603 [0.5 credit]

**Diaspora and Communication**

The impact of various forms of diasporic communication on the shaping of contemporary national and international society.

Prerequisite: COMM 2101 and one of COMM 3106, COMM 3108 or COMM 3109, and fourth-year Honours standing in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

COMM 4609 [0.5 credit]

**Selected Topic in Communication and Identity**

Prerequisite: COMM 3109 and fourth-year standing in the Communication and Identity concentration in Communication Studies or permission of the School of Journalism and Communication.

Lectures three hours a week.

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## Computational Sciences (CMPS)

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### Faculty of Science

CMPS 2800 [0.5 credit]

#### Discrete Mathematics and Algorithms

Introduction to discrete mathematics and algorithms in the context of the computational sciences. Basic number theory and counting methods, algorithms for strings, trees and sequences. Applications to DNA and protein sequencing problems. Analysis and complexity of algorithms. (Also listed as MATH 2800.)

Only one of COMP 1805/MATH 1805 or CMPS 2800/MATH 2800 may count for credit in a Bachelor of Mathematics program.

Prerequisites: COMP 1006 and at least one of MATH 1007, MATH 1107, or STAT 2507.

Lectures three hours a week.

CMPS 3604 [0.5 credit]

#### Analysis of Ecological Relationships

Introduction to the analysis of ecological data. Students analyze real ecological data sets in weekly laboratory sessions. Methods introduced include simple linear, polynomial, and multiple regression analysis, analysis of variance, non-parametric tests, tests of independence and logistic regression analysis. (Also listed as BIOL 3604.)

Prerequisites: BIOL 2600 and Mathematics STAT 2507. Workshops four hours a week.

CMPS 3800 [0.5 credit]

#### Modeling and Computational Methods for Experimental Science

Mathematical modeling in the experimental sciences: design, analysis and pitfalls. Computational methods directly applicable to problems in science will be described including function evaluation, Interpolation, solution of linear equations, root finding, integration, solution of differential equations, Fourier series and Monte Carlo methods. (Also listed as MATH 3800.)

Only one of COMP 3806/Mathematics MATH 3806 or CMPS 3800/MATH 3800 may count for credit in a Bachelor of Mathematics program.

Prerequisites: MATH 1107, MATH 2007 or MATH 2009, COMP 1006.

Lectures three hours a week.

CMPS 4909 [1.0 credit]

#### Honours Research Thesis in Computational Science

An independent research project under the supervision of a Faculty adviser, applying computational techniques to some experimental or theoretical problem in the disciplinary area of the student.

Prerequisite: permission of the Department. or Institute associated with the discipline.

## Computer Science (COMP)

### School of Computer Science Faculty of Science

**Note:** some of the following Computer Science courses are cross-listed from other parts of the Calendar. In every such case, only one course is actually offered and the two numbers are alternate identifiers for this single course. Students in the B.C.S. program should register in such a course under the Computer Science (COMP) number.

COMP 1001 [0.5 credit]

#### Introduction to Computers for the Arts and Social Sciences

This course is intended to give students in the arts and social sciences a working knowledge of computers and their applications; computer fundamentals; use of computing facilities; introduction to graphical user interfaces; a sampling of software packages applied to problems in the arts and social sciences.

Precludes additional credit for COMP 1000 and COMP 1004. This course cannot be taken for credit by students in Business, Engineering, Computer Science, Mathematics or Science.

Lectures three hours a week, tutorial one hour a week.

COMP 1004 [0.5 credit]

#### Introduction to Computers for the Sciences

Working knowledge of computers and their applications with particular reference to problems in Science. Computer fundamentals and the use of application packages such as spreadsheets, databases and symbolic Mathematics programs. A basic familiarity with computers is assumed. Precludes additional credit for COMP 1001. This course cannot be taken for credit by students in the B.C.S. program or combined programs in Computer Science. Lectures three hours a week.

COMP 1005 [0.5 credit]

#### Introduction to Computer Science I

A first course in programming, emphasizing problem solving and computational thinking. Topics include pseudocode, variables, conditionals, iteration, arrays, objects, functions, sorting, searching, and simulation.

Precludes additional credit for COMP 1405 and SYSC 1100. Lectures three hours a week, tutorial one and a half hours a week.

COMP 1006 [0.5 credit]

#### Introduction to Computer Science II

A second course in programming emphasizing problem solving and computational thinking in an object-oriented language. Topics include abstraction, mutable data structures, methods, inheritance, polymorphism, recursion, program efficiency, testing and debugging.

Precludes additional credit for COMP 1406 and SYSC 1101. Prerequisites: COMP 1005.

Lectures three hours a week, tutorial one and a half hours a week.

COMP 1007 [0.5 credit]

#### Introduction to Structured Programming

A first course in computer programming using a procedural language. Introduces basic sequencing, alternation, and looping control constructs, functional and procedural abstractions, data abstraction, and problem solving in the context of computer programming.

Precludes additional credit for ECOR 1606.

This course cannot be taken for credit by students in the B.C.S. program or combined programs in Computer Science.

Lectures three hours a week.

COMP 1405 [0.5 credit]

#### Introduction to Computer Science I

A first course in programming for B.C.S. students emphasizing problem solving and computational thinking. Topics include pseudocode, variables, conditionals, iteration, arrays, objects, functions, sorting, searching, and simulation.

Precludes additional credit for COMP 1005 and SYSC 1100.

Prerequisite: restricted to students registered in the B.C.S. program, combined Honours in Computer Science and Mathematics, Honours Computer Mathematics, and Honours Computer Statistics.

Lectures three hours a week, tutorial one and a half hours a week.

COMP 1406 [0.5 credit]

#### Introduction to Computer Science II

A second course in programming for BCS students, emphasizing problem solving and computational thinking in an object-oriented language. Topics include abstraction, mutable data structures, methods, inheritance, polymorphism, recursion, program efficiency, testing and debugging.

Precludes additional credit for COMP 1006 and SYSC 1101.

Prerequisite: COMP 1405. Restricted to students registered in the B.C.S. program, combined Honours in Computer Science and Mathematics, Honours Computer Mathematics, and Honours Computer Statistics.

Lectures three hours a week, tutorial one and a half hours a week.

COMP 1501 [0.5 credit]

#### Introduction to Computer Game Design

Introduction to computer game programming interfaces. Topics may include: game balance and level design; storytelling and narrative; basic game architecture; sprite-based games and isometric games; representation of scenes; user interaction; architecture of game consoles; development tools for game consoles; interaction with game peripherals.

Lectures three hours a week.

COMP 1601 [0.5 credit]

#### Introduction to Mobile Application Development

Introduction to developing mobile applications using the Mac OS X platform. Topics include: the Objective-C programming language; development tools; framework APIs; and the Quartz graphic system. Extensive practical experience with development for Apple mobile devices such as the iPhone.

Prerequisite: COMP 1405.

Lecture/lab four hours a week.

COMP 1805 [0.5 credit]

#### Discrete Structures

Introduction to discrete mathematics and discrete structures. Topics include: propositional and predicate calculus, Boolean algebra, introduction to complexity of algorithms, mathematical reasoning, counting, recurrences, relations, introduction to graphs. (Also listed as MATH 1805.)

Prerequisite: one Grade 12 university preparation mathematics course.

Lectures three hours a week, tutorial one hour a week.

COMP 2001 [0.5 credit]

#### Introduction to Systems Programming

Introduction to programming with procedures and primitive data types. Arrays, strings, pointers, heap and stack memory allocation and deallocation, iterative and recursive linked list manipulations, system/library calls. Precludes additional credit for COMP 1002, COMP 1402, COMP 2401, SYSC 1102 and ECOR 1606.

Prerequisite: COMP 1006.

Lectures three hours a week.

COMP 2002 [0.5 credit]

**Abstract Data Types and Algorithms**

Introduction to the design and implementation of abstract data types and to the complexity analysis of data structures. Topics include: stacks, queues, lists, trees and graphs. Special attention is given to abstraction, interface specification and hierarchical design using an object-oriented programming language.

Precludes additional credit for COMP 2402 and SYSC 2002.

Prerequisite: COMP 1006.

Lectures three hours a week.

COMP 2003 [0.5 credit]

**Computer Organization**

A thorough treatment of computer system organization. Processor architectures, instruction sets and addressing modes. Memory organization and cache principles. Single core and multi-core systems. Assembly language. Interrupts and devices. Basics of digital logic and hardware construction.

Precludes additional credit for SYSC 2003, SYSC 3006 for students in the Computer Science program and in combined programs with Mathematics or Chemistry.

Prerequisite: one of COMP 2401, COMP 2001 or ECOR 1606.

COMP 2401 or COMP 2001 may be taken concurrently.

Lectures three hours a week.

COMP 2004 [0.5 credit]

**Programming in C++**

In-depth study of the language C++ from a software engineering perspective, with emphasis on features supporting the development of large efficient and reusable systems. Topics include: encapsulation, templates, references, constructors and destructors, overloading, memory management, exception handling, and the standard template library.

Precludes additional credit for COMP 2404 and SYSC 2004.

Prerequisite: COMP 2001.

Lectures three hours a week.

COMP 2005 [0.5 credit]

**Internet Application Programming**

Design and implementation of Internet application programs. Topics include: fundamentals of the Web, introduction to client/server architectures, Internet programming, Web browsers, hypertext links, network programming.

Precludes additional credit for COMP 2405.

Prerequisites: COMP 1006 and COMP 2001 or equivalent.

Lectures three hours a week.

COMP 2401 [0.5 credit]

**Introduction to Systems Programming**

Introduction to programming with procedures and primitive data types, designed for B.C.S. students. Topics include: arrays, strings, pointers, heap and stack memory allocation and deallocation, iterative and recursive linked list manipulations, system/library calls.

Precludes additional credit for COMP 1002, COMP 1402, COMP 2001, SYSC 1102, and ECOR 1606.

Prerequisite: COMP 1406. Restricted to students registered in the B.C.S. program, combined Honours in Computer Science and Mathematics, Honours Computer Mathematics, and Honours Computer Statistics.

Lectures three hours a week.

COMP 2402 [0.5 credit]

**Abstract Data Types and Algorithms**

Introduction to the design and implementation of abstract data types and to complexity analysis of data structures. Topics include: stacks, queues, lists, trees and graphs. Special attention is given to abstraction, interface specification and hierarchical design using an object-oriented programming language.

Precludes additional credit for COMP 2002 and SYSC 2002.

Prerequisite: COMP 1406. Restricted to students registered in the B.C.S. program, combined Honours in Computer Science and Mathematics, Honours Computer Mathematics, and Honours Statistics.

Lectures three hours a week.

COMP 2404 [0.5 credit]

**Programming in C++**

In-depth study of the language C++ from a software engineering perspective, with emphasis on features supporting the development of large efficient and reusable systems. Topics include: encapsulation, templates, references, constructors and destructors, overloading, memory management, exception handling, and the standard template library.

Precludes additional credit for COMP 2004 and SYSC 2004.

Prerequisite: COMP 2401. Restricted to students registered in the B.C.S. program, the combined Honours in Computer Science and Mathematics, Honours Computer Mathematics, and Honours Computer Statistics.

Lectures three hours a week.

COMP 2405 [0.5 credit]

**Internet Application Programming**

Design and implementation of Internet application programs. Topics include: fundamentals of the Web, introduction to client/server architectures, Internet programming, Web browsers, hypertext links, network programming.

Precludes additional credit for COMP 2005.

Prerequisite: COMP 2401 and COMP 1406.

Restricted to students registered in the B.C.S. program, combined Honours in Computer Science and Mathematics, Honours Computer Mathematics, and Honours Computer Statistics.

Lectures three hours a week.

COMP 2501 [0.5 credit]

**Computer Game Design and Development**

Topics may include: user interaction in multiplayer games, representation of animated scenes, tools for game character development, special effects, sound programming, game AI, motion planning and control, collision detection and physics, digital rights management.

Prerequisites: MATH 1104, COMP 1406, COMP 1501, and COMP 2401.

Lectures three hours a week.

COMP 2601 [0.5 credit]

**Mobile Applications**

Development of applications for mobile environments taking advantage of gesture-based input and using location and presence services. Topics include introduction to low-level network services and mobile platforms, description of architectural patterns, principles of mobile development and interaction styles for network service usage.

Prerequisite: COMP 1601.

Lab three hours a week.

COMP 2805 [0.5 credit]

**Introduction to Theory of Computation**

Theoretical aspects of computer science. Topics include: formal languages and automata theory, computability theory.

Prerequisite: COMP 1805.

Lectures three hours a week.



COMP 3000 [0.5 credit]

**Operating Systems**

A first course in operating systems stressing fundamental issues in design: process management; memory management; process co-ordination and synchronization; interprocess communication; real-time clock management; i/o device drivers; file systems; frame-level network communication. Assignments involve the use, modification, and extension of a multitasking operating system.

Precludes additional credit for SYSC 3001.

Prerequisites: one of COMP 2402, COMP 2002 or SYSC 2002, and one of COMP 2003 or SYSC 2003.

Lectures three hours a week.

COMP 3002 [0.5 credit]

**Compiler Construction**

The structure, organization and design of the phases of a compiler are considered: lexical translators, syntactical translators, scope handlers, type checkers, code generators and optimizers. Components of a compiler will be implemented.

Prerequisite: COMP 2402.

Lectures three hours a week.

COMP 3004 [0.5 credit]

**Object-Oriented Software Engineering**

Theory and development software systems. This course will discuss computer ethics. Possible topics include: software development processes, requirement specification, class and scenario modeling, state modeling, UML, design patterns, traceability. Students are to complete a team project using a CASE tool.

Precludes additional credit for SYSC 3100 and SYSC 4800.

Prerequisites: COMP 2004 or COMP 2404.

Lectures three hours a week.

COMP 3005 [0.5 credit]

**Database Management Systems**

Introduces students to concepts of database management systems, database design and file structures. Topics include: entity-relationship modeling and object oriented database design, data models (relational, network and object oriented), the relational algebra, SQL, normalization theory, physical data organization, object oriented databases and OQL.

Precludes additional credit for BUSI 3400.

Prerequisites: one of COMP 2002, COMP 2402 or SYSC 2100.

Lectures three hours a week.

COMP 3007 [0.5 credit]

**Programming Paradigms**

An introduction to functional and logic programming. Topics include: semantics of functional programming, assignment-free programming, the meta-circular interpreter, recursive functions, Prolog, backtracking, cutting, negation.

Prerequisite: COMP 2002 or COMP 2402.

Lectures three hours a week.

COMP 3008 [0.5 credit]

**User Interface Architecture**

Fundamentals of designing, prototyping and evaluating user interfaces. Topics may include: user and task analysis and its application to U.I. design, task and goal-centered development, U.I. tools and design principles, usability testing and heuristic evaluation, web design issues.

Prerequisites: one of COMP 1006 or COMP 1406, and one of COMP 2004 or COMP 2404.

COMP 3200 [0.0 credit]

**Co-operative Work Term Report 1**

Prerequisites: Registration in the Co-operative Education Option of the Bachelor of Computer Science program, completion of the Co-op preparation classes offered by the Co-op office and permission of the School.

COMP 3201 [0.0 credit]

**Co-operative Work Term Report 2**

Prerequisites: Registration in the Co-operative Education Option of the Bachelor of Computer Science program and permission of the School.

COMP 3202 [0.0 credit]

**Co-operative Work Term Report 3**

Prerequisites: Registration in the Co-operative Education Option of the Bachelor of Computer Science program and permission of the School.

COMP 3203 [0.5 credit]

**Principles of Computer Networks**

This is an introductory course to the field of Network Computing. Topics include: Protocol Architectures and Internetworking, Types of Networks, Communication Protocols, End-System and Network Traffic Management, Structure of Routing and Congestion Control.

Precludes additional credit for SYSC 4602.

Prerequisites: one of COMP 2402, COMP 2002 or SYSC 2002, and one of COMP 2003 or SYSC 2001.

Lectures three hours a week.

COMP 3308 [0.5 credit]

**Bioinformatics**

This practical interdisciplinary course will provide a broad overview of bioinformatics in which computer science and mathematics are applied to solve problems in molecular biology. Topics include gene prediction, sequence alignment, phylogeny, molecular interactions, macromolecular structure prediction and biological databases. Also listed as BIOC 3008.

Precludes additional credit for BIOC 4006.

Prerequisites: BIOC 2200 or BIOL 2200, or permission of the Biochemistry Institute.

Lecture 1.5 hours a week, computer workshop three hours a week.

COMP 3501 [0.5 credit]

**Foundations of Game Programming and Computer Graphics**

Mathematical concepts of 3D engines. Topics may include: illumination and visibility determination; quaternions; homogeneous coordinates; transforms; ray tracing; bump mapping; portal systems; polygonal techniques; shadows; and linear and rotational physics.

Prerequisites: COMP 2402, COMP 2404, and COMP 2501.

Lectures three hours a week.

COMP 3601 [0.5 credit]

**Social Networking**

Introduction to virtual communities, overlay networks and social networking. Topics include architectural principles for heterogeneous social networking platforms, trust and reputation as social concepts, agent-based computing, and extraction of trends and patterns from information exchanged between community members.

Prerequisite: COMP 2601.

Lab three hours a week.

COMP 3804 [0.5 credit]

**Design and Analysis of Algorithms I**

An introduction to the design and analysis of algorithms. Topics include: recurrence relations, sorting and searching, divide-and-conquer, dynamic programming, greedy algorithms, NP-completeness. (Also listed as MATH 3804.)

Prerequisites: COMP 2002 or COMP 2402, and either COMP 1805/MATH 1805 or both of MATH 2007 and MATH 2108, or equivalents.

Lectures three hours a week.

COMP 3805 [0.5 credit]

**Discrete Structures and Applications (Honours)**

Enumeration: inclusion and exclusion, recurrence relations, generating functions and applications. Graph theory: connectivity, planarity, Hamilton paths and Euler trails. Error-correcting codes. Designs and finite geometries. Symmetry and counting. (Also listed as MATH 3855.)

Precludes additional credit for MATH 3805 and MATH 3825.

Prerequisites: MATH 2100 or a grade of B or higher in MATH 2108 or MATH 3101.

Lectures three hours a week and one hour tutorial.

COMP 3806 [0.5 credit]

**Numerical Analysis**

Elementary discussion of error, polynomial interpolation, quadrature, linear systems of equations and matrix inversion, non-linear equations, difference equations and ordinary differential equations. (Also listed as MATH 3806.)

Prerequisites: i) MATH 1002, MATH 1005 or MATH 2007 (or MATH 2001 or MATH 2002); and ii) MATH 1102 or MATH 2107; and (iii) knowledge of a computer language.

Lectures three hours a week and one hour tutorial.

COMP 3807 [0.5 credit]

**Mathematical Software**

Incorporation of basic numerical methods into efficient, reliable software. The course includes examination of existing software systems, e.g. linear systems, non-linear systems, optimization, or differential equations. (Also listed as MATH 3807.)

Prerequisite: COMP 3806.

COMP 4000 [0.5 credit]

**Distributed Operating Systems**

An advanced course emphasizing the principles of distributed operating systems including networking protocols, distributed file systems, remote IPC mechanisms, graphical user interfaces, load balancing, and process migration. Case studies include current "standards" as well as novel systems under development.

Prerequisite: COMP 3000 and COMP 3203, or equivalent.

Lectures three hours a week.

COMP 4001 [0.5 credit]

**Distributed Computing**

Overview of distributed computing. Topics include: computational models, communication complexity, design and analysis of distributed algorithms and protocols, fault-tolerant protocols, synchronous computations. Applications may include: communication in data networks, control in distributed system (e.g., election, distributed mutual exclusion), manipulation of distributed data (e.g., ranking).

Prerequisite: COMP 3000.

Lectures three hours a week.

COMP 4002 [0.5 credit]

**Real-Time 3D Game Engines**

The design and implementation of game engines for real-time 3D games including topics such as camera control, environmental effects, articulated models, terrain, vegetation, collision detection, particles, emitters, triggers, portals, waypoints, mirrors, and shadows.

Prerequisite: COMP 2404.

Lectures three hours a week.

COMP 4003 [0.5 credit]

**Transaction Processing Systems**

Concepts and architectures of transaction processing systems and on-line transaction processing, with emphasis on data integration systems. Transaction properties and models, embedded-SQL, active rules, consistency maintenance, serializability, concurrency control, recovery, data integration systems and federated databases, introduction to transactions in web services and workflow systems.

Prerequisites: COMP 2004 or COMP 2404, and COMP 3005.

Lectures three hours a week.

COMP 4004 [0.5 credit]

**Software Quality Assurance**

Introduction to the theory and practice of Software Quality Assurance. Topics include: functional requirements analysis, system requirement analysis, verification and validation, traceability, white box testing, integration testing, object-oriented testing, tools, and management issues.

Prerequisite: COMP 3004.

Lectures three hours a week.

COMP 4009 [0.5 credit]

**Programming for Clusters and Multi-Core Processors**

Introduction to parallel architectures, programming languages and algorithms for processor clusters and multi-core processors. Distributed memory architectures, cluster computing, message passing parallel programming, multi-core processors, shared memory parallel programming, use of thread libraries, parallel performance analysis.

Prerequisite: COMP 2402, COMP 2404, COMP 3000.

Lectures three hours a week.

COMP 4100 [0.5 credit]

**Multimedia Systems**

Introduction to Multimedia Systems and Virtual Reality. Topics include: basic sound and video formats, compression, image- and geometry-based model creation, stereo displays, immersion, texture mapping, VRML and virtual environments.

Prerequisites: two of COMP 2402, COMP 2404, and COMP 2405 or their equivalents.

Lectures three hours a week.

COMP 4104 [0.5 credit]

**Principles and Practice of Distributed Programming**

Advanced course on distributed programming in Java. Introduces students to standard design patterns for implementing components that solve common distributed programming challenges in Java. Topics covered include: threads, message passing, coordination, distributed object technology, web-based services, and collaborative applications.

Prerequisites: one of COMP 2005 or COMP 2405, and COMP 3004.

Lectures three hours a week.

COMP 4106 [0.5 credit]

**Artificial Intelligence**

Several areas in knowledge-based systems are covered, including recent approaches to machine learning and data mining, inference methods, knowledge-based and fuzzy systems, heuristic search, and natural language processing.

Prerequisite: COMP 3007.

Lectures three hours a week.

COMP 4107 [0.5 credit]

**Evolutionary Computation and Artificial Life**

Study of algorithms based upon biological theories of evolution, applications to machine learning and optimization problems. Genetic Algorithms, Classifier Systems, and Genetic Programming in details. Recent work in the fields of Artificial Life (swarm intelligence, distributed agents, behavior-based AI) and of connectionism is also studied.

Prerequisite: COMP 3007.

Lectures three hours a week.

COMP 4108 [0.5 credit]

**Computer Systems Security**

Introduction to information security in computer and communications systems, including network, operating systems, web and software security; Passwords, authentication applications, privacy, data integrity, anonymity, secure email, IP security, security infrastructures, firewalls, viruses, intrusion detection, network attacks.

Precludes additional credit for COMP 4103.

Prerequisites: COMP 3000 and COMP 3203.

Lectures three hours a week.

COMP 4109 [0.5 credit]

**Applied Cryptography**

Practical aspects of cryptography. Pseudo random number generation, symmetric cryptography (stream and block ciphers), modes of operation, hash functions, message and entity authentication protocols, zero knowledge, pitfalls deploying public-key encryption and digital signatures, key distribution, secret-sharing.

Precludes additional credit for COMP 4103.

Prerequisites: COMP 2402 and one of MATH 2007, MATH 2107 or MATH 3101.

Lectures three hours a week.

COMP 4200 [0.5 credit]

**Co-operative Work Term Report 4**

Prerequisites: Registration in the Co-operative Education Option of the Bachelor of Computer Science program and permission of the School.

COMP 4201 [0.5 credit]

**Co-operative Work Term Report 5**

Prerequisites: Registration in the Co-operative Education Option of the Bachelor of Computer Science program and permission of the School.

COMP 4203 [0.5 credit]

**Wireless Networks and Security**

An introduction to wireless networks covering both networking issues and security aspects of modern wireless environments. Fundamentals of mobile LANs, ad hoc, sensor networks, secure routing, searching, clustering, multicasting, localization, mobile IP/TCP, confidentiality, key establishment, authentication, broadcasting, RFIDs, and rogue attacks.

Prerequisite: COMP 3203.

Lectures three hours a week.

COMP 4300 [0.5 credit]

**Computational Molecular Biology**

Fundamental mathematical and algorithmic concepts underlying molecular computational biology; physical and genetic mapping, sequence analysis (including alignment and probabilistic models), genomic rearrangements, phylogenetic inference, computational proteomics and systemic modeling of the whole cell.

Prerequisites: COMP 3804 or equivalent.

COMP 4308 [0.5 credit]

**Computational Systems Biology**

Modeling and simulation of metabolic and regulatory networks towards understanding complex and highly dynamic cellular systems. Biotechnological applications include metabolic engineering, synthetic biology, and drug discovery. Also listed as BIOC 4008.

Prerequisites: BIOC 3101 or permission of the Biochemistry Institute.

Lecture 1.5 hours per week, workshop 1.5 hours a week.

COMP 4501 [0.5 credit]

**Advanced Computer Game Design and Development**

Selected computer game topics including: networked games; online games; high performance computing for game development; high resolution scenes; massively multiplayer online games (MMOG); advanced character development; facial modeling and animation; the computer games marketplace and business models.

Prerequisite: COMP 3501.

Lectures three hours a week.

COMP 4601 [0.5 credit]

**Mobile Multimedia**

Introduction to the creation, delivery and playback of multimedia over high-speed wireless networks on mobile devices. Topics include human computer interaction, standards, interaction with networking aspects, security, video streaming, gaming, navigation and context aware services, and immersive communications in virtual environments.

Prerequisite: COMP 3601.

Lab three hours a week.

COMP 4803 [0.5 credit]

**Computable Functions**

Recursive functions and computability, algorithms, Church's thesis, Turing machines, computational logic, NP-completeness. (Also listed as MATH 4803.)

Prerequisite: MATH 2100 or COMP 3805 or permission of the School.

COMP 4804 [0.5 credit]

**Design and Analysis of Algorithms II**

A second course on the design and analysis of algorithms. Topics include: advanced recurrence relations, algebraic complexity, advanced graph algorithms, amortized analysis, algorithms for NP-complete problems, randomized algorithms.

Prerequisite: COMP 3804 or permission of the School.

Lectures three hours a week.

COMP 4805 [0.5 credit]

**Theory of Automata**

Finite automata and regular expressions, properties of regular sets, context-free grammars, pushdown automata, deterministic context-free languages. Turing machines, the Chomsky hierarchy. Undecidability, intractable problems. (Also listed as MATH 4805.)

Precludes additional credit for MATH 5605.

Prerequisite: COMP 3805 or MATH 3106 or MATH 3158 (or MATH 3100) or permission of the School.

Lectures three hours a week.

Courses - Computer Science (COMP)

COMP 4806 [0.5 credit]

**Numerical Linear Algebra**

Study of matrix inversion techniques; techniques of finding eigenvalues and eigenvectors, solution of systems of linear equations; direct and indirect methods, their comparison and error analysis; applications in optimization and other areas. (Also listed as MATH 4806.)

Prerequisites: MATH 1102 or MATH 2107; and MATH 2000 or MATH 3009, or permission of the School.

Lectures three hours a week.

COMP 4807 [0.5 credit]

**Mobile Robot Programming**

An introduction to programming mobile robots covering topics such as behavior implementation, robot positioning, sensor data acquisition, sensor fusion, mapping, planning, navigation and multi-robot systems. Lab assignments will provide real robot programming experience in dealing with hardware uncertainties and constraints common to programming embedded systems.

Prerequisites: COMP1406 and COMP 2003.

Lectures three hours a week.

COMP 4900 [0.5 credit]

**Advanced Topics in Computer Science**

Selected topics in Computer Science offered by members of the School of Computer Science.

Prerequisite: permission of the School of Computer Science.

Lectures three hours a week.

COMP 4901 [0.5 credit]

**Directed Studies**

A course of independent study under the supervision of a member of the School of Computer Science, open only to students in the B.C.S. program. Students are required to obtain their supervisor's written approval prior to registration and are limited to two such courses in their programs.

Prerequisite: permission of the School of Computer Science.

COMP 4905 [0.5 credit]

**Honours Project**

Under the supervision of a faculty member, Honours students complete a major Computer Science project in fourth year. Permission to register is granted once an approved project proposal is submitted to the Department. See deadlines and details on the School web site.

Prerequisite: registration in the B.C.S. Honours program or one of the Combined Computer Science Honours programs and permission of the School of Computer Science.

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## Co-operative Education (COOP)

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### Co-operative Education Office

COOP 1000 [0.0 credit]

#### Co-op Preparation

This course introduces Co-op students to the Co-op placement process and prepares them for job application and for being out at work. Restricted to Co-op students and Co-op applicants. Graded SAT/UNSAT.

One 1.5 hour class each week.

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## Criminology and Criminal Justice (CRCJ)

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### Institute of Criminology and Criminal Justice Faculty of Public Affairs

CRCJ 1000 [0.5 credit]

#### Introduction to Criminology and Criminal Justice

Overview of the field, including the foundational approaches of criminology and criminal justice, crime as an object of study; criminal law and criminality in Canada; (neo) classical, aetiological and social reaction perspectives; alternative criminologies.

Lectures three hours a week.

CRCJ 3001 [0.5 credit]

#### Quantitative Methods in Criminology

Methods used conducting quantitative research. Topics include measuring and manipulating variables, reliability, validity, sampling, experimental, quasi-experimental designs and ethics.

Precludes additional credit for CRCJ 3000 (no longer offered), PSYC 2001, PSCI 2702, PSYC 2000.

Prerequisites: third-year standing in the B.A Honours program in Criminology and Criminal Justice.

Lectures and seminar three hours a week, laboratory one hour a week.

CRCJ 3002 [0.5 credit]

#### Qualitative Methods in Criminology

Methods used conducting qualitative research. Topics include field research, interviewing, ethnographic research, content analysis and ethics.

Precludes additional credit for CRCJ 3000 (no longer offered), SOCI 2003 (no longer offered), SOCI 2001.

Prerequisites: third-year standing in the B.A Honours program in Criminology and Criminal Justice.

Lectures and seminar three hours a week, laboratory one hour a week.

CRCJ 3003 [0.5 credit]

#### Legal Research Methods

Methods used conducting legal research. Topics will include research principles, theoretical approaches, law-related material, research procedures and ethics.

Precludes additional credit for LAWS 3907 (no longer offered), LAWS 2908 and LAWS 3908.

Prerequisites: third-year standing in the B.A Honours program in Criminology and Criminal Justice.

Lectures and seminar three hours a week, laboratory one hour a week.

CRCJ 3901 [1.0 credit]

#### Practicum in Criminology I

Through a field placement in an agency setting, students are provided the opportunity to obtain practical involvement in various aspects of criminal justice. Discussion and presentations in the Seminar Class and required term papers integrate applied, theoretical and empirical knowledge.

Precludes additional credit for LAWS 3905, PSYC 3903, PSYC 3904, and SOCI 3806. CRCJ 3901 may not be repeated.

Prerequisites: third-year standing in Criminology and Criminal Justice, including all of the 1000- and 2000-level requirements in the Major CGPA and permission of the Institute.

Field placement eight hours a week, seminar three hours a week.

Courses - Criminology and Criminal Justice (CRCJ)

CRCJ 3902 [1.0 credit]

**Practicum in Criminology II**

Through a field placement in an agency setting, students are provided the opportunity to obtain practical involvement in various aspects of criminal justice. Discussion and presentations in the Seminar Class and required term papers integrate applied, theoretical and empirical knowledge.

Precludes additional credit for LAWS 3905, PSYC 3903, PSYC 3904, and SOCI 3806. CRCJ 3902 may not be repeated.

Prerequisites: third-year Honours standing in Criminology and Criminal Justice including all of the 1000- and 2000- level requirements in the Major CGPA and permission of the Institute.

Field placement eight hours a week, seminar three hours a week.

CRCJ 4001 [0.5 credit]

**Special Topics in Criminology**

Examination of a special topic in criminology. Topics to be announced in advance of registration each year.

Prerequisite: fourth-year standing in B.A. Honours in Criminology and Criminal Justice. Sections offered may have additional prerequisites.

CRCJ 4002 [0.5 credit]

**Special Topics in Criminology**

Examination of a special topic in criminology. Topics to be announced in advance of registration each year.

Prerequisite: fourth-year standing in B.A. Honours Criminology and Criminal Justice. Sections offered may have additional prerequisites.

CRCJ 4908 [1.0 credit]

**Honours Research Project**

A research project conducted under the direct supervision of a faculty adviser from Criminology and Criminal Justice, Psychology, Law or Sociology. Mandatory workshops and symposiums are scheduled during the year.

Prerequisite: LAWS 2908 and LAWS 3908 for Law Concentration students (or LAWS 3907 (no longer offered); PSYC 3000 [1.0] for Psychology Concentration students; SOCI 2003 [1.0] (no longer offered), SOCI 2001 and SOCI 2002 for Sociology concentration students; and fourth-year standing in the B.A. Honours program in Criminology and Criminal Justice with a CGPA of 10.00 or better in the Major and permission of the Institute. Workshops and symposiums as scheduled.

## Earth Sciences (ERTH)

### Department of Earth Sciences Faculty of Science

ERTH 1006 [0.5 credit]

#### Exploring Planet Earth

Origin of the Earth, concepts of geological time, and exploration of the interaction and duration of geological processes that shape the surface to deep interior of our planet, the climate, and formation of rocks and earth resources.

Precludes additional credit for ERTH 1001 (no longer offered).

Prerequisites: a 4U/M level in Advanced Functions and at least one of Biology, Chemistry, Earth and Space Sciences or Physics are recommended.

Lectures three hours a week, a laboratory three hours a week, and a field excursion.

ERTH 1009 [0.5 credit]

#### The Earth System Through Time

Earth's changing patterns of continent and ocean basin distribution related to plate tectonics; resulting change in global sea level, sedimentation, paleoclimates and life on Earth.

Precludes additional credit for GEOL 1008 (no longer offered)

Prerequisites: a 4U/M level in Advanced Functions and at least one of Biology, Chemistry, Earth and Space Sciences or Physics are recommended; ERTH 1006 is normally taken prior to this course.

Lectures three hours a week, a laboratory three hours a week.

ERTH 1010 [0.5 credit]

#### Our Dynamic Planet Earth

Origin of the Earth, concepts of geological time, and exploration of the interaction and duration of geological processes that shape the surface to deep interior of our planet, the climate, and formation of rocks and earth resources.

Precludes additional credit for ERTH 1001 (no longer offered).

Prerequisites: a 4U/M level in Advanced Functions and at least one of Biology, Chemistry, Earth and Space Sciences or Physics are recommended.

Lectures three hours a week.

ERTH 1011 [0.5 credit]

#### Evolution of the Earth

Earth's changing patterns of continent and ocean basin distribution related to plate tectonics; resulting change in global sea level, sedimentation, paleoclimates and life on Earth.

Precludes additional credit for GEOL 1008 (no longer offered).

Prerequisites: a 4U/M level in Advanced Functions and at least one of Biology, Chemistry, Earth and Space Sciences or Physics are recommended; ERTH 1006 is normally taken prior to this course.

Lectures three hours a week.

ERTH 2001 [0.5 credit]

#### Co-operative Work Term Report 1

This course provides practical experience for students enrolled in the Co-operative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written and oral reports describing the work term project will be required.

Prerequisites: registration in the Earth Sciences Co-operative Option and permission of the Department.

Four-month work term.

ERTH 2102 [0.5 credit]

#### Mineralogy to Petrology

Chemical, optical and crystallographic properties of common rock-forming minerals, with introduction to common mineral assemblages of igneous, sedimentary, and metamorphic rocks.

Precludes additional credit for ERTH 3202.

Prerequisites: ERTH 1001 (no longer offered) or ERTH 1006 and (ERTH 1009 or GEOG 2013) and CHEM 1002 or CHEM 1006.

Lectures two hours a week and laboratory three hours a week.

ERTH 2104 [0.5 credit]

#### Igneous Systems, Geochemistry and Processes

The sources and magmatic evolution of volcanic and plutonic rocks systems, with emphasis on geochemical, mineralogical, and textural characteristics, and relations to igneous processes.

Precludes additional credit for ERTH 3202

Prerequisite: ERTH 2102.

Lectures two hours a week, laboratory three hours a week, tutorial one hour per week, and a field excursion.

ERTH 2105 [0.5 credit]

#### Geodynamics

The structure, composition, and rheological properties of the Earth: lithosphere, mantle and core. Plate tectonics and its relation to geophysical fields, driving mechanisms, and processes at plate boundaries and in plate interiors.

Precludes additional credit for ERTH 3805 (no longer offered).

Prerequisites: ERTH 1001 (no longer offered) or ERTH 1006 and (ERTH 1009 or GEOG 2013).

Lectures two hours a week and a laboratory three hours a week.

ERTH 2312 [0.5 credit]

#### Paleontology

Introduction to macrofossil and microfossil groups, their paleoenvironmental significance, and principles of evolutionary paleoecology.

Precludes additional credit for GEOL 2301 (no longer offered) and GEOL 2306 (no longer offered).

Prerequisites: ERTH 1001 (no longer offered) or ERTH 1006 and ERTH 1009.

Lectures two hours a week and a laboratory three hours a week.

ERTH 2314 [0.5 credit]

#### Sedimentation and Stratigraphy

Origin of sediments, and their transport, distribution, and primary structures; processes of sediment-to-rock transformation; spatial patterns and controls of stratigraphy and methods of correlation.

Prerequisites: ERTH 1001 (no longer offered) or ERTH 1006 and (ERTH 1009 or GEOG 2013).

Lectures three hours a week and a laboratory three hours a week.

ERTH 2316 [0.5 credit]

#### Paleoecology

Introduction to macrofossil and microfossil groups, their paleoenvironmental significance, and principles of evolutionary paleoecology.

Prerequisites: ERTH 1001 (no longer offered) or ERTH 1006 and ERTH 1009. Priority given to students in the Minor in Earth Sciences. Not available for credit in B.Sc. Earth Sciences programs.

Lectures three hours a week.

ERTH 2318 [0.5 credit]

**Sedimentology**

Origin of sediments, and their transport, distribution, and primary structures; processes of sediment-to-rock transformation; spatial patterns and controls of stratigraphy and methods of correlation.

Prerequisites: EARTH 1001 (no longer offered) or EARTH 1006 and EARTH 1009. Priority given to students in the Minor in Earth Sciences. Not available for credit in B.Sc. Earth Sciences programs.

Lectures three hours a week.

ERTH 2401 [0.5 credit]

**Dinosaurs**

A general introduction to dinosaurs, their place in evolution, their social behaviour, the Mesozoic landscape, extinction theories, and public perception of dinosaurs.

With the exception of the Minor in Earth Sciences, and Concentration in Vertebrate Paleontology and Paleocology, students in Earth Sciences programs may use this course only as a free elective.

Lectures three hours a week.

ERTH 2402 [0.5 credit]

**Climate Change: An Earth Sciences Perspective**

An exploration of the often dramatic climate changes that have occurred through earth history from a geological perspective, emphasizing the history of earth climates, geological causes of climate change and impact that rapid climate change has had on the biosphere.

With the exception of the Minor in Earth Sciences, students in Earth Sciences programs may use this course only as a free elective.

Lectures three hours a week.

ERTH 2403 [0.5 credit]

**Introduction to Oceanography**

An environmental approach to understanding the oceans; introducing the physical and biological aspects of oceanography, marine resources and marine pollution. With the exception of the Minor in Earth Sciences, students in Earth Sciences programs may use this course only as a free elective.

Lectures three hours per week.

ERTH 2404 [0.5 credit]

**Engineering Geoscience**

Applications of the basic concepts of geology, earth materials and earth processes to practical engineering and environmental science. Topics include rock and soil mechanics, slope stability, hydrogeology, geological hazards, and site investigations. Overview of related geophysical methods.

Precludes additional credit for EARTH 2414 and EARTH 1006.

Prerequisites: completion of first year of any B.Eng. program.

Lectures three hours a week and a laboratory three hours a week.

ERTH 2406 [0.5 credit]

**Geology and Map Interpretation**

Analysis and interpretation of geological features and processes using rocks, maps and cross sections. Introduction to computational methods.

Prerequisites: EARTH 2102 and GEOM 2007 (may be taken concurrently).

Lectures two hours a week and a laboratory three hours a week.

ERTH 2415 [0.5 credit]

**Natural Disasters**

Physical characteristics and causes of natural disasters of geological origin such as volcanic eruptions, earthquakes, tsunamis, landslides and meteor impacts. Discussion on historical perspective, societal impact and mitigation strategies. Emphasis on Canadian case histories.

Precludes additional credit for EARTH 1003 (no longer offered).

Prerequisite: second-year standing in any degree program. With the exception of the Minor in Earth Sciences, available as a free elective only in any B.Sc. program, including Earth Sciences.

Lectures three hours a week.

ERTH 2802 [0.5 credit]

**Field Geology**

Field analysis using geological, geophysical and computational methods leading to the interpretation of the origins of geological features and processes.

Prerequisite: EARTH 2406 and permission of the department.

Field work for two weeks off campus. A supplementary fee may apply.

ERTH 3001 [0.5 credit]

**Co-operative Work Term Report 2**

This course provides practical experience for students enrolled in the Co-operative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written and oral reports describing the work term project will be required.

Prerequisites: registration in the Earth Sciences Co-operative Option and permission of the Department.

Four-month work term.

ERTH 3002 [0.5 credit]

**Gemology**

Gemstones including their physical and chemical properties, geological formation and geographic occurrence. Introduction to gemological laboratory methods.

Prerequisites: EARTH 2102.

Lectures two hours a week and laboratory two hours a week.

ERTH 3003 [0.5 credit]

**Geochemistry and Geochronology**

Geochemical processes within crustal to surface environments, and use of isotopic variations of certain elements to define geochronological frameworks and geochemical pathways to better understand the earth's history.

Precludes additional credit for EARTH 2101 (no longer offered).

Prerequisite: EARTH 2102.

Lecture two hours a week, and a laboratory three hours a week.

ERTH 3111 [0.5 credit]

**Vertebrate Paleontology I: Mammalian Paleontology and Evolution**

An introduction to the use of fossil evidence for studying the evolution of mammals, including the application of anatomy, functional morphology, biogeography, paleoecology, and systematics.

Prerequisite: BIOL 2001 (may be taken concurrently).

Lectures two hours a week and a laboratory three hours a week. May be offered in alternate years.



ERTH 3112 [0.5 credit]

**Paleontology and Evolution of Lower Vertebrates**

An introduction to fossil vertebrates, including fish, amphibians and reptiles, concentrating on anatomy, functional morphology, origins, evolution and systematics; and, transitions into new adaptive zones and associated environmental factors.

Prerequisites: BIOL 2001 (may be taken concurrently).

Lectures two hours a week and a laboratory three hours a week. May be offered in alternate years.

ERTH 3113 [0.5 credit]

**Geology of Human Origins**

The origin and evolution of our species from geological, biological and cultural perspectives. The course traces human ancestry from our primate roots through time and changing environments, and explores controversies, frauds, and misperceptions.

Prerequisite: any 1000- or 2000-level Earth Sciences course.

Lectures three hours per week. May be offered in alternate years.

ERTH 3203 [0.5 credit]

**Applied Sedimentology**

Field-based analysis of sedimentary processes as developed in modern and preserved in ancient geological environments.

Precludes additional credit for ERTH 3201 (no longer offered).

Prerequisites: ERTH 2102, ERTH 2104, ERTH 2105, ERTH 2312, ERTH 2314, ERTH 2406, ERTH 2802 and a second-year Earth Sciences average of 8.00 and permission of the department.

This course occurs off campus over a 10-day period. A supplementary fee may apply.

ERTH 3204 [0.5 credit]

**Mineral Deposits**

Analysis and interpretation of the geological and geochemical processes responsible for mineral deposit genesis in a global context.

Prerequisite: ERTH 2104.

Lectures and laboratory five hours a week.

ERTH 3205 [0.5 credit]

**Physical Hydrogeology**

Principles of deep- to shallow fluid flow within the Earth's crust, and introduction to the exploration, development and management of groundwater as a global resource.

Prerequisites: ERTH 1006 and (ERTH 1009 or GEOG 2013).

Lecture three hours a week and a laboratory three hours a week.

ERTH 3206 [0.5 credit]

**Oceanography: Its Modern and Geologic Records**

Composition and movement of the oceans, processes of sediment production and its distribution, ocean/climate interactions, geological proxies for ancient oceanographic conditions, and cyclic sedimentary and geochemical patterns.

Prerequisites: ERTH 1001 (no longer offered) or ERTH 1006 and (ERTH 1009 or GEOG 2013).

Lectures two hours a week and a laboratory three hours a week.

ERTH 3207 [0.5 credit]

**Metamorphic Petrology and Processes**

Genesis of metamorphic rocks as determined from field, petrographic and geochemical data.

Precludes additional credit for ERTH 3202 (no longer offered).

Prerequisite: ERTH 2104.

Lectures two hours a week, a laboratory three hours a week and a field excursion.

ERTH 3405 [0.5 credit]

**Geophysical Methods**

An introduction to the tools of applied geophysics including seismology, electrical, magnetic, and gravitational surveying methods.

Precludes additional credit for ERTH 2405 (no longer offered).

Prerequisites: ERTH 2105.

Lectures three hours a week.

ERTH 3806 [0.5 credit]

**Structural Geology**

Structures and deformational processes in a variety of crustal settings. Applications to geological engineering and mineral and petroleum exploration.

Prerequisites: ERTH 2105 and ERTH 2406.

Lecture two hours a week and a laboratory three hours a week.

ERTH 4001 [0.5 credit]

**Co-operative Work Term Report 3**

This course provides practical experience for students enrolled in the Co-operative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written and oral reports describing the work term project will be required.

Prerequisites: registration in the Earth Sciences Co-operative Option and permission of the Department.

Four-month work term.

ERTH 4003 [0.5 credit]

**Directed Studies in Geology**

One or more projects involving at least 15 days field and/or laboratory research, not related to thesis research. Assessment based on written reports and an oral presentation. Expenses for long-distance travel are borne by the student.

Prerequisites: fourth-year standing in any B.Sc. Hons. or Combined Hons. program in Earth Sciences.

Schedule to be arranged.

ERTH 4005 [0.5 credit]

**Micropaleontology**

Paleoecological and biostratigraphic significance, and evolutionary history of marine and freshwater microorganisms.

Prerequisites: ERTH 2312.

Lectures, seminars and laboratory five hours a week.

ERTH 4107 [0.5 credit]

**Geotechnical Mechanics**

Soil composition and soil classification. Soil properties, compaction, seepage and permeability. Concepts of pore water pressure, capillary pressure and hydraulic head. Principle of effective stress, stress-deformation and strength characteristics of soils, consolidation, stress distribution with soils, and settlement. Laboratory testing. (Also listed as CIVE 3208.)

Prerequisites: ERTH 2406 or equivalent and third-year registration, or permission of the Department.

Lectures three hours a week, laboratory three hours alternate weeks.

ERTH 4303 [0.5 credit]

**Resources of the Earth**

Earth's resources: where they occur, how they are concentrated, how they are extracted and used, and how human exploitation of natural resources impacts on the environment.

Prerequisite: third-year standing in any degree program.

Lectures three hours a week.

ERTH 4305 [0.5 credit]

**Carbonate Sedimentology**

The origin, composition and diagenesis of carbonate rocks. Study of modern and ancient platform systems; development of facies models; petrographic and geochemical analysis of limestones and dolostones.

Prerequisites: ERTH 3203 or ERTH 3206.

Lecture two hours a week and a laboratory three hours a week.

ERTH 4306 [0.5 credit]

**Resource Basin Analysis**

Surface and subsurface geological and geophysical techniques used to define the distribution and origin of geological basins, the architecture of basin fill, and characterize the distribution of water, petroleum and mineral resources.

Prerequisite: ERTH 3203 or ERTH 3206, ERTH 3205, and ERTH 3806.

Lectures, seminars and laboratory five hours a week.

ERTH 4402 [0.5 credit]

**Structural Geology**

A study of the structural evolution of mountain belts, with emphasis on field methods.

Prerequisites: ERTH 3806.

Lectures, seminars and laboratory five hours a week.

ERTH 4403 [0.5 credit]

**Tectonic Evolution of Canada**

Geologic evolution of Canada focusing on geological styles and tectonic processes of Archean cratons, Proterozoic and Phanerozoic orogenic belts.

Prerequisites: ERTH 3806.

Lectures and seminars three hours a week.

ERTH 4504 [0.5 credit]

**Advanced Igneous Petrology**

Volcanology, petrology, mineralogy and geochemistry of igneous rocks and their tectonic setting; includes one to two weeks of field-based instruction, costs borne by student.

Prerequisites: ERTH 2104.

Field excursions, seminars three hours a week.

ERTH 4507 [0.5 credit]

**Advanced Metamorphic Petrology**

Introduction to the quantitative analysis of pressure-temperature-time trajectories and rock-forming processes during metamorphic petrogenesis.

Prerequisites: ERTH 3207.

Lectures two hours a week, laboratories two hours a week, seminars one hour a week.

ERTH 4707 [0.5 credit]

**Engineering Seismology**

Seismological topics with engineering applications. Characterization of seismicity and seismic sources (areas and faults). Seismic hazard analysis. Empirical and theoretical modeling of strong ground motion in time and frequency domains.

Also offered at the graduate level, with additional or different requirements, as ERTH 5707, for which additional credit is precluded.

Prerequisites: one of MATH 1007 or MATH 1004, and one of MATH 1107 or MATH 1104, STAT 2507, and one of ERTH 2404, ERTH 2406 or ERTH 3805.

Lectures three hours a week.

ERTH 4801 [0.5 credit]

**Physics of the Earth**

The physical properties of the solid Earth. Gravitational, magnetic and palaeomagnetic fields; seismology and earthquake occurrence; heat flow and thermal history. Geodynamic processes.

Also offered at the graduate level, with additional or different requirements, as ERTH 5171, for which additional credit is precluded.

Prerequisites: ERTH 2105.

Lectures three hours a week.

ERTH 4803 [0.5 credit]

**Advanced Isotope Geology**

Chemical evolution of the Earth, meteorites; mantle and crustal evolution; radiogenic and stable isotopes; noble gas isotopes; applications to mineral deposits; environmental applications.

Also offered at the graduate level, with additional or different requirements, as ERTH 5609, for which additional credit is precluded.

Prerequisites: ERTH 3003.

Lectures three hours per week, seminars one hour per week.

ERTH 4804 [0.5 credit]

**Exploration Geophysics**

Application of geophysical methods to explore for petroleum and mineral resources, with emphasis on seismic and electromagnetic methods. Case histories illustrate the concepts.

Prerequisites: ERTH 3405.

Lectures and laboratories five hours per week.

ERTH 4807 [0.5 credit]

**Field Geology III**

Two-week field camp designed to extend the student's geological knowledge by integrating advanced field, theory and experimental data. Assessment based on written reports, seminars, and oral examinations. Part of the cost is borne by the student. Departmental funding assistance is available for only one of ERTH 4807 and ERTH 4808.

Prerequisites: completion of the third-year Earth Sciences course requirements and permission of the Department. A supplementary fee may apply.

ERTH 4808 [0.5 credit]

**Vertebrate Paleontology Field Camp**

Two-week field camp at Dinosaur Provincial Park (Alberta) designed to extend the student's vertebrate paleontological knowledge by integrating field, theory, and experimental data. Assessment based on written reports and seminars. Part of the cost is borne by the student. Departmental funding assistance is available for only one of ERTH 4807 and ERTH 4808.

Prerequisite: completion of third-year course requirements within the Vertebrate Paleontology concentration, and permission of the Department.

ERTH 4908 [1.0 credit]

**Honours Thesis**

Independent studies. Requires prior written approval of a topic from a supervisor and the course co-ordinator. Oral and written proposal, progress and defence reports are required.

Precludes additional credit for ERTH 4909.

Prerequisite: restricted to B.Sc. Honours and Combined Honours ERTH programs. Major CGPA 9.0 or greater at time of registration for the course.

ERTH 4909 [0.5 credit]

**Research in Earth Sciences**

Understanding research methods, data interpretation and presentation, through readings, seminars and/or laboratory projects related to a topic selected by the student with approval of a faculty advisor.

Precludes additional credit for ERTH 4908.

Prerequisites: restricted to B.Sc. Honours and Combined Honours Earth Sciences programs.

## Economics (ECON)

### Department of Economics Faculty of Public Affairs

ECON 1000 [1.0 credit]

#### Introduction to Economics

An introduction to the major tools and policy problems of economics. Economic analysis is applied to a variety of contemporary problems such as pollution, poverty, the control of monopoly, unemployment, inflation, and international economic problems.

Precludes additional credit for ECON 1001, ECON 1002, and FYSM 1003.

Lectures three hours a week, discussion groups one hour every two weeks.

ECON 1001 [0.5 credit]

#### Introduction to Economics: Microeconomics

The microeconomics half of ECON 1000.

Precludes additional credit for ECON 1000 and FYSM 1003.

Prerequisite: normally restricted to students who have obtained transfer credit for the equivalent of the macroeconomics half of ECON 1000.

Lectures three hours a week, discussion groups one hour every two weeks.

ECON 1002 [0.5 credit]

#### Introduction to Economics: Macroeconomics

The macroeconomics half of ECON 1000.

Precludes additional credit for ECON 1000 and FYSM 1003.

Prerequisite: normally restricted to students who have obtained transfer credit for the equivalent of the microeconomics half of ECON 1000.

Lectures three hours a week, discussion groups one hour every two weeks.

ECON 1401 [0.5 credit]

#### Elementary Mathematics for Economics I

Functional relations: including functional forms and error terms. Graphing economic magnitudes: scatter diagrams, time-series graphs, and functional relationships. Applied calculus: the mechanics of differentiation and integration, elasticity, and consumer/producer surplus. Applied algebra: solving systems of linear equations and Keynesian national-income analysis. Approaches to problem solving. (Also listed as MATH 1401.) This course is complementary to ECON 1000 and FYSM 1003.

Precludes additional credit for MATH 1009 and MATH 1119.

Prerequisites: Ontario Grade-12 U Advanced Functions, or MATH 0005, or equivalent; and ECON 1000 or FYSM 1003, which may be taken concurrently with ECON 1401.

Lectures three hours a week, tutorials one hour a week.

ECON 1402 [0.5 credit]

#### Elementary Mathematics for Economics II

Calculus: including partial differentiation, definite and indefinite integrals, techniques of integration, and unconstrained optimization. Vectors and matrices: scalar multiplication, inner product, linear dependence, matrix operations, rank, invertible matrix theorem, and determinants. Economic applications such as profit maximization, comparative statics, and the Leontief input-output model. (Also listed as MATH 1402.) This course is complementary to ECON 2020 and ECON 2102.

Precludes additional credit for MATH 1009 and MATH 1119.

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher, and ECON 1401 with a grade of C- or higher.

Lectures three hours a week, tutorials one hour a week.

ECON 2001 [0.5 credit]

#### Intermediate Microeconomics for Non-Mathematical Majors

The main topics in microeconomic theory presented in a relatively non-technical manner (e.g., without the requiring knowledge of calculus) with illustrations of their applications. Not open to students in any Economics, B.Com., B.C.S., B.Eng., B.I.D., B.Math., or B.Sc. program.

Precludes additional credit for ECON 2002 (no longer offered), ECON 2003 (no longer offered), ECON 2020, and ECON 2030.

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 2020 [0.5 credit]

#### Intermediate Microeconomics I: Producers and Market Structure

Theory of the firm: elements of production and cost; input allocation, pricing, and firm behaviour under perfectly and imperfectly competitive market structures; the role of information; game theory and public policy, including basic competition policy.

Precludes additional credit for ECON 2001, ECON 2002 (no longer offered), and ECON 2003 (no longer offered).

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher; and ECON 1402 (or equivalent), which may be taken concurrently with ECON 2020.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 2030 [0.5 credit]

#### Intermediate Microeconomics II: Consumers and General Equilibrium

Theory of consumer choice and demand; applications to intertemporal choice, labour supply, and/or choice under uncertainty; welfare analysis; general equilibrium theory; externalities and the role of government.

Precludes additional credit for ECON 2001, ECON 2002 (no longer offered), and ECON 2003 (no longer offered).

Prerequisites: ECON 2020 with a grade of C- or higher, and ECON 1402 (or equivalent) with a grade of C- or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 2101 [0.5 credit]

#### Intermediate Macroeconomics for Non-Mathematical Majors

The main topics in macroeconomic theory presented in a relatively non-technical manner (e.g., without the requiring knowledge of calculus) with illustrations of their application. Not open to students in any Economics, B.Com., B.C.S., B.Eng., B.I.D., B.Math., or B.Sc. program.

Precludes additional credit for ECON 2102 and ECON 2103.

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 2102 [0.5 credit]

#### Intermediate Macroeconomics I

An introduction to the macroeconomic modeling of output in the short and long run, and to fixed-price models of the closed and open economy over the business cycle. Policy prescriptions in relation to the business cycle are analysed.

Precludes additional credit for ECON 2101.

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher; and ECON 1402 (or equivalent), which may be taken concurrently with ECON 2102.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 2103 [0.5 credit]

**Intermediate Macroeconomics II**

An extension of macroeconomic modeling to the dynamics of wage-price adjustment in the intermediate and long run, to the theoretical foundations of basic macroeconomic relationships, and to contemporary policy issues arising in relation to the business cycle and long-run growth.

Precludes additional credit for ECON 2101.

Prerequisites: ECON 2102 with a grade of C- or higher, and ECON 1402 (or equivalent) with a grade of C- or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 2201 [0.5 credit]

**Statistical Methods in Economics and Business I**

An introduction to statistical inference. Topics covered include descriptive statistics, probability theory, sampling distributions, estimation and hypothesis testing with a single population.

Precludes additional credit for BIT 2000, BIT 2100, ECON 2200 (no longer offered), GEOG 2006, PSCI 2702, PSYC 2002, STAT 2507, STAT 2606, and STAT 3502.

Prerequisite: ECON 1402 (or equivalent), which may be taken concurrently with ECON 2201.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 2202 [0.5 credit]

**Statistical Methods in Economics and Business II**

A continuation of ECON 2201. Topics include estimation and hypothesis testing with two populations, correlation, simple and multiple linear regression, analysis of variance, tests of goodness of fit and independence, and introduction to statistical computing.

Precludes additional credit for ECON 2200 (no longer offered), STAT 2509, STAT 2559, and STAT 2607.

Prerequisites: ECON 2201 (or equivalent) with a grade of C- or higher, and ECON 1402 (or equivalent) with a grade of C- or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 2400 [0.5 credit]

**Mathematical Methods of Economics**

Constrained optimization via Lagrange and Kuhn-Tucker conditions; implicit functions and implicit differentiation; comparative static methods applied to models such as utility maximization and least-cost production; homogeneous functions; concave and convex functions; compounding and exponential functions; economic models involving integration; differential equations.

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher, and ECON 1401 and ECON 1402 (or equivalent) with an average grade of C+ or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 3050 [0.5 credit]

**Introduction to Financial Economics**

The major theories and basic tools used to address modern financial economic issues. Topics may include time value of money, bond and stock valuation, investment criteria, capital budgeting, the risk-return tradeoff, options and option valuation, cost of capital, and the fundamentals of international corporate finance. Precludes additional credit for BUSI 2504, ECON 2504 (no longer offered), BUSI 2505, ECON 2505 (no longer offered).

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher, ECON 1402 (or equivalent) with a grade of C- or higher, and BUSI 1002 or BUSI 1005 with a grade of C- or higher.

Lectures three hours a week.

ECON 3201 [0.5 credit]

**Economic Thought and Policy in Canada**

An account of the interrelationship between economic theories expounded in Canada and their issue in national policy.

Precludes additional credit for ECON 3404 (no longer offered).

Prerequisite: an introductory course in one of the social sciences or Canadian history.

Lectures three hours a week.

ECON 3202 [0.5 credit]

**Canadian Economic History to 1914**

A survey of Canadian economic history from the sixteenth century to the advent of industrial capitalism. (Also listed as HIST 3203.)

Precludes additional credit for ECON 2305 or HIST 2305 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 3207 [0.5 credit]

**Canadian Economic History since 1914**

A survey of Canadian economic history from the First World War to the present. (Also listed as HIST 3204.)

Precludes additional credit for ECON 2305 or HIST 2305 (no longer offered) and ECON 3203 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 3230 [0.5 credit]

**Selected Topics in Economic History**

Examination of the economic development of North America or Europe or other possible selected sets of countries. Countries examined vary from year to year. Precludes additional credit for ECON 3005 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 3300 [0.5 credit]

**Public Policy Toward Business**

The interaction of government and business in the Canadian economy. Reasons for government involvement in selected public policy areas. Topics covered may include competition policy, regulation of firms by boards and commissions, environmental regulation, and public enterprise.

Precludes additional credit for ECON 4302.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3360 [0.5 credit]

**Introduction to Labour Economics**

Basic principles of labour economics including market, institutional, and sociological forces. Technology and labour demand, wage systems, human capital, internal wage structure, market discrimination, female labour-force entry, wage/price spiral, household labour supply, and wage determination.

Precludes additional credit for ECON 3506 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3365 [0.5 credit]

**Introduction to Industrial Relations**

An introduction to industrial relations covering such topics as: industrial relations systems, the functioning of trade unions, collective bargaining in Canada, and Canadian public policy in industrial relations.

Precludes additional credit for BUSI 3107 (no longer offered) and ECON 3507 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3380 [0.5 credit]

**The Economics of Gender and Ethnicity**

The impact of gender and ethnicity on labour-market outcomes. Topics may include: employment, work, earnings, and poverty; discrimination and policy responses; immigration; the economics of the household; gender and development; micro-credit; labour standards.

Precludes additional credit for ECON 3100 (no longer offered) and ECON 3810 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3403 [0.5 credit]

**Public Economics: Expenditures**

The role and nature of the government sector in the economy, the theory of public goods, the equity and efficiency effects of public expenditures, voting rules and fiscal politics, techniques of public expenditure analysis, and intergovernmental fiscal relations.

Precludes additional credit for ECON 3003 (no longer offered), ECON 3408 (no longer offered), ECON 4402 (no longer offered), and ECON 4403.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3405 [0.5 credit]

**Public Economics: Taxation**

Role and nature of the government sector in the economy, principles of taxation, tax equity, incidence and excess burden of taxes, structure of taxes in the economy, role of personal, corporate, sales and wealth taxes, fiscal stabilization policy, and the economics of public debt.

Precludes additional credit for ECON 3003 (no longer offered), ECON 3407 (no longer offered), ECON 4401 (no longer offered), and ECON 4404.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3420 [0.5 credit]

**Economic Theories of Federalism**

Economic dimensions of federalism, with reference to Canadian experience. Issues include: fiscal federalism; impact of federal economic policies on provincial economies; decentralization possibilities for fiscal and economic development policies; and consequences of policies such as provincial trade barriers and impediments to factor flows.

Precludes additional credit for ECON 3206 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3450 [0.5 credit]

**Political Economy in the Modern State**

An examination of the role of government in the economy, with emphasis on alternate forms of social coordination and the advantages and disadvantages of each form in the Canadian system.

Precludes additional credit for ECON 3305 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3508 [0.5 credit]

**Introduction to Economic Development**

A discussion of the principles of economic development. Application to the problems of the developing countries.

Precludes additional credit for ECON 3603 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3509 [0.5 credit]

**Development Planning and Project Evaluation**

An introduction to the tools used in the planning and evaluation of development projects. Topics include the theory, application, strengths and limitations of cost-benefit analysis and competing approaches, and an examination of project evaluation techniques.

Precludes additional credit for ECON 3604 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3510 [0.5 credit]

**African Economic Development**

Domestic and international aspects of development problems and policies in the African context. Topics may include human resource development, growth and poverty reduction, domestic resource mobilization, the implications of ethnic diversity, governance, and institutions, and issues of trade, investment, aid, migration, and health.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3520 [0.5 credit]

**Canadian Economic Development**

An analysis of the impacts of the endowment of natural resources, changing market conditions and technology, and public policy on the growth and development of the Canadian economy.

Precludes additional credit for ECON 3205 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 3600 [0.5 credit]

**Introduction to International Economics**

A discussion of theory and policy in international trade and finance. Intended for students planning to take only 0.5 credit in international economics at the 3000- or 4000-level.

Precludes additional credit for ECON 3601, ECON 3602, ECON 4601, and ECON 4602.

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department.

Lectures three hours a week.

ECON 3601 [0.5 credit]

**Introduction to International Trade**

An extension of the basic principles of economics to international trade. Topics covered include the theory of international specialization, tariffs and other barriers to trade, trade liberalization and economic integration, international movements of labour and capital, trade and development.

Precludes additional credit for ECON 3600 and ECON 4601.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3602 [0.5 credit]

**International Monetary Problems**

A discussion of the theory and institutions of the international monetary system, and the related balance of payments problems of nation states.

Precludes additional credit for ECON 3600 and ECON 4602.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

Courses - Economics (ECON)

ECON 3607 [0.5 credit]

**Monetary and Financial Institutions**

The behaviour of financial intermediaries and institutions such as the Bank of Canada, banks and trust companies, and regulatory bodies such as the Canada Deposit Insurance Corporation and the Superintendent of Financial Institutions.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3706 [0.5 credit]

**Applied Econometrics**

Introduction to applied econometric methods with emphasis on the use of the regression model for empirical research. Real-world examples are used extensively to illustrate key concepts. Hands-on computer exercises are an integral part of the course.

Precludes additional credit for ECON 4706.

Prerequisites: ECON 1000 or FYSM 1003, ECON 2201 (or equivalent) with a grade of C- or higher, and ECON 2202 (or equivalent) with a grade of C+ or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 3801 [0.5 credit]

**Regional Economics**

Unequal distribution of economic activity between spatially defined regions. The pattern in Canada since World War II and the outlook for the future is evaluated, considering "natural" adjustment mechanisms and policy tools.

Precludes additional credit for ECON 3401 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3803 [0.5 credit]

**The Economics of Natural Resources**

The application of economic analysis to questions concerning natural-resource use, management and conservation, as well as market failures and environmental effects. Policy problems relating to natural resources are discussed.

Precludes additional credit for ECON 3805 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3804 [0.5 credit]

**Environmental Economics**

Microeconomic analysis of environmental issues. Frameworks for measuring environmental costs and benefits. The efficiency of alternative pollution control policies. Applications include air and water pollution and global environmental problems such as ozone depletion and global warming.

Precludes additional credit for ECON 3806 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3807 [0.5 credit]

**European Economic Integration**

A discussion of the theories of free trade areas and customs, monetary, and economic unions, and the related historical experience of Europe. Topics include: currency area and the euro, coordination of fiscal policy and the EU budget, common agricultural policy, labour mobility, and regional policy.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3808 [0.5 credit]

**The Economics of Transition**

The transition from state ownership and central planning to mixed ownership structure with resource allocation by market mechanisms. "Classical socialism" is criticized and the processes of transition in countries of Central and Eastern Europe, the former Soviet Union, and Asia are compared.

Precludes additional credit for ECON 3700 (no longer offered), ECON 3701 (no longer offered), and ECON 3702 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3820 [0.5 credit]

**Topics in Canadian Economic Policy**

Economic analysis applied to selected policy areas, issues or institutions. One or more of the following topics may be dealt with: decision-making by bureaucratic institutions, policy problems arising from poverty, the economics of natural resources and pollution, urban economics.

Precludes additional credit for ECON 3800 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3840 [0.5 credit]

**An Economic Analysis of Law**

An introduction to the application of economic principles and methodology to a variety of legal problems with emphasis on the theory of property rights and the allocation of resources.

Precludes additional credit for ECON 3204 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3850 [0.5 credit]

**Economics of Information and the Media**

An introduction to the economics of information and the media, with a focus on the analysis of production and distribution of information, the application of theory to selected communications-media industries in Canada, and the analysis of existing Canadian policies.

Precludes additional credit for ECON 3200 (no longer offered), ECON 4205 (no longer offered), and ECON 4850.

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3860 [0.5 credit]

**Agricultural Economics**

An examination of the agricultural industry in the national economy and in low-income societies, with emphasis on the working out of the basic forces that determine supply and demand for the industry, and the functional distribution of income among the factors of production.

Precludes additional credit for ECON 3406 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3870 [0.5 credit]

**Comparative Economic Systems**

Analysis of the structure, institutions, and performance of alternative economic systems, including capitalism, socialism, and communism. Selected countries are studied as examples of these systems.

Precludes additional credit for ECON 4806 (no longer offered) and ECON 4807 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures three hours a week.

ECON 3880 [0.5 credit]

**Special Studies in Economics**

Content may vary from year to year and is announced in advance of the registration period.

Precludes additional credit for ECON 3402 (no longer offered).

Prerequisite: ECON 1000 or FYSM 1003.

Lectures and/or seminars three hours a week.

ECON 3981 [0.0 credit]

**Co-operative Work Term 1**

Graded Sat/Uns.

Prerequisites: registration in the Honours Economics or Applied Economics Co-operative Education option, satisfactory completion of COOP 1000, and permission of the Department.

ECON 3982 [0.0 credit]

**Co-operative Work Term 2**

Graded Sat/Uns.

Prerequisites: registration in the Honours Economics or Applied Economics Co-operative Education option, satisfactory completion of ECON 3981, and permission of the Department.

ECON 3983 [0.0 credit]

**Co-operative Work Term 3**

Graded Sat/Uns.

Prerequisites: registration in the Honours Economics or Applied Economics Co-operative Education option, satisfactory completion of ECON 3982, and permission of the Department.

ECON 3984 [0.0 credit]

**Co-operative Work Term 4**

Graded Sat/Uns.

Prerequisites: registration in the Honours Economics or Applied Economics Co-operative Education option, satisfactory completion of ECON 3983, and permission of the Department.

ECON 4001 [0.5 credit]

**Mathematical Analysis in Economics**

Analysis and algebra: including set theory, sequences and series, quadratic forms, separation and fixed-point theorems. Static optimization: including the Weierstrass, Lagrange, and Kuhn-Tucker theorems; convexity and quasi-convexity; and the envelope theorem. Dynamic optimization: including the Maximum Principle and Bellman's equation. Applications of these tools to economic theory are presented.

Prerequisite: ECON 2400 with a grade of C+ or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 4002 [0.5 credit]

**Statistical Analysis in Economics**

Probability: including conditional probability, random variables and distributions, unconditional and conditional expectations. Distributions: including special distributions and their properties, and sampling distributions of estimators. Nonparametric methods and limit theorems; stochastic processes; simulation and bootstrap methods. Applications of these tools to economic theory are presented.

Precludes additional credit for STAT 3500 (no longer offered), STAT 3508, and STAT 3558.

Prerequisites: ECON 2201 (or equivalent) with a grade of C+ or higher, and ECON 2202 (or equivalent) with a grade of C+ or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 4004 [0.5 credit]

**Operations Research I**

Linear programming, duality, sensitivity analysis, transportation and network problems. Both theory and a wide range of applications are studied.

Precludes additional credit for BUSI 2300 (no longer offered), MATH 3801, and SYSC 3200.

Prerequisites: ECON 1402 (or equivalent) with a grade of C- or higher.

Lectures three hours a week.

ECON 4005 [0.5 credit]

**Operations Research II**

Dynamic programming, inventory models, queuing, simulation, non-linear programming.

Prerequisites: ECON 4004 or BUSI 2300 (no longer offered) or MATH 3801 or SYSC 3200; and ECON 2202 (or equivalent, or STAT 2605 or STAT 3502) with a grade of C- or higher.

Lectures three hours a week.

ECON 4020 [0.5 credit]

**Advanced Microeconomic Theory**

Advanced theory of individual economic behaviour in production, consumption, and general equilibrium. Elementary tools of mathematics are employed in the exposition of most topics.

Precludes additional credit for ECON 4200 (no longer offered).

Prerequisites: ECON 2020 and ECON 2030 each with a grade of C+ or higher or ECON 2002 (no longer offered) and ECON 2003 (no longer offered) each with a grade of C+ or higher; ECON 2400 (or MATH 2000 or MATH 2004) with a grade of C+ or higher; and ECON 2202 (or equivalent, or STAT 2605 or STAT 3502), which may be taken concurrently with ECON 4020.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 4021 [0.5 credit]

**Advanced Macroeconomic Theory**

An introduction to advanced macroeconomic models. Topics may include analysis of business cycles, inflation, unemployment, economic growth, fiscal and monetary policy, consumption decisions of households, and investment decisions of firms.

Precludes additional credit for ECON 4201 (no longer offered).

Prerequisites: ECON 2102 with a grade of C+ or higher; ECON 2103 with a grade of C+ or higher; ECON 2400 (or MATH 2000 or MATH 2004) with a grade of C+ or higher; and ECON 2202 (or equivalent, or STAT 2605 or STAT 3502), which may be taken concurrently with ECON 4021.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 4030 [0.5 credit]

**Economics of Uncertainty and Information**

Uncertainty, imperfect information, and asymmetric information in the allocation of resources and the performance of markets and alternative coordinating mechanisms.

Precludes additional credit for ECON 4006 (no longer offered) and ECON 4260 (no longer offered).

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2202 (or equivalent) with a grade of C- or higher.

Lectures three hours a week.

ECON 4051 [0.5 credit]

**Financial Asset Pricing**

Factors that drive security prices and models that attempt to account for aspects of security returns, including the generic arbitrage pricing model, the capital asset pricing model (CAPM), the consumption CAPM, and the intertemporal CAPM.

Precludes additional credit for BUSI 3500 (or ECON 3500, no longer offered) and BUSI 3502 (or ECON 3502, no longer offered).

Prerequisites: ECON 3050 with a grade of C- or higher, and ECON 2202 (or equivalent) with a grade of C- or higher.

Lectures three hours a week.

ECON 4052 [0.5 credit]

**Corporate Financial Economics**

Optimization and corporate finance. Corporate governance and managerial compensation. Capital structure and the Modigliani-Miller theorem. Agency theory and asymmetric information. The issue of equity, debt, and other securities. Dividend policy. Investment and capital budgeting, NPV, and real options.

Precludes additional credit for BUSI 3500 (or ECON 3500, no longer offered) and BUSI 3502 (or ECON 3502, no longer offered).

Prerequisites: ECON 3050 with a grade of C- or higher, and ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4053 [0.5 credit]

**Financial Market Modeling**

The modeling of the evolution of prices in (near) efficient markets and the evaluation of functions of these prices such as guarantees, options, warrants, futures, and other types of derivatives. Arrow-Debreu state-contingent claims. Notions of complete and incomplete markets.

Precludes additional credit for ECON 4100 (no longer offered) and ECON 4504 (no longer offered).

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2400 with a grade of C- or higher.

Lectures three hours a week.

ECON 4056 [0.5 credit]

**Insurance Economics**

The theory of insurance founded on probability and decision theory. The optimal design of insurance policies from a risk-sharing and an information economics perspective. Principal-agent problems including adverse selection, asymmetric information, and moral hazard with implications for insurance. The interaction between insurance and other markets.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2202 (or equivalent) with a grade of C- or higher.

Lectures three hours a week.

ECON 4057 [0.5 credit]

**Behavioural Financial Economics**

Market efficiency and the limits of arbitrage. Heuristics and biases identified by behavioural decision theorists and their effect on the behaviour of managers and investors. Behavioural theories of market trading volume and asset prices. Behavioural approaches to corporate financial economics problems.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 3050 with a grade of C- or higher.

Lectures three hours a week.

ECON 4209 [0.5 credit]

**Selected Topics in the History of Economic Thought**

The development of economic thought through time in relation to selected economic problems. Also offered at the graduate level, with additional or different requirements, as ECON 5209, for which additional credit is precluded.

Precludes additional credit for ECON 4105 (no longer offered).

Prerequisites: ECON 2030 with a grade of C+ or higher or ECON 2003 (no longer offered) with a grade of C+ or higher, and ECON 2103 with a grade of C+ or higher.

Lectures and/or seminars three hours a week.

ECON 4301 [0.5 credit]

**Market Structure and Firm Behaviour**

Various theoretical and empirical studies of firm and market organization with emphasis on the pricing, advertising, investment and locational behaviour of firms in imperfectly competitive markets.

Precludes additional credit for ECON 4300 (no longer offered).

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4302 [0.5 credit]

**Competition and Regulatory Policy**

Public policies relating to competition and regulation. Topics may include: Ramsey pricing, peak-load pricing, cross-subsidization, access pricing (ECPR), multi-part pricing and price discrimination, predatory and targeted pricing, vertical restrictions, traditional regulation (including rate-of-return regulation), incentive regulation (including price caps), and the political economy of regulation.

Precludes additional credit for ECON 3300 and ECON 4300 (no longer offered).

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4309 [0.5 credit]

**Applied Industrial Economics**

The empirical application of microeconomics, with special emphasis on the Canadian economy. Topics include: consumer demand, firm production and investment, and industrial and trade structure.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2202 (or equivalent, or STAT 2605 or STAT 3502) with a grade of C- or higher.

Lectures three hours a week.

ECON 4360 [0.5 credit]

**Labour Economics**

The application of price theory to the labour market. Topics include models of labour supply and labour demand, human capital and the economics of education, and unions and their impact on the labour market.

Precludes additional credit for ECON 4305 (no longer offered) and ECON 4306 (no longer offered).

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.



ECON 4365 [0.5 credit]

**Industrial Relations**

Economic analysis of selected industrial relations and labour market policy problems. Topics include unionization, strike activity, the economics of occupational health and safety, pension policy, and the impact of new technology on the labour market.

Precludes additional credit for ECON 4605 (no longer offered).

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4403 [0.5 credit]

**Public Economics: Expenditures**

A discussion of the theory of government expenditures and an examination of empirical attempts to quantify the theory. Examination of current topics such as expenditures and grants in the Canadian federation.

Precludes additional credit for ECON 3403, ECON 3408 (no longer offered), and ECON 4402 (no longer offered).

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4404 [0.5 credit]

**Public Economics: Taxation**

A discussion of the theory of taxation and an examination of empirical attempts to quantify the theory. Some topics of current interest, such as the redistribution of income in Canada and tax reform, are examined.

Precludes additional credit for ECON 3405, ECON 3407 (no longer offered), and ECON 4401 (no longer offered).

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4407 [0.5 credit]

**Project Evaluation**

Techniques and problems in the evaluation of public and private projects. Examination of alternative approaches to public decision-making including cost-benefit analysis, cost-effectiveness analysis, and multiple-objective frameworks. Case studies of projects in various areas such as natural resources, the environment, human resources, public services, and transportation.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2202 (or equivalent, or STAT 2605 or STAT 3502) with a grade of C- or higher.

Lectures three hours a week.

ECON 4460 [0.5 credit]

**Health Economics**

Economic analysis of the organization, financing, and utilization of health-care services. Topics include supply and demand of health care, the impact of private and social health insurance on demand, and policy issues in the provision of health care in Canada.

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2202 with a grade of C- or higher.

Lectures three hours a week.

ECON 4507 [0.5 credit]

**The Economics of Development**

An examination of some theoretical approaches to the economics of development, together with analysis of some economic policy issues of a largely internal character, such as intersectoral investment allocation, income distribution, unemployment, and investment in human development.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2103 with a grade of C- or higher.

Lectures three hours a week.

ECON 4508 [0.5 credit]

**International Aspects of Economic Development**

An analysis of the international economic policy problems of development in Asia, Africa and Latin America, focusing on international trade, direct foreign investment, technological transfer, regional integration, debt and development financing, and international migration.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2103 with a grade of C- or higher.

Lectures three hours a week.

ECON 4601 [0.5 credit]

**International Trade Theory and Policy**

International trade theory and its implications for economic policy. Topics such as determinants of trade and specialization, gains from trade and commercial policy, international factor mobility, growth and development.

Precludes additional credit for ECON 3600 and ECON 3601.

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4602 [0.5 credit]

**International Monetary Theory and Policy**

International monetary theory and its implications for economic policy. Topics such as sources of disequilibrium and adjustment in the balance of payments under fixed versus flexible exchange rates, international capital movements, and international monetary reform.

Precludes additional credit for ECON 3600 and ECON 3602.

Prerequisite: ECON 2103 with a grade of C- or higher.

Lectures three hours a week.

ECON 4607 [0.5 credit]

**Monetary Theory I**

Foundations of monetary theory. Classical, Keynesian and other money transmission mechanisms; the "optimum quantity of money"; estimates of supply and demand; difficulties of policy implementation in open and closed economies and in a growth context.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, and ECON 2103 with a grade of C- or higher.

Lectures three hours a week.

ECON 4608 [0.5 credit]

**Monetary Theory II**

A continuation of ECON 4607. Past and current controversies in monetary theory, particularly as they relate to policy issues.

Prerequisite: ECON 4607.

Lectures three hours a week.

ECON 4700 [0.5 credit]

**Measurement Economics**

National accounting and index numbers. Topics may include: the measurement of output and income, capital and depreciation, productivity, employment and unemployment, poverty and inequality, household production, pollution and resource depletion, and the balance of payments; price indexes; standard-of-living indexes; and international comparisons.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, ECON 2103 with a grade of C- or higher, and ECON 2202 (or equivalent) with a grade of C- or higher.

Lectures three hours a week.

ECON 4706 [0.5 credit]

**Econometrics I**

An introduction to econometric theory and analysis of the classical normal regression model. Topics include estimation methods, hypothesis testing, multicollinearity, autocorrelation, and heteroscedasticity.

Precludes additional credit for ECON 3706.

Prerequisites: ECON 2201 (or equivalent) with a grade of C+ or higher, and ECON 2202 (or equivalent) with a grade of C+ or higher.

Lectures three hours a week, tutorials one and a half hours a week.

ECON 4707 [0.5 credit]

**Econometrics II**

An extension of ECON 4706. Topics include dummy variables, qualitative and limited dependent variables, and simultaneous equation models. Optional topics include simple expectations models, errors in variables, specification tests and diagnostics checks, distributed lag models, and seemingly unrelated regression models.

Prerequisite: ECON 4706 with a grade of C- or higher, or STAT 3503 with a grade of C- or higher.

Lectures three hours a week.

ECON 4713 [0.5 credit]

**Time-Series Econometrics**

An introduction to the basic concepts and tools of time-series econometrics. Topics include stationary and non-stationary time series, identification, estimation and forecasting, unit root testing, cointegration analysis, error-correction models and ARCH models, together with relevant economic applications.

Precludes additional credit for ECON 4803 (no longer offered) and STAT 4603.

Prerequisites: ECON 4706 with a grade of C- or higher, or STAT 3503 with a grade of C- or higher.

Lectures three hours a week.

ECON 4714 [0.5 credit]

**Advanced Topics in Applied Econometrics**

Advanced coverage of one or more areas of current interest in applied econometrics. An empirical research project may be required.

Precludes additional credit for ECON 4804 (no longer offered).

Prerequisites: ECON 4706 with a grade of C+ or higher; and ECON 4707, which may be taken concurrently with ECON 4714.

Lectures three hours a week.

ECON 4800 [0.5 credit]

**Spatial Economics**

Spatial dimensions of economic activity and organization. Theories of urban agglomeration effects, transport costs, forward and backward linkages, and associated spatial dynamics; empirical analysis of spatial economic clusters; effects of globalization and economic growth on the spatial structure of production and the associated policy response.

Prerequisites: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher, ECON 2103 with a grade of C- or higher, and ECON 2202 (or equivalent) with a grade of C- or higher.

Lectures three hours a week.

ECON 4850 [0.5 credit]

**Advanced Economics of Information and Media**

The economics of information production, its distribution through broadcasting, publishing or the Internet, its exchange through telephone and e-mail networks, and its use in private and public organizations. An analysis of telecommunications, broadcasting, copyright, privacy, and Internet policy.

Precludes additional credit for ECON 3200 (no longer offered), ECON 3850, and ECON 4205 (no longer offered).

Prerequisite: ECON 2030 with a grade of C- or higher or ECON 2003 (no longer offered) with a grade of C- or higher.

Lectures three hours a week.

ECON 4880 [0.5 credit]

**Special Topics in Economics**

Selected advanced topics of interest to upper-year Honours Economics and Applied Economics students. Topics may vary from year to year and are announced in advance of the registration period.

Prerequisites: ECON 2030 with a grade of C+ or higher or ECON 2003 (no longer offered) with a grade of C+ or higher; ECON 2103 with a grade of C+ or higher; and ECON 3706 or ECON 4706, which may be taken concurrently with ECON 4880 or may be waived by permission of the Department.

Lectures and/or seminars three hours a week.

ECON 4890 [0.5 credit]

**Applied Honours Seminar**

This seminar focuses on the use of basic economic analysis in a small number of research topics to be selected by the instructor. A major research paper is required. This seminar is intended for fourth-year Applied Honours Economics students.

Precludes additional credit for ECON 4900 (no longer offered), ECON 4901, and ECON 4902.

Prerequisites: ECON 2030 with a grade of C+ or higher or ECON 2003 (no longer offered) with a grade of C+ or higher; ECON 2103 with a grade of C+ or higher; and ECON 3706, which may be taken concurrently with ECON 4890.

Lectures and/or seminars three hours a week.

ECON 4901 [0.5 credit]

**Honours Seminar: Microeconomics**

This seminar focuses on the use of basic microeconomic analysis in a small number of research topics to be selected by the instructor. A major research paper is required.

Precludes additional credit for ECON 4890 and ECON 4900 (no longer offered).

Prerequisites: ECON 4020 with a grade of C- or higher; registration in an Honours Economics program; ECON 4021 and ECON 4706, which may be taken concurrently with ECON 4901.

Lectures and/or seminars three hours a week.

ECON 4902 [0.5 credit]

**Honours Seminar: Macroeconomics**

This seminar focuses on the use of basic macroeconomic analysis in a small number of research topics to be selected by the instructor. A major research paper is required.

Precludes additional credit for ECON 4890 and ECON 4900 (no longer offered).

Prerequisites: ECON 4021 with a grade of C- or higher; registration in an Honours Economics program; ECON 4020 and ECON 4706, which may be taken concurrently with ECON 4902.

Lectures and/or seminars three hours a week.

ECON 4903 [0.5 credit]

**Tutorial in Economics**

An additional tutorial in economics may be taken subsequent to, or concurrently with, ECON 4890 or ECON 4901 or ECON 4902.

Prerequisite: permission of the Department.

ECON 4904 [0.5 credit]

**Tutorial in Economics**

An additional tutorial in economics may be taken subsequent to, or concurrently with, ECON 4890 or ECON 4901 or ECON 4902.

Prerequisite: permission of the Department.

ECON 4908 [1.0 credit]

**Honours Essay**

Students taking Honours in Economics or Applied Economics may write an Honours essay during their final year. This essay counts for one credit. Students work under an individual faculty adviser.

Prerequisite: permission of the Department.

## Electronics (ELEC)

### Department of Electronics Faculty of Engineering

Note: The Departments of Electronics and Systems and Computer Engineering offer courses in: Biomedical and Electrical Engineering, Communications Engineering, Computer Systems Engineering, Electrical Engineering, Software Engineering and Engineering Physics.

ELEC 1908 [0.5 credit]

#### First Year Project

A practical introduction to engineering design. Students work in small teams to specify, design and implement a system, formally managing the project progress and submitting oral and written reports. Professionalism: engineering ethics; health and safety. Technology, society and the environment.

Prerequisite: registration in the Engineering Physics program.

Lectures and tutorials three hours a week, laboratory four hours a week.

ELEC 2501 [0.5 credit]

#### Circuits and Signals

Properties of signals. Basic circuit elements: voltage and current sources. Kirchhoff's laws, linearity, superposition. Thevenin and Norton's theorems. Circuit simplification. AC steady-state analysis: impedance, admittance, phasors, frequency response. Transient response of RL and RC circuits: form of response, initial and final conditions. RLC circuits: resonance.

Prerequisites: MATH 1005 and (PHYS 1004 or PHYS 1002).

Lectures three hours a week, laboratory and problem analysis three hours a week.

ELEC 2507 [0.5 credit]

#### Electronics I

Qualitative semiconductor physics, leading to the diode equation. Diode applications. Operational amplifiers and their application in feedback configurations including active filters. Introduction to bipolar transistors and MOSFETs, analysis of biasing circuits. Transistor applications including small signal amplifiers.

Prerequisite: ELEC 2501.

Lectures three hours a week, laboratory and problem analysis three hours a week.

ELEC 2607 [0.5 credit]

#### Switching Circuits

Boolean algebra, gate, combinatorial circuits. DeMorgan notation, sum-of-product and product-of-sum forms. Logic arrays, PLAs and PALs. Flip-flops, latches, sequential circuits, state graphs and state minimization. Counters and controllers. Hazards. Asynchronous sequential circuits, race free assignment, realization. Precludes additional credit for SYSC 2607/SYSC 3607 or ELEC 3607.

Prerequisite: PHYS 1004 or PHYS 1002.

Lectures three hours a week, laboratory three hours alternate weeks.

ELEC 3105 [0.5 credit]

#### Basic EM and Power Engineering

Electrostatics and magnetostatics. Solution of Poisson's and Laplace's equations. The Lorenz equation and force. Time varying fields. Magnetic circuits and transformers. DC and AC motors.

Precludes additional credit for ELEC 2601 or ELEC 3504.

Prerequisites: MATH 2004 and (PHYS 1004 or PHYS 1002).

Lectures three hours a week, laboratory and problem analysis three hours alternate weeks.

ELEC 3500 [0.5 credit]

#### Digital Electronics

Digital circuit design using verilog and logic synthesis, the electronic properties of logic gates, electrical interfacing between logic families, asynchronous to synchronous interfacing, clock distribution and timing, VLSI design options. Students implement substantial circuits with field-programmable gate arrays.

Prerequisites: ELEC 2507 and ELEC 2607.

Lectures three hours a week, laboratory three hours a week.

ELEC 3508 [0.5 credit]

#### Power Electronics

Power transformers. DC and AC motors. Power semiconductor devices: Thyristors, Triacs, MCTs, IGBTs). Converter circuits: controlled AC to DC rectifiers, choppers, DC to AC inverters, AC voltage controllers, cycloconverters. Protection of conversion circuits. Applications to high-efficiency control of electric machines and electromechanical energy conversion devices.

Prerequisite: ELEC 2501 and ELEC 2507.

Lectures three hours per week, laboratories/problem analysis three hours per week.

ELEC 3509 [0.5 credit]

#### Electronics II

Introduction to semiconductor devices and ICs. DC, AC and switching properties of BJTs. Linear amplifiers; bandwidth considerations; two-port analysis. Large signal amplifiers; power amplifiers; transformerless circuits. Feedback and operational amplifiers; gain, sensitivity, distortion and stability. Filter design. Oscillators.

Prerequisite: ELEC 2507.

Lectures three hours a week, laboratory three hours a week.

ELEC 3605 [0.5 credit]

#### Electrical Engineering

DC circuits: elements, sources, analysis. Single phase AC circuits: phasors, RLC circuits, real and reactive power, impedance, network analysis, three phase systems. Power transformers. DC motors: operation and characteristics. AC motors: single phase and three phase.

Prerequisites: MATH 1005 and (PHYS 1004 or PHYS 1002). Not open to students in Biomedical and Electrical Engineering, Communications Engineering, Computer Systems Engineering, Electrical Engineering, Engineering Physics or Aerospace Stream C.

Lectures three hours a week, problem analysis three hours alternate weeks.

ELEC 3907 [0.5 credit]

#### Engineering Project

Student teams work on open-ended projects based on previously acquired knowledge. Lectures are devoted to discussing project-related issues and student presentations. A project proposal, a series of project reports, and oral presentations, and a comprehensive final report are required.

Prerequisites: ELEC 2607, ELEC 2507, and ECOR 2606, and enrolment in the Electrical Engineering program.

Lecture one hour per week, laboratory seven hours per week.

ELEC 3908 [0.5 credit]

**Physical Electronics**

Fundamentals of device physics and operation of the pn junction, bipolar transistor and MOSFET. Basic integrated circuit processing and application to diodes, BJT's and MOSFET's. Correlation between processing, structure, operation and modeling. Consideration of parasitic and small-geometry effects, reliability and process variation.

Precludes additional credit for ELEC 3608.

Prerequisites: ELEC 2507.

Lectures three hours a week, problem analysis two hours a week.

ELEC 3909 [0.5 credit]

**Electromagnetic Waves**

Maxwell's equations and EM wave solutions. Polarization. Poynting vector. EM waves in dielectrics and conductors; skin depth. Reflection and refraction. Standing waves. Fresnel relations, Brewster angle. Transmission lines. Line termination, basic impedance matching and transformation. Smith charts. Introduction to guided waves; slab waveguide.

Precludes additional credit for PHYS 3308.

Prerequisite: ELEC 3105 or permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

ELEC 4502 [0.5 credit]

**Microwave Circuits**

Introduction to microwave tubes, semiconductor devices, and passive components. Scattering matrix description of microwave junctions. Properties of basic reciprocal and non-reciprocal passive microwave devices. Fundamentals of microwave amplifiers and oscillators. Design of solid-state microwave amplifiers and oscillators.

Prerequisite: ELEC 4503; may be taken concurrently.

Lectures three hours a week, laboratory three hours alternate weeks.

ELEC 4503 [0.5 credit]

**Radio Frequency Lines and Antennas**

Introduction to distributed circuits, travelling and standing waves, reflection coefficient, SWR, impedance transformation, Smith charts. Introduction to transmission lines; coaxial, rectangular waveguide, resonators, optical fibers. Introduction to antennas; gain, directivity, effective area. Introduction to linear arrays.

Prerequisite: ELEC 3909.

Lectures three hours a week, laboratory three hours alternate weeks.

ELEC 4504 [0.5 credit]

**Avionics Systems**

Electromagnetic spectrum. Air data sensing, display. Communications systems. Navigation and landing systems; ground-based, inertial and satellite systems. Airborne radar. Guidance, control for aircraft, autopilots; stability augmentation; active control; sensor requirements; display techniques. Aircraft power systems. Safety systems. Vehicle/systems integration, certification.

Precludes additional credit for AERO 4504.

Prerequisite: fourth-year status in Engineering. Not open to students in Electrical Engineering, Computer Systems Engineering, Aerospace Stream C Engineering or Engineering Physics.

Lecture three hours a week.

ELEC 4505 [0.5 credit]

**Telecommunication Circuits**

A course of study of the commonly used circuit components in modern telecommunication systems. Both analog and digital systems are included. The design of the hardware is emphasized. Examples are drawn from broadcasting, telephony and satellite systems.

Prerequisites: ELEC 3509 and (SYSC 3501 or SYSC 3503).

Lectures three hours a week, laboratory three hours alternate weeks.

ELEC 4506 [0.5 credit]

**CAD for Communication Circuits**

Basic principles of Computer-Aided Design tools used for analysis and design of communication circuits and systems. Frequency and time-domain analysis. Noise and distortion analysis. Transmission line effects. Sensitivity analysis, and circuit performance optimization. Digital simulation.

Prerequisite: fourth-year status in Engineering.

Lectures three hours a week, laboratory three hours alternate weeks.

ELEC 4509 [0.5 credit]

**Communication Links**

Fundamentals; decibel, intermodulation, dB compression, dynamic range, SNR, noise figure, noise temperature, antenna gain, EIRP, G/T. Line-of-sight links; receiver, diversity, fade margin. Satellite links; link calculations, multiple accessing, earth stations. Fiber links, fiber types, sources, detectors, systems.

Prerequisite: fourth-year status in Engineering or permission of the Department.

Lectures three hours a week, laboratory and problem analysis three hours alternate weeks.

ELEC 4600 [0.5 credit]

**Radar and Navigation**

Radar: operation, minimum detectable signal, propagation effects. Surveillance Radars: Moving Target indicator and Pulse Doppler operation. Radio Navigation: pulsed and CW operation. Operational systems: Loran C., VOR/DME, TACAN, Global Positioning system. Inertial Navigation. Navigation Co-ordinate Systems. Techniques for determining best estimates of position.

Prerequisite: fourth-year status in Engineering or permission of the Department.

Lectures three hours a week.

ELEC 4601 [0.5 credit]

**Microprocessor Systems**

Interfacing aspects in microprocessor systems. Microprocessors and bus structures, internal architecture, instruction set and pin functions. Memory interfacing, input-output, interrupts, direct memory accesses, special processors and multiprocessor systems.

Precludes additional credit for SYSC 3601 and COMP 3006.

Prerequisite: ELEC 2607 and one of SYSC 2003 or SYSC 3003 or SYSC 3006 or permission of the Department.

Lectures three hours a week, laboratory three hours alternate weeks.

ELEC 4602 [0.5 credit]

**Electrical Power Engineering**

The electric power system. Major components: induction and synchronous machines, power transformers and connections, transmission. Analysis: balanced and unbalanced three-phase systems, symmetrical components, load flow. Operation: frequency control, steady state and transient generator stability, voltage collapse, thermal constraints. Variable speed drives, power quality.

Prerequisites: fourth-year status in Engineering.

Lectures three hours a week, problem analysis two hours every week.

Courses - Electronics (ELEC)

ELEC 4609 [0.5 credit]

**Integrated Circuit Design and Fabrication**

Introduction to nMOS IC design: static logic gates, noise margin, transmission gates, factors influencing switching speed, dynamic logic, input protection, output buffers, circuit simulation with SPICE. Laboratory work includes design and layout of a simple nMOS IC that is fabricated and returned for testing.

Prerequisite: ELEC 3500.

Lectures three hours a week, laboratory and problem analysis three hours alternate weeks.

ELEC 4700 [0.5 credit]

**The Physics and Modeling of Advanced Devices and Technologies**

Fabrication, operation and modeling of advanced devices for information technology. Topics: physics of materials, quantum mechanics of solids, optical transitions, physical analysis and models for state-of-the-art electronic/optical technologies and materials. Technologies: MOS and III-V based transistors, solid-state optical devices, MEMS and nano-technology based devices.

Prerequisite: ELEC 3908.

Lectures three hours a week, problem analysis two hours alternate weeks.

ELEC 4702 [0.5 credit]

**Fiber Optic Communications**

Fundamentals of optoelectronics with application to fiber optic communications. Optical fibre: modes, losses, dispersion, splices and coupling to sources. Optical sources: LEDs and laser diodes. Optical detectors: photoconductor, pin and avalanche photodiodes. Optical receiver design. Fiber optic communications systems: intensity modulation/direct detection; coherent homodyne or heterodyne detection.

Prerequisites: ELEC 3908 and ELEC 3909.

Lectures three hours a week, laboratory three hours alternate weeks.

ELEC 4703 [0.5 credit]

**Solar Cells**

Semiconductor band structure, photogeneration, the solar spectrum. Detailed analysis of monocrystalline silicon solar cells. Solar cells based on thin film materials: amorphous silicon, III-V materials, organics, titania-dye cells. Cells for concentrator systems. Photovoltaic power systems. Solar cells for building envelopes.

Prerequisite: ELEC 2501 and ELEC 2507 and fourth-year status in Sustainable and Renewable Energy Engineering, or ELEC 2501 and ELEC 2507 and fourth-year status in Engineering with permission of the instructor.

Lectures three hours per week, laboratories/problem analysis three hours per week.

ELEC 4704 [0.5 credit]

**Nanoscale Technology and Devices**

Engineering at the nanoscale. Quantum confinement and the effect of scale. Analysis tools: microscopy, spectroscopy. Fabrication: thin films, nanoparticles, nanotubes, graphene, organics. Structures and properties: quantum wells, nanocrystals, nanostructuring. Applications and devices: electronics, optoelectronics, photonics.

Prerequisite: ELEC 3908.

Lectures three hours a week, problem analysis three hours alternating weeks.

ELEC 4705 [0.5 credit]

**Electronic Materials, Devices and Transmission Media**

Review of solid-state theory, conductors, semiconductors, superconductors, insulators, and optical and magnetic properties. Devices used in modern high speed electronic and communication systems: transistors, lasers, photodiodes, fiber optics, Josephson junctions. Implications of material properties on fabrication and operation of devices and circuits.

Precludes additional credit for SYSC 4705.

Prerequisite: fourth-year status in Engineering. Not available for credit to students in Electrical Engineering or Engineering Physics.

Lectures three hours a week.

ELEC 4706 [0.5 credit]

**Digital Integrated Electronics**

Lectures and hands-on experience introduce advanced concepts in digital interfacing and hardware simulation. Industry standard programmable ASIC design tools, interfacing techniques and System on a Chip are introduced along with hardware modeling and design flow. A modern laboratory includes software and hardware digital design tools.

Prerequisite: ELEC 3500.

Lectures two hours a week, laboratory three hours a week.

ELEC 4707 [0.5 credit]

**Analog Integrated Electronics**

Emphasis on integration of analog signal processing techniques in monolithic IC technology. Continuous active filter design. MOS IC technology. OP amp design. Basic sampled data concepts; Z-transform analysis, switched capacitor filters. Noise aspects. Bipolar technology: radio frequency IC design.

Prerequisite: ELEC 3509.

Lectures three hours a week, laboratory and problem analysis three hours alternate weeks.

ELEC 4708 [0.5 credit]

**Advanced Digital Integrated Circuit Design**

Advanced Verilog, test benches. VLSI design based on CMOS technology, characteristics of CMOS logic circuits, cell libraries, building blocks, structured design, testing, Computer-Aided Design tools. Laboratory emphasis on design synthesis from Verilog.

Prerequisite: fourth-year status in Engineering and ELEC 3500) or permission of the department.

Lectures three hours a week, laboratory and problem analysis three hours alternate weeks.

ELEC 4709 [0.5 credit]

**Integrated Sensors**

Overview of sensor technologies with emphasis on devices suitable for integration with silicon integrated circuits. Sensor design and fabrication principles including signal conditioning; discussion of automotive, biomedical, and other instrumentation applications.

Prerequisite: fourth-year status in Engineering.

Lectures three hours a week, laboratory and problem analysis three hours alternate weeks.

ELEC 4906 [0.5 credit]

**Special Topics**

At the discretion of the Engineering Faculty Board, a course dealing with selected advanced topics of interest to students in Biomedical and Electrical, Communications, Computer Systems, Electrical and Software Engineering and Engineering Physics may be offered.

Prerequisite: fourth-year status in Engineering.

Lectures three hours a week, laboratory and problem analysis three hours alternate weeks.

ELEC 4907 [1.0 credit]

**Engineering Project**

Student teams develop professional-level experience by applying, honing, integrating, and extending previously acquired knowledge in a major design project. Lectures are devoted to discussing project-related issues and student presentations. A project proposal, interim report, oral presentations, and a comprehensive final report are required.

Prerequisite: fourth-year status in Engineering and ECOR 4995 (may be taken concurrently). Certain projects may have additional prerequisites or corequisites.

Lecture one hour a week, laboratory seven hours a week.

ELEC 4908 [1.0 credit]

**Engineering Physics Project**

Student teams develop professional-level experience by applying, honing, integrating, and extending previously acquired knowledge in a major design project approved for Engineering Physics. Lectures devoted to discussing project-related issues and student presentations. A project proposal, interim report, oral presentations, and comprehensive final report are required.

Prerequisite: fourth-year status in Engineering and ECOR 4995 (may be taken concurrently). Certain projects may have additional prerequisites or corequisites.

Lecture one hour a week, laboratory seven hours a week.

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## Engineering Common Core Courses (ECOR)

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### Faculty of Engineering

ECOR 1010 [0.5 credit]

#### Introduction to Engineering

Technology, society and the environment. Graphical design communication: sketching, graphical projections; CAD. Managing data: statistical methods; spreadsheets. Design analysis: matrix programming software; symbolic computer algebra systems. Design process: proposals; reports; presentations; reporting software. Precludes additional credit for ECOR 1000. Lectures four hours per week, laboratories two hours per week.

ECOR 1101 [0.5 credit]

#### Mechanics I

Introduction to mechanics. Scalars and vectors. Concurrent forces: resultant and components. Statics of particles. Moments and couples. Force system resultants. Rigid body equilibrium. Frames and machines. Internal forces. Kinematics and kinetics of particles. Conservation theorems: work-energy; impulse-momentum. Centroids and centres of gravity. Prerequisites: MATH 1004 and MATH 1104. Lectures three hours a week, tutorials and problem analysis three hours a week.

ECOR 1606 [0.5 credit]

#### Problem Solving and Computers

Introduction to engineering problem solving. Defining and modeling problems, designing algorithmic solutions, using procedural programming, selection and iteration constructs, functions, and arrays, converting algorithms to a program, testing and debugging. Program style, documentation, reliability. Applications to engineering problems, which may include numerical methods, sorting and searching. Precludes additional credit for SYSC 1100 and SYSC 1102. Lectures three hours a week, laboratory three hours a week.

ECOR 2606 [0.5 credit]

#### Numerical Methods

Numerical algorithms and tools for engineering and problem solving. Sources of error and error propagation, solution of systems of linear equations, curve fitting, polynomial interpolation and splines, numerical differentiation and integration, root finding, solution of differential equations. Software tools. Precludes additional credit for SYSC 2606. Prerequisites: MATH 1005 and ECOR 1606 and (ECOR 1010 or ELEC 1908). Lectures three hours a week, laboratory 1.5 hours a week.

ECOR 3800 [0.5 credit]

#### Engineering Economics

Introduction to engineering economics; cash flow calculations; methods of comparison of alternatives; structural analysis; replacement analysis; public projects; depreciation and income tax; effects of inflation; sensitivity analysis; break-even analysis; decision making under risk and uncertainty. Prerequisite: third-year status in Engineering. Lectures three hours a week.

ECOR 4995 [0.5 credit]

#### Professional Practice

Presentations by faculty and external lecturers on the Professional Engineers Act, professional ethics and responsibilities, practice within the discipline and its relationship with other disciplines and to society, health and safety, environmental stewardship, principles and practice of sustainable development. Communication skills are emphasized. Precludes additional credit for MAAE 4905, CIVE 4905, SYSC 3905 or ELEC 3905. Prerequisite: fourth-year status in Engineering. Lectures three hours a week.



## English (ENGL)

### Department of English Language and Literature Faculty of Arts and Social Sciences

ENGL 1000 [1.0 credit]

#### Literature, Genre, Context

An introduction to active literary reading skills, focusing on at least three genres, including poetry, prose, and drama. Attention will be paid to literary, social, historical, and political contexts. This course is writing attentive. Consult English Department website for annual topics. Precludes additional credit for FYSM 1004. Lectures three hours a week.

ENGL 1005 [1.0 credit]

#### Writing and Language

An introduction to the principles, styles, and structures of effective writing, including essay writing. Precludes additional credit for FYSM 1005. Course offered only in Nunavut as part of Certificate in Nunavut Public Service Studies Program. Lectures and workshop three hours a week.

ENGL 2002 [0.5 credit]

#### Introduction to Epic

Study of selected texts defined as epic. Discussion of the conventions of the genre. May include classical or British texts, primary or secondary epics, and/or texts inspired by the epic tradition. Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department. Lectures three hours a week.

ENGL 2005 [0.5 credit]

#### Theory and Criticism

An introduction to theories and methods of literary analysis. Through the study of literature, theory, and criticism, students will explore disciplinary history, critical terms, textual analysis, and research methods. Recommended for English Majors. Prerequisite: 1.0 credit in ENGL at the 1000 level. Lectures three hours a week.

ENGL 2006 [1.0 credit]

#### Children's Literature

An introduction to the critical study of children's literature. Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department. Lectures three hours a week.

ENGL 2007 [0.5 credit]

#### Classical Mythology

A study of Greek and Roman myths, emphasizing their use in Classical literature, art and religion. Some discussion of the influence of Classical myth in Western tradition and modern theoretical approaches to the study of myth. (All texts used are in English). (Also listed as CLCV 2000). Prerequisite: second-year standing or registration in the B.Hum program or permission of the unit. Lectures three hours a week.

ENGL 2008 [1.0 credit]

#### Myth and Symbol

A literary study of myths and symbols from oral traditions to contemporary forms through selected interdisciplinary and theoretical approaches. Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department. Lectures three hours a week.

ENGL 2009 [1.0 credit]

#### Greek & Latin Literary Genres

A study, through English translations, of various genres of Greek and Latin literature, especially those which influenced later European writing: epic, drama, the ode, pastoral poetry, satire. (Also listed as CLCV 2009.)

ENGL 2102 [0.5 credit]

#### Comedy and Satire

A critical examination of the comic and satiric modes through a study of representative texts. The theory of comedy and satire in relation to the texts, genres, techniques, context and themes. Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department. Lectures three hours a week.

ENGL 2103 [0.5 credit]

#### Introduction to the Novel

A historical and critical study of the novel. Precludes additional credit for ENGL 2003 [1.0] (no longer offered). Prerequisite: second-year standing. Lectures three hours a week.

ENGL 2104 [0.5 credit]

#### Drama Workshop

A course dealing with the rudiments of theatrical performance: voice, movement, improvisation, interpretation. Exercises are based upon examples drawn from classical and contemporary repertoires. Precludes additional credit for ENGL 2000 (no longer offered). Prerequisite: second-year standing.

ENGL 2105 [0.5 credit]

#### History of the English Language

A historical study of the English language, its structure, variety, and cultural contexts, with an introduction to grammatical terminology and constructions. Prerequisite: second-year standing. Lectures three hours a week.

ENGL 2107 [0.5 credit]

#### Science Fiction

A study of the history and traditions of science fiction, speculative fiction, fantasy, and utopia, covering various periods, nationalities, genres, and/or media. Prerequisite: 1.0 credit in ENGL at the 1000 level. Lectures three hours a week.

ENGL 2108 [0.5 credit]

#### Women and Literature

Representations of women and the construction of femininity in selected literary texts, the position of women as readers and authors, and the impact of feminist criticism on literary analysis. Precludes additional credit for ENGL 2902 [1.0] (no longer offered). Prerequisite: second-year standing. Lectures three hours a week.

ENGL 2109 [0.5 credit]

#### Gender, Sexuality and Literature

How literature represents, reproduces, and resists cultural notions of gender and sexuality. Topics may include: gender and sexuality in relation to literary history, production, and reception; literature by/about "deviant" or subcultural sexualities and genders. Precludes additional credit for ENGL 2902 [1.0] (no longer offered). Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department. Lectures three hours a week.

## Courses - English (ENGL)

ENGL 2300 [1.0 credit]

**British Literatures I**

A study of literary cultures from 597-1700. This course is writing attentive.

Prerequisite: 1.0 credit in ENGL at the 1000 level.

Lecture three hours a week.

ENGL 2608 [1.0 credit]

**History of World Cinema**

Historical survey of world cinema, examining the forms, structures and stylistic conventions of various periods and nations; attention to the development of a critical idiom suited to the description, analysis, and evaluation of film. (Also listed as FILM 2608).

Prerequisite: FILM 1000, or 1.0 credit in ENGL at the 1000 level.

Three hours lecture and screening, one hour lecture.

ENGL 2700 [0.5 credit]

**American Literatures I**

Introduction to the traditions of American literature through 1865.

Precludes additional credit for ENGL 2702 [1.0] (no longer offered).

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2701 [0.5 credit]

**American Literatures II**

Introduction to the traditions of American literature after 1865.

Precludes additional credit for ENGL 2702 [1.0] (no longer offered).

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2802 [1.0 credit]

**Canadian Literatures**

A survey of Canadian literary cultures in English from their beginnings to the present. This course is writing attentive.

Prerequisite: 1.0 credit in ENGL at the 1000 level.

Lectures three hours a week.

ENGL 2900 [0.5 credit]

**Literature of the Self**

A study of developments in the literary representation of the self. The course considers a wide range of major texts from the Middle Ages to the present.

Prerequisite: second-year standing.

Lectures three hours a week.

ENGL 2901 [0.5 credit]

**Poetry Workshop**

A workshop involving regular assignments in writing poetry and practical criticism based on this work. Permission to register in this course requires the student to submit a portfolio. Instructions can be found at [carleton.ca/english](http://carleton.ca/english).

Prerequisite: permission of the instructor.

Workshop three hours a week.

ENGL 2903 [0.5 credit]

**Fiction Workshop**

A workshop involving regular assignments in writing prose fiction and practical criticism based on this work. Permission to register in this course requires the student to submit a portfolio. Instructions can be found at [carleton.ca/english](http://carleton.ca/english).

Prerequisite: permission of the instructor.

Workshop three hours a week.

ENGL 2906 [0.5 credit]

**Culture and Society**

A study of literature in relation to its social and political contexts. Topics and periods vary.

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2908 [0.5 credit]

**Celtic Literatures**

The literatures of Ireland, Scotland, and/or Wales. Topics will vary in national and historical scope and may be organized by theme, author, and/or genre.

Precludes additional credit for ENGL 2602 and ENGL 2606 (no longer offered).

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2926 [0.5 credit]

**African Literatures I**

A survey of modern African literatures, discourses, and cultural production in the first half of the 20<sup>th</sup> century.

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2927 [0.5 credit]

**African Literatures II**

A survey of modern African literatures, discourses, and cultural production from the era of political independence from colonialism (the 1960s) to the present.

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2936 [0.5 credit]

**South Asian Literatures I**

A historical survey of the literatures of South Asia to the early colonial era, starting with the Indian epics and concluding with literary traditions of 18<sup>th</sup>-century India. Precludes additional credit for ENGL 2502 [1.0] (no longer offered).

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2937 [0.5 credit]

**South Asian Literatures II**

A survey of literatures of South Asia from the colonial and postcolonial eras. Topics include the nationalist movement, neo-colonialism, and postcolonialism.

Precludes additional credit for ENGL 2502 [1.0 credit] (no longer offered).

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2956 [0.5 credit]

**Literatures of the Americas I**

Comparative and transnational approaches to the literatures and oratures of the Caribbean, and North and South America, with an emphasis on the pre-colonial and colonial eras.

Precludes additional credit for ENGL 2909 [1.0] (no longer offered).

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 2957 [0.5 credit]

**Literatures of the Americas II**

Comparative and transnational approaches to 20<sup>th</sup>- and 21<sup>st</sup>-century writing from the Caribbean, North and South America.

Precludes additional credit for ENGL 2909 [1.0] (no longer offered).

Prerequisite: 1.0 credit in ENGL at the 1000 level or permission of the department.

Lectures three hours a week.

ENGL 3007 [0.5 credit]

**Reading Poetry**

This course is designed to enable students to develop skills in reading and writing about poetry. Readings will be chosen from a variety of authors, periods, and/or genres.

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing.

Lectures three hours a week.

ENGL 3008 [0.5 credit]

**Studies in Greek Literature**

A study of an author or topic in Greek literature. Contents of this course vary from year to year. (Also listed as CLCV 3701).

Prerequisite: CLCV 2009 or permission of the department. Lecture three hours a week.

ENGL 3009 [0.5 credit]

**Studies in Roman Literature**

A study of an author or topic in Roman literature. (Also listed as CLCV 3702).

Prerequisite: CLCV 2009 or permission of the department. Lecture three hours a week.

ENGL 3105 [0.5 credit]

**History of Literary Theory**

Introduction to ideas about literature, aesthetics, authorship, and readership as these have circulated in periods before the twentieth century.

Precludes additional credit for ENGL 3000, and ENGL 3001 (no longer offered).

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing.

Lectures three hours a week.

ENGL 3200 [0.5 credit]

**Medieval Literature**

A study of selected topics and texts from medieval literature.

Prerequisite: ENGL 2300 or permission of the department. Lectures three hours a week.

ENGL 3202 [0.5 credit]

**Chaucer**

A study of Chaucer's works including some attention to the Middle English language in which he wrote.

Prerequisite: ENGL 2300 or permission of the department.

Lectures three hours a week.

ENGL 3302 [0.5 credit]

**Renaissance Literature**

A study of Renaissance literature and culture. Readings may be organized by author, theme, or genre.

Prerequisite: ENGL 2300 or permission of the department. Lectures three hours a week.

ENGL 3304 [1.0 credit]

**Shakespearean Drama**

An introduction to the study of early modern play-texts written by Shakespeare and/or his contemporaries.

Prerequisite: ENGL 2300 or permission of the department. Lectures three hours a week.

ENGL 3402 [0.5 credit]

**18th-Century Literature**

A detailed study of authors and movements of the period 1660 to 1780.

Prerequisite: ENGL 2300 or permission of the department.

Lectures three hours a week.

ENGL 3502 [1.0 credit]

**British Literatures II**

A study of literary cultures from 1700-1914. This course is writing-attentive.

Prerequisite: ENGL 2300 or permission of the department. Lectures three hours a week.

ENGL 3553 [0.5 credit]

**The 19th-Century Novel**

A study of the English novel in the 19<sup>th</sup> century.

Precludes additional credit for ENGL 3503 (no longer offered).

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing.

Lectures three hours a week.

ENGL 3601 [0.5 credit]

**20th-Century Poetry**

A study of 20<sup>th</sup>- and 21<sup>st</sup>-century poetry in English. Topics and authors may vary.

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing or permission of the department.

Lectures three hours a week.

ENGL 3603 [0.5 credit]

**20th-Century Fiction**

A study of 20<sup>th</sup>- and 21<sup>st</sup>-century fiction in English. Topics and authors may vary.

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing or permission of the department.

Lectures three hours a week.

ENGL 3605 [0.5 credit]

**Modern and Contemporary Literary Theory**

Introduction to contemporary approaches to literary texts, such as formalist, structuralist, deconstructive, psychoanalytic, Marxist, historicist, and feminist. Topics may include: the nature and role of literature, of author and reader, of canons, ideology, gender, sexuality, and race.

Precludes additional credit for ENGL 3002 (no longer offered).

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing.

Lectures three hours a week.

ENGL 3606 [0.5 credit]

**20<sup>th</sup>-Century Drama**

A study of drama from the late 19<sup>th</sup> century to the present.

Precludes additional credit for ENGL 2604 [1.0] and ENGL 3604 [1.0] (no longer offered).

Prerequisites: 1.0 credit in ENGL at the 1000 level and third year standing or permission of the department.

Lectures three hours a week.

ENGL 3702 [0.5 credit]

**American Culture**

A study of American writing in its cultural and historical contexts.

Precludes additional credit for ENGL 3703 (no longer offered).

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing.

Lectures three hours a week.

ENGL 3801 [0.5 credit]

**Canadian Poetry**

A study of Canadian poetry in its social and political contexts.

Prerequisite: ENGL 2802 or permission of the department. Lecture three hours a week.

ENGL 3803 [0.5 credit]

**Canadian Fiction**

A study of Canadian fiction in its social and political contexts.

Prerequisite: ENGL 2802 or permission of the department. Lecture three hours a week.

ENGL 3804 [0.5 credit]

**Literature and Culture in Europe**

A survey of the literature and cultural texts that have defined Europe. Examination of fiction and non-fiction texts that have contributed to and reflected the development of European culture and society. (Also listed as EURR 3001).

Prerequisite: second year standing.

Lecture and discussion three hours a week.

ENGL 3805 [0.5 credit]

**Literature and Culture in Russia and Eurasia**

A survey of the literature and cultural texts that have defined Russian and neighbouring Slavic countries. Examination of fiction and non-fiction texts that have contributed to and reflected the development of Russian and Slavic culture and society. (Also listed as EURR 3002.)

Prerequisite: second-year standing  
Lecture and discussion three hours a week.

ENGL 3901 [0.5 credit]

**Intermediate Poetry Workshop**

An intermediate workshop involving regular assignments in writing poetry and practical criticism.

Permission to register in this course requires the student to submit a portfolio. Instructions can be found at [carleton.ca/english](http://carleton.ca/english).

Prerequisite: a 2000-level creative writing workshop or permission of the instructor.  
Workshop three hours a week.

ENGL 3903 [0.5 credit]

**Intermediate Fiction Workshop**

An intermediate workshop involving regular assignments in writing prose fiction and practical criticism.

Permission to register in this course requires the student to submit a portfolio. Instructions can be found at [carleton.ca/english](http://carleton.ca/english).

Prerequisite: a 2000-level creative writing workshop or permission of the instructor.  
Workshop three hours a week.

ENGL 3904 [0.5 credit]

**Intermediate Drama Workshop**

A course dealing with techniques of characterization, principles of ensemble performance, scene analysis for actors and directors, styles of performance.

Precludes additional credit for ENGL 2001 (no longer offered).

Prerequisite: ENGL 2104 or permission of the Department.

ENGL 3908 [0.5 credit]

**Research and Theory in Academic Writing**

Study of contemporary research and theory (1970s to present) on academic writing in elementary, secondary and post-secondary school, with emphasis on writing in university. Consideration of what academic writing entails, how writing fosters learning, and how instruction can help students develop their writing abilities. (Also listed as ALDS 3401.)

Precludes additional credit for LALS 2407 [1.0], ENGL 2907, LALS 3400, LALS 3401, ENGL 3907.

Prerequisite: third-year standing or permission of the instructor.  
Lectures three hours a week.

ENGL 3909 [0.5 credit]

**Research and Theory in Workplace Writing**

Study of contemporary research and theory (1980s to present) in writing in workplace settings. Consideration of how writing is used in accomplishing work, how novices learn to write effectively, and what the implications are for pedagogy. (Also listed as ALDS 3402.)

Precludes additional credit for LALS 2407[1.0], ENGL 2907, LALS 3400, ENGL 3907.

Prerequisite: third-year standing or permission of the instructor.  
Lectures three hours a week.

ENGL 3940 [0.5 credit]

**Studies in Diaspora Lit.**

A study of diaspora literatures and cultures.

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing or permission of the department.  
Lectures three hours a week.

ENGL 3960 [0.5 credit]

**Studies in Aboriginal Lit.**

A study of Aboriginal literatures and cultures.

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing or permission of the department.  
Lectures three hours a week.

ENGL 3965 [0.5 credit]

**Intro to Postcolonial Theory**

A survey of major concepts and key figures in postcolonial theory.

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing.  
Lectures three hours a week.

ENGL 3972 [0.5 credit]

**Studies in Postcolonial Lit.**

A study of postcolonial literatures and cultures.

Prerequisites: 1.0 credit in ENGL at the 1000 level and third-year standing or permission of the department.  
Lectures three hours a week.

**Topics of courses at the 4000-level change from year to year. Selected course numbers may be repeated with the permission of the Department. The most recent guide is available at [carleton.ca/english](http://carleton.ca/english).**

ENGL 4001 [0.5 credit]

**Studies in Poetry**

A study of a selected topic in poetry.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4003 [0.5 credit]

**Studies in the Novel**

A study of a selected topic in the novel.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4005 [0.5 credit]

**Studies in Literary Theory**

Study of a selected topic in literary theory and criticism. Precludes additional credit for ENGL 4000 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4105 [0.5 credit]

**Old English**

Introduction to Anglo-Saxon literature and its cultural and historical contexts. Instruction in grammar to facilitate reading knowledge of the Old English language.

Precludes additional credit for ENGL 3102 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4115 [0.5 credit]

**Culture and the Text I**

Topics will vary from year to year.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4125 [0.5 credit]

**Culture and the Text II**

Topics will vary from year to year.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4135 [0.5 credit]

**Culture and the Text III**

Topics will vary from year to year.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4145 [0.5 credit]

**Culture and the Text IV**

Topics will vary from year to year.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4208 [0.5 credit]

**Studies in Medieval Lit.**

A study of a selected topic in Medieval literature; requires previous experience reading medieval English.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4301 [0.5 credit]

**Studies in Renaissance Lit.**

A study of a selected topic in Renaissance literature.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4304 [0.5 credit]

**Renaissance Drama**

A study of selected texts by Shakespeare and/or his contemporaries.

Precludes additional credit for ENGL 4306 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4401 [0.5 credit]

**Studies in 18<sup>th</sup>-Century Lit.**

A study of a selected topic in Restoration or 18<sup>th</sup>-century literature.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4500 [0.5 credit]

**Studies in Romanticism**

A study of a selected topic, 1770-1830.

Precludes additional credit for ENGL 4407 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4515 [0.5 credit]

**Teaching Writing in School and the Workplace**

Introduction to approaches for teaching writing in elementary and secondary school, in university, and in the workplace, with a focus on socio-cultural theories of language and learning. Discussion of applications of these approaches to classroom and workplace teaching. (Also listed as ALDS 4405.)

Prerequisite: third-year standing, or permission of the instructor.

Seminar three hours a week.

ENGL 4550 [0.5 credit]

**Studies in Victorian Lit. I**

A study of a selected topic in 19<sup>th</sup>-century British literature, 1830-1900.

Precludes additional credit for ENGL 4501 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4551 [0.5 credit]

**Studies in Victorian Lit. II**

A study of a selected topic in 19<sup>th</sup>-century British literature, 1830-1900.

Precludes additional credit for ENGL 4502 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4601 [0.5 credit]

**Studies in Contemporary Poetry**

A comparative and transnational approach to 20<sup>th</sup>- and 21<sup>st</sup>-century poetry.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4607 [0.5 credit]

**Studies in 20<sup>th</sup>-Century Lit.**

A study of a selected topic in literature of the 20<sup>th</sup> century.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4608 [0.5 credit]

**Studies in 20<sup>th</sup>-C British Lit.**

A study of a selected topic in British literature of the 20<sup>th</sup> century.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4708 [0.5 credit]

**Studies in American Lit. I**

A study of a selected topic in American literature.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4709 [0.5 credit]

**Studies in American Lit. II**

A study of a selected topic in American literature.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4802 [0.5 credit]

**Race, Ethnicity & Canadian Lit.**

A study of Canadian literature that engages with notions of race and ethnicity.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4806 [0.5 credit]

**Studies in Canadian Lit. I**

A study of a selected topic in Canadian literature.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4807 [0.5 credit]

**Studies in Canadian Lit. II**

A study of a selected topic in Canadian literature.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4908 [1.0 credit]

**Independent Study**

Independent research and writing, under the supervision of English faculty, requiring an essay of approximately 10,000 words. A written proposal outlining the project must be submitted to the undergraduate supervisor by July 31. Not available to students in a Combined Honours program.

Prerequisites: fourth-year Honours standing in English with a CGPA of 10.0 in English courses, and permission of the undergraduate supervisor.

ENGL 4909 [0.5 credit]

**Writing and Knowledge-Making in the Disciplines**

The role of writing in constructing knowledge in academic disciplines, as viewed from contemporary socio-cultural perspectives. Consideration of how the goals, values, and assumptions of different disciplines shape their writing in distinctive ways and what implications this holds for pedagogy. (Also listed as ALDS 4403).

Precludes additional credit for LALS 5406 or ALDS 5602 or LALS 5602.

Prerequisite: fourth-year standing or permission of the instructor.

Lectures three hours a week.

ENGL 4947 [0.5 credit]

**Issues in Diaspora Lit.**

A study of a selected topic in diaspora literature and culture.

Precludes additional credit for ENGL 4907 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4960 [0.5 credit]

**Aboriginal Literatures I**

A study of the literatures produced by Aboriginal storytellers and writers, with a focus on the oral tradition and life writing.

Precludes additional credit for ENGL 4808 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4961 [0.5 credit]

**Aboriginal Literatures II**

A study of the contemporary period of Aboriginal literature, examining the historical and mythic influences on the literature.

Precludes additional credit for ENGL 4808 and ENGL 4809 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4975 [0.5 credit]

**Issues in Postcolonial Theory**

A study of a selected issue in postcolonial and/or diaspora theory.

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

ENGL 4976 [0.5 credit]

**Issues in Postcolonial Lit.**

A study of a selected topic in postcolonial literature and culture.

Precludes additional credit for ENGL 4906 (no longer offered).

Prerequisite: fourth-year standing in Honours English. Seminar or lecture.

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## English as a Second Language (ESLA)

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### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

ESLA 1300 [1.0 credit]

**Introductory English as a Second Language for Academic Purposes**

For students with little or no experience with academic English. Introduction to integrated language strategies, critical thinking, and basic research techniques for success at university. Attendance and participation are compulsory.

Prerequisite: placement by an approved English language proficiency test, as determined by the School. Not open to native speakers of English.

Six hours a week (one term).

ESLA 1500 [1.0 credit]

**Intermediate English as a Second Language for Academic Purposes**

For students with moderate experience with academic English. Development and application of academic language conventions, critical thinking and research strategies for success at university. Attendance and participation are compulsory.

Prerequisite: grade of C or higher in ESLA 1300 or placement by an approved English language proficiency test, as determined by the School. Not open to native speakers of English.

Six hours a week (one term).

ESLA 1900 [1.0 credit]

**Advanced English as a Second Language for Academic Purposes**

For students needing further refinement of academic English. Analysis and synthesis of academic texts and consolidation of academic language and research practices. Attendance and participation are compulsory.

Prerequisite: grade of C+ or higher in ESLA 1500 or placement by an approved English language proficiency test, as determined by the School. Not open to native speakers of English.

Six hours a week (one term).

ESLA 1905 [1.0 credit]

**Advanced English as a Second Language for Engineering Students**

ESP (English for Specific Purposes) for students in Engineering and Industrial Design needing further refinement of academic English. Development of technical communication skills: reports, design projects, schematics, and oral presentations appropriate to academic and professional needs. Attendance and participation are compulsory.

Prerequisite: grade of C+ or higher in ESLA 1500 or placement by an approved English language proficiency test, as determined by the School. Not open to native speakers of English.

Three hours a week (two terms) or six hours a week (one term).

ESLA 1906 [0.5 credit]

**Advanced Writing for English as a Second Language**  
Strategies for writing academic papers and professional text.

Not open to native speakers of English.

Prerequisite: permission of the School.

Three hours a week (one term).

## Environmental Engineering (ENVE)

### Department of Civil and Environmental Engineering Faculty of Engineering

ENVE 1001 [0.5 credit]

#### Architecture and the Environment

Impacts of the environment on architecture; deterioration, freeze/thaw, solar heat, air pollution, moisture; Impacts of architecture on the environment; ecologic footprint, energy consumption, air quality, waste generation; designing with the environment; renewable energy, effective siting and landscape, passive solar energy, natural lighting, energy efficiency. Lectures three hours a week.

ENVE 2001 [0.5 credit]

#### Process Analysis for Environmental Engineering

Material and energy balances for reacting and non-reacting systems. Applications in mining, metallurgy, pulp and paper, power generation, energy utilization. Emissions to the environment per unit product or service generated. Introduction to life cycle analysis, comparative products and processes.

Prerequisites: CHEM 1002 or CHEM 1101 or equivalent, and MAAE 2400, or approval of the Department.

Lectures two hours a week, problem analysis three hours a week.

ENVE 2002 [0.5 credit]

#### Microbiology

The biology of the Bacteria, Archaea, Viruses and Protozoans, from the fundamentals of cell chemistry, molecular biology, structure and function, to their involvement in ecological and industrial processes and human disease. (Also listed as BIOL 2303.)

Precludes additional credit for BIOL 3301.

Prerequisite: BIOL 1003 or CHEM 1002 or CHEM 1101 or equivalent.

Lectures three hours a week.

ENVE 3001 [0.5 credit]

#### Water Treatment Principles and Design

Theoretical aspects of unit operations for water treatment with design applications. Topics include water characteristics and contaminants, coagulation, flocculation, sedimentation, filtration, adsorption, ion exchange, membrane processes, disinfection and disinfection by-products, and management of water treatment residuals. Laboratory procedures: settling operations, filtration, aeration, and adsorption.

Prerequisite: ENVE 3002.

Lectures three hours a week, problem analysis one hour a week, laboratory three hours alternate weeks.

ENVE 3002 [0.5 credit]

#### Environmental Engineering Systems Modeling

Engineered systems for pollution abatement; chemical reaction engineering; reaction kinetics and rate data analysis; design and modeling of reactors; single and multiple reactions; ideal and nonideal reactors; single and multi-parameter models; biochemical reaction engineering; process control. Laboratory procedures: reactor systems performance: Batch, CSTR and PFR.

Prerequisites: CHEM 1002 or CHEM 1101 or equivalent, MATH 2004, ENVE 2001.

Lectures three hours a week, problem analysis one hour a week, laboratory three hours alternate weeks.

ENVE 3003 [0.5 credit]

#### Water Resources Engineering

A quantitative analysis of natural water systems and the development of these systems as a resource. Components of the hydrologic cycle. Quantitative analysis of stream flow. Probability concepts in water resources. Reservoir design and operation. Hydraulic properties and availability of groundwater. Storm water management.

Prerequisites: MAAE 2300 or permission of the Department.

Lectures three hours a week, problem analysis one hour a week.

ENVE 3004 [0.5 credit]

#### Contaminant and Pollutant Transport in the Environment

Physical phenomenon governing the transport of contaminants in the environment: diffusion, advection, dispersion, sorption, interphase transfer. Derivation and application of transport equations in air, surface and groundwater pollution; analytical and numerical solutions. Equilibrium partitioning of contaminants among air, water, sediment, and biota.

Prerequisites: CHEM 1002 or CHEM 1101 or equivalent; ENVE 3002.

Lectures three hours a week, problem analysis one hour a week.

ENVE 4002 [0.5 credit]

#### Environmental Geotechnical Engineering

Landfill design; hydrogeologic principles, water budget, landfill liners, geosynthetics, landfill covers, quality control/quality assurance, clay leachate interaction, composite liner design and leak detection. Landfill operation, maintenance and monitoring. Case studies of landfill design and performance. Geotechnical design of environmental control and containment systems.

Also offered at the graduate level with additional or different requirements, as ENVE 5201 (EVG 7201) for which additional credit is precluded.

Prerequisites: ENVE 3004, CIVE 3208.

Lectures three hours a week, problem analysis one hour a week.

ENVE 4003 [0.5 credit]

#### Air Pollution and Emissions Control

Air pollutants, classification, sources, and effects. Ambient air quality objectives and monitoring. Pollutant formation mechanisms in combustion. Major pollutant categories and control methods. Indoor air quality. Laboratory procedures: emissions from boilers and IC engines, particulate size distribution and control, IAQ parameters.

Also offered at the graduate level with additional or different requirements, as ENVE 5101 (EVG 5101) for which additional credit is precluded.

Prerequisites: fourth-year status in Engineering or permission of the department.

Lectures three hours a week, problem analysis one hour a week, laboratory three hours alternate weeks.

ENVE 4005 [0.5 credit]

#### Wastewater Treatment Principles and Design

Theoretical aspects of unit operations and processes for wastewater treatment with design applications. Topics include wastewater characteristics, flow rates, primary treatment, chemical unit processes, biological treatment processes, advanced wastewater treatment, disinfection, and biosolids treatment and disposal.

Laboratory procedures: activated sludge, anaerobic growth, chemical precipitation, disinfection.

Prerequisites: BIOL 1003 or ENVE 2002, ENVE 3001, ENVE 3002.

Lectures three hours a week, problem analysis one hour a week, laboratory three hours alternate weeks.

Courses - Environmental Engineering (ENVE)

ENVE 4006 [0.5 credit]

**Contaminant Hydrogeology**

Theory of flow through porous media. Site investigation: geology, hydrology and chemistry. Contaminant transport. Unsaturated and multiphase flow. Numerical modeling. Site remediation and remediation technologies.

Also offered at the graduate level with additional or different requirements, as ENVE 5301 (EVG 7301), for which additional credit is precluded.

Prerequisites: ENVE 3003 and ENVE 3004.

Lectures three hours a week, problem analysis three hours alternate weeks.

ENVE 4101 [0.5 credit]

**Waste Management**

Municipal, hazardous, and mine waste management. Waste composition and potential impacts, collection and transport, recycling and reuse, biological and thermal treatments, isolation. Integrated waste management planning.

Also offered at the graduate level with additional or different requirements, as ENVE 5203 (EVG 5203), for which additional credit is precluded.

Prerequisites: ENVE 3001, ENVE 3002 and ENVE 3004.

Lectures three hours a week, problem analysis one hour a week.

ENVE 4104 [0.5 credit]

**Environmental Planning and Impact Assessment**

Canada and U.S. environmental regulations. Framework for Environmental Impact Assessment, survey techniques for impact assessment and EIA review process. Case studies of selected engineering projects. Environmental planning, management of residuals and environmental standards. Risk assessment, policy development and decision-making. Fault-tree analysis.

Prerequisites: ENVE 3004 and fourth-year status in Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

ENVE 4105 [0.5 credit]

**Green Building Design**

Concepts and vocabulary; conventional vs. green building design, sustainable sites and landscaping; water management and efficiency, green energy choices, passive design, building envelope, alternative building materials, indoor air quality, LEED certification and documentation.

Prerequisites: fourth-year standing in B.Eng. Architectural Conservation and Sustainability or fourth-year standing in B.A.S. concentration in Conservation and Sustainability.

Lectures three hours a week, problem analysis one hour per week.

ENVE 4106 [0.5 credit]

**Indoor Air Quality**

Indoor air quality as a component of the indoor environment; physical and chemical parameters for characterization. Types and sources of indoor air pollution, measurement techniques. Heating, ventilation, and air conditioning practices and issues. The human factor in identifying and controlling indoor air pollution.

Prerequisites: fourth year status in B.Eng. Architectural Conservation and Sustainability or fourth year standing in B.A.S. concentration in Conservation and Sustainability.

Lectures three hours a week, problem analysis and laboratory three hours alternate weeks

ENVE 4907 [1.0 credit]

**Engineering Project**

A major project in engineering analysis, design, development or research carried out by individual students or small teams. The objective is to provide an opportunity to develop initiative, self-reliance, creative ability and engineering judgment. A project proposal, an interim report, an oral presentation, and a comprehensive final report are required.

Prerequisite: fourth-year status in Engineering or permission of the department.

ENVE 4908 [0.5 credit]

**Design Project**

Teams of students develop professional level experience through a design project that incorporates fundamentals acquired in previous mathematics, science, engineering, and complementary studies courses. A final report and oral presentations are required.

Prerequisite: fourth-year registration.

Lectures one hour a week, problem analysis three hours a week.



## Environmental Science (ENSC)

### Institute of Environmental Science Faculty of Science

ENSC 1500 [0.5 credit]

#### Environmental Science Seminar

The purpose and nature of the program; society's view on the natural and human-modified environment; major environmental issues and their scientific aspects; preparation and presentation of paper and seminars. Prerequisite: enrolment in the Environmental Science program.

Lectures, seminars and workshops four hours a week.

ENSC 2000 [0.5 credit]

#### Environmental Science Field Camp

A two-week field course taken before classes begin in the fall, including exercises from geological, hydro geological, chemical, biological, and geographic aspects of environmental science. A supplementary field camp fee may apply.

Prerequisites: EARTH 1006 and BIOL 1004 or BIOL 1104, CHEM 1001 and CHEM 1002 and permission of the Institute.

ENSC 2001 [0.5 credit]

#### Earth Resources and Natural Hazards: Environmental Impacts

Environmental impact of mineral, energy and water resource exploitation and impact of hazardous Earth processes such as volcanic eruptions, earthquakes and others: their prediction and mitigation.

Lectures three hours per week.

ENSC 2909 [0.5 credit]

#### Co-operative Work Term Report 1

This course provides practical experience for students enrolled in the Co-operative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded *Sat* or *Uns*.

Prerequisites: registration in the Environmental Science Co-operative Option and permission of the Department. Four-month work term.

ENSC 3509 [0.5 credit]

#### Group Project

Major project relating to an issue involving environmental science; effective methods of team research and presentation of group work.

Prerequisite: third-year standing in the Environmental Science program or permission of the Program Director.

Lectures, seminars and workshops three hours a week.

ENSC 3906 [0.5 credit]

#### Research Planning

Assists students in preparing a research plan and proposal for their fourth year Honours project; discussion and workshop experience in the fundamentals of scientific investigation, including use of literature, theory and data, preparation and evaluation of a scientific research proposal.

Prerequisite: ENSC 3509 and third-year standing in the Environmental Science program, or an Honours Science program with permission of the Program Director.

Discussion groups and workshops three hours a week.

ENSC 3909 [0.5 credit]

#### Co-operative Work Term Report 2

This course provides practical experience for students enrolled in the Co-operative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded *Sat* or *Uns*.

Prerequisites: registration in the Environmental Science Co-operative Option and permission of the Department. Four-month work term.

ENSC 4001 [0.5 credit]

#### Environmental Science Practicum

Experience in an external agency setting, translating the academic dimension into practical involvement with environmental issues. Requires a final report integrating the placement experience with the student's background knowledge. Graded *Sat/Uns*.

Prerequisite: fourth-year standing in the Environmental Science program.

ENSC 4700 [0.5 credit]

#### Topics in Environmental Science

Prerequisite: third-year standing in the Environmental Science program or permission of the Institute.

Lectures and discussion three hours a week.

ENSC 4906 [1.0 credit]

#### Honours Research Project

An independent investigation into an aspect of environmental science supervised by a member of the faculty. Approval of the topic and the research schedule must be obtained from the project supervisor and the program director before the last date for late registration.

Prerequisite: fourth-year standing in the Honours Environmental Science program and permission of the Program Director.

ENSC 4909 [0.5 credit]

#### Co-operative Work Term Report 3

This course provides practical experience for students enrolled in the Co-operative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded *Sat* or *Uns*.

Prerequisites: registration in the Environmental Science Co-operative Option and permission of the Department.

Four-month work term.

## Environmental Studies (ENST)

### Department of Geography and Environmental Studies Faculty of Arts and Social Sciences

ENST 1001 [1.0 credit]

#### Envisioning Earth's Environments

Sustainability requires broadened perspectives on the Earth's natural systems. Geographic and geomatics perspectives help us examine physical and biological environments as the basis of human societies. Includes: landscape interpretation, resources, hazards, inferring meaning from data, and predicting potential impacts of/on human actions.

Lecture two hours and workshops/tutorials two hours weekly.

ENST 1020 [0.5 credit]

#### People, Places and Environments

Examination of the relationships between people, society and the natural environment at scales ranging from the local community to the global one. Population change, cultural patterns, and the major historical, economic and political forces that shape human activity and experiences from place to place. (Also listed as GEOG 1020.)

Precludes additional credit for GEOG 1001/ENST 1001 [if taken before 2006/07].

Lectures two hours a week and laboratory or tutorial one hour a week.

ENST 2000 [0.5 credit]

#### Nature and Environment

Conceptual and practical approaches to understanding nature and the environment, involving descriptive, analytic, investigative and experiential methods. Through reading, participation, research and writing, students should demonstrate an ability to integrate various approaches to environmental awareness and analysis.

Prerequisite: second-year standing in the Environmental Studies program or permission of Environmental Studies.

Lectures, seminars and field work three hours a week.

ENST 2900 [0.5 credit]

#### Intensive Field Course

Training in fields of research or practice related to careers in Environmental Studies, linking human values and environment. Training could include engaging in action learning in environmental education, environmental auditing, environmental assessment, watershed protection or living resource inventories. Topics may change from year to year.

Prerequisite: second-year standing or higher in Environmental Studies, and permission of the Environmental Studies Coordinator.

Field work (36 contact hours).

ENST 3000 [0.5 credit]

#### Environmental Studies Colloquium

Interactions among complex natural systems, social values and attitudes and economic, political and legal concerns are explored through invited speakers from various disciplines and agencies addressing specific environmental issues.

Prerequisite: third-year standing in Environmental Studies or permission of Environmental Studies.

ENST 4000 [0.5 credit]

#### Environmental Studies Seminar

How societal institutions respond to environmental concerns, how various stakeholders understand the environment and how environmental priorities may be implemented in social, political and economic decision-making. Interdisciplinary case studies are used.

Prerequisite: registration is restricted to students eligible for fourth-year standing in the B.A. (Environmental Studies) Honours program.

ENST 4001 [0.5 credit]

#### Environmental Studies Practicum I

External agency setting provides the basis for translating academic training into practical involvement with environmental issues. Final report which integrates the placement experience with the student's background knowledge is required. Graded *Sat/Uns*.

Prerequisite: registration is restricted to students eligible for fourth-year standing in the B.A. (Environmental Studies) Honours program, and permission of the Environmental Studies Co-ordinator.

ENST 4002 [0.5 credit]

#### Environmental Studies Practicum II

External agency setting provides the basis for translating academic training into practical involvement with environmental issues. A final report integrating the placement experience with the student's background knowledge is required. Graded *Sat/Uns*.

Prerequisite: restricted to students in the Fourth-year of the Environmental Studies Honours program, and permission of the Environmental Studies Co-ordinator.

ENST 4005 [0.5 credit]

#### Directed Studies in Environmental Studies

Students pursue their interest in a selected theme in environmental studies on a tutorial basis with a faculty member. (Also listed as GEOG 4005.)

Prerequisite: permission of the Department.

ENST 4400 [0.5 credit]

#### Field Studies

Field observation and methodology in a selected region, special topic or contemporary problem; on an individual or group basis. (Also listed as GEOG 4000.)

Prerequisite: permission of the Department.

ENST 4906 [1.0 credit]

#### Honours Research Project

An independent investigation into a select aspect of environmental studies, supervised by a faculty member. Possible outcomes might include: workshops, audio-visual productions, lay publications, and field projects accompanied by an essay demonstrating the student's capacity to critically reflect on the research project.

Precludes additional credit for ENST 4907 [1.0].

Prerequisite: registration is restricted to students eligible for fourth-year standing in the B.A. Honours (Environmental Studies) program.

ENST 4907 [1.0 credit]

#### Honours Essay in Environmental Studies

Interdisciplinary research essay on an environmental issue, carried out in consultation with a faculty supervisor. The student must consult with the Environmental Studies Co-ordinator in selecting a project and a supervisor.

Precludes additional credit for ENST 4906 [1.0].

Prerequisite: fourth-year Honours standing in Environmental Studies, an Environmental Studies CGPA of 9.00 or higher, an approved research topic, and permission of the Honours supervisor.

## European, Russian and Eurasian Studies (EURR)

### Institute of European, Russian and Eurasian Studies Faculty of Public Affairs

EURR 2001 [0.5 credit]

#### Current Issues in European Politics and Society

An interdisciplinary examination of social, political, and economic issues facing Europe, including the countries of the European Union, Eastern Europe, and Russia.

Prerequisite: second-year standing.

Lecture and discussion three hours a week.

EURR 2002 [0.5 credit]

#### Europe and Russia in the World

The position of Europe, the European Union, and the Russian Federation in a global context, including geopolitical, economic, security, and human dimensions.

Prerequisite: second year standing.

Lecture and discussion three hours a week.

EURR 3001 [0.5 credit]

#### Literature and Culture in Europe

A survey of the literature and cultural texts that have defined Europe. Examination of fiction and non-fiction texts that have contributed to and reflected the development of European culture and society. (Also listed as ENGL 3804.)

Precludes additional credit for EURR 2000 or ENGL 2010.

Prerequisite: second year standing.

Lecture and discussion three hours a week.

EURR 3002 [0.5 credit]

#### Literature and Culture in Russia and Eurasia

A survey of the literature and cultural texts that have defined Russian and neighboring Slavic countries. Examination of fiction and non-fiction texts that have contributed to and reflected the development of Russian and Slavic culture and society. (Also listed as ENGL 3805.)

Precludes additional credit for EURR 2000 and ENGL 2010.

Prerequisite: second-year standing.

Lecture and discussion three hours a week.

EURR 3901 [0.0 credit]

#### Cooperative Work Term 1

Prerequisite: registration in the B.A. Honours Co-operative Program, completion of Co-op preparation classes offered by the Co-op Office and permission of the Institute.

EURR 3902 [0.0 credit]

#### Cooperative Work Term 2

Prerequisite: registration in the B.A. Honours Co-operative Program, completion of Co-op preparation classes offered by the Co-op Office, satisfactory completion of EURR 3901 and permission of the Institute.

EURR 3903 [0.0 credit]

#### Cooperative Work Term 3

Prerequisite: registration in the B.A. Honours Co-operative Program, completion of Co-op preparation classes offered by the Co-op Office, satisfactory completion of EURR 3902 and permission of the Institute.

EURR 3904 [0.0 credit]

#### Cooperative Work Term 4

Prerequisite: registration in the B.A. Honours Co-operative Program, completion of Co-op preparation classes offered by the Co-op Office, satisfactory completion of EURR 3903 and permission of the Institute.

EURR 4002 [0.5 credit]

#### Post-Soviet States and Societies

The relationship between social forces and state structures at both the national and local levels in the USSR and the post-Soviet states.

(Also listed as PSCI 4502.)

Prerequisite: fourth-year standing and one of the following: PSCI 3208 or PSCI 3209 or PSCI 3704 or PSCI 3705 or HIST 2600, or permission of the Institute. Seminar three hours a week.

EURR 4003 [0.5 credit]

#### Social and Political Perspectives in Europe

Social issues and policies in the European Union including European identity, democratic legitimacy, nationalist and extremist political movements, Euroscepticism, migration and immigration, social inclusion/exclusion and social models, gender and family policy, regional differentiation.

Also offered at the graduate level with additional or different requirements, as EURR 5003, for which additional credit is precluded.

Precludes additional credit for EURR 4000.

Prerequisite: fourth-year standing and one of the following: EURR 2000 (no longer offered), EURR 2001, PSCI 3207 or another 3000-level course in European politics or history; or permission of the Institute.

Seminar three hours a week.

EURR 4005 [0.5 credit]

#### Environmental Problems and Politics in East/Central Europe and Eurasia

Nature, origins and policy responses viewed from economic, political, and geographic perspectives. Also offered at the graduate level, with additional or different requirements, as EURR 5005, for which additional credit is precluded.

Prerequisite: fourth-year standing and a previous course on the region or on environmental issues; or permission of the Institute.

Seminar three hours a week.

EURR 4006 [0.5 credit]

#### European Integration and the Business Environment in East/Central Europe

The economic and legal environment for business in Central and Eastern Europe in the context of European integration. Regulatory structures, patterns of foreign trade, market characteristics, scientific and technological base and business culture. (Also listed as BUSI 4604)

Prerequisite: fourth-year standing and ECON 3808 or ECON 3700, PSCI 3207, or BUSI 3601 or permission of the Institute.

Seminar three hours a week.

EURR 4007 [0.5 credit]

#### Social and Political Discourse in Russia

Contemporary social and political issues covered in Russian-language media. Most course readings and instruction in Russian, but student participation may be in English and Russian. Also offered at the graduate level, with additional or different requirements, as EURR 5007, for which additional credit is precluded.

Prerequisites: fourth-year standing and appropriate facility in the Russian language; or permission of the Institute.

Seminar three hours a week.

EURR 4008 [0.5 credit]

#### Nationalism and Ethnic Conflict in Eastern and Central Europe

Ethnic basis of nationalism in the region. Ethnic politics and trends.

Prerequisite: fourth-year standing and a previous course on the region; or permission of the Institute.

Seminar three hours a week.

EURR 4100 [0.5 credit]

**Nation-Building in Central and Eastern Europe**

Processes of nation building in the region examined in terms of a particular country, or set of countries. Also offered at the graduate level, with additional or different requirements, as EURR 5100, for which additional credit is precluded.

Prerequisite: fourth-year standing and one of PSCI 3704, PSCI 3705, PSCI 3208, PSCI 3209, HIST 2600; or permission of the Institute.

Seminar three hours a week.

EURR 4101 [0.5 credit]

**The Balkans**

Differing paths of transition from communist rule. Sources of friction and conflict in the region. Emphasis on the Yugoslav crisis and its extra-regional dimensions.

Prerequisites: fourth-year standing and one of PSCI 3704, PSCI 3208, PSCI 3209, HIST 2600; or permission of the Institute.

Seminar three hours a week.

EURR 4104 [0.5 credit]

**European Integration and European Security**

Issues related to the formation of supra-national decision-making structures in Europe. Also offered at the graduate level, with additional or different requirements, as EURR 5104, for which additional credit is precluded. (Also listed as PSCI 4608.)

Prerequisite: fourth-year standing and a previous course on Europe or on international security, or permission of the Institute.

Seminar three hours a week.

EURR 4106 [0.5 credit]

**Selected Topics in European Integration Studies**

Selected topics related to European integration in the post-World War II period. (Also listed as PSCI 4609.)

Prerequisite: fourth-year standing and a previous course on Europe; or permission of the Institute.

Seminar three hours a week.

EURR 4107 [0.5 credit]

**Russia and the New World Order, 1992 to the Present**

An examination of how the Russian Federation has sought a place for itself in the world order since the collapse of the USSR up until the present.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

EURR 4201 [0.5 credit]

**Special Topics in European Studies**

A seminar focusing on selected topics related to Europe.

EURR 4202 [0.5 credit]

**Special Topics in Russian and Eurasian Studies**

A seminar focusing on selected topics related to Russia and neighbouring countries.

EURR 4203 [0.5 credit]

**Imperial and Soviet Russia**

Legacies of the tsarist empire and the Soviet Union that influence the region today. Topics discussed include political culture, empire, socialism, class, gender, and non-Russian peoples. Also offered at the graduate level with different requirements as EURR 5203, for which additional credit is precluded. (Also listed as HIST 4603.)

Seminar three hours a week.

EURR 4204 [0.5 credit]

**Central Europe, Past and Present**

Evolution and current status of Central Europe from periods of foreign control in the late nineteenth and twentieth centuries to independent statehood, with emphasis on national accommodations and conflicts. Also offered at the graduate level with different requirements as EURR 5204, for which additional credit is precluded. (Also listed as HIST 4604.)

Seminar three hours a week.

EURR 4205 [0.5 credit]

**Gender, Identity and Politics in Post-Communist Societies**

The relationships between political transformation, identity-building, ethnicity and gender politics in the transitional states of Europe and the former Soviet Union, considered in comparative perspective. (Also listed as PSCI 4501.)

Prerequisite: fourth-year Honours standing or permission of the Department and one of PSCI 2101, PSCI 2102, PSCI 2500, PSCI 3208, PSCI 3209, PSCI 3500, PSCI 3502, PSCI 3704, or PSCI 3705.

Seminar three hours a week.

EURR 4206 [0.5 credit]

**Internship and Applied Policy Skills**

A seminar accompanying an unpaid internship placement to develop workplace and applied policy skills. Relating applied experience to academic literature. Writing skills for an applied policy setting. Internship placement: 12 days over 12 weeks. Also offered at the graduate level with additional or different requirements, as EURR 5301, for which additional credit is precluded.

Prerequisite: open only to fourth-year EURUS B.A. Honours students with a minimum B+ average and placement in an internship position in the same semester or in the previous semester (based on a competitive application process).

Seminar: six three-hour seminar sessions.

EURR 4207 [0.5 credit]

**Politics of Central Eurasia**

Examination of the Caucasus and Central Asia, from Chechnya to former Soviet republics of the region, Afghanistan and Chinese Turkestan. Interests of Russia, China, and the United States. Emphasis on underdevelopment, oil and gas, terrorism, Islam. (Also listed as PSCI 4503.)

Prerequisite: fourth year Honours standing or permission of the Institute.

Seminar three hours a week.

EURR 4208 [0.5 credit]

**Foreign Policies of Soviet Successor States**

The foreign policies of the USSR and of Russia and selected other successor states, with special emphasis on the search for a new security order. (Also listed as PSCI 4601.)

Prerequisite: fourth-year Honours standing or permission of the Department, and one of PSCI 2102, PSCI 2601, PSCI 2602, PSCI 3107, PSCI 3208, PSCI 3209, PSCI 3600, PSCI 3603, PSCI 3703.

Seminar three hours a week.

EURR 4302 [0.5 credit]

**EU Summer Study Abroad**

This course is open only to students in approved summer study options in Europe, particularly the EU Study Tour. Also offered at the graduate level, with additional or different requirements, as EURR 5302, for which additional credit is precluded.

Prerequisite: approval of the Institute.

EURR 4900 [1.0 credit]

**Tutorial in European and Russian Studies**

Tutorials or reading courses on selected topics may be arranged with the permission of the Institute and agreement of the instructor.

Prerequisite: permission of the Institute.

EURR 4901 [0.5 credit]

**Tutorial in European and Russian Studies**

Tutorials or reading courses on selected topics may be arranged with the permission of the Institute and agreement of the instructor.

Prerequisite: permission of the Institute.

EURR 4902 [0.5 credit]

**Tutorial in European and Russian Studies**

Tutorials or reading courses on selected topics may be arranged with the permission of the Institute and agreement of the instructor.

Prerequisite: permission of the Institute.

EURR 4908 [1.0 credit]

**Honours Essay**

Topic and faculty supervisor to be selected in consultation with Honours Adviser. Oral defense of essay is required.

Prerequisites: fourth-year standing, a CGPA of 9.00 or better in courses qualifying for credit in European and Russian Studies, and permission of the Institute.

## Film Studies (FILM)

School for Studies in Art and Culture  
Faculty of Arts and Social Sciences

FILM 1000 [1.0 credit]

### Introduction to Film Studies

Introduction to the study of film that considers the nature of the medium, audience perception, historical and technical development of the cinema, and problems of theory and critical method. Focus on style and techniques; a period of film history; the filmmaker; and film genres.

Lecture and screening three hours a week, discussion one hour a week.

FILM 2000 [1.0 credit]

### Introduction to Film Theory and Analysis

Introduction to major film theories and analytical practices. Focus on 1) Classical Film Theory, 2) Theories of the 1960s and 1970s, and 3) Contemporary Film Theory.

Prerequisites: FILM 1000 and second-year standing; or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 2101 [0.5 credit]

### The Film Industry

The organization of the production, distribution and exhibition practices of various film industries. May include an examination of the relationship between a national film industry and its television industry.

Prerequisite: FILM 1000 or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 2106 [0.5 credit]

### The Documentary

An examination of the work of individual filmmakers, of documentary styles and of organizations and institutions in the context of the history of documentary film making, including documentaries made for television. Non-fiction films other than documentaries may be considered. (Also listed as JOUR 2106.)

Precludes additional credit for FILM 2105 (JOUR 2105).

Prerequisite: FILM 1000 or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 2201 [0.5 credit]

### National Cinema

This course examines the film production of specific countries in order to determine the themes, the styles, and the character of a national cinema.

Prerequisite: FILM 1000 or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 2209 [1.0 credit]

### The Canadian Cinema

A critical examination of Canadian cinema. The course relates the Canadian cinema to other aspects of Canadian culture, including television, and examines the conditions that have affected filmmaking in this country.

Precludes additional credit for FILM 3208.

Prerequisite: second-year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 2401 [0.5 credit]

### The Film Maker

A detailed study of the themes, the characteristic style, development and influence of one or more directors.

Prerequisite: FILM 1000 or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 2601 [0.5 credit]

### Film Genres

This course examines questions of generic form, drawing examples from world cinema.

Prerequisite: FILM 1000 or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 2608 [1.0 credit]

### History of World Cinema

Historical survey of world cinema, examining the forms, structures and stylistic conventions of various periods and nations. Attention is given to the development of a critical idiom suited to the description, analysis, and evaluation of film. (Also listed as ENGL 2608).

Prerequisite: FILM 1000 or a 1000-level course in English.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3105 [0.5 credit]

### Questions of Documentary Practice

Theoretical implications of documentary film and documentary television practice. (Also listed as JOUR 3105.)

Prerequisite: 1.0 credit in FILM at the 2000-level and third-year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3206 [0.5 credit]

### Topics in American Cinema

Studies in various aspects of American cinema with emphasis on historical and critical issues.

Precludes additional credit for FILM 2208 and FILM 3205

Prerequisite: 1.0 credit in FILM at the 2000-level and third-year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3209 [0.5 credit]

### Topics in Canadian Cinema

Studies in various aspects of Canadian cinema. Topics may vary from year to year.

Precludes additional credit for FILM 3208.

Prerequisite: 1.0 credit in FILM at the 2000-level and third-year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3301 [0.5 credit]

### Topics in Cinema and Gender

A study of selected topics in gender and cinema with emphasis on critical and historical questions.

Prerequisite: 1.0 credit in FILM at the 2000-level and third-year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3402 [0.5 credit]

### Film Music

The use of music in film, from the silent era to the present day. Techniques, styles and theory of film music through the examination of selected scenes. (Also listed as MUSI 3402.)

Lectures three hours a week, screening two hours a week.

FILM 3505 [1.0 credit]

**Aspects of Film History and Theory**

Building on the skills acquired in FILM 2000, this course provides a critical study of advanced film theories. Topics may include aesthetics, ideological criticism, reception studies, theories of technology and historiography. Precludes additional credit for FILM 3000, FILM 3001, FILM 3500, FILM 3501 and FILM 3608.

Prerequisite: FILM 2000 and third-year standing, or permission of the Discipline.

Lecture and screening three hours a week, seminar two hours a week.

FILM 3608 [0.50 credit]

**Topics in Film History**

Studies of aspects of the history of world cinema. Topics will vary from year to year and may include the examination of film movements, styles and genres, and/or comparative study of national, regional and/or world-wide trends.

Prerequisite: 1.0 credit in FILM and third year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3701 [0.5 credit]

**Topics in Animation, Video, and Experimental Film**

A study of selected topics in animation, video or experimental film.

Prerequisite: 1.0 credit in FILM at the 2000-level or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3801 [0.5 credit]

**Audiovisual Practice**

Practical and conceptual approaches to film studies from the point of view of production, using models of audiovisual practice.

Prerequisite: FILM 2000.

Lecture/workshops four hours a week.

FILM 3808 [0.5 credit]

**Cinema and Technology**

The technological development of cinema. Topics may include advances in sound and colour processes, digital effects, exhibition technologies and new media.

Prerequisite: 1.0 credit in FILM at the 2000-level and third year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 3901 [0.5 credit]

**Topics in Film Studies**

Selected topics and issues not ordinarily treated in the third-year course program.

Prerequisite: 1.0 credit in FILM at the 2000-level and third-year standing, or permission of the Discipline.

Lecture and screening three hours a week, lecture one hour a week.

FILM 4001 [0.5 credit]

**Research and Critical Methodologies**

Study of various methodologies for critical, theoretical and historical research in film studies.

Precludes additional credit for FILM 4000.

Prerequisite: FILM 3505 and fourth-year standing in Film Studies, or permission of the Discipline.

Lecture and screening three hours a week, lecture two hours a week.

FILM 4002 [0.5 credit]

**Topics in Audio-Visual Culture**

Selected aspects of the audio-visual cultures of the late nineteenth and twentieth centuries. (Also listed as ACUL 4002.)

Prerequisite: FILM 3505 and fourth-year standing in Film Studies, or permission of the Discipline.

Seminar three hours a week.

FILM 4201 [0.5 credit]

**Selected Topics in National Cinemas**

A study of a selected topic in national cinema.

Prerequisite: FILM 3505 and fourth-year standing in Film Studies or permission of the Discipline.

Lecture and screening three hours a week, seminar two hours a week.

FILM 4209 [0.5 credit]

**Selected Topics in Canadian Cinema**

A study of selected topics in Canadian cinema.

Prerequisite: FILM 3505 and fourth-year standing in Film Studies or permissions of the Discipline.

Lecture and screening three hours a week, seminar two hours a week.

FILM 4401 [0.5 credit]

**Selected Topics in Film Authorship**

A study of questions of authorship in the cinema, concentrating on one or more filmmakers.

Prerequisite: FILM 3505 and fourth-year standing in Film Studies or permission of the Discipline.

Lecture and screening three hours a week, seminar two hours a week.

FILM 4501 [0.5 credit]

**Selected Topics in Film Theory**

A study of a selected topic in film theory.

Prerequisite: FILM 3505 and fourth-year standing in Film Studies or permission of the Discipline.

Lecture and screening three hours a week, seminar two hours a week.

FILM 4800 [0.5 credit]

**Seminar in Film/Video Archival or Curatorial Practice**

Selected topics in film/video archival or curatorial practice, including questions related to cultural policy, exhibition, conservation, and interrelationship of media. Students are expected to bear all travel and other costs arising from required visits to local facilities.

Prerequisite: fourth-year standing in Film Studies or permission of the Discipline.

Lecture and screening three hours a week, seminar two hours a week.

FILM 4805 [0.5 credit]

**Practicum in Film and Film Studies**

Practical experience through working on specific projects under the supervision of staff at a museum, gallery, archive, or production company in the Ottawa area. A maximum of 0.5 credit Film Studies practica courses may be offered in fulfilment of Film Studies requirements. Graded SAT/UNS.

Prerequisite: fourth-year standing in Film Studies and permission of the Discipline.

FILM 4806 [0.5 credit]

**Practicum in Film and Film Studies**

Practical experience through working on specific projects under the supervision of staff at a museum, gallery, archive, or production company in the Ottawa area. A maximum of 0.5 credit Film Studies practica courses may be offered in fulfilment of Film Studies requirements. Graded SAT/UNS.

Prerequisite: fourth-year standing in Film Studies and permission of the Discipline.

FILM 4807 [0.5 credit]

**Practicum in Film and Film Studies**

Practical experience through working on specific projects under the supervision of staff at a museum, gallery, archive, or production company in the Ottawa area. A maximum of 0.5 credit Film Studies practica courses may be offered in fulfilment of Film Studies requirements. Graded SAT/UNS.

Prerequisite: fourth-year standing in Film Studies and permission of the Discipline.

FILM 4901 [0.5 credit]

**Special Topic**

Selected topics in film studies not ordinarily available in the regular course program. The choice of topic or topics will vary at least every two years and will be announced well in advance of the registration period.

Prerequisite: FILM 3505 and fourth-year standing in Film Studies or permission of the Discipline.

Screening three hours a week, seminar two hours a week.

FILM 4905 [1.0 credit]

**Independent Study**

For students who wish to study a specific topic. Proposed projects must be approved by the Program Committee. Written request outlining the project must be submitted by the first day of fall term. An essay is the usual assignment.

Prerequisites: fourth-year Honours standing in Film Studies, a CGPA of 10.00 or better in Film Studies courses, and permission of the Discipline.

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## First-Year Seminars (FYSM)

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### Faculty of Arts and Social Sciences Faculty of Public Affairs

FYSM 1002 [1.0 credit]

**Social Impact of Transformation in the Post-Communist Era**

Political, economic and social changes that have accompanied the collapse of the Berlin Wall. The role of society in these political upheavals and the impact of the end of the Cold War on reform in Western and developing countries.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1003 [1.0 credit]

**Introduction to Economics**

An introduction to the major tools and policy problems of economics. Economic analysis is applied to a variety of contemporary problems such as pollution, poverty, the control of monopoly, unemployment, inflation and international economic problems.

Precludes additional credit for ECON 1000, ECON 1001, and ECON 1002.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

This course is an intensive version of ECON 1000 geared to students in the Honours program in Economics or Applied Economics.

Seminars three hours a week, tutorials one hour a week.

FYSM 1004 [1.0 credit]

**Literature, Genre, Context**

Introduction to active literary reading skills, focusing on at least three literary genres including poetry, prose, and drama, with attention to literary, social, historical, and political contexts. This course is writing attentive. Strongly recommended for English majors. Consult English Department website for annual topics.

Precludes additional credit for ENGL 1000 [1.0].

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1100 [1.0 credit]

**Sustainable Environments**

The causes and consequences of environmental change; emphasis on the interactions of nature and human behaviour. Ways in which the environment can be protected and restored. Environmental issues that affect our own communities.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1101 [1.0 credit]

**Location is Everything**

Where we live affects who we are; the role of geographic location and environment on human perception, behaviour, and well-being, viewed at scales ranging from local to global; methods of collecting and interpreting information about location.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.



FYSM 1104 [1.0 credit]

**Human Rights: Issues and Investigations**

Arguments that have been used to defend differing positions on rights issues, past and present. The validity of contending arguments; social factors influencing wide-spread acceptance of popular views.

Precludes additional credit for HUMR 1001, ISSC 1001, ANTH 1010, SOCI 1010.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminar three hours a week.

FYSM 1105 [1.0 credit]

**Reading the Web**

Academic writing and study skills through examination of the literacy and social interaction required for various media. Reading and writing on and for the Web and other forms of computer-mediated communications and cooperative work compared with writing for academic purposes.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminar three hours a week.

FYSM 1106 [1.0 credit]

**Issues in Classics**

An investigation of important issues relating to the Greek and Roman worlds. Themes will be drawn from literature, history, art, religion and social life. All texts are in English.

Precludes additional credit for CLCV 1000.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1202 [1.0 credit]

**Cross-cultural Communicative Competence**

The role of language in inter-, multi- and cross-cultural communication. Linguistic aspects of cultural interactions; incorporates theoretical perspectives from pragmatics, speech act theory, rhetoric, and other disciplines, with a view to developing awareness and competence in communications across cultures in general, academic and professional settings.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1204 [1.0 credit]

**Language and Social Identity**

The creation and expression of social identities through language: gender, age, ethnic and social background.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Lectures three hours a week.

FYSM 1205 [1.0 credit]

**Language and Power**

The role of language in maintaining and contesting power relations in domains such as the media, education, advertising, and politics. How meanings are made and exchanged through language in different situations.

Precludes additional credit for LALS 2705.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Lectures three hours a week.

FYSM 1207 [1.0 credit]

**Selected Topics in Mass Communication**

Introductory mass communication seminar. Topics offered may vary from year to year and will be announced in advance of the registration period by the Mass Communication Program.

Prerequisite: normally restricted to students entering the first year of a B.A. program. (This course is not the equivalent of MCOM 1101.)

Seminar three hours a week.

FYSM 1208 [1.0 credit]

**Looking at Philosophy**

An examination of the following: What is logical thinking? Does God exist? Are values relative? Do we have responsibilities? What is a just society? Do we have free will? What is the mind? What is the nature of reality?

Precludes additional credit for PHIL 1100.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1209 [1.0 credit]

**Contemporary Moral, Social, and Religious Issues**

Philosophical problems associated with such topical issues as feminism; atheism vs. theism; the meaning of life; moral relativism vs. moral objectivism; egoistic vs. non-egoistic ethics; euthanasia and capital punishment; legal paternalism; freedom of the will.

Precludes additional credit for PHIL 1500 and PHIL 1550.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1300 [1.0 credit]

**History of Philosophy**

The major figures and developments in philosophy from the early Greeks to the present. A primarily descriptive and comparative approach, through critical reasoning is included for comprehending philosophic development. Provides a background from which to understand the philosophical aspects of other disciplines.

Precludes additional credit for PHIL 1600.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1306 [1.0 credit]

**Diversity in Psychological World Views**

Theories, research and applications of psychology from the perspective of different cultures and sub-cultures. The validity of psychology across society; how it defines and changes people, and how it reflects and engineers particular social values and norms.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1307 [1.0 credit]

**Psychology and Criminal Justice**

Theories, research, and practical applications of psychology to the criminal justice system. Topics may include eyewitness testimony, prediction of violence, classification and rehabilitation of offenders, victim studies, and judicial decision making.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

FYSM 1308 [1.0 credit]

**Motivating Humans**

The psychology of human motivation. Everyday concepts such as laziness in relation to diverse theories and explanations of motivation such as drive-reduction, sociobiology, personal goals, self-actualization and spiritual awareness.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

Seminars three hours a week.

Courses - First-Year Seminars (FYSM)

FYSM 1400 [1.0 credit]

**Cognition: A Scientific Exploration of the Mind**

Theories, research, and applications of Cognitive Psychology. Research projects will familiarize students with the scientific method used to study pattern recognition, attention, memory, language and thinking.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1401 [1.0 credit]

**Multiculturalism in Canada**

Issues relating to the development of and interaction among cultural communities, with major emphasis on the realities of "doing multiculturalism in Canada." Research teams; organized seminars with volunteers from Canadian cultural and community groups.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1402 [1.0 credit]

**Issues in Women's and Gender Studies**

Emphasis on the development of writing, research and analytical skills through the intensive examination of selected topics in women's studies (e.g. popular culture, media, representation and identity, communications, women's writing, motherhood, sexuality, health, technology, law, politics). Specific themes will vary from year to year.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1403 [1.0 credit]

**Women and the Arts**

Feminist research across a range of arts disciplines (including music, theatre, visual arts and film). The importance of feminist debates and theoretical issues in understanding women's involvement in the arts. Topics include gender and sexuality, feminine aesthetics, representation, identity and difference.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1405 [1.0 credit]

**Turning Points in History**

Introductory seminars emphasizing the development of writing, research, and analytical skills through the intensive examination of selected topics in modern history. Topics may vary from year to year. (Field will depend on topic.)

Precludes additional credit for HIST 1009.  
Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1406 [1.0 credit]

**How Ottawa Works: Exploring National Institutions**

This course examines the fundamental political, judicial and administrative institutions that made Canada a unique nation. Students will learn how government institutions are dealing with preservation and maintenance of Canadian cultural and social values.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1407 [1.0 credit]

**Thinking About Talking?**

Open only to students who have very little French. Comprehensive introduction to the French language and culture with emphasis on oral comprehension and speaking; use of authentic contemporary documents (video, TV, radio, newspapers, etc.) This course is given in French.

Prerequisite: French Placement.  
Seminar three hours a week.

FYSM 1408 [1.0 credit]

**World Literature in French**

An introduction to the diverse literatures of the francophone world through works from the Middle East, Canada, Africa, Europe and the Caribbean. For students who have completed the placement test on Carleton Central and have received a confirmation through their connect email account.

Seminar three hours a week.

FYSM 1409 [1.0 credit]

**Social Change in Canada**

Interdisciplinary analysis of social change and how people change Canada, through an examination of movements like environmentalism, feminism, peace, and antiracism. Examination of broader efforts to reshape Canadian society, including culture-jamming and change through popular culture.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1501 [1.0 credit]

**The Study of Religions**

Inquiries into the nature of religion and its interpretation, or a specific religious theme or a period of religious history. Specific topics will vary from year to year.

Normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1502 [1.0 credit]

**Selected Topics in Legal Studies**

Selected topics in legal studies. Course offerings for the current year are listed at:

[carleton.ca/first-year-seminars](http://carleton.ca/first-year-seminars)  
Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1503 [1.0 credit]

**Contemporary Culture in Everyday Life**

Consideration of the role of contemporary cultural forms in everyday life. Focus is on the culture/power relationship with special attention to the ways that popular forms such as television, film, music, and tourism facilitate or work against the cultural and economic interests of different societal groups.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1504 [1.0 credit]

**Society and the Designed Environment**

Inquiry into the relation between human societies and the material environment which they inhabit and use. Focus is on the ways in which groups create the environments in which they live and the ways in which those environments influence and reproduce the groups.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1505 [1.0 credit]

**Introduction to Applied Sociology**

Survey of the historic and contemporary contributions of Sociology to various applied fields, which may include official statistics, policy studies, consumer research, and workplace management. Focus on the philosophical, professional, and ethical distinctions between scholarly and applied sociology.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1506 [1.0 credit]

**Topics in the Study of Societies**

Introductory seminar emphasizing the development of writing, research and analytical skills through the intensive examination of selected topics in the study of historic and contemporary societies.

Prerequisite: normally restricted to students entering the first year of a B.A. program.

FYSM 1508 [1.0 credit]

**Stress, Coping and Well-being**

How do you cope with stress? We live in a stressful world, and how we cope with this stress has important implications for our happiness and well-being. In this course we will examine theory and research on how stress affects our lives, how people cope, and what it means to be well-adjusted.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1509 [1.0 credit]

**Special Studies in Art History, Film Studies and/or Music**

Topics and focus to be determined on a yearly basis.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1600 [1.0 credit]

**Contemporary Controversies in Canadian Society**

An interdisciplinary exploration of key debates that currently affect Canadian society and culture. Topics may include: nationalism, race, language and ethnicity, sexuality, gender, Aboriginal governance, globalization, the environment, and human rights.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1601 [1.0 credit]

**Literature and Political Change in Europe**

Consideration of presentations of periods of transition, political change, or upheaval in Europe primarily in works of literature, but also through images and film. Introduction to critical periods in European life and to different methods of representing them.

Lecture and discussion three hours a week.

FYSM 1602 [1.0 credit]

**Selected Topics in Political Science**

Selected topics in politics and governance. Topics offered may vary from year to year and will be announced in advance of the registration period by the Department of Political Science.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminar three hours a week.

FYSM 1607 [1.0 credit]

**Cognitive Science: Thinking and Knowing**

Interdisciplinary examination of discoveries in linguistics, psychology, philosophy, and computer science concerning the question "What is cognition"? Specific issues may include the mind-brain controversy, the role of language in thought, and artificial versus natural intelligence.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Classes and seminars three hours a week.

FYSM 1608 [1.0 credit]

**Selected Topics in Economics**

Content of this course may vary from year to year and will be announced in advance of the registration period by the Department of Economics.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1609 [1.0 credit]

**Integrated Studies in Public Affairs and Management**

An integrated multidisciplinary exploration of a topic of interest to disciplines within the Faculty of Public Affairs offering Bachelor of Arts programs.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Lecture 1.5 hours a week; seminar two hours a week.

FYSM 1610 [1.0 credit]

**Understanding Environmental Discourse**

An examination of how language and other symbol systems are used to portray and make arguments about ecology and the global environment, with a particular focus on climate change.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1612 [1.0 credit]

**Language, Identity, and Canadian Nation-Building**

The role of language and language planning in the negotiation of national identity among Canada's cultural and ethnolinguistic groups. Forms and history of language planning, theories of language and identity, and their implications for what it means to be Canadian.

Prerequisite: normally restricted to students entering the first year of a B.A. program.  
Seminars three hours a week.

FYSM 1700 [1.0 credit]

**Selected Topics in Neuroscience**

Animal behaviour and thought are products of the brain. Neuroscience seeks to decipher this complex organ. Topics vary from year to year and may include aging and dementia, drug use/abuse, the intellect, appetite and brain development.

Prerequisite: normally restricted to students entering the first year of the BA.  
Seminar three hours a week.

FYSM 1900 [1.0 credit]

**Selected Topics In the Study of Academic Discourses**

Introductory seminar emphasizing the development of academic writing, research and analytical skills through the intensive examination of a selected topic in the instructor's field of expertise. Specific topics vary from section to section each year.

Prerequisite: enrolment in the Enriched Support Program.

Precludes additional credit for FYSM 1605.

Seminar three hours a week.

## Food Science (FOOD)

Department of Chemistry  
Faculty of Science

FOOD 1001 [0.5 credit]

### Introduction to Food Science

Overview of the food industry. Production, processing, product development, packaging, chemistry, analysis, microbiology. Elements risk assessment, policy making and regulation.

Lectures three hours a week.

FOOD 2001 [0.5 credit]

### Principles of Nutrition

Roles of nutrients, lipids, proteins, carbohydrates, fluids and electrolytes. Digestion, absorption, transport, energy metabolism. Disorders including diabetes, cardiovascular disease and osteoporosis. Nutrition through the life cycle.

Pre-requisites: CHEM 1001, CHEM 1002, BIOL 1003.

Lectures three hours a week.

FOOD 3001 [0.5 credit]

### Food Chemistry

Chemistry of the major components of foods such as proteins, lipids, carbohydrates and of the minor components such as enzymes, vitamins and various additives and their relationships to food stability and degradation.

Pre-requisites: FOOD 2001, CHEM 2203, BIOC 2200, BIOL 2303.

Lectures three hours a week, laboratory three hours a week.

FOOD 3002 [0.5 credit]

### Food Analysis

Techniques for analysis of food for moisture, fat, protein, ash and fibre as well as some of the minor components of food. Titrations, extractions, calorimetry, spectroscopy, immunoassays.

Pre-requisites: FOOD 3001.

Lectures three hours a week, laboratory three hours a week.

FOOD 3003 [0.5 credit]

### Food Packaging

An introduction to the materials used for food packaging, including their chemical and physical characteristics. Interactions of these materials with food products, and the effects on food storage and quality.

Pre-requisites: FOOD 2001, CHEM 2303.

Lectures three hours a week.

FOOD 3004 [0.5 credit]

### Food Engineering

Basic engineering principles applicable to a wide range of food engineering and food processing situations, illustrating the uses of engineering concepts in industrial food processing applications. Energy and material balances, fluid mechanics, heat transfer.

Pre-requisites: MATH 1007, MATH 1107.

Lectures three hours a week.

FOOD 3005 [0.5 credit]

### Food Microbiology

Foodborne diseases, microbial growth and survival, food spoilage, food fermentation. Techniques for detecting and quantifying microorganisms in foods.

Pre-requisite: BIOL 2303.

Lectures three hours a week, laboratory three hours a week.

FOOD 4001 [0.5 credit]

### Food Quality Control

Factors affecting quality in manufacturing and processing of foods and principles of quality control and quality assurance. Sampling plans and statistical methods. Applications of physical, chemical, biological and microbiological tests in quality control. Quality systems and standards.

Pre-requisite: FOOD 3004.

Lectures three hours a week.

FOOD 4101 [1.0 credit]

### Food Safety Risk Assessment, Communication and Management I

The role of risk management in providing science-based approaches to solving food safety problem. Risk management models and practical applications in critical risk management. An examination of actual risk assessments. Risk communication is addressed.

Pre-requisite: third- or fourth-year standing in the Food Science and Nutrition program.

Lectures three hours a week.

FOOD 4102 [0.5 credit]

### Regulation of the Food Industry

Regulation of the food industry with particular emphasis on Canadian regulations. Advertising, labelling, packaging, Food additives, supplements and fortifications. Regulation of organic, genetically modified and irradiated foods. Inspection, enforcement and compliance.

Pre-requisite: ECON 3300.

Lectures three hours a week.

FOOD 4907 [1.0 credit]

### Honours Essay and Research Proposal

An independent research study using library resources. The candidate will prepare a critical review of a topic approved by a faculty advisor.

Precludes additional credit for FOOD 4908, CHEM 4907 and CHEM 4908.

Prerequisite: fourth year standing in the Food Science and Nutrition program and permission of the department.

FOOD 4908 [1.0 credit]

### Food Science Research Project

Students in Food Science and Nutrition carry out a research project under the direction of a faculty member. A written report and an oral presentation of the work are required before a grade can be assigned. Laboratory and associated work equivalent to at least eight hours per week for two terms.

Precludes additional credit for FOOD 4907, CHEM 4907 and CHEM 4908.

Prerequisites: fourth year standing in the Food Science and Nutrition program.

## French (FREN)

### Department of French Faculty of Arts and Social Sciences

#### French Placement for Language Students

Students who have not previously taken a course in the French Department must complete the Placement Test on Carleton Central before registering as per instructions received through their **connect** e-mail account. Students should note that they cannot go backward in a sequence of levels in language courses.

Students desiring a French credit to satisfy the language requirement of their department or school should consult that department or school.

FREN 1001 [1.0 credit]

#### Elementary French

This course is designed for absolute beginners in the language. Classes use audio-visual methods, and emphasis is given to the spoken language. Introduction to reading and writing. Compulsory attendance. Limited enrolment. No auditors.

Prerequisite: placement test on Carleton Central before registering.

Lecture three hours a week.

FREN 1002 [1.0 credit]

#### Low Intermediate French

Taught in French for students who have had exposure to French but who have difficulty using it in day-to-day communication. Emphasis on oral expression and comprehension; development of reading and writing skills. Oral practice, oral presentations, interviews, cultural activities, grammar exercises. Attendance and participation are compulsory. Limited enrolment. No auditors.

Prerequisite: placement test on Carleton Central before registering.

Lecture three hours a week.

FREN 1100 [1.0 credit]

#### Intermediate French

Taught in French. Emphasis on speaking, listening, reading and writing skills. Oral presentations, discussions, interviews, reading of novels and magazine articles, listening activities, grammar exercises, compositions. Attendance and participation are compulsory. Limited enrolment. No auditors.

Prerequisite: FREN 1002 or placement test on Carleton Central before registering.

Lecture three hours a week.

FREN 1110 [1.0 credit]

#### Written French 1

Taught in French. For students with low intermediate writing skills in French. Improvement of spelling, grammar, sentence-structure and vocabulary. Study of the processes involved in the production of a variety of texts. Introduction to the use of references. Self-correction. Attendance and participation compulsory. Limited enrolment. No auditors. First week: compulsory placement test in class.

Prerequisite: FREN 1002 or placement test on Carleton Central before registering.

Lecture three hours a week.

FREN 2100 [1.0 credit]

#### Advanced French

Taught in French. For non-francophone students. Advanced speaking, listening, reading and writing skills. Advanced level reading from various sources, including literary texts. Grammar exercises, essays, oral presentations. Attendance and participation are compulsory. Limited enrolment. No auditors.

Prerequisite: FREN 1100 or FREN 1110 or permission of the Department, or placement test on Carleton Central before registering.

Cours trois heures par semaine.

FREN 2110 [1.0 credit]

#### Written French 2

Taught in French. For students with intermediate writing skills in French. Refinement of spelling, grammar, sentence-structure and vocabulary. Emphasis on accuracy and textual organization. Essay-writing. Use and referencing of various sources. Self-correction. Attendance and participation compulsory. Limited enrolment. No auditors. First week: compulsory placement test in class.

Prerequisite: FREN 1100 or FREN 1110 or permission of the Department, or placement test on Carleton Central before registering.

Cours trois heures par semaine.

FREN 2201 [1.0 credit]

#### Introduction aux études littéraires

Survol historique des littératures d'expression française : grands mouvements, évolution des genres. Initiation aux méthodes et notions d'analyse littéraire. Le contenu de ce cours, pour la moitié, sera consacré à des textes canadiens.

Prerequisite: FREN 1100 or permission of the Department. This course may be taken concurrently with FREN 2100 or FREN 2110.

Cours trois heures par semaine.

FREN 2401 [1.0 credit]

#### Fonctionnement d'une langue: le français

Étude de la structure et du fonctionnement du système linguistique à travers l'analyse de données du français (de France et du Canada). La construction du sens, des sons au discours ; code oral et écrit.

Prerequisite: FREN 1100 or permission of the Department.

Cours trois heures par semaine.

FREN 3000 [0.0 credit]

#### Work Term 1

Prerequisite: registration in the Co-operative Education Option in the B.A. Honours program in French.

FREN 3050 [0.5 credit]

#### Compétences critiques

Initiation aux techniques et pratiques de la réflexion universitaire : documentation (bibliothèque, bases de données, bibliographies critiques), lecture (analyse, synthèse et évaluation critique de textes de savoir) et réflexion (cadre théorique, méthode d'analyse, pratique du discours raisonné).

Prerequisite: FREN 2201 or FREN 2401, or permission of the Department.

Cours trois heures par semaine.

FREN 3212 [0.5 credit]

#### Des manuscrits aux belles-lettres : de la littérature médiévale à l'humanisme

Étude d'une sélection de textes, tirés de divers genres, permettant d'explorer les origines de la littérature française : oralité et écriture; chansons de geste; courtoisie; récits de voyages; littérature de la cour; humanisme. Différentes approches théoriques du texte littéraire.

Prerequisite: FREN 2201 or permission of the Department.

Cours trois heures par semaine.

## Courses - French (FREN)

FREN 3213 [0.5 credit]

**Du Baroque aux Lumières**

Étude des 17<sup>e</sup> et 18<sup>e</sup> siècles : raison et universalisme, encyclopédisme, construction et représentation de l'altérité, colonialisme et esclavagisme. Analyse d'importants développements littéraires : essai et conte philosophiques, théâtre et critique sociale, évolution du discours romanesque. Approches théoriques du texte littéraire.

Prerequisite: FREN 2201 or permission of the Department.

Cours trois heures par semaine.

FREN 3214 [0.5 credit]

**Révolutions, avant-gardes et ruptures : du 19<sup>e</sup> siècle aux années 1950**

Étude de quelques grands mouvements ayant rythmé la vie des lettres francophones : romantisme, réalisme, naturalisme, symbolisme, surréalisme, modernisme. La littérature de la décolonisation et l'émergence de la littérature canadienne-française. Analyse des genres et de leur évolution. Approches théoriques du texte littéraire.

Prerequisite: FREN 2201 or permission of Department.

Cours trois heures par semaine.

FREN 3215 [0.5 credit]

**Les ères du soupçon : contemporanéités de la littérature**

Études des principales orientations définissant les littératures francophones contemporaines depuis la fin de la Seconde Guerre mondiale : littérature engagée, existentialisme, nouveau roman. Littérature du Québec et du Canada français. Littératures postcoloniales, émergentes, transnationales. Approches théoriques du texte littéraire.

Prerequisite: FREN 2201 or permission of the Department.

Cours trois heures par semaine.

FREN 3251 [0.5 credit]

**Introduction aux méthodes d'analyse littéraire**

Présentation et application de diverses approches théoriques du texte littéraire : analyses structurelles, méthodes d'interprétation, contextualisation sociohistorique, poétique, etc. Prerequisite: FREN 2201 or permission of the Department.

Cours trois heures par semaine.

FREN 3412 [0.5 credit]

**Morphologie et sémantique**

Étude des systèmes morphologiques du français. Les unités lexicales, grammaticales et leurs portées signifiantes. Compréhension des mécanismes de construction des mots et de leurs significations. Création lexicale et grammaticalisation.

Prerequisite: FREN 2401 or permission of the Department.

Cours trois heures par semaine.

FREN 3413 [0.5 credit]

**Lexique et syntaxe**

Comme toute langue naturelle, le français peut se définir comme un lexique coulé dans le moule d'une syntaxe. Examens de ces deux composantes essentielles du système linguistique et de leurs mécanismes d'interaction et d'intégration.

Prerequisite: FREN 2401 or permission of the Department.

Cours trois heures par semaine.

FREN 3414 [0.5 credit]

**Sociolinguistique du français**

Le français, une réalité hétérogène. Approche variationniste, qualitative et quantitative, de l'étude du français dans ses dimensions dialectales, sociales et stylistiques. Variations intra-individuelles et entre individus. Facteurs externes de la variation interne du français. Diversités du français.

Prerequisite: FREN 2401 or permission of the Department.

Cours trois heures par semaine.

FREN 3415 [0.5 credit]

**La fabrique du français**

Évolution interne de l'histoire du français et de ses influences externes. De sa naissance, présumée et réelle, à ses états actuels. Les langues contributrices. Contacts linguistiques. Dynamiques du changement linguistique. Véhicularisation et vernacularisation. Idéologies de la langue française.

Prerequisite: FREN 2401 or permission of the Department.

Cours trois heures par semaine.

FREN 3451 [0.5 credit]

**Analyse linguistique du français**

À partir de l'une ou l'autre des diverses variétés du français, étude de ce qui peut constituer des données linguistiques identifiables et les différentes méthodes pour en faire l'analyse, vues à travers diverses écoles: distributionnalisme, structuralisme, fonctionnalisme, variationnisme, générativisme.

Prerequisite: FREN 2401 or permission of the Department.

Cours trois heures par semaine.

FREN 3511 [0.5 credit]

**Expression écrite et traduction**

Perfectionnement de l'expression écrite au moyen d'un apprentissage appliqué de la traduction. Analyses des principales interférences syntaxiques, sémantiques et discursives entre le français et l'anglais. Approfondissement des pratiques de textualisation : cohérence et cohésion, idiomatisation, registres, paraphrase, considérations stylistiques, etc. Approche privilégiant le texte pragmatique.

Prerequisite: one FREN course at the 2000-level, or permission of the Department.

Cours trois heures par semaine.

FREN 3701 [0.5 credit]

**Langue A**

Techniques avancées d'expression orale.

Prerequisite: permission of the Department.

Cours trois heures par semaine.

FREN 3702 [0.5 credit]

**Langue B**

Techniques avancées d'expression écrite.

Prerequisite: permission of the Department.

Cours trois heures par semaine.

FREN 3900 [0.5 credit]

**Apprentissage et enseignement du français langue seconde**

Initiation aux études des programmes au Canada et ailleurs. Processus d'acquisition des habiletés d'expression et de compréhension. Survol des théories passées et actuelles. Appréciation et critique de pratiques pédagogiques.

Prerequisite: one FREN course at the 2000-level, or permission of the Department.

Cours trois heures par semaine.

FREN 4000 [0.0 credit]

**Work Term 2**

Prerequisite: registration in the Co-operative Education Option in the B.A. Honours program in French.

FREN 4001 [0.0 credit]

**Work Term 3**

Prerequisite: registration in the Co-operative Education Option in the B.A. Honours program in French.

FREN 4212 [0.5 credit]

**Littératures francophones**

Analyse de problématiques liées à la francophonie littéraire. Le contenu précis de ce cours varie selon les années. Consulter le site Web. May be offered at the graduate level, with different requirements, as FREN 5600, Littératures du monde francophone, for which additional credit is precluded when topics are the same. Prerequisite: FREN 3050 and FREN 3251 or permission of the Department.

Cours trois heures par semaine.

FREN 4213 [0.5 credit]

**Littérature québécoise et canadienne d'expression française**

Étude approfondie portant sur un ou plusieurs aspects des littératures d'expression française au Canada. Le contenu précis de ce cours varie selon les années. Consulter le site Web. May be offered at the graduate level, with different requirements, as FREN 5500, Littérature canadienne-française I, for which additional credit is precluded when topics are the same.

Prerequisite: FREN 3050 and FREN 3251, or permission of the Department.

Cours trois heures par semaine.

FREN 4214 [0.5 credit]

**Genre et mouvement**

Étude approfondie d'un thème, d'un mouvement, d'un genre dans le champ littéraire. Le contenu précis de ce cours varie selon les années. Consulter le site Web. May be offered at the graduate level, with different requirements, as FREN 5405, Thèmes, écoles, mouvements, for which additional credit is precluded when topics are the same.

Prerequisite: FREN 3050 and FREN 3251, or permission of the Department.

Cours trois heures par semaine.

FREN 4215 [0.5 credit]

**Problématiques contemporaines**

Le contenu précis de ce cours varie selon les années. Consulter le site Web. May be offered at the graduate level, with different requirements, as FREN 5700, Aspect littéraire culturel particulier, for which additional credit is precluded when topics are the same.

Prerequisite: FREN 3050 and FREN 3251, or permission of the Department.

Cours trois heures par semaine.

FREN 4412 [0.5 credit]

**Diversité du français**

Études des variétés du français, dans ses dimensions spatiales. Le contenu précis de ce cours varie selon les années. Consulter le site Web. May be offered at the graduate level, with different requirements, as FREN 5003, Linguistique du français II, for which additional credit is precluded when topics are the same.

Prerequisite: FREN 3050 and FREN 3451, or permission of the Department.

Cours trois heures par semaine.

FREN 4413 [0.5 credit]

**Diachronie du français**

Étude du français, dans ses dimensions historiques. Le contenu précis de ce cours varie selon les années. Consulter le site Web. May be offered at the graduate level, with different requirements, as FREN 5200, Aspect linguistique particulier, for which additional credit is precluded when topics are the same.

Prerequisite: FREN 3050 and FREN 3451, or permission of the Department.

Cours trois heures par semaine.

FREN 4414 [0.5 credit]

**Analyse du français**

Étude du français, dans ses dimensions morphologiques, syntaxiques ou phonologiques. Le contenu précis de ce cours varie selon les années. Consulter le site Web. May be offered at the graduate level, with different requirements, as FREN 5001, Théories linguistiques, for which additional credit is precluded when topics are the same.

Prerequisite: FREN 3050 and FREN 3451, or permission of the department.

Cours trois heures par semaine.

FREN 4415 [0.5 credit]

**Variation du français**

Étude des variations internes de la langue, dans ses dimensions orales et écrites. Le contenu précis de ce cours varie selon les années. Consulter le site Web.

May be offered at the graduate level, with different requirements, as FREN 5002, Linguistique du français I, for which additional credit is precluded when topics are the same.

Prerequisite: FREN 3050 and FREN 3451, or permission of the Department.

Cours trois heures par semaine.

FREN 4511 [0.5 credit]

**Traduction : méthodologie et pratique**

Initiation à différents principes et approches méthodologiques de la traduction. Analyse de texte appliquée à la traduction, repérage raisonné des difficultés, typologie des fautes de traduction, étude de divers procédés, documentation, terminologie et révision. Approche privilégiant une typologie textuelle variée.

Prerequisite: FREN 3511 or permission of the Department.

Cours trois heures par semaine.

FREN 4801 [1.0 credit]

**Tutorial A**

Special topics in an aspect of French studies under the supervision of a faculty member.

Prerequisite: fourth-year standing or permission of the Department.

Hours to be determined.

FREN 4802 [0.5 credit]

**Tutorial B**

Special topics in an aspect of French studies under the supervision of a faculty member.

Prerequisite: fourth-year standing or permission of the Department.

Hours to be determined.

FREN 4900 [0.5 credit]

**Thème choisi en apprentissage et enseignement du français langue seconde**

Le contenu précis de ce cours varie selon les années. Consulter le site Web.

Prerequisite: fourth-year standing or permission of the Department.

Cours trois heures par semaine.

## French Interdisciplinary Studies (FINS)

### Department of French Faculty of Arts and Social Sciences

These courses are intended to meet the needs of a broad range of students who are interested in expanding their knowledge of the French-language presence in other disciplines, or in improving their passive knowledge of written and spoken French (reading and listening) with a view to applying this knowledge in other disciplines.

Some FINS courses are offered with English as the language of instruction. While FINS courses are not part of the B.A. or Certificate programs in French, four credits can be accumulated to constitute a Minor in French Interdisciplinary Studies.

#### French Placement for Language Students

Students who have not previously taken a course in the French Department must complete the Placement Test on Carleton Central before registering as per instructions received through their connect e-mail account. Students should note that they cannot go backward in a sequence of levels in language courses. Students desiring a French credit to satisfy the language requirement of their department or school should consult that department or school.

FINS 1000 [1.0 credit]

#### The French World

Selected aspects of the francophone world – richness and diversity, relevance and vitality of cultural, economic, political, historical manifestations in French, world wide. Team taught in English by members of the Department.

Prerequisite: permission of the Department.

FINS 2105 [0.5 credit]

#### Written Comprehension I

Development of reading skills, especially relating to academic texts. Basic French grammar and vocabulary. Given in English. Open to beginners. No auditors. Precludes additional credit for FREN 1006.

Prerequisite: permission of the Department.

FINS 2205 [0.5 credit]

#### Oral Comprehension I

Training in basic comprehension of spoken French, through the study of selected and edited video and audio material. Oral documents in French; analyses, discussion, reporting and testing in English. No auditors.

Prerequisite: permission of the Department.

FINS 2510 [0.5 credit]

#### Introduction to Québec Society

Geographic, historical, demographic, cultural, political and social developments in Québec. Examination of Québec society, from the colonial period to the present. Topics may include the evolving structures and values of Quebec society, cultural productions and policies, relations with English Canada, debates on identity and nationalism. (Also listed as CDNS 2510).

Prerequisite: second-year standing or permission of the Department.

Lectures/groups three hours a week.

FINS 3105 [0.5 credit]

#### Written Comprehension II

Reading knowledge for academic purposes. Advanced reading strategies. Individual reading in the student's specialization. Given in English. No auditors.

Precludes additional credit for FREN 1006.

Prerequisite: FINS 2105 or permission of the Department.

FINS 3205 [0.5 credit]

#### Oral Comprehension II

Advanced training and practice in the comprehension of authentic oral materials in French. Individual assignments in the student's specialization. Oral documents in French; analysis, discussion, reporting and testing in English and French. No auditors.

Prerequisite: FINS 2205 or permission of the Department.

FINS 3305 [0.5 credit]

#### Culture and Society I

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3306 [0.5 credit]

#### Culture and Society II

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3307 [0.5 credit]

#### Culture and Society III

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3405 [0.5 credit]

#### French for Special or Professional Purposes I

Topic for 2011-2012: Oral Communication in Work-Related Situations. This course will focus mainly on oral communication and oral evaluation, with emphasis on expression and comprehension of French in professional careers in the Public Service. This course is mainly open to students of the School of Public Policy and Administration. Space permitting, students from other disciplines will be considered. This course does not count toward any degree and is graded *Sat* or *Uns*.

Prerequisite: permission of the School of Public Policy and Administration.

FINS 3406 [0.5 credit]

#### French for Special or Professional Purposes II

Topic for 2011-2012: Advanced Oral Communication in Work-Related Situations. This course will mainly focus on the requirement of a level C, based on the criteria of the Public Service Commission of Canada, with emphasis on oral communication and oral evaluation. This course is mainly open to students of the school of Public Policy and Administration. Space permitting, other students from other discipline will be considered. This course does not count towards any degree and is graded *Sat* or *Uns*.

Prerequisite: permission of the School of Public Policy and Administration

FINS 3407 [0.5 credit]

#### French for Special or Professional Purposes III

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3505 [0.5 credit]

#### Cultural Aspects I

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3506 [0.5 credit]

#### Cultural Aspects II

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.



FINS 3507 [0.5 credit]

**Cultural Aspects III**

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3550 [0.5 credit]

**Interfaces between English and French Canadian Cultures**

Exploration of intercultural encounters between French and English Canadians in political, popular and "official" cultures, through an examination of media, art, music, literature, cinema and the built environment. (Also listed as CDNS 3550.)

Precludes additional credit for FINS 2500 and CDNS 2500

Prerequisite: third-year standing or permission of the Department.

Seminar three hours a week.

FINS 3605 [0.5 credit]

**Interdisciplinary Approaches: French Links I**

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3606 [0.5 credit]

**Interdisciplinary Approaches: French Links II**

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 3607 [0.5 credit]

**Interdisciplinary Approaches: French Links III**

Topics may vary from year to year. Consult the Web site.

Prerequisite: permission of the Department.

FINS 4510 [0.5 credit]

**Québec Studies**

Advanced seminar focusing on selected aspects of Québec history, society, culture and/or politics. (Also listed as CDNS 4510.)

Precludes additional credit for CDNS 3510 or FINS 3510

Prerequisite: fourth-year standing and CDNS 3500, FINS 3500 or permission of the Department.

Seminar three hours a week.

FINS 4801 [0.5 credit]

**Selected Topics in French A**

Students may take a fourth- or fifth-year special topic seminar offered in the Department of French while submitting written work in English. This course does not count towards credit in any degree program in French.

Prerequisite: fourth-year standing or permission of the Department.

Hours to be determined.

FINS 4802 [0.5 credit]

**Selected Topics in French B**

Students may take a fourth- or fifth-year special topic seminar offered in the Department of French while submitting written work in English. This course does not count towards credit in any degree program in French.

Prerequisite: fourth-year standing or permission of the Department.

Hours to be determined.

## Geography (GEOG)

Department of Geography and  
Environmental Studies  
Faculty of Arts and Social Sciences  
Faculty of Science

GEOG 1010 [0.5 credit]

### Global Environmental Systems

Principles, processes and interactions in the Earth's environment emphasizing the flow of energy and matter within global systems. Atmospheric and oceanic processes, earth surface processes and biogeochemical cycling. Case studies on the interaction between human activity and the natural environment.

Precludes additional credit for GEOG 1001/ENST 1001 (if taken before 2006-2007).

Lectures three hours a week, laboratory two hours a week.

GEOG 1020 [0.5 credit]

### People, Places and Environments

Examination of the relationships between people, society and the natural environment at scales ranging from the local community to the global one. Population change, cultural patterns, and the major historical, economic and political forces that shape human activity and experiences from place to place. (Also listed as ENST 1020.)

Precludes additional credit for GEOG 1001/ENST 1001 (if taken before 2006-2007).

Lectures two hours a week and laboratory or tutorial one hour a week.

GEOG 2005 [0.5 credit]

### Geographic Inquiry

Theory and method in the production of geographical knowledge. The research process, from generating questions through reporting results. Intensive and extensive research approaches are compared, demonstrating their complementary potential. Fundamentals of qualitative data generation and analysis.

Prerequisite: 1.0 credit in Geography or Environmental Studies at the 1000-level and second-year standing, or permission of the Department.

Lectures two hours a week, workshop two hours a week.

GEOG 2006 [0.5 credit]

### Statistical Methods in Geography

Introduction to solving problems in geography using descriptive and inferential statistical methods. Graphical and numerical tools to describe distributions. Probability, sampling and estimates, and hypothesis testing. Fundamentals of spatial statistics and analysis.

Precludes additional credit for STAT 2507, STAT 2606, ECON 2200 [1.0], ECON 2201, ECON 2202, PSYC 2002, PSCI 2702.

Prerequisite: GEOG 2005 or GEOM 2004 or permission of the Department.

Lectures two hours a week, laboratory two hours a week.

GEOG 2013 [0.5 credit]

### Weather and Water

Introduction to climate, weather and the hydrological cycle. Physical properties of the atmosphere, radiation and energy balances, global circulation, atmospheric moisture and precipitation, weather systems and forecasting, mechanisms of climate change.

Prerequisite: GEOG 1010 or EARTH 1006.

Precludes additional credit for GEOG 2100.

Lectures three hours a week, laboratory three hours a week.

GEOG 2014 [0.5 credit]

### The Earth's Surface

Introduction to geomorphology. Weathering, slope and fluvial processes within drainage basins, and glacial and periglacial processes.

Prerequisite: GEOG 1010 or EARTH 1006.

Lectures three hours a week, laboratory three hours a week.

GEOG 2020 [0.5 credit]

### Physical Environments of Canada

Canada's physiography, climates, biogeography, soils, and landforms.

Precludes additional credit for GEOG 2102.

Prerequisite: GEOG 1010.

Lectures three hours a week.

GEOG 2200 [0.5 credit]

### Global Connections

Globalization and global environmental change as linked processes. Geographical analysis of economic, cultural and political transformations acting at global, national and local scales. Choices and constraints underlying economic, social and environmental sustainability.

Prerequisite: 1.0 credit in Geography or Environmental Studies at the 1000-level, or second-year standing

Lectures three hours a week.

GEOG 2300 [0.5 credit]

### Space, Place and Identity

Cultural specifications of place and identity in geopolitics. Landscapes as artifacts of local, national and global identity. Diasporas, migrations and historical evolution of the meanings of location. Consumption and urban cultural spaces.

Prerequisite: 1.0 credit in Geography or Environmental Studies at the 1000-level, or second-year standing.

Lectures two hours a week, discussion one hour a week.

GEOG 2600 [0.5 credit]

### Geography Behind the Headlines

Exploration of the geographical backgrounds to selected issues of current public interest, through geography's perspective of integrating human and physical environments. Issues selected will be structured from the global through the national/regional to the local, identifying the interdependencies among the scales.

Lecture three hours a week.

GEOG 3000 [0.5 credit]

### Honours Field Course

Guided and independent geographic field research, with a focus on data collection methods, analysis and presentation of findings. Normally consists of a 7-10 day field excursion in the Ottawa region. A supplementary charge may apply.

Prerequisite: third-year Honours standing in Geography, or permission of the Department.

GEOG 3001 [0.5 credit]

### Qualitative Methods

In-depth examination of the rationale for and use of qualitative approaches in geographical research. Topics include: links between theory and methods; qualitative methodologies, such as: interviewing, textual analysis, group discussions, participant observation, ethnography; interpretative strategies; research ethics; triangulation.

Prerequisite: GEOG 2005.

Lecture and discussion three hours per week.

GEOG 3003 [0.5 credit]

**Quantitative Geography**

Quantitative methods used in geographical research: multiple correlation and regression, principal component/factor analysis, spatial statistics, cluster analysis, and a review of other selected techniques. Computer-based analysis.

Prerequisite: GEOG 2006 or permission of the Department.

Lecture two hours a week, laboratory two hours a week.

GEOG 3010 [0.5 credit]

**Field Methods in Physical Geography**

Field and laboratory approaches, methodologies and techniques in physical geography. Field projects will be undertaken to collect data for analysis, evaluation and presentation. A supplementary charge may apply.

Prerequisite: GEOG 2013 or GEOG 2014.

Normally consists of six all-day sessions.

GEOG 3021 [0.5 credit]

**Culture, Place and Time**

Examination of culture, identity and place over time. Colonial and other historical processes that have shaped societies from place to place; relationships between cultural groups and their natural surroundings; gender, ethnicity, nationality and other dimensions of identity; impacts of globalization.

Prerequisites: GEOG 2200 and GEOG 2300 and third-year standing or permission of the Department.

Lecture three hours a week.

GEOG 3022 [0.5 credit]

**Environmental and Natural Resources**

Exploration of complexity, dynamics, uncertainty and equity issues underpinning environmental and resource issues; review and appraisal of selected contemporary methods to assess and manage environmental and natural resources.

Prerequisites: GEOG 2200 and GEOG 2300 and third-year standing or permission of the Department.

Lecture three hours a week.

GEOG 3023 [0.5 credit]

**Cities in a Global World**

Introduces the study of cities as "systems of cities" – the political economy of linkages between urban places located unevenly in space – and, "cities as systems" – case studies of socio-cultural, political and economic relations within biophysical and built environments.

Prerequisite: GEOG 2200 or permission of the department.

Lecture and discussion three hours a week.

GEOG 3024 [0.5 credit]

**Understanding Globalization**

Geographical analysis of processes of globalization: theoretical frameworks, historical context and contemporary challenges.

Prerequisites: GEOG 2200 and GEOG 2300 and third-year standing or permission of the Department.

Lecture three hours a week.

GEOG 3025 [0.5 credit]

**Regional Dynamics**

Geographical analysis of key questions facing a selected region of the world. Attention will focus on selected topics within one or more regions and their related global context.

Prerequisites: GEOG 2200 and GEOG 2300 and third-year standing or permission of the Department.

Lecture three hours a week.

GEOG 3026 [0.5 credit]

**Topics in the Geography of Canada**

Selected topic concerning the geography of Canada. Topic varies from year to year.

Precludes additional credit for GEOG 2505 [no longer offered].

Prerequisites: GEOG 1020 and second-year standing or permission of the Department.

Lecture three hours a week.

GEOG 3030 [0.5 credit]

**Regional Field Excursion**

Guided and independent geographic field research, with a focus on data collection methods, and analysis and presentation of findings. Consists of an excursion outside of the Ottawa region. A supplementary charge may apply.

Prerequisite: third-year Honours standing in Geography, or permission of the Department.

A 7-10 day field excursion.

GEOG 3102 [0.5 credit]

**Geomorphology**

Geomorphological agents of landscape change at the Earth's surface, emphasizing the role of water, ice and wind in erosion and deposition; use of geomorphic indicators in studies of environmental change. A supplementary charge may apply.

Prerequisites: GEOG 2014 and third-year standing, or permission of the Department.

Lectures two hours a week, laboratory two hours a week, one field excursion.

GEOG 3103 [0.5 credit]

**Watershed Hydrology**

Principles of hydrology at local and watershed scales, emphasizing: soil moisture regimes; field data collection and analysis of surface water or snow and ice conditions; hydrologic processes in cold environments; and regional runoff regimes in Canada. A supplementary charge may apply.

Prerequisite: GEOG 2013, or permission of the Department.

Note: first-year mathematics and physics are recommended.

Lectures two hours a week, laboratory three hours a week, two field excursions, including a two-day excursion. Students are responsible for long-distance transportation, food and lodging costs associated with the field excursions.

GEOG 3104 [0.5 credit]

**Principles of Biogeography**

Contemporary and past controls on distribution of plants and animals at global, regional and local scales; significance of these distributions. (Also listed as BIOL 3608.)

Prerequisite: GEOG 1010 or BIOL 2600, or permission of the Department.

Lectures, laboratory, and fieldwork five hours a week.

GEOG 3105 [0.5 credit]

**Climate and Atmospheric Change**

The global climate system, with emphasis on global change variability over the historical and modern periods; the changing composition of the atmosphere and its impact on climate; analysis and interpretation of climatic and atmospheric data; modeling of climate systems.

Prerequisites: GEOG 2006 and GEOG 2013 or permission of the Department.

Lecture two hours a week, laboratory two hours a week.

Courses - Geography (GEOG)

GEOG 3108 [0.5 credit]

**Soil Properties**

The physical and chemical properties of soils; soil-water relationships, weathering processes, soil mineralogy, cation exchange, soil pH. A plant-oriented perspective predominates.

Precludes additional credit for GEOG 3008.

Prerequisite: GEOG 1010 or GEOG 2013, or permission of the Department.

Lectures and laboratory five hours a week.

GEOG 3206 [0.5 credit]

**Health, Environment, and Society**

Factors influencing human health in an ecological framework involving population structure, habitat, and behaviour. Changes in the distribution of communicable and degenerative diseases are portrayed as being related to historical and contemporary development and globalization processes. Sources, types and characteristics of geographically referenced health information.

Precludes additional credit for GEOG 4206 (taken before 1999-2000).

Prerequisite: third-year standing.

Lectures three hours a week.

GEOG 3209 [0.5 credit]

**Sustainability and Environment in the South**

Analysis of the relationships between people and environment in selected regions in the South (Africa, Asia, Latin America). Emphasis on sustainable livelihoods and local action in relation to broader socio-economic and political processes. Regions selected vary from year to year.

Prerequisite: third-year standing and GEOG 2200 or GEOG 2300 or permission of the Department.

Lectures two hours a week, discussion groups one hour a week.

GEOG 3404 [0.5 credit]

**Economic Geography**

Geography of production, marketing, and consumption. Locational decision making in the private and public sectors with particular reference to manufacturing and service industries.

Prerequisite: GEOG 2200 or permission of the Department.

Lectures three hours a week.

GEOG 3501 [0.5 credit]

**Northern Lands**

The physical characteristics, historical geography, economic resources, settlement patterns and problems and the future development of Arctic and Subarctic lands, focusing primarily on Canada.

Prerequisite: third-year standing or permission of the Department.

Lectures three hours a week.

GEOG 3600 [0.5 credit]

**The Post-Soviet States: A Geographic Perspective**

A general review of the physical, social and economic geography of the Soviet Union and successor states, with detailed analyses of selected topics related to social and population conditions, resources development and environmental problems, including comparisons with North America.

Prerequisite: third-year standing.

Lectures three hours a week.

GEOG 3603 [0.5 credit]

**Geography of Europe**

Systematic geographic survey of Europe including historical, cultural, economic, political, resource, and environmental dimensions.

Prerequisite: third-year standing in Geography or permission of the Department.

Lectures three hours a week.

GEOG 3700 [0.5 credit]

**Population Geography**

The distributional aspects of population attributes; areal patterns of population characteristics and their spatial variations associated with differences in the nature of places; migratory movements within the framework of spatial models of interactions between locations.

Prerequisite: GEOG 2200 or GEOG 2300, or permission of the Department.

Lectures three hours a week.

GEOG 3900 [0.5 credit]

**Geographic Thought and Methodology**

Current debates in the academic discipline of geography; connections between these debates and key concepts used in the practice of geographic research; development of critical thinking, writing and presentation skills.

Prerequisite: third year Honours standing in Geography or permission of the department.

Lecture and discussion three hours a week.

- **4000-level courses are normally restricted to students with fourth-year Honours standing. However, students with third-year standing may take 4000-level courses provided they have the necessary prerequisites, a Geography CGPA of 6.50 or better, and permission of the Department.**

GEOG 4000 [0.5 credit]

**Field Studies**

Field observation and methodology in a selected region; individual or group basis. (Also listed as ENST 4400.)

Prerequisite: permission of the Department.

Hours to be arranged.

GEOG 4004 [0.5 credit]

**Environmental Impact Assessment**

Principles, scope and purpose of environmental impact assessment, from conceptual and methodological points of view; range of environmental issues, with emphasis on Canadian case studies.

Prerequisite: fourth-year Honours standing in Geography or Environmental Studies or Environmental Science, or permission of the Department.

Note: GEOG 3022 is recommended.

Lectures and seminars three hours a week.

GEOG 4005 [0.5 credit]

**Directed Studies in Geography**

Students pursue their interest in a selected theme in geography on a tutorial basis with a member of the Department. (Also listed as ENST 4005.)

Precludes additional credit for GEOG 4001 and GEOG 4002 (either taken before 1998-99).

Prerequisites: fourth-year Honours standing in Geography and permission of the Department.

GEOG 4013 [0.5 credit]

**Cold Region Hydrology**

An examination of cold region hydrologic processes via experimental and observational studies; analysis of hydrologic data and application of hydrologic models.

Prerequisite: GEOG 3103.

Lecture three hours a week.

GEOG 4017 [0.5 credit]

**Global Biogeochemical Cycles**

Processes that control the fluxes and reservoirs of biologically active chemical constituents on land, in the atmosphere, and in the oceans. Interactions between biogeochemical cycles and the Earth's climate; impact of land use and fossil fuel emissions on biogeochemical cycles and global change.

Prerequisites: GEOG 3105 or permission of the department.

Lectures three hours a week.

GEOG 4021 [0.5 credit]

**Seminar in Culture, Identity and Place**

Selected topic or field of inquiry concerning the geographic dimensions of culture, identity and place.

Prerequisite: GEOG 3021 and fourth-year Honours standing in Geography or permission of the Department.

Seminar three hours a week.

GEOG 4022 [0.5 credit]

**Seminar in People, Resources and Environmental Change**

A selected topic or field of inquiry concerning natural resource use and environmental change.

Prerequisite: GEOG 3022 and fourth-year Honours standing in Geography or permission of the Department.

Seminar three hours a week.

GEOG 4023 [0.5 credit]

**Seminar in Sustainable Urban Environments**

A selected topic or field of inquiry concerning urban geography.

Prerequisite: GEOG 3023 and fourth-year Honours standing in Geography or permission of the Department.

Seminar three hours per week.

GEOG 4024 [0.5 credit]

**Seminar in Globalization**

A selected issue or topic related to globalization.

Prerequisite: GEOG 3024 and fourth-year Honours standing in Geography or permission of the Department.

Seminar three hours week.

GEOG 4040 [0.5 credit]

**New Directions in Human Geography**

Selected contemporary debates in human geography.

Prerequisites: fourth-year Honours standing in Geography or permission of the Department.

Seminar three hours per week

GEOG 4050 [0.5 credit]

**Environmental and Geographic Education**

Selected issues – theoretical and applied – concerning environmental and geographic education.

Prerequisites: fourth-year Honours standing in Geography or Environmental Studies, or permission of the Department.

Seminar three hours per week.

GEOG 4101 [0.5 credit]

**Quaternary Geography**

Changes in the physical environment of the Earth during the last two million years; methods of studying recent Earth history; the last ice age in Canada.

Prerequisite: GEOG 3105 or permission of the Department. Note: GEOG 3102 is recommended.

Lectures three hours a week.

GEOG 4103 [0.5 credit]

**Water Resources Engineering**

A quantitative analysis of natural water systems and the development of these systems as a resource. Components of the hydrologic cycle. Quantitative analysis of stream flow. Probability concepts in water resources. Reservoir design and operation. Availability of groundwater. Storm water management. (Also listed as ENVE 3003.)

Prerequisites: CIVE 3208 and MAAE 2300, or permission of the department.

Lectures three hours a week, problem analysis one hour a week.

GEOG 4104 [0.5 credit]

**Microclimatology**

The formation of microclimates near the Earth's surface; energy and water flows; the interaction of atmospheric processes with the physical properties of surfaces.

Prerequisite: GEOG 2100 or permission of the Department.

Lectures three hours a week.

GEOG 4108 [0.5 credit]

**Permafrost**

Distribution, development, and degradation of permafrost in Canada; thermal and hydrologic regime of permafrost terrain; development of landforms in permafrost regions; geotechnical consideration in northern construction.

Prerequisite: GEOG 3108 or permission of the Department.

Lectures three hours a week.

GEOG 4303 [0.5 credit]

**Urban Planning**

A systematic approach to urban planning; urban sprawl; data collection; forecasting; standards; space requirements; land use; zoning; transportation; land development; site selection; land capability; layout; evaluation; housing; urban renewal and new towns. (Also listed as CIVE 4303.)

Prerequisite: third-year registration, or permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

GEOG 4304 [0.5 credit]

**Transportation Engineering and Planning**

Transportation and the socio-economic environment; modal and intermodal systems and components; vehicle motion; human factors, system and facility design; traffic flow; capacity analysis; planning methodology; environmental impacts; evaluation methods. (Also listed as CIVE 3304.)

Prerequisite: third-year registration, or permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

GEOG 4406 [0.5 credit]

**Practicum I**

Experience in an employment environment through field placement. Observation and involvement in issues and research methods used by professional geographers (Also listed as GEOM 4406).

May be taken for credit in addition to GEOG 4408.

Prerequisites: fourth-year Honours standing in Geography and permission of the Department.

Field placement one day a week.

GEOG 4408 [0.5 credit]

**Practicum II**

Experience in an employment environment through field placement. Observation and involvement in issues and research methods used by professional geographers (Also listed as GEOM 4408).

May be taken for credit in addition to GEOG 4406.

Prerequisites: fourth-year Honours standing in Geography and permission of the Department.

Field placement of one day a week.

GEOG 4904 [1.0 credit]

**Honours Research Workshop**

Design and implementation of a research project through seminars, workshops and independent work under the supervision of a faculty member. Students are required to submit a major final research report. (Also listed as GEOM 4904.)

Precludes additional credit for GEOG 4908 and GEOG/GEOM 4909.

Prerequisite: fourth-year Honours standing in Geography.

Workshop/seminar three hours per week.

## Courses - Geography (GEOG)

GEOG 4906 [1.0 credit]

### **Honours Research Project**

Candidates for B.Sc. with Honours in Geography undertake a research project based on a laboratory or field problem. The project is supervised by a member of the department and a written report must be submitted. The candidate may be examined orally on the report. (Also listed as GEOM 4906.)

Prerequisite: fourth-year Honours standing in Geography.

Hours to be arranged.

GEOG 4909 [1.0 credit]

### **Honours Research Essay**

Independent design and implementation of a research project leading to the submission of a research thesis. Students work with an individual faculty adviser. The subject for research is decided upon in consultation with the supervisor. (Also listed as GEOM 4909.)

Precludes additional credit for GEOG/GEOM 4904 and GEOG 4908.

Prerequisites: fourth-year Honours standing in Geography, a Geography CGPA of 9.00 or better, an approved research topic, and permission of the Honours supervisor.

Hours to be arranged with faculty adviser.

## Geomatics (GEOM)

Department of Geography and  
Environmental Studies  
Faculty of Arts and Social Sciences  
Faculty of Science

GEOM 2004 [0.5 credit]

### Introduction to Geomatics

Introduction to the fundamentals within the geomatics fields of cartography, remote sensing and geographic information systems, including: history of maps and mapping; map design; data acquisition procedures; digital data display and analysis; and integration of the Geomatics fields.

Precludes additional credit for GEOG 2004.

Prerequisite: second year standing, or enrolment in B.A. Honours (Geomatics), B.Sc. (Geomatics concentration), or Geomatics minor.

Workshop, three hours a week.

GEOM 2007 [0.5 credit]

### Geographic Information Systems

Data in a spatial context; spatial data structures, georeferencing, data query; mapping; creating spatial databases; selected topics in GIS application to environmental, land-use planning and market analysis issues.

Precludes additional credit for GEOG 2007.

Prerequisite: GEOM 2004 or GEOG 2004 or EARTH 2406 (may be taken concurrently), or permission of the Department. Familiarity with personal computers is assumed.

Workshop three hours a week

GEOM 3002 [0.5 credit]

### Air Photo Interpretation and Remote Sensing

Aerial photography and digital remote sensing; visual interpretation of land use, landforms, and surficial materials; introduction to digital image processing and analysis.

Precludes additional credit for GEOG 3002.

Prerequisite: GEOM 2004 or GEOG 2004, or third-year standing, or permission of the Department.

Lectures two hours a week, laboratory two hours a week.

GEOM 3005 [0.5 credit]

### Geospatial Analysis

Acquisition, manipulation, and display of spatially referenced information using Geographic Information Systems (GIS). Spatial modeling, site selection, and routing analysis in raster and vector GIS.

Precludes additional credit for GEOG 3005.

Prerequisite: GEOM 2007 or GEOG 2007.

Workshop three hours a week.

GEOM 3007 [0.5 credit]

### Cartographic Theory and Design

Principles of cartography, cartographic communication and map design; practical work designed to provide experience in solving problems of cartographic representation using geospatial databases.

Precludes additional credit for GEOG 3007.

Prerequisite: GEOM 2004 or GEOG 2004, or permission of the Department.

Lectures and laboratory four hours a week.

GEOM 4003 [0.5 credit]

### Remote Sensing of the Environment

Advanced image enhancement; land cover classification for thematic mapping; biophysical modeling; applications in resources, environment, and urban mapping.

Precludes additional credit for GEOG 4003.

Prerequisites: GEOM 3002 or GEOG 3002, and Honours standing; or permission of the Department.

Lectures two hours a week, laboratory two hours a week.

GEOM 4007 [0.5 credit]

### Seminar in Cartography

Special topics in cartographic communication and design; technical and social issues in contemporary mapping practices; practical aspects of multimedia and web mapping.

Prerequisite: GEOM 3007 or GEOG 3007, and Honours standing, or permission of the Department.

Seminar, three hours a week.

GEOM 4008 [0.5 credit]

### Advanced Topics in Geographic Information Systems

Advanced methods and techniques in GIS applications including: positional and attribute error analysis, multiple criteria decision making, interpolation, elevation modeling and ortho-imaging, and spatial pattern measurement.

Precludes additional credit for GEOG 4008.

Prerequisites: GEOM 3005 or GEOG 3005 and Honours standing.

Lectures two hours a week, laboratory two hours a week.

GEOM 4009 [0.5 credit]

### Applications in Geographic Information Systems

Project design and customization, application development within a GIS, digital atlas compilation and geomatics education.

Precludes additional credit for GEOG 3006.

Prerequisite: GEOM 3005 or GEOG 3005.

Workshop three hours a week.

GEOM 4406 [0.5 credit]

### Practicum I

Experience in an employment environment through field placement. Observation and involvement in issues and research methods used by professional geographers.

May be taken for credit in addition to GEOG/GEOM 4408. (Also listed as GEOG 4406.)

Prerequisites: fourth-year Honours standing in Geomatics and permission of the Department.

Field placement one day a week.

GEOM 4408 [0.5 credit]

### Practicum II

Experience in an employment environment through field placement. Observation and involvement in issues and research methods used by professional geographers.

May be taken for credit in addition to GEOG/GEOM 4406. (Also listed as GEOG 4408.)

Prerequisites: fourth-year Honours standing in Geomatics and permission of the Department.

Field placement one day a week.

GEOM 4904 [1.0 credit]

### Honours Research Workshop

Design and implementation of a research project through seminars, workshops and independent work under the supervision of a faculty member. Students are required to submit a major final research report.

Precludes additional credit for GEOG 4908 and GEOG/GEOM 4909. (Also listed as GEOG 4904.)

Prerequisite: fourth-year Honours standing in Geomatics.

Workshop/seminar three hours per week.

GEOM 4906 [1.0 credit]

### Honours Research Project

Candidates for B.Sc. with Concentration in Geomatics undertake a research project within their area of specialization. The project is supervised by a member of the department and a written report must be submitted. The candidate may be examined orally on the report. (Also listed as GEOG 4906.)

Prerequisite: fourth-year Honours standing in Geomatics.

Hours to be arranged.

Courses - Geomatics (GEOM)

GEOM 4909 [1.0 credit]

**Honours Research Essay**

Independent design and implementation of a research project leading to the submission of a research thesis. Students work with an individual faculty adviser. The subject for research is decided upon in consultation with the supervisor. Restricted to students in the fourth year of B.A. (Honours) Geomatics.

Precludes additional credit for GEOG/GEOM 4904 and GEOG 4908. (Also listed as GEOG 4909.)

Prerequisites: fourth-year Honours standing in Geomatics, a Geomatics CGPA of 9.00 or better, an approved research topic, and permission of the Honours supervisor.

Hours to be arranged with faculty adviser.



## German (GERM)

### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

#### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

GERM 1010 [0.5 credit]

#### First-Year German I

For students with no knowledge of German. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for GERM 1105 (no longer offered) or GERM 1110. Four hours a week.

GERM 1020 [0.5 credit]

#### First-Year German II

Continuation of first-year German. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for GERM 1105 (no longer offered) and GERM 1110. Prerequisite: grade of C or higher in GERM 1010, or permission of the School. Four hours a week.

GERM 1110 [1.0 credit]

#### Intensive First-Year German

For students with no knowledge of German. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for GERM 1010, GERM 1020, and GERM 1105 (no longer offered). Eight hours a week (one term).

GERM 2000 [0.5 credit]

#### Reading in German I

For students with no prior knowledge of German who would like to develop the skills to read a variety of German texts, including passages from scholarly journals, reports, online newspaper or magazine articles. Three hours a week.

GERM 2010 [0.5 credit]

#### Second-Year German I

Further study of German to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for GERM 2105 (no longer offered) or GERM 2110. Prerequisite: grade of C or higher in GERM 1020, GERM 1110, or GERM 1105 (no longer offered), or permission of the School. Four hours a week.

GERM 2020 [0.5 credit]

#### Second-Year German II

Continuation of second-year German. Further study of German to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit GERM 2105 (no longer offered) or GERM 2110. Prerequisite: grade of C or higher in GERM 2010, or permission of the School. Four hours a week.

GERM 2110 [1.0 credit]

#### Intensive Second-Year German

Further study of German to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for GERM 2010, GERM 2020, or GERM 2105 (no longer offered). Prerequisite: grade of C or higher in GERM 1020, GERM 1110, or GERM 1105 (no longer offered), or permission of the School. Eight hours a week (one term).

GERM 3000 [0.5 credit]

#### Reading in German II

A continuation of Reading in German I. Further development of reading skills in German. Prerequisite: grade of C or higher in GERM 2000 or permission of the School. Three hours a week.

GERM 3110 [1.0 credit]

#### Intensive Third-Year German

Continuation of the study of German to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance. Precludes additional credit for GERM 3105. Prerequisite: grade of C or higher in GERM 2020, GERM 2110, GERM 2105 (no longer offered), or permission of the School. Six hours a week (one term).

GERM 4110 [1.0 credit]

#### Intensive Fourth-Year German

Advanced spoken and written German with intensive practice in aural comprehension and speaking in a range of situations and contexts, in reading and in composition in a range of modes and genres. Metalinguistic study. Compulsory attendance. Precludes additional credit for GERM 3605. Prerequisite: grade of C or higher in GERM 3105 (no longer offered) or GERM 3110, or permission of the School. Six hours a week (one term).

GERM 4900 [1.0 credit]

#### Independent Study

Research in a topic in German language, literature or linguistics under the supervision of a member of the School. Prerequisites: third- or fourth-year standing in the Minor in German, grade of C or higher in GERM 3605 (no longer offered) or GERM 4110 or equivalent, or permission of the School.

GERM 4901 [0.5 credit]

#### Independent Study

Research in a topic in German language, literature or linguistics under the supervision of a member of the School. Prerequisites: third- or fourth-year standing in the Minor in German, grade of C or higher in GERM 3605 (no longer offered) or GERM 4110 or equivalent, or permission of the School.

## Global Politics (GPOL)

Department of Political Science  
Faculty of Public Affairs

GPOL 1000 [1.0 credit]

### Global Politics

Theories, concepts and issues in global politics and global political economy. Topics may include conflict and intervention, peace and security, international institutions, human rights, gender, culture, globalization, multinational corporations, foreign policy, environmental issues, international development, and relations between rich and poor countries.

Precludes additional credit for PSCI 2601 and PSCI 2602.

Prerequisite: first-year standing in the Global Politics program.

Seminar three hours a week.

GPOL 3000 [0.5 credit]

### Themes in Global and Comparative Politics

The seminar focuses on a broad theme or issue with a global and comparative focus. Research papers will be on a topic of interest to the student. Possible themes include environmental degradation, nuclear proliferation, and the impact of 9/11.

Prerequisite: third-year standing in the Global Politics program.

Seminar three hours a week.

GPOL 3100 [2.5 credits]

### Internship in Global Politics

The internship provides students with an opportunity to work with and study an organization whose institutional focus is on some international or regional aspect. Students will write a research paper on a topic related either to the organization or to the focus of the organization.

Prerequisite: third-year standing in the Global Politics program.

GPOL 4908 [1.0 credit]

### Honours Graduation Essay

The Honours essay is supervised by a faculty member selected by the candidate or assigned early in the year, and is evaluated by the supervisor and an appointed reader. Students continuing to graduate studies are encouraged to complete an Honours essay.

Prerequisite: fourth-year Honours standing in Global Politics with a Global Politics Science CGPA of 9.00 or higher, or permission of the program director.

## Greek (GREK)

College of the Humanities  
Faculty of Arts and Social Sciences

GREK 1005 [0.5 credit]

### Introduction to Greek I

A course for beginners in ancient Greek, designed to give students a grasp of basic grammatical forms and vocabulary (with reference to English derivatives) through the reading of continuous Greek.

Lectures and practice periods four hours a week.

GREK 1006 [0.5 credit]

### Introduction to Greek II

A course for students with some previous knowledge of the language: study of grammatical forms and constructions; acquisition of reading skills.

Prerequisite: GREK 1005 or equivalent.

Lectures and practice periods four hours a week.

GREK 2200 [0.5 credit]

### Intermediate Greek I

Further study of the language; introduction to the reading of ancient Greek authors.

Precludes additional credit for GREK 2001.

Prerequisite: GREK 1006 or equivalent.

Tutorials three hours a week.

GREK 2201 [0.5 credit]

### Intermediate Greek II

Continued study of the language; reading of selected prose and poetry by ancient Greek authors; development of translation skills.

Precludes additional credit for GREK 2001.

Prerequisite: GREK 2200 or equivalent.

Tutorials three hours a week.

GREK 3900 [0.5 credit]

### Studies in Greek Poetry

Reading and critical discussion of selections from ancient Greek poetry.

Prerequisite: GREK 2201 or equivalent.

Tutorials three hours a week.

GREK 3901 [0.5 credit]

### Studies in Greek Prose

Reading and critical discussion of selections from ancient Greek prose.

Prerequisite: GREK 2201 or equivalent.

Tutorials three hours a week.

GREK 4900 [0.5 credit]

### Directed Study (Poetry)

GREK 4901 [0.5 credit]

### Directed Study (Prose)

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## Hebrew (HEBR)

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School of Linguistics and Language Studies  
College of the Humanities  
Faculty of Arts and Social Sciences

HEBR 1904 [1.0 credit]

### Introductory Hebrew I

First level introduction for students with no knowledge of Hebrew. Presents essentials for biblical and modern Hebrew. (Also listed as RELI 1011.)

Three hours per week plus out-of-class requirements.

HEBR 2904 [1.0 credit]

### Introductory Hebrew II

Second level introduction to the Hebrew language. Through reading modern and classical texts as well as conversation, students will learn vocabulary, grammar, and common idioms. (Also listed as RELI 2011.)

Prerequisite: HEBR 1904 or RELI 1904, RELI 1011 or permission of the department.

Three hours per week plus out-of-class requirements.

HEBR 3904 [1.0 credit]

### Advanced Hebrew

Advanced study of the Hebrew language through reading modern and biblical texts as well as through listening to dialogues and short stories to learn the use of all language components including morphology, syntax, and expressions. (Also listed as RELI 3011.)

Prerequisite: RELI 2011, RELI 2904, HEBR 2904, or permission of the department.

Lecture three hours a week plus out-of-class requirements.

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## History (HIST)

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Department of History  
Faculty of Arts and Social Sciences

Please note: not all of the following courses are offered in a given year. Consult [carleton.ca/cu/programs/sched\\_dates](http://carleton.ca/cu/programs/sched_dates) for the most up-to-date statement regarding availability of offerings. For further details concerning courses, see the departmental Web site at [carleton.ca/history](http://carleton.ca/history).

4000-level History seminars have limited enrolment. Priority in enrolment is given to students in History Honours and Combined Honours programs. All students must obtain prior permission to enrol from the Department of History, normally during March and April of the preceding academic year.

Topics in 4000-level History seminars change from year to year. Current topics are posted on the department's website at [carleton.ca/history](http://carleton.ca/history)

HIST 1001 [1.0 credit]

### The Making of Europe

A survey of the major events, ideas and movements that have shaped Europe from Antiquity to the 21st century. (Field a or b)

Lectures/groups three hours a week.

HIST 1002 [1.0 credit]

### Europe in the 20th Century

An introduction to some of the major ideological, political, diplomatic, military, social, cultural and economic developments that have shaped contemporary Europe. (Field b)

Lectures/groups three hours a week.

HIST 1010 [0.5 credit]

### History of Northern Canada

A historical introduction to northern Canada from pre-contact times to the present. Open only to students in the Nunavut Public Administration certificate program. (Field c)

HIST 1300 [1.0 credit]

### Introduction to Canadian History

An historical study of the political, economic and social development of Canada with emphasis on the twentieth century. (Field c)

Lectures/groups three hours a week.

HIST 1707 [1.0 credit]

### World History

This course will follow the global community from 1400 to the present exploring how global connections, movements and trends have shaped our world with a particular focus on the non-western world. (Field a or d)

Lectures/groups three hours a week.

HIST 2001 [0.5 credit]

### Early Medieval Europe

Major developments leading to the formation of a distinctly European culture during the early Middle Ages; the fragmentation of the Roman world and the subsequent innovation in social, intellectual and political communities. (Field a)

Lectures/groups three hours a week.

HIST 2002 [0.5 credit]

### Late Medieval Europe

The social, political and cultural institutions of the late medieval West; the revolutions in thought and the reorganizations of political and religious communities from the 12<sup>th</sup> to the 15<sup>th</sup> century. (Field a)

Lectures/groups three hours a week.

HIST 2005 [1.0 credit]

**England During the Middle Ages**

A study concentrating on the political development of medieval England, A.D. 410-1485. (Field a)  
Lectures/groups three hours a week.

HIST 2101 [1.0 credit]

**Modern Thought and Culture**

A broad examination of Western thought and culture from the 18th Century to the present, with emphasis on major thinkers and intellectual, ideological, and cultural movements. The course is intended for students from varied disciplinary backgrounds. (Field e)  
Precludes additional credit for HIST 3100 (no longer offered).  
Lectures/groups three hours a week.

HIST 2204 [0.5 credit]

**The Social History of Early Modern Europe**

The social history of Europe circa 1450-1790. Themes include the economy, the family, diet, sexuality, religion, and social relations. (Field a) Precludes additional credit for HIST 2203 (no longer offered).  
Lectures/groups three hours a week.

HIST 2206 [0.5 credit]

**The Cultural History of Early Modern Europe**

The cultural and intellectual history of Europe from the Renaissance to the French Revolution (1450-1790). Themes include humanism, the visual arts, religion, the Scientific Revolution, and the history of political thought. (Field a)  
Precludes additional credit for HIST 2203 (no longer offered).  
Lectures/groups three hours a week.

HIST 2207 [1.0 credit]

**Nineteenth-Century Europe**

A study of critical episodes in the history of continental Europe during the nineteenth century. Themes may include the struggles for democracy in France, modernizing reform in Russia, and national unification in Italy and Germany. (Field b)  
Lectures/groups three hours a week.

HIST 2303 [1.0 credit]

**Canadian Political History**

An historical survey of the Canadian political tradition from the late eighteenth century to the present. Politicians, parties, ideas, social context and dissent are examined. Second-year standing recommended. (Field c)  
Lectures/groups three hours a week.

HIST 2304 [1.0 credit]

**Canadian Social History**

A thematic exploration of how the spaces of home, work, and play have been historically produced, understood, and experienced in Canada. Second-year standing recommended. (Field c)  
Lectures/groups three hours a week.

HIST 2308 [0.5 credit]

**Colonial Latin America**

From ancient civilizations to the era of Independence, this class follows conquest, colonization and development of national identity in the countries of Latin America. (Field d)  
Precludes additional credit for HIST 2307 (no longer offered).  
Lectures/groups three hours a week.

HIST 2309 [0.5 credit]

**Modern Latin America**

From the Wars of Independence until the end of the twentieth century, this class follows the emergence of Latin American nations, their economies, politics, culture and international relations. (Field d)  
Precludes additional credit for HIST 2307 (no longer offered).  
Lectures/groups three hours a week.

HIST 2310 [0.5 credit]

**Nature, Culture, Society**

The shifting uses of nature in Canada and the United States from contact to the early twentieth century. Topics may include pre- and post-contact aboriginal uses, colonization, resource industries, urban planning, tourism, and consumerism. (Field c or e.)  
Precludes additional credit for HIST 2306 (no longer offered).  
Lectures/groups three hours a week.

HIST 2311 [0.5 credit]

**Modern Environmental History**

Overview of interactions between humans and the natural world from the mid-nineteenth century: the influence of climate, topography, plants, animals and microorganisms on human history, the impact of humans (and technology) on the environment, and the origins of the environmental movement. Geographical focus will vary. (Field c or e)  
Precludes additional credit for HIST 2306 (no longer offered).  
Lectures/groups three hours a week.

HIST 2400 [1.0 credit]

**History of the United States**

A survey of United States politics and society since the American Revolution. (Field c)  
Lectures/groups three hours a week.

HIST 2501 [0.5 credit]

**Early Modern Britain**

A survey of significant political and social developments in Britain from the 15<sup>th</sup> to the 18<sup>th</sup> century. (Field a)  
Precludes additional credit for HIST 2500 [1.0], no longer offered.  
Lectures/groups three hours a week.

HIST 2502 [0.5 credit]

**Modern Britain**

A survey of significant political and social developments in Britain from the 18<sup>th</sup> to the late 20<sup>th</sup> century. (Field b)  
Precludes additional credit for HIST 2500 [1.0], no longer offered.  
Lectures/groups three hours a week.

HIST 2506 [0.5 credit]

**Introduction to Women's and Gender History**

An introductory study of women's and gender history. Themes may include sexuality, masculinity, women's activism, consumer culture, religion, and reproductive rights. Geographic and temporal focus varies from year to year. (Field e)  
Precludes additional credit for HIST 2504 (no longer offered).  
Lectures/groups three hours a week.

HIST 2507 [0.5 credit]

**Revolutionary France 1789-1889**

A study of the French Revolution and its pervasive influence on French politics and political culture during the nineteenth-century. (Field b)  
Precludes additional credit for HIST 2505 (no longer offered).  
Lectures/groups three hours a week.

HIST 2508 [0.5 credit]

**France since 1889**

A study of the major political, social, cultural, and economic developments in France since 1889. Topics may include the Dreyfus Affair, the First and Second World Wars, Republican political culture, colonialism and decolonization, youth culture and protest, and historical memory and commemoration. (Field b)  
Precludes additional credit for HIST 2505 (no longer offered).  
Lectures/groups three hours a week.

HIST 2510 [0.5 credit]

**19th-Century Germany**

The social, cultural, and political history and impact of German nationhood. Topics include the rise of social democracy and the feminist movements, alliance and empire building, scientific racism, sexology, and the emancipation and assimilation of German Jews into the body politic. (Field b)

Precludes additional credit for HIST 2509 (no longer offered).

Lectures/groups three hours a week.

HIST 2511 [0.5 credit]

**20th-Century Germany**

A survey of social, cultural, and political tensions and developments in Germany from World War One to the Fall of the Berlin Wall. (Field b)

Precludes additional credit for HIST 2509 (no longer offered).

Lectures/groups three hours a week.

HIST 2600 [1.0 credit]

**History of Russia**

A survey of Russian history from rise of Kievan Rus to the collapse of the Soviet Union in 1991, with emphasis on the period from the reign of Peter the Great to the revolutions of 1917. (Field a or b)

Lectures/groups three hours a week.

HIST 2704 [1.0 credit]

**Introduction to Caribbean History**

An introduction to the history of the Caribbean that examines the indigenous populations, the role of colonialism and slavery in the construction of plantation societies, the impact of emancipation, and the social, cultural, economic, and political dynamics of the Caribbean in the post-emancipation period. (Field d)

Lectures/groups three hours a week. May be taught as an online course.

HIST 2706 [0.5 credit]

**Ancient and Pre-Colonial Africa**

Ancient African cultures and civilizations, the trans-Saharan trade system, and the trans-Atlantic and Indian Ocean slave trades from 600 BCE to the 19th century. (Field d)

Precludes additional credit for HIST 2705 (no longer offered).

Lectures/groups three hours a week.

HIST 2707 [0.5 credit]

**Modern Africa**

The conquest and colonization of African polities by the European imperial powers from the late 19th century, the 20th century wars of decolonization, and the emergence of independent African nations, including their economies, politics, and culture. (Field d)

Precludes additional credit for HIST 2705 (no longer offered).

Lectures/groups three hours a week.

HIST 2801 [1.0 credit]

**War & Society in Modern Europe**

A thematic study of the experience of war and its consequences. The European country or region to be studied, and the time period selected (19<sup>th</sup> or 20<sup>th</sup> century), will vary from year to year. (Field b)

Lectures/groups three hours a week.

HIST 2805 [1.0 credit]

**History of China**

A survey of Chinese political and intellectual history from the Xia Dynasty to the 1911 Revolution. Emphasis is placed on the impact of the West on China from the sixteenth to the twentieth century. (Field d)

Lectures/groups three hours a week.

HIST 2806 [1.0 credit]

**History of Japan**

A survey of Japanese history from the legendary beginning of the country in 660 B.C. to the end of World War Two. (Field d)

Lectures/groups three hours a week.

HIST 2809 [0.5 credit]

**The Historian's Craft**

Lectures and workshops on historical methods and materials. Topics will include the discovery, evaluation, use and analysis of documents in historical context, non-documentary evidence, statistics, and bibliographical tools.

Precludes additional credit for HIST 2808 [1.0 credit], no longer offered.

Prerequisite: second-year standing.

Lectures/groups three hours a week.

HIST 2900 [1.0 credit]

**History of Ancient Greece**

The history of classical Greece to the conquest of Asia by Alexander with special attention to the development of her characteristic institutions. (Field a) (Also listed as CLCV 2900.)

Prerequisite: second-year standing or permission of the Department.

Lectures two hours a week.

HIST 2901 [1.0 credit]

**History of Ancient Rome**

The history of ancient Rome, her organization and expansion especially during the late Republic and early Empire. (Field a) (Also listed as CLCV 2901.)

Prerequisite: second-year standing or permission of the Department.

Lectures two hours a week.

HIST 2910 [0.5 credit]

**Special Subject in History**

A lecture course on a special topic, theme, or period. Topic varies from year to year. (Field will depend on topic)

Lectures/groups three hours a week.

HIST 3001 [0.5 credit]

**History at the Movies**

A course that considers the opportunities offered by the historical feature film in the representation of the past, focusing on how historical themes and subjects have been treated in feature films, cinematic uses of the past, the role of film in shaping public memory and understanding the past. (Field e)

Prerequisite: a 2000-level history course, or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3005 [0.5 credit]

**Medieval Aristocratic Life**

A general examination of the life of European ruling elites from the ninth to the 13th century, with special reference to the Anglo-Norman and French experiences of noble power, conduct, and prestige. (Field a)

Prerequisite: a 2000-level history course, or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3006 [0.5 credit]

**Medieval Religious Life**

A general examination of European religious life from the fourth to the fourteenth centuries, with special reference to the cultural and intellectual worlds of medieval monks, nuns, and clerics. (Field a or e)

Prerequisite: a 2000-level history course, or third-year standing and 1.0 credit in history.

Lectures three hours a week.

Courses - History (HIST)

HIST 3007 [0.5 credit]

**Medieval Intellectual Life**

A general examination of medieval European intellectual life during the High and Late Middle Ages, with special reference to its setting in the cathedral school and university. (Field a or e)

Prerequisite: a 2000-level history course, or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3009 [0.5 credit]

**Studies in Greek History**

A study of one of the major periods or themes of ancient Greek history. Contents of this course vary from year to year. (Field a) (Also listed as CLCV 3201.)

Prerequisite: CLCV 2900/HIST 2900 or permission of the unit.  
Lectures two hours a week.

HIST 3010 [0.5 credit]

**The Later Roman Empire**

The study of major developments - administrative, ecclesiastical, cultural and societal - of the later Roman Empire. (Also listed as CLCV 3010.)

Prerequisite: a 2000-level Classical Civilization course. Precludes additional credit for HIST 3002 (no longer offered).  
Lecture three hours a week.

HIST 3101 [0.5 credit]

**Studies in Roman History**

A study of one of the major periods or themes of the history of ancient Rome. (Field a) (Also listed as CLCV 3202.)

Prerequisite: CLCV 2901/HIST 2901 or permission of the unit.  
Lectures two hours a week.

HIST 3105 [0.5 credit]

**Renaissance Europe**

The political and cultural history of Europe in the fourteenth, fifteenth and sixteenth centuries, with emphasis on the Italian Renaissance and its diffusion into England and France. (Field a)

Precludes additional credit for HIST 2105.  
Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3106 [0.5 credit]

**Social History of Sexuality**

Sexuality in Western society, Middle Ages to the present. Themes include attitudes and behaviour; regulation of sexuality; gender; heterosexuality and homosexuality; prostitution; pornography; the politics of sex: stresses continuities and changes and the understanding of sexuality in contexts of place, class, gender, and culture. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3107 [1.0 credit]

**History of the Family in Europe**

Comparative study of the family in early modern and modern Europe. Themes include family and household forms; family economy and government; demography; law; marriage formation, stability and breakdown; gender and family relationships; sexuality. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3109 [0.5 credit]

**Social History of Alcohol**

Alcohol in Western society from Ancient times to the present. Production, trade, and consumption of alcohol; religious and social significance; class, gender, and health; drinking cultures; policies toward drunkenness, and alcoholism. Specific topics include comparative trends, temperance movements, and prohibition. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3110 [0.5 credit]

**The Cultural History of Food**

Food in its agrarian, economic and cultural context from late antiquity to the nineteenth century; production, distribution, and consumption; health, diet and manners; the religious significance of food; food in art; the rise of the restaurant; the birth of gastronomy. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3111 [0.5 credit]

**History of Humanitarian Aid**

A history of humanitarian activities and agencies, both governmental and non-governmental, with particular attention to Canadian involvement. The first half is devoted to early humanitarian traditions, the second to specific agencies such as the Red Cross, Oxfam, Christian Aid, Save the Children and UNICEF. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3112 [0.5 credit]

**The Body in Early Modern Europe**

The human body as a representation of social, political and cultural relationships in Europe, 1500-1800. The ways the body was viewed, constructed, interpreted, controlled, measured, fed, tended, and clothed. Themes include sexuality, gender, age, diet, health, (un)clothing, gesture and performance. (Field a or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3113 [0.5 credit]

**Revolution and Society in France, 1789-1799**

A survey of the French Revolution (1789-99) focusing on attempts to regenerate France and the French through political, economic and cultural reforms. Themes include nationalism, republicanism, violence, legal reform, property redistribution, education, population and family policy, gender, and religion. (Field b)

Precludes additional credit for HIST 3108 (no longer offered).  
Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3115 [0.5 credit]

**Youth and History**

The role of youth in modern history, with emphasis on Europe. Topics include the relationship of young men and women (including children and university students) to industrialization, education, revolutionary and mass politics, war and military training, popular culture, sexuality, and leisure. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.  
Lectures three hours a week.

HIST 3200 [1.0 credit]

**The Reshaping of Europe, 1848-1871**

A study of political conflict in Europe from the revolutions of 1848 to the Franco-Prussian War, emphasizing the international and domestic dimensions of the Italian and German struggles for national unification, their impact on France and Austria, and the historical consequences of "unification from above". (Field b)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3203 [0.5 credit]

**Canadian Economic History to 1914**

A survey of Canadian economic history from the sixteenth century to the advent of industrial capitalism. (Field c) (Also listed as ECON 3202.)

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department of History.

Lectures three hours a week.

HIST 3204 [0.5 credit]

**Canadian Economic History since 1914**

A survey of Canadian economic history from the First World War to the present. (Field c) (Also listed as ECON 3207.)

Prerequisite: ECON 1000 or FYSM 1003, or permission of the Department of History.

Lectures three hours a week.

HIST 3205 [0.5 credit]

**Canadian Business History**

The place of business in Canadian society, economics and politics. The internal dynamics of Canadian business (organization, strategy, the rise of the manager), and its external implications (competition, foreign investment, business-government relations). (Field c) (Also listed as BUSI 4608.)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3206 [0.5 credit]

**Canadian Regional History**

A lecture course involving selected topics in the history of one of Canada's regions. Topic varies from year to year. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3208 [0.5 credit]

**Eastern Ontario Communities**

The local history of Eastern Ontario, with particular reference to the settlement and development of the Ottawa Valley in the nineteenth century. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3209 [0.5 credit]

**Canadian Urban History**

Introduction to urban growth and development in Canada. The historical basis of the urban pattern and its influence in Canada and the internal structure and institutions of Canadian cities. Ottawa is used as a case study. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3213 [0.5 credit]

**The Enlightenment**

The Enlightenment as a movement to establish a scientific approach to investigating human society. The focus is on Britain as the leading commercial society. Course work concentrates on close readings of primary texts. Representative figures include David Hume, Adam Smith, Mary Wollstonecraft. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3214 [0.5 credit]

**The Enlightenment and Its Aftermath**

An intellectual and cultural history of Enlightenment and post-Enlightenment study of human society. Course work concentrates on close reading of significant primary texts. Representative figures include Burke, Kant, Malthus, Mill, Tocqueville. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3215 [0.5 credit]

**Ancient Science**

The history of physical science from Plato to Ptolemy. (Field a or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3216 [0.5 credit]

**The Scientific Revolution**

The history of physical science from Copernicus to Newton. (Field b or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3216 [0.5 credit]

**The Scientific Revolution**

The history of physical science from Copernicus to Newton. (Field b or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3301 [0.5 credit]

**Quebec Since the 1860s**

A social, economic, cultural and intellectual history of Quebec with emphasis on the development of Quebec nationalism. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3304 [0.5 credit]

**Canada-United States Relations**

An examination of diplomatic, economic, cultural and military relations, with particular attention to the twentieth century. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3305 [0.5 credit]

**Crime and State in History**

The history of the relationship between the criminal law system and society. Changing issues in the criminal law and the nature of institutional responses, covering medieval to early nineteenth-century England and nineteenth to early twentieth-century Canada. (Field e) (Also listed as LAWS 3305.)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

Courses - History (HIST)

HIST 3306 [0.5 credit]

**Canada's International Policies**

The development of Canadian attitudes and policies toward international affairs, with emphasis on the 20<sup>th</sup> century. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3310 [0.5 credit]

**Animals in Human History**

Examines the role that animals have played in human history. Topics may include domestication; the display of animals in zoos, museums and wildlife films; biotechnology; industrial farming; animal welfare movements; animals as symbols, and the question of animal agency. (Field c or e)

Precludes additional credit for HIST 3308 (no longer offered).

Lectures three hours a week.

HIST 3400 [0.5 credit]

**U.S. Foreign Policy since 1941**

A study of United States foreign relations from intervention in World War II to the present. Principal themes include the developing antagonism with the Soviet Union, global political and economic expansion, and the response to the changed circumstances of the post-Cold War era. (Field c)

Precludes additional credit for HIST 3409.

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3402 [0.5 credit]

**19th-Century United States**

Major economic, political, social and cultural developments in nineteenth-century America; the United States' growing economic and cultural involvement with the rest of the world, especially with the other continents of the Atlantic World. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3403 [1.0 credits]

**Comparative Slavery and Emancipation in the Atlantic World**

Slavery and emancipation throughout the Americas; the interactions that created an African Diaspora in the Caribbean, South America, and North America. How gender, race, and class shaped the experiences of the African Diaspora throughout the region. (Fields d or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3405 [0.5 credit]

**U.S. Foreign Policy 1865-1941**

United States foreign relations from the end of the Civil War up to intervention in World War II. Principal themes include economic and political expansion in the Americas, the domestic contexts of foreign policy, and the developing relationship with Europe. (Field c)

Precludes additional credit for HIST 3409.

Prerequisite: A 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3406 [0.5 credit]

**African-American Women**

An examination of aspects of the social, cultural, and political history of African-American women since the eighteenth century. (Field c or e).

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3408 [1.0 credit]

**U.S. Intellectual History**

An examination of American thought from the colonial period to the twentieth century, with emphasis on political, social and religious ideas and their relation to American society and institutions. (Field c or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3409 [0.5 credit]

**20th-Century United States**

Major economic, social, political and cultural developments in twentieth-century U.S.; the United States's growing economic and cultural involvement with the rest of the world. (Field c)

Precludes additional credit for HIST 3404 (no longer offered).

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3500 [0.5 credit]

**Canadian Immigration 1760-1875**

A study of immigration to and within British North America and of the adaptation of immigrants to colonial life between the Seven Years War and the early years of Confederation. (Field c).

Precludes additional credit for HIST 3308.

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3503 [1.0 credit]

**Aboriginal Peoples of Canada**

The history of the aboriginal peoples of Canada, including cultural, political, and economic themes. (Field c).

Precludes additional credit for HIST 3502 and HIST 3503.

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3505 [0.5 credit]

**Women in Canada**

Selected issues in the history of women in Canada. Themes include women and war, aboriginal women's history, sexuality, the women's movement, immigration, and motherhood. Attention will be paid to the social construction of gender and the intersections of gender with class, ethnicity, and race. (Field c)

Precludes additional credit for HIST 3504 (no longer offered).

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3506 [0.5 credit]

**Welfare & Poverty in Canada**

Analysis of the development of the Canadian welfare state. Chronological examination of welfare arrangements in Canada since the beginning of the nineteenth century; comparisons with selected western countries; discussions of the role of different social groups in policy formation. (Field c or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3507 [0.5 credit]

**Canadian Immigration from 1875**

A study of immigration to Canada and of the adaptation of immigrants to their new environment from 1875. (Field c)

Precludes additional credit for HIST 3308.

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.



HIST 3508 [1.0 credit]

**English Society 1500-1914**

An inquiry into the relationship between society and politics in England. (Field a or b)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3602 [0.5 credit]

**The Modern Canadian Family**

The transformations of family life in Canada since 1800, its varieties, its continuities, its relationship with political and economic institutions, and the changing status of its members. The construction of ideas about families will be discussed to underline the complex dynamic between images and practices. (Field c or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3603 [0.5 credit]

**European Women's History**

An examination of themes in the social, cultural, and intellectual history of modern European women. (Field b or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3701 [0.5 credit]

**Port Cities in the Atlantic World**

Examination of port cities in Africa, the Americas, and Europe; their unique characteristics, problems and opportunities, including economic growth, trade, crime, and poverty. Port cities as key sites of social and cultural exchange in the Atlantic World. (Field e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3702 [0.5 credit]

**The Scramble for Africa, 1876-1918**

The causes of partition, African peoples' attempts to resist colonization, and the means by which Europeans succeeded in conquering Africa. The early years of colonial rule and the impact of colonial rule on African social and political life. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3704 [0.5 credit]

**Aztecs**

An examination of the Aztec social system, culture, religion, and philosophy both before and after the Spanish conquest. (Field a or d)

Prerequisite: A 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3708 [0.5 credit]

**Reformation Europe**

A history of the Protestant and Catholic Reformations of the sixteenth century, with special emphasis on the theological disputes of the protagonists and the impact of these disputes on the social, political and cultural developments of the era. (Field a) (Also listed as RELI 3220).

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3710 [0.5 credit]

**Themes in Caribbean History**

Key themes in the making of the Caribbean. Topics may include slavery and emancipation, Indian and Chinese migration, colonialism, the independence movement, and race relations. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3711 [0.5 credit]

**African Women and Colonialism**

African women's encounters with colonialism; their experiences, contributions, perceptions, voices, and struggles under colonial rule from the late 19th century until 1990. Key themes include African women's resistance, accommodation and utilization of colonialism. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures and class presentations three hours a week.

HIST 3712 [0.5 credit]

**Social History of Mexico**

The ways that indigenous peoples such as the Aztecs and the Maya mixed with Spaniards and African slaves to create a society and a culture that is particular to Mexico. Thematic emphasis on certain periods of Mexican history. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3713 [0.5 credit]

**Gender and Sexuality in Latin America**

An exploration of gender and sexualities in Latin America from the pre-conquest period to the end of the twentieth century. (Field d or e)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Precludes additional credit for HIST 3705 and HIST 3707 (no longer offered).

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3800 [0.5 credit]

**International History 1914-41**

A survey of European international history in the First World War; peace making 1919-1923; inter-war diplomacy and the origins of the Second World War; the European war to 1941. (Field b)

Precludes additional credit for HIST 3800 [1.0] offered prior to 2000-2001.

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3801 [0.5 credit]

**International History 1941-90**

A survey of European international history in the Second World War, 1941-1945; peacemaking; post-war relations; European union. (Field b)

Precludes additional credit for HIST 3800 [1.0] offered prior to 2000-2001.

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3803 [0.5 credit]

**Constructing Peace 1919-1929**

How the treaties ending the First World War were negotiated at the Paris Peace Conference; how the resulting peace settlement was implemented and revised during the postwar decade; and how international political and economic relations were restored in a continent devastated by war and revolution. (Field b)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

Courses - History (HIST)

HIST 3804 [0.5 credit]

**History of Modern Korea**

An introduction to modern Korean history since 1895, with emphasis on the evolution of North and South Korea since 1953. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3805 [0.5 credit]

**Twentieth-Century China**

A political history of China from the 1911 Revolution to the present. Emphasis on the development of Chinese communism and the People's Republic since 1949. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3806 [0.5 credit]

**Japan Since 1945**

A political, intellectual and economic history of Japan in the twentieth century, concentrating on the period since the end of the Pacific War. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3807 [0.5 credit]

**Practicum in History**

An historical research project in a museum or public institution in the Ottawa area conducted under the supervision of the external institution and the History Department. Work includes reading, reports, and meetings. Students should be prepared to devote one day a week to the project.

Prerequisite: General or Honours history student with third- or fourth- year standing and a CGPA of 9.00 or better in history courses, and permission of the Department.

HIST 3809 [0.5 credit]

**Historical Representations**

An examination of how historical narratives have been produced in relation to sites of public memory. The public presentation of history through a wide range of themes, which may include museum exhibits, commemorations and popular culture.

Prerequisite: third-year standing and 1.0 credit in history.

Three hours a week.

HIST 3810 [0.5 credit]

**Historical Theory**

An examination of a wide range of theoretical approaches to history, and a critical reflection on history as a discipline.

Precludes additional credit for HIST 3808 [1.0], no longer offered.

Prerequisite: third-year standing in an Honours History program. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars. Lectures two hours a week and one hour tutorial.

HIST 3811 [0.5 credit]

**History of Historical Thought**

An examination of questions concerning the nature and value of historical inquiry and the meaning of the course of history.

Prerequisite: third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3902 [0.5 credit]

**Topics in European History**

A lecture course on a special topic in European history. Topic varies from year to year. (Field a or b, depending on topic.)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3903 [0.5 credit]

**Topics in Canadian History**

A lecture course on a special topic in Canadian history. Topic varies from year to year. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3904 [0.5 credit]

**Topics in U.S. History**

A lecture course on a special topic in United States history. Topic varies from year to year. (Field c)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3905 [0.5 credit]

**Topics in International History**

A lecture course on a special topic in international political or economic history. Topic varies from year to year. (Field b)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3906 [0.5 credit]

**Topics in World History**

A lecture course on a special topic in African, Asian, Caribbean, or Latin American history. Topic varies from year to year. (Field d)

Prerequisite: a 2000-level history course or third-year standing and 1.0 credit in history.

Lectures three hours a week.

HIST 3910 [0.0 credit]

**Work Term 1**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours History program.

HIST 3911 [0.0 credit]

**Work Term 2**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours History program.

HIST 3912 [0.0 credit]

**Work Term 3**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours History program.

HIST 3913 [0.0 credit]

**Work Term 4**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours History program.

HIST 4006 [1.0 credit]

**Seminar in Medieval History**

An examination of a selected problem in the history of medieval Europe.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4100 [1.0 credit]

**Seminar in Early Modern European History**

A study of a selected problem in the history of Europe during the early modern period. Also offered at the graduate level with different requirements, as HIST 5100, for which additional credit is precluded.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4200 [1.0 credit]

**Seminar in European History**

An examination of a selected problem or period in the history of Continental Europe. Also offered at the graduate level with different requirements, as HIST 5200, for which additional credit is precluded.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4209 [1.0 credit]

**Topics in Ancient History**

Intended for Honours students in Classics or History in their third- or fourth-year. (Also listed as CLCV 4209.)

Prerequisites: CLCV 2900 (HIST 2900) or CLCV 2901 (HIST 2901) or CLCV 3201 (HIST 3009) or CLCV 3202 (HIST 3101) and permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar two hours a week.

HIST 4302 [1.0 credit]

**Canada: Ideas & Culture**

A seminar on ideas, culture, and society in Canada.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4304 [1.0 credit]

**Canada: Politics & Society**

A seminar on politics and society in Canada.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4306 [1.0 credit]

**Canada: Ethnicity & Community**

A seminar on population, ethnicity, and community in Canada. The particular approach, themes, and historical period will be specified each year.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4308 [1.0 credit]

**History of Popular Culture**

Selected studies in the social history of culture in the age of mass society, including the popular arts, and the "culture of consumption".

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4400 [1.0 credit]

**Seminar in U.S. History**

An examination of a selected problem or period in the history of the United States.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4500 [1.0 credit]

**Seminar in British History**

An explanation of a selected problem or period in the history of Great Britain.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4505 [1.0 credit]

**Seminar in Women's & Gender History**

A seminar on the history of women and gender. The particular approach, themes, and historical period will be specified each year.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4600 [1.0 credit]

**Seminar in Russian History**

An examination of a selected problem or period in the history of Imperial or post-Imperial Russia.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4603 [0.5 credit]

**Imperial and Soviet Russia**

Legacies of the tsarist empire and the Soviet Union that influence the region today. Topics discussed include political culture, empire, socialism, class, gender, and non-Russian peoples. (Also listed as EURR 4203.)

Also offered at the graduate level, with additional or different requirements, as HIST 5603, for which additional credit is precluded.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4604 [0.5 credit]

**Central Europe, Past and Present**

Evolution and current status of Central Europe from periods of foreign control in the late nineteenth and twentieth centuries to independent statehood. Particular emphasis will be placed on national accommodations and conflicts. (Also listed as EURR 4204.) Also offered at the graduate level, with additional or different requirements, as HIST 5604, for which additional credit is precluded.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4700 [1.0 credit]

**Seminar in World History**

An examination of a selected problem or period in the history of Asia, Africa, the Caribbean or Latin America. Also offered at the graduate level with different requirements, as HIST 5708, for which additional credit is precluded.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

HIST 4802 [1.0 credit]

**Seminar in International History**

An examination of a selected problem or period in the history of international relations.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

Seminar three hours a week.

Courses - History (HIST)

HIST 4805 [1.0 credit]

**Seminar on a Transnational or Thematic Topic**

A seminar on a transnational or thematic topic. The particular topic will be specified each year.

Prerequisite: permission of the Department. It is strongly recommended that HIST 3810 be taken prior to enrolment in 4000-level history seminars.

HIST 4909 [2.0 credits]

**Honours Research Essay**

B+ standing in History courses is expected. The subject for research is settled in consultation with the Department and a supervisor is assigned. Written outline of the project submitted to the Honours Committee one week before the last day for course changes. Oral examination. Not available to students in a Combined Honours program. The decision to commit to a research essay should be made at the beginning of third year.

Precludes additional credit for HIST 4908 (no longer offered).

Prerequisites: registration in fourth year of Honours History program and permission of the Department.

## Humanities (HUMS)

### College of the Humanities Faculty of Arts and Social Sciences

HUMS 1000 [1.0 credit]

#### Myth and Symbol

Recurring symbols in myth, epic and ritual representing the relation between the sacred and the profane, the origin of the cosmos, the basis of community, and formative human experiences. Primary sources drawn from ancient India and China, Greek epic, Hebrew Scripture, and aboriginal practices.

Prerequisite: restricted to students in the Bachelor of Humanities program.

Lectures three hours a week and tutorials one and a half hours a week.

HUMS 1005 [0.5 credit]

#### Early Human Cultures

Cultural experiences of small scale societies, including kinship, rituals, magic, social structure, and subsistence. Reading may include the works of classic anthropologists such as Maine, Tylor, Morgan, and Boas.

Prerequisite: restricted to students in the Bachelor of Humanities program.

Lectures three hours a week.

HUMS 2000 [1.0 credit]

#### Reason and Revelation

The origins of philosophy in ancient Greece and its pursuit in the medieval West, with special attention to knowledge, happiness, and love. Readings include works by Plato, Aristotle, Plotinus, Augustine, Boethius, Aquinas, and Dante.

Prerequisites: HUMS 1000 and enrolment in the Bachelor of Humanities program.

Lectures three hours a week and tutorials one and a half hours a week.

HUMS 2101 [0.5 credit]

#### Art from Antiquity to the Medieval World

A chronological and thematic survey of the Arts from the earliest times to ca. 1400.

Prerequisite: restricted to students in the Bachelor of Humanities program.

Lecture three hours a week.

HUMS 2102 [0.5 credit]

#### Modern European Art 1527-2000

A chronological and thematic survey of the Arts from the sixteenth to the twenty-first century.

Prerequisite: HUMS 2101 and restricted to students in the Bachelor of Humanities program.

Lectures three hours a week.

HUMS 3000 [1.0 credit]

#### Culture and Imagination

Major forms of literary, artistic, and philosophical expression from 1500-1800. Sources drawn from renaissance humanism, reformation theology, enlightenment and romantic philosophy.

Prerequisite: HUMS 2000 and enrolment in the Bachelor of Humanities program.

Lectures three hours a week and tutorials one and a half hours a week.

HUMS 3102 [0.5 credit]

#### Western Music 1000-1850

Introduction to basic theory, harmony, history and interpretation of Western music including the Medieval, Renaissance, Baroque, Classical and early Romantic periods.

Prerequisite: restricted to students in the Bachelor of Humanities program.

Lectures three hours a week.

HUMS 3103 [0.5 credit]

#### Western Music 1850-2000

Western music from the mid-nineteenth century to the present with emphasis on the seminal contributions of Liszt, Wagner, Mahler, Debussy, Stravinsky, Schönberg and others.

Prerequisite: HUMS 3102 and restricted to students in the Bachelor of Humanities program.

Lecture three hours a week.

HUMS 3200 [1.0 credit]

#### European Literature

Major movements and works from Dante's Divine Comedy through Voltaire's *Candide*. Themes include the New Humanism vs. old Chivalry in the Renaissance and Baroque periods; the rise of the modern novel and drama; reason, nature, and the Enlightenment project.

Prerequisite: HUMS 2000 and third-year standing in the Bachelor of Humanities program.

Lectures three hours a week.

HUMS 3205 [1.0 credit]

#### Platonism and Idealism

The Platonic tradition in epistemology will be compared with Modern epistemological theories, primarily from the German Idealistic school. Main authors will be Plato, Kant, Hegel. Other authors may include Plotinus, Proclus, Augustine, Eriugena, Cusanus, Ficino, Leibniz, Spinoza, Locke.

Prerequisite: third-year standing in the Bachelor of Humanities program.

Lectures three hours a week.

HUMS 4000 [1.0 credit]

#### Politics, Modernity and the Common Good

Modern and post-modern ways of thinking and doing, including revolutionary new ideas in politics, philosophy, culture, economics, and international relations. Thinkers considered include Arendt, Foucault, Hegel, Heidegger, Hobbes, Kant, Marx, Nietzsche, Polanyi, Rousseau, Said, and Taylor.

Prerequisite: HUMS3000 and enrolment in the Bachelor of Humanities program.

Lectures three hours a week and tutorials one and a half hours a week.

HUMS 4001 [0.5 credit]

#### Directed Studies in the Humanities

A course for independent study and writing, under the supervision of a College designated faculty member. This course involves supervised readings and written essays.

Prerequisite: fourth-year standing in the Bachelor of Humanities program.

HUMS 4002 [0.5 credit]

#### Directed Studies in the Humanities

A course for independent study and writing, under the supervision of a College designated faculty member. This course involves supervised readings and written essays.

Prerequisites: fourth-year standing in the Bachelor of Humanities program and *Good Standing* in the program.

Courses - Humanities (HUMS)

HUMS 4103 [0.5 credit]

**Science in the Modern World**

An introduction to the major scientific ideas of our time (such as Big Bang theory, molecular genetics, evolution, atomic structure), and the impact of technology on society (e.g. global warming, pollution, genetically modified foods, viral infections).

Precludes additional credit for HUMS 4100 (no longer offered).

Prerequisite: restricted to students in the Bachelor of Humanities program.

Lectures three hours a week.

HUMS 4104 [0.5 credit]

**Modern Intellectual History**

An examination of some of the major ideas and ideologies from 1800 to the present, including romanticism, liberalism, nationalism, symbolism, socialism, Freudianism, communism, feminism, and postmodernism.

Prerequisite: restricted to students in the Bachelor of Humanities program.

Lectures three hours a week.

HUMS 4901 [0.5 credit]

**Research Seminar: Antiquity to the Middle Ages**

An interdisciplinary seminar on a selected topic in the humanities from Antiquity to the Middle Ages. The topic will vary from year to year.

Prerequisite: fourth-year standing in the Bachelor of Humanities program.

Seminar three hours a week

HUMS 4902 [0.5 credit]

**Research Seminar: Renaissance to Enlightenment**

An interdisciplinary seminar on a selected topic in the humanities from the Renaissance to the Enlightenment. The topic will vary from year to year.

Prerequisite: fourth-year standing in the Bachelor of Humanities program.

Seminar three hours a week.

HUMS 4903 [0.5 credit]

**Research Seminar: Romanticism to the Present**

An interdisciplinary seminar on a selected topic in the humanities from Romanticism to the present. The topic will vary from year to year.

Prerequisite: fourth-year standing in the Bachelor of Humanities program.

Seminar three hours a week.

HUMS 4904 [0.5 credit]

**Research Seminar: Non-Western Traditions**

An interdisciplinary seminar on a selected topic in the humanities as expressed in aboriginal and Non-Western cultures. The topic will vary from year to year.

Prerequisite: fourth-year standing in the Bachelor of Humanities program.

Seminar three hours a week.

## Human Rights (HUMR)

### Human Rights Program Committee Institute of Interdisciplinary Studies Faculty of Arts and Social Sciences

HUMR 1001 [1.0 credit]

#### Introduction to Human Rights

Human rights from an interdisciplinary perspective. Topics may include the foundations and nature of rights, roots of inequality and oppression, aboriginal rights, racism, women and rights, sexual orientation, state and corporate power, economic exploitation, the environment and rights, warfare, torture, and social movements. Precludes additional credit for FYSM 1104 and ISSC 1001/ANTH 1010/SOCI 1010 (no longer offered). Lecture and discussion groups three hours a week.

HUMR 2001 [0.5 credit]

#### Human Rights: Theories and Foundations

Historical overview of the theoretical and philosophical approaches underlying the human rights movement and relevant to the normative ideals and aspirations of human rights and to the strategies of their implementation. Prerequisite: second-year standing or permission of the Institute. Lectures three hours a week.

HUMR 2202 [0.5 credit]

#### Power Relations and Human Rights

The study of power from a critical, transnational perspective; the impact on human rights of different forms and modalities of power, including those emanating from the state and corporations and those implicated in socio-economic and other hierarchical relations. Prerequisite: second-year standing or permission of the Institute. Lectures three hours a week.

HUMR 2301 [0.5 credit]

#### Human Rights and Sexualities

Human rights issues in various cultural contexts concerning sex and/or gender, with attention to sexual minorities such as gay, lesbian, and transgendered persons. Forms of discrimination against sexual minorities and the mechanisms and strategies for redress. Prerequisite: second-year standing or permission of the Institute. Lectures three hours a week.

HUMR 2401 [0.5 credit]

#### Political Repression: Impacts and Responses

Canada is home-in-exile to many who have faced severe and often life-threatening political repression such as imprisonment, torture, surveillance, population transfer, etc. This course examines the impacts on survivors of political repression, and strategies used to overcome its legacies. Prerequisite: second-year standing or permission of the Institute. Lectures three hours a week.

HUMR 2402 [0.5 credit]

#### Agents of Political Violence

The processes used in preparing individuals to commit torture, murder and other forms of violence on behalf of a state or associated organizations, and how such violence is justified by its direct perpetrators, their commanders (police/military and political), and members of their society. Precludes additional credit for HUMR 3402 (no longer offered). Prerequisite: second-year standing or permission of the Institute. Lectures three hours a week.

HUMR 2502 [0.5 credit]

#### Social and Political Movements

The underlying conditions and developments of historical and contemporary social and political movements; specific social movements such as civil rights or gay rights. Prerequisite: second-year standing or permission of the Institute. Lectures three hours a week.

HUMR 3001 [0.5 credit]

#### Contemporary Issues in Human Rights

This advanced seminar will cover current and topical issues and/or debates in human rights, and will enable students to engage in focused discussions and analyses of these issues. Topics will vary from year to year. Prerequisite: third-year standing or permission of the Institute. Lectures three hours a week.

HUMR 3202 [0.5 credit]

#### Human Rights and Resistance

This course problematizes human rights paradigms and critically examines the limitations of the political within liberal democracies. Bringing together theory and politics, alternative approaches to activism are explored. Topics may include struggles grounded in radical democracy, anti-capitalism, and social justice perspectives. Prerequisite: third-year standing or permission of the Institute. Lectures three hours a week.

HUMR 3301 [0.5 credit]

#### Racialization, Racism and Human Rights

The forms and effects of systemic race-based human rights abuses. Topics may include immigration and refugee policies and practices, anti-apartheid regimes, racial profiling, the racial politics of "nationhood" and armed conflict, civil rights and resistance movements in differing cultural contexts. Prerequisite: third-year standing or permission of the Institute. Lectures three hours a week.

HUMR 3302 [0.5 credit]

#### Culture, Religion, and Women's Human Rights

The impact of cultural and religious traditions on women's human rights. Topics may include the impact of gender roles on the status of women, cultural relativism, and strategies used to advance women's human rights such as NGOs engagements with CEDAW. Prerequisite: third-year standing or permission of the Institute. Lectures three hours a week.

HUMR 3303 [0.5 credit]

#### Child Rights in Context and Practice

This course profiles the global human rights issues of children and relates them to the international treaties and mechanisms to address them. Topics may include children in armed conflict; child sex tourism; the rights of indigenous children; and gender-based violence against children. Prerequisite: third-year standing or permission of the Institute. Lectures three hours a week.

HUMR 3401 [0.5 credit]

#### Histories of Persecution and Genocide

Case studies in persecution and/or genocide in different cultural contexts. The social, political, and legal conditions that have enabled the institutional or state-sanctioned persecution of targeted groups, and the circumstances that had an impact on their decline. Prerequisite: third-year standing or permission of the Institute. Lectures three hours a week.

HUMR 3501 [0.5 credit]

**Social, Economic and Cultural Rights**

The development of social, economic and cultural rights, including rights to housing, healthcare, education and employment. Topics may include the international geopolitics of the historical tension between these rights and civil and political rights.

Prerequisite: third-year standing or permission of the Institute.

Lectures three hours a week.

HUMR 3502 [0.5 credit]

**Corporations and Human Rights**

Corporate involvement in human rights violations, with attention to how corporations encourage, participate in, and benefit from political repression and warfare. How the relationship between corporate and state interests affects the implementation of measures for corporate accountability.

Prerequisite: third-year standing or permission of the Institute.

Lectures three hours a week.

HUMR 3503 [0.5 credit]

**Global Environmental Justice**

Overview of critical debates on environmental issues from a global social justice perspective. Topics may include corporate mining, food sovereignty, poverty, economic exploitation, Indigenous cosmologies and environmental justice, militarization and environmental degradation, privatization of water and climate change.

Prerequisite: third-year standing or permission of the Institute.

Lectures three hours a week.

HUMR 4201 [0.5 credit]

**Citizenship and Human Rights**

The relationship between citizenship and human rights; how large groups of people, including non-citizens and refugees, are excluded from entitlements to rights. Why human rights rest on citizenship, and with what implications.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4203 [0.5 credit]

**Special Topic in Critical Principles of Human Rights**

Detailed study of a selected topic relating to normative questions and/or debates concern specific rights claims and/or to the international human rights system in general.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4301 [0.5 credit]

**Sex, Politics, and the State**

The role of the state in the social, moral and legal regulation of sex, and the human rights claims that state policies give rise to. Topics may include the politics of personal and social relationships, and approaches to addressing gender-based discrimination.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4302 [0.5 credit]

**Transgender Human Rights**

Critical analyses of human rights through an examination of transgender subjectivities. The systemic erasure of trans people within society and the struggles of some activists to normalize trans identities.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4303 [0.5 credit]

**Special Topic in the Identities and Diversities**

Detailed study of a selected topic relevant to the rights claims and/or needs of specific marginalized groups, such as immigrants, refugees, persons with disabilities, sexual minorities, etc.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4402 [0.5 credit]

**Terror and Human Rights**

The human rights implications of terror, terrorism and/or the "war on terror." Topics may include the use of terrorism as a justification for the use of military force, and the impact of racial profiling, arrest warrants, security certificates; detentions; and deportations.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4403 [0.5 credit]

**Special Topic in Civil and Political Rights**

Detailed study of a selected topic relevant to civil and political rights, including studies on specific rights claims and/or on the work of national or international commissions or tribunals.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4404 [0.5 credit]

**Rights of Refugees and Displaced Persons**

Contemporary issues concerning the rights of refugees and displaced persons, from social, political, and legal perspectives; Canadian and international dimensions of these issues.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4501 [0.5 credit]

**Human Rights and Economic Development**

The impact of globalization and international development on human rights in specific regions. Topics may include the right to development and alternative measures employed by international organizations and NGOs for assessing human development, including the capabilities approach and human-rights based approaches.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4503 [0.5 credit]

**Special Topic in Social and Economic Rights**

Detailed study of a selected topic concerning issues in social justice, globalization and development, and social and economic rights.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4905 [0.5 credit]

**Practicum Placement in Human Rights I**

This course provides students with the opportunity to spend one day per week (6-8 hours) working and learning at a human rights-related government, research or advocacy organization. A written report is required at the end of the placement. Graded as Sat/Uns.

Prerequisite: fourth-year standing in Human Rights or permission of the Institute.



HUMR 4906 [0.5 credit]

**Practicum Placement in Human Rights II**

This course provides students with the opportunity to spend one day per week (6-8 hours) working and learning at a human rights-related government, research or advocacy organization. A written report is required at the end of the placement. Graded as Sat/Uns.

Prerequisite: fourth-year standing in Human Rights or permission of the Institute.

HUMR 4907 [0.5 credit]

**Special Topic in Human Rights**

This course features a detailed study of a special topic in any area of Human Rights. Topics and themes will vary from year to year.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

HUMR 4908 [0.5 credit]

**Independent Study**

Essays and/or examinations based on a bibliography constructed by the student in consultation with an instructor.

Prerequisites: normally restricted to students with at least 3.0 credits of Human Rights courses with at least a CGPA of 9.0 or better in Human Rights courses and permission of the Institute.

## Indigenous Studies (INDG)

### School of Canadian Studies Faculty of Arts and Social Sciences

INDG 1000 [1.0 credit]

#### Introduction to Indigenous Studies

Survey of historical and contemporary issues relating to Indigenous peoples in Canada. Cultural traditions and the social interactions between Indigenous and non-Indigenous societies are approached from an interdisciplinary perspective.

Two hour lecture, one hour weekly discussion group.

INDG 2010 [0.5 credit]

#### Indigenous Encounters with Colonial and Nation-Building Projects in Canada

Interdisciplinary introduction to the history of encounters and changing relationships between Indigenous peoples and European newcomers. Topics include treaties, Métis history, Inuit and Northern issues, Indian status, residential schools, colonial policy and constitutional participation. This course provides the necessary background to understand contemporary Indigenous issues.

Precludes additional credit for CDNS 2010.

Prerequisite: second-year standing or permission of the School of Canadian Studies

Lectures/groups three hours a week.

INDG 2011 [0.5 credit]

#### Framing Contemporary Indigenous Issues

Indigenous and non-Indigenous perspectives on contemporary issues. Topics include: contemporary explorations of treaty relationship and governance, cultural appropriation, identity politics, urban Aboriginality and contemporary social and cultural issues.

Precludes additional credit for CDNS 2100 and CDNS 2011.

Prerequisite: INDG 2010 and second-year standing or permission of the School of Canadian Studies.

Lectures/groups three hours a week.

INDG 3000 [0.5 credit]

#### Indigenous Representation in Contemporary Canada

Through the examination of Indigenous cultural productions in select cultural forms (literature, film, television, visual arts, music, performance), this course examines how contemporary Canadian Indigenous artists and cultural producers negotiate the complex and contradictory relationships between Indigenous and Euro-Canadian traditions of performance, representation and storytelling.

Prerequisite: third-year standing or permission of the School of Canadian Studies. Seminar three hours a week.

INDG 3010 [0.5 credit]

#### Indigenous Resurgence, Rights and Resistance

The changing relationships between Indigenous peoples and settler society in Canada, with focus on Indigenous mobilization and its consequences. Topics include colonization and decolonization; political mobilization and resistance; land, language, and cultural rights; direct action versus negotiation; post-colonial futures.

Precludes additional credit for CDNS 3010.

Prerequisite: third-year standing or permission of the School of Canadian Studies.

Seminar three hours a week.

INDG 4000 [0.5 credit]

#### Advanced Research Seminar in Indigenous Studies

Advanced seminar focusing on special topics that allow students to carry out substantial, in-depth research projects. Seminar will also include discussions on the ethics and politics of research on Indigenous peoples.

Prerequisite: INDG 3000 and fourth-year standing and or permission of the School of Canadian Studies.

Seminar three hours a week.

## Industrial Design (IDES)

### School of Industrial Design Faculty of Engineering and Design

IDES 1000 [0.5 credit]

#### The History and Theory of Industrial Design

The theoretical background of industrial design: definitions of design and industrial design; its nature and its history; aspects of manufactured objects; design methods; design management in industry; professional practice and industrial design promotion, nationally and internationally. (Also listed as ARCH 2006.)  
Lectures three hours a week.

IDES 1001 [0.5 credit]

#### Industrial Design Analysis

Various aspects of industrial design practice, including: the principles of product analysis; the object/context relationship; the role of the manufactured object; and design analysis from the perspective of the user, the maker and the designer. (Also listed as ARCH 2101.)  
Prerequisite: IDES 1000 (ARCH 2006).  
Lectures three hours a week.

IDES 1300 [0.5 credit]

#### Projects IA

An introduction to the techniques of industrial design including drawing and sketching as an aid to design, basics of line and shape, ideation and visualization, product drawing, presentation techniques, laboratory equipment and practices, introduction to the design process.  
Prerequisite: IDES 1000 (may be taken concurrently).  
Lectures and tutorials two hours a week, studio four hours a week.

IDES 1301 [0.5 credit]

#### Projects IB

Further aspects of industrial design theory and practice, more specifically those dealing with principles of product development and fundamentals of form and colour; case studies. Emphasis is on creative problem-solving techniques and application of visual communication techniques in design; introduction to fundamentals of photography.  
Prerequisite: IDES 1300.  
Lectures and tutorials two hours a week, studio four hours a week.

IDES 2101 [0.5 credit]

#### Mass Production Technology A

Transformation techniques applied to manufacturing materials. Part-design requirements and cost factors for manufacturing processes. Influences and role of assembly, finishing, production tooling, and costing.  
Precludes additional credit for IDES 2100.  
Prerequisites: IDES 1000, IDES 1300.  
Lecture and tutorials three hours a week, laboratory three hours a week.

IDES 2102 [0.5 credit]

#### Mass Production Technology B

Continuation of IDES 2101. Transformation techniques applied to manufacturing materials. Part-design requirements and cost factors for manufacturing processes. The influences and role of assembly, finishing, production tooling, costing are addressed.  
Precludes additional credit for IDES 2100.  
Prerequisite: IDES 2101 or permission of the School of Industrial Design.  
Lecture and tutorials three hours a week, laboratory three hours a week.

IDES 2105 [0.5 credit]

#### Computer Applications

Provides industrial design students with a working knowledge of computers and their applications. Topics covered include computer fundamentals and the use of application packages in design. Sample applications may include text/word processors, graphics manipulation, authoring software, computer-aided design and 3-D modelers.

Precludes additional credit for COMP 1004.

Prerequisite: IDES 1301.

Lecture and tutorials three hours a week.

IDES 2203 [0.5 credit]

#### Form and Colour Fundamentals

The course approaches the phenomena of form and colour systematically by exploring basic elements and principles of design. Form giving properties such as structure, proportion, composition and static and dynamic symmetry are studied. Additional topics include typology of objects, surface transitions, and colour specification.

Prerequisite: IDES 1301 or permission of the School of Industrial Design.

Lectures two hours a week, studio four hours a week.

IDES 2300 [0.5 credit]

#### Projects IIA

Principles of drawing and sketching used in the design process. Project topics include: sketching as a tool for problem definition; idea exploration and form development; rendering techniques and the communication of design concepts; basic physical modeling techniques as a complement to sketching and drawing.

Prerequisites: IDES 1001 and IDES 1301, or permission of the School of Industrial Design.

Lectures two hours a week, studio four hours a week.

IDES 2302 [0.5 credit]

#### Projects IIB

Introduction to the design principles associated with adapting products to an existing product semantic. Topics covered: principles of design, product semantics, design analysis, design synthesis, design evaluation, and modeling techniques. The design project(s) explore some or all of the design principles covered in the lectures.

Prerequisite: IDES 2300 or permission of the School of Industrial Design.

Lectures two hours a week, studio four hours a week.

IDES 2401 [0.0 credit]

#### Work Term 1

Prerequisite: registration in the Co-op program of the Bachelor of Industrial Design Program.

IDES 2600 [0.5 credit]

#### Ergonomics for Product Design

Physical, biomechanical, environmental and cognitive issues. Displays, controls, workstations, tools and software interfaces are examined from scientific and practical perspectives.

Precludes additional credit for IDES 3600.

Prerequisite: PSYC 1001 and PSYC 1002, or PSYC 1000.

Lectures and discussion three hours a week.

IDES 3104 [0.5 credit]

#### Exhibition Design

The field of exhibition design is explored through lectures and case studies. Students undertake a preliminary exercise in display and exhibition design prior to the development and implementation of an exhibition; this normally involves the design of the School of Industrial Design's Annual Graduation Exhibition.

Prerequisite: IDES 2203 and IDES 2302 or permission of the School of Industrial Design.

Lectures and tutorials three hours a week.

IDES 3105 [0.5 credit]

**Visual Communication and Package Design**

A survey of visual communication and package design principles relevant to industrial designers. It addresses product/brand definition and corporate identity through package design.

Prerequisite: IDES 2203 and IDES 2302 or permission of the School of Industrial Design.

Lectures and tutorials three hours a week.

IDES 3202 [0.5 credit]

**Adv. Studies in Form and Colour**

Students may continue the research and study encountered in IDES 2203, IDES 2300 and IDES 2302 by doing advanced research in the phenomena of form and/or colour and their communicative functions in products. Directed Study.

Prerequisites: IDES 2203 and IDES 2302 or permission of the School of Industrial Design.

Lecture and tutorials three hours a week.

IDES 3300 [1.0 credit]

**Projects IIIA**

This course is an introduction to the design principles associated with the evaluation and re-design of an existing product. Topics to be covered include: user/machine relationship, component packaging, and manufacturability. The design project(s) explore some or all of the design principles covered in the lectures.

Prerequisite: IDES 2203 and IDES 2302 or permission of the School of Industrial Design.

Lectures four hours a week, studio eight hours a week.

IDES 3302 [0.5 credit]

**Projects IIIB**

This course is an introduction to the principles of innovation as found in industrial design. Topics to be covered include: invention, innovation, entrepreneurship, basic mechanisms. The design project(s) explore some or all of the design principles covered in the lectures.

Prerequisite: IDES 3301 (no longer offered).

Prerequisite: IDES 3300 or permission of the School of Industrial Design.

Lectures four hours a week, studio eight hours a week.

IDES 3305 [0.5 credit]

**Special Studies**

Special Industrial Design Studies deal with specific projects, which may differ from year to year depending on the availability of specialists in a particular field or study opportunities as they present themselves.

Prerequisite: IDES 2203 and IDES 2302, or permission of the School of Industrial Design.

Lectures, tutorials and laboratory three hours a week or equivalent.

IDES 3306 [0.5 credit]

**Special Studies**

Special Industrial Design Studies deal with specific projects, which may differ from year to year depending on the availability of specialists in a particular field or study opportunities as they present themselves.

Prerequisite: IDES 2203 and IDES 2302, or permission of the School of Industrial Design.

Lectures, tutorials and laboratory three hours a week or equivalent.

IDES 3402 [0.0 credit]

**Work Term 2**

Prerequisite: registration in the Co-op option of the Bachelor of Industrial Design Program.

IDES 3403 [0.0 credit]

**Work Term 3**

Prerequisite: registration in the Co-op option of the Bachelor of Industrial Design Program.

IDES 3404 [0.0 credit]

**Work Term 4**

Prerequisite: registration in the Co-op option of the Bachelor of Industrial Design Program.

IDES 3405 [0.0 credit]

**Work Term 5**

Prerequisite: registration in the Co-op option of the Bachelor of Industrial Design Program.

IDES 3502 [0.5 credit]

**Contextual Nature of Products**

Cultural subjects which have an influence on contemporary industrial design. The perspective of the course is anthropological: the context and cultural relevance of industrial design.

Precludes additional credit for IDES 3500.

Prerequisite: IDES 1000 (ARCH 2006).

Lectures and tutorials three hours a week.

IDES 3503 [0.5 credit]

**Professional Practice**

The organizational aspects of consultancies and client responsibilities within the framework of corporate management. Topics include: the form of contracts for consultancy, determination of fees, legal implications, patents and copyrights. Guest lecturers.

Precludes additional credit for IDES 4000.

Prerequisite: IDES 3300 or permission of the School of Industrial Design.

Lectures and discussion three hours a week.

IDES 3601 [0.5 credit]

**Industrial Design and the User**

Design methodology and the value of scientific methods for data collection and decision-making. Techniques such as interviewing, focus groups, usability testing, brainstorming, and value analysis will be covered.

Teamwork techniques and values are considered.

Prerequisite: IDES 2600.

Lectures three hours a week, laboratory three hours a week.

IDES 4001 [0.5 credit]

**Industrial Design Seminar**

Each year a special topic is chosen to be elaborated on and discussed. The topics deal with problems in the relationship of industrial design to other disciplines or problems regarding the theoretical aspects of industrial design itself.

Prerequisite: IDES 3301.

Seminar three hours a week.

IDES 4101 [0.5 credit]

**Adv. Studies in Manufacturing**

Directed study in the field of manufacturing, centred on such topics as: cost analysis, new materials and processes, computer aided manufacturing, numerically controlled machining, machining of moulds, etc.

Prerequisites: IDES 2101 and IDES 2102.

IDES 4200 [0.5 credit]

**Form Organization**

Using form organization as a tool to design, the definition and prescription of monolithic solids by means of an abstract system; making and verifying materialized approximations of such solids.

Prerequisites: IDES 2300 and IDES 2302 or permission of the School of Industrial Design.

Lectures, tutorials and laboratory six hours a week.

IDES 4301 [0.5 credit]

**Minor Projects A**

Enables students to demonstrate through a series of short projects their versatility in product design or in complementary design fields such as communication, graphic design or design experiments. Emphasis is on time management and the ability to work independently on assigned projects.

Prerequisite: IDES 3302 or permission of the School of Industrial Design.

Lectures and tutorials two hours a week, studio four hours a week.

IDES 4302 [0.5 credit]

**Minor Projects B**

The application of required skills and team work in a comprehensive design project. The subject matter deals with broad issues in design.

Prerequisite: IDES 3302 or permission of the School of Industrial Design.

Lectures and tutorials two hours a week, studio four hours a week.

IDES 4305 [0.5 credit]

**Special Studies**

Like the third-year Special Industrial Design Studies, those of fourth year deal with specific projects, which may differ each year depending on the availability of specialists among the faculty of the School of Industrial Design or on particular opportunities as they present themselves.

Prerequisite: fourth-year registration or permission of the School of Industrial Design.

Lectures, tutorials and laboratory three hours a week or equivalent.

IDES 4306 [0.5 credit]

**Special Studies**

Like the third-year Special Industrial Design Studies, those of fourth year deal with specific projects, which may differ each year depending on the availability of specialists among the faculty of the School of Industrial Design or on particular opportunities as they present themselves.

Prerequisite: fourth-year registration or permission of the School of Industrial Design.

Lectures, tutorials and laboratory three hours a week or equivalent.

IDES 4310 [1.5 credit]

**Major Project**

Application of design principles in a comprehensive design project. Problem area chosen should be product oriented and of sufficient complexity. Normally undertaken in consultation with off-campus organizations and industry; supervised by faculty members.

Precludes additional credit for IDES 4300 (no longer offered).

Prerequisite: IDES 3302 or permission of the School of Industrial Design.

Lectures and tutorials two hours a week, studio ten hours a week.

IDES 4400 [0.5 credit]

**Internship Field Report**

Work experience related to industrial design. Following the internship period (12 weeks minimum), a comprehensive report describing observations and insights must be submitted by the end of the fourth week of the fall term. Graded *Sat* or *Uns*.

Prerequisite: IDES 3300 or permission of the School of Industrial Design.

Tutorial hours arranged.

## Information Technology (BIT, IMD, NET)

### Carleton School of Information Technology Algonquin College of Applied Arts and Technology

- Information Technology (BIT)
- Interactive Media and Design (IMD)
- Network Technology (NET)

• Information Technology (BIT)

BIT 1000 [0.5 credit]

**Mathematics I for NET**

Tailored for students in the Network Technology program, this course covers differentiation and integration of the elementary functions, definite and indefinite integrals, partial differentiation, sequences, series, and techniques and applications of integration.

Precludes additional credit for MATH 1007.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures: three hours a week, tutorial/laboratory one hour a week.

BIT 1001 [0.5 credit]

**Mathematics II for NET**

Tailored for students in the Network Technology program, this course covers systems of linear equations, vector space of n-tuples, subspaces and bases, matrix transformations, kernel, range, matrix algebra and determinants, inner products and orthogonality, eigenvalues, diagonalization and applications.

Precludes additional credit for MATH 1107.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial and laboratory one hour a week.

BIT 1002 [0.5 credit]

**Physics for Information Technology I**

An introductory course on energy, thermodynamics, sound and electromagnetic waves, optics, and modern physics. Practical skills are learned in the laboratory, which is a required part of the course.

Precludes additional credit for PHYS 1007.

Restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial 1.5 hours a week, laboratory three hours alternate weeks.

BIT 1003 [0.5 credit]

**Physics for Information Technology II**

Electrostatics, electric field and potential. Capacitors, inductors. Study of DC and AC Circuits. Introduction to semiconductors.

Practical skills are learned in the laboratory, which is a required part of the course.

Precludes additional credit for PHYS 1008.

Prerequisite: BIT 1002.

Lectures three hours a week, tutorial 1.5 hours a week, laboratory three hours alternate weeks.

BIT 1100 [0.5 credit]

**Mathematics I for IMD**

Tailored for students in the interactive Multi-media Design program, this course covers differentiation and integration of the elementary functions, definite and indefinite integrals, partial differentiation, sequences, series, and techniques and applications of integration.

Precludes additional credit for MATH 1007.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial/laboratory one hour a week.

BIT 1101 [0.5 credit]

**Mathematics II for IMD**

Tailored for students in the interactive Multi-media Design program, this course covers systems of linear equations, vector space of n-tuples, subspaces and bases, matrix transformations, kernel, range, matrix algebra and determinants, inner products and orthogonality, eigenvalues, diagonalization and applications.

Precludes additional credit for MATH 1107.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial and laboratory one hour a week.

BIT 2000 [0.5 credit]

**Introduction to Statistics for NET**

Tailored for students in the Network Technology program, this course covers data analysis, introduction to probability theory, some standard discrete and continuous distributions and their application to interval estimation and significance testing, computational aspects of statistics.

Precludes additional credit for STAT 2507.

Prerequisite: restricted to students in the BIT degree program.

Lectures three hours a week, tutorial/laboratory one hour a week.

BIT 2001 [0.5 credit]

**Introduction to Business**

An overview of the most fundamental business functions. The management of people, human resources, marketing, accounting and finances, business law and operations.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures: three hours a week.

BIT 2002 [0.5 credit]

**Marketing in the IT sector**

Basic problems and practices in marketing. Marketing strategies, planning, packaging, branding and promotion at the level of the individual firm; distribution channels.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week.

BIT 2003 [0.5 credit]

**Elective**

Students must choose from among a list of approved Electives at Algonquin College.

Prerequisite: restricted to students in the B.I.T. degree program.

BIT 2100 [0.5 credit]

**Introduction to Statistics for IMD**

Tailored for students in the interactive Multi-media Design program, this course covers data analysis, introduction to probability theory, some standard discrete and continuous distributions and their application to interval estimation and significance testing, computational aspects of statistics.

Precludes additional credit for STAT 2507.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial/laboratory one hour a week.

BIT 2200 [0.0 credit]

**Work Term 1**

Prerequisite: registration in the Co-op option of the Bachelor of Information Technology.

BIT 2201 [0.0 credit]

**Work Term 2**

Prerequisites: registration in the Co-op option of the Bachelor of Information Technology.

BIT 3003 [0.5 credit]

**Elective**

Students must choose from among a list of approved Electives at Algonquin College.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, or as arranged.

BIT 3300 [0.0 credit]

**Work Term 3**

Prerequisite: registration in the Co-op option of the Bachelor of Information Technology.

BIT 3301 [0.0 credit]

**Work Term 4**

Prerequisite: registration in the Co-op option of the Bachelor of Information Technology.

BIT 3302 [0.0 credit]

**Work Term 5**

Prerequisite: registration in the Co-op option of the Bachelor of Information Technology.

BIT 4000 [0.5 credit]

**Directed Studies**

A course of independent study under the supervision of a member of the School of Information Technology, open only to students in the B.I.T. program. Students are required to obtain their supervisor's written approval prior to registration and are limited to one such course in their programs.

Prerequisite: permission of the School of Information Technology.

BIT 4001 [0.5 credit]

**Selected Topics in Information Technology**

Topics not ordinarily treated in the regular course program due to their contemporary subject matter. The choice of topics varies from year to year.

Prerequisites: third-year standing in the BIT Program or permission of the department.

Lecture three hours a week.

• **Interactive Multimedia and Design (IMD)**

IMD 1000 [0.5 credit]

**Introduction to Interactive Multimedia Design**

Overview of interactive multimedia design including copyright, computer architecture, web design and mark-up languages, general logic design, multimedia project management, design process for animated film, video game development, special effects in movies, and current trend analysis in the multimedia field.

Prerequisite: restricted to students in the B.I.T. degree program.

Lecture three hours a week.

IMD 1001 [0.5 credit]

**Graphic Design**

Introduction to the graphic design process. Topics include the history of graphic design, principles of design, common layouts, and grid systems. Fundamentals are applied to create effective communication for both print and screen. Industry standard software packages are covered.

Prerequisite: restricted to students in the B.I.T. degree program.

Workshop three hours a week.

IMD 1002 [0.5 credit]

### Visual Dynamics

Fundamentals of composition with emphasis on realistic rendering. Students learn how to execute thumbnails and design comprehensives. Topics include illustration, type, colour, texture, proximity and unity, alignment, repetition and continuity, contrast, size relationships, balance, rhythm, negative space, cropping and view selection.

Prerequisite: restricted to students in the B.I.T. degree program.

Workshop three hours a week.

IMD 1003 [0.5 credit]

### Computer Programming

Introductory course on developing computer applications, including computer architecture, program execution, preprocessing, building and debugging, algorithms, structured programming, data types, basic programming constructs and control structures, simple file and screen operations, arrays and pointers, memory allocation, and basic concepts in 2D graphics programming.

Prerequisite: restricted to students in the B.I.T. degree program.

Lecture: three hours a week; laboratory two hours a week.

IMD 1004 [0.5 credit]

### Software Tools

Application of vector and raster-based image tools for interface design. Topics include: project planning, scope documents, navigation flowcharts, wireframes, design composites, group dynamics, preparation of assets for production, and tools for client communication.

Prerequisite: restricted to students in the B.I.T. degree program.

Workshop three hours a week.

IMD 1005 [0.5 credit]

### Web Development

Introduction to Web development. Combining graphics, text, audio, and video to create Web sites; developing different, major working Web sites on an individual basis and in groups, using valid XHTML, cascading style sheets (CSS), JavaScript and XML structures.

Prerequisites: restricted to students in the B.I.T. degree program.

Workshop five hours a week.

IMD 2000 [0.5 credit]

### Multimedia Data Management

Issues regarding the back-end organisation of information and multimedia with a specific focus on databases and database design, server-side scripting, the structured query language (SQL), storage and compression of media, handling media over a network (including media streaming), digital rights management, and digital watermarking.

Precludes additional credit for COMP 2405 and COMP 2005.

Prerequisite: IMD 1003 and IMD 1005.

Lecture three hours a week, tutorial/ laboratory two hours a week.

IMD 2001 [0.5 credit]

### Design and Authoring I

Lectures and projects on multimedia design and development. Topics include timeline animation, scripting, user interaction, and the integration of text, images, vector artwork, and audio into multimedia projects. Current multimedia authoring software is covered.

Prerequisite: second-year standing in the IMD program.

Workshop three hours a week.

IMD 2002 [0.5 credit]

### Design and Authoring II

Industry standard production techniques are used to create functional multimedia projects that are ready for online deployment. Topics include project structure, working with dynamic data, preloading techniques, file size optimization, and integration of graphics, audio, and video. Current multimedia authoring software is covered.

Prerequisite: IMD 2001 and second-year standing in the IMD program.

Workshop three hours a week.

IMD 2003 [0.5 credit]

### Audio and Video

The creation, production and editing of audio and video for multimedia applications. Topics include single camera recording and capture techniques through to post-production editing. Emphasis is placed on production and operation skills while adhering to industry standard costs and deadlines.

Prerequisite: second-year standing in the IMD program.

Workshop five hours a week.

IMD 2004 [0.5 credit]

### Intermediate Programming

A study of object-oriented programming with emphasis on techniques used in multimedia applications. Topics include basic and user defined data structures, classes, memory management, basic image processing, and plug-in development.

Prerequisite: IMD 1003.

Lecture three hours a week, tutorial/laboratory three hours a week.

IMD 2900 [1.0 credit]

### Design Studio

Web application development. Using a multidisciplinary approach, teams develop a comprehensive, Web-based application. Topics include users, storyboarding, data management, prototyping, project and content management, marketing, testing, and product evaluation. Client- and server-side technologies will be used to enhance functionality.

Prerequisite: second-year standing in the IMD program.

Studio six hours a week; lecture two hours a week.

IMD 3001 [0.5 credit]

### Aspects of Product Design Methodology

Important issues in designing successful computerized products, including design guidelines, usability testing and user-needs analysis. Experienced designers and researchers from industry participate. (Also listed as PSYC 4800.)

Prerequisite: third-year standing in the IMD program.

Lectures three hours a week.

IMD 3002 [0.5 credit]

### 3D Computer Graphics

Technical aspects of 3D computer graphics. Homogeneous transformations, viewing pipeline, cinematography, modeling techniques (explicit and implicit), scene composition, level of detail, advanced lighting techniques (BRDF, IBL, subsurface-scattering), 2D/3D texturing, local/global illumination, image-based and non-photorealistic rendering, and rendering effects.

Prerequisite: IMD 2004 and IMD 3900.

Lectures three hours a week, tutorial/laboratory two hours per week.

IMD 3003 [0.5 credit]

### Communication Skills for IMD

Development of competence in written and oral communication related to multimedia design. Needs analyses, use-case scenarios, development and management of content, technical reports, and related project documents; oral presentations.

Prerequisite: restricted to students in the B.I.T. degree program.

Lecture and tutorial three hours a week.

IMD 3004 [0.5 credit]

**Human Computer Interaction and Design**

Introduction to concepts centered on Human-Computer Interaction from hardware and software perspectives. Topics include design principles, usability principles and engineering, solving user-centred problems, device interaction, and graphical user interface design (2D and 3D interfaces).

Prerequisite: third-year standing in the IMD program. Lectures three hours a week.

IMD 3900 [1.0 credit]

**Design Studio 2**

Introduction to the artistic perspective on 3D graphics and animation. Practical studio sessions; use of popular modeling and animation packages; modeling, texturing, materials, cameras, lighting, keyframe animation, rendering.

Prerequisite: third-year standing in the IMD program. Studio/lecture eight hours a week.

IMD 3901 [1.0 credit]

**Design Studio 3**

Device design. Studio-based projects focus on one or more special areas in multimedia, information and interaction design. Device design, form factors, information appliances, and computer-supported collaborative work.

Prerequisite: third-year standing in the IMD program and IMD 2900. Studio six hours a week, lecture two hours a week.

IMD 4002 [0.5 credit]

**Technology and Culture**

An examination of the relationship between communication technology and society. The course examines the factors that contribute to changes in the collection, storage and distribution of information and the cultural implications of these changes.

Prerequisite: third-year standing in the IMD program. Seminar three hours a week.

IMD 4003 [0.5 credit]

**3D Computer Animation**

Advanced topics in computer animation: principles of animation, motion capture, forward/inverse kinematics (hierarchical systems), key-framing, motion editing/retargeting/interpolation, soft-body animation (freeform deformation and shape interpolation), character animation (walking/locomotion, rigging, weighting, and facial animation), particle systems, dynamic systems (cloth, fluid, and hair), behavioural animation, match-moving.

Prerequisite: IMD 3002. Lecture three hours a week, tutorial/laboratory two hours a week.

IMD 4005 [0.5 credit]

**Advanced Topics in Multimedia**

Advanced topics in multimedia industry not ordinarily treated in the regular course program due to their contemporary subject matter. The choice of topics varies from year to year.

Precludes additional credit for IMD 4004 (no longer offered).

Prerequisite: fourth-year standing in the IMD program. Lecture three hours a week.

IMD 4901 [1.5 credit]

**Senior IMD Project**

Student-initiated design project, developed in association with a project supervisor, and external industry advisor, supported by a written report (with printed and electronic versions), seminar discussions, and appropriate methods of two and/or three-dimensional

representation. All proposals must be approved by the Program Project Committee.

Prerequisite: IMD 2900, IMD 3900, and fourth-year standing in the IMD program. Tutorial hours arranged.

IMD 4902 [1.0 credit]

**Design Studio 4**

Lectures and projects on interactive multimedia systems for art and entertainment, especially computer games, covering the production process from idea to design, development and testing, and also discussing related topics and technologies such as management skills, character and story development, game engines, and online games.

Precludes additional credit for IMD 4900.

Prerequisite: IMD 2900, IMD 3002 and fourth-year standing in the IMD program.

Lectures: two hours a week, studio: six hours a week.

• **Network Technology Courses (NET)**

NET 1000 [0.5 credit]

**Problem Solving**

Introduction to systematic methods for problem solving in the context of object oriented programming. Defining and modeling problems, designing algorithms, testing, debugging and analysis of results. Numeric methods, data presentations, data abstraction, classes, class relationships, inheritance, error handling and program style and documentation.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial/laboratory three hours a week.

NET 1001 [0.5 credit]

**Computer Technology Basics**

Construction and function of PCs. Introduces technical concepts and terminology relating to system boards, system busses, input/output devices, memory, microprocessors and peripherals. Interaction of software and hardware; data storage; performance issues.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures two hours a week, tutorial/laboratory two hours a week.

NET 1002 [0.5 credit]

**Networking Fundamentals**

Foundation knowledge for computer networks and communications. Topics include basic network design, layered communications models, IP addressing and subnets, and industry standards for networking media and protocols, with an emphasis on TCP/IP protocol suite and Ethernet environments.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 1004 [0.5 credit]

**Assembly and Machine Language**

Structured approach to assembly language programming. Topics include data and address registers, data and address busses, condition code register and stack pointers, machine code format, instruction sizes, operand encoding, translation of source code into machine language, and how the processor executes instructions.

Prerequisite: restricted to students in the B.I.T. degree program.

Lectures three hours a week, tutorial/laboratory one hour a week.



NET 1005 [0.5 credit]

**Network Routing**

Interconnecting Local Area Networks. Introduction to routed protocols: IP, classless IP addressing and variable length subnetting; and routing protocols, both distance vector and link-state, using RIP, EIGRP and single area OSPF as examples.

Prerequisite: NET 1002.

Lecture two hours a week, tutorial/laboratory three hours a week.

NET 2000 [0.5 credit]

**Intermediate Networking**

Dealing with networks of greater complexity, particularly in the access layer. LAN switching (including VLANs, trunking, VTP, interVLAN routing, Spanning Tree and related protocols), network design considerations, and an introduction to wireless theory and implementation.

Prerequisite: NET 1005.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 2001 [0.5 credit]

**Wide Area Networking**

Theory and technologies extending LANs to WANs. Topics covered include WAN principles and standards, PPP, frame relay and ATM architecture and concepts, scaling IP addresses using NAT and DHCP, secure networking concepts including use of access control lists (ACLs) and virtual private networks.

Prerequisite: NET 2000.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 2002 [0.5 credit]

**Desktop Operating Environments**

DOS and Windows are used to illustrate desktop operating system concepts such as file system management, system utilities, memory management, boot process troubleshooting, and environment customizations. Client-server architecture; server configuration settings, connection to a domain, secure remote access including VPN; DHCP, DNS and Active Directory.

Prerequisite: restricted to students in the B.I.T. degree program.

Lecture two hours a week, tutorial/laboratory two hours a week.

NET 2003 [0.5 credit]

**Unix/Linux Operating Systems**

Introduction to Unix and Linux operating systems, the command line, and network server operating environments. Students study Unix/Linux as a network server, including the configuration of services and protocols such as DNS, NTP, SSH, SMB, SMTP, POP3, IMAP, HTTP, and DHCP. Basic server security is introduced, including the creation of firewalls.

Prerequisite: NET 2002.

Lecture two hours a week, tutorial/laboratory two hours a week.

NET 2004 [0.5 credit]

**Communication Skills for NET**

Development of competence in written and oral communication in relation to network design, development, and management. Focus on technical reports, proposals, and other related project documents; formal and informal oral presentations.

Prerequisite: restricted to students in the B.I.T. degree program.

Lecture and tutorial three hours a week.

NET 2006 [0.5 credit]

**Object Oriented Programming**

Study of Object Oriented Programming principles, emphasizing the development of efficient and reusable systems. Topics include encapsulation, polymorphism, overloading, memory management, exception handling, and design templates and libraries.

Prerequisite: NET 1000.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 2007 [0.5 credit]

**Basics of Transmission Systems**

Introduction to the physical layer of digital communication. Coverage of the transmission media (copper, fiber, cable, wireless), modulation, coding, equalization and synchronization. Examples: dial up modems, ADSL, Ethernet, T-carrier, Cable modem, SONET and wireless LAN. Factors affecting transmission error rates. Lab and field test equipment.

Prerequisite: BIT 1003.

Lectures three hours a week, tutorial/laboratory three hours a week.

NET 3000 [0.5 credit]

**Database Concepts and SQL**

Concepts and fundamentals of relational database systems. Students learn how to design relational databases starting from a conceptual data model, following accepted logical and physical design principles. Topics include normalisation, referential integrity, SQL, DDL and SQL DML & ODBC and data extraction/filtering techniques.

Prerequisite: second-year standing in the Networking program.

Lecture two hours a week, tutorial/laboratory two hours a week.

NET 3001 [0.5 credit]

**Real-time Systems**

Principles of event-driven systems, review of computer organization; parallel and serial interfaces; programmable timer; I/O methods; polling and interrupts. Real-time kernels. Critical design consideration: concurrency, dead lock, synchronization. Maintaining and improving system performance. Programming exercises in low and high level languages.

Prerequisite: NET 1004 and NET 2006.

Lectures three hours a week, tutorial/Laboratory two hours a week.

NET 3004 [0.5 credit]

**Data Structures**

Specification and design of abstract data types and their implementation as stacks, queues, trees, tables and graphs. Common and useful examples. Parsing and finite state machines. Analysis of algorithms, recursion, re-entrance. Special focus: abstraction, interface specification and hierarchical design using object-oriented programming.

Prerequisite: NET 2006.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 3006 [0.5 credit]

**Network Management and Measurements**

Network management fundamentals, standards, and protocols. The Simple Network Management Protocol (SNMP). Structure of Management Information and MIB. SNMP management challenges and the need for real-time measurements. Introduction to tools and applications for network measurements and monitoring.

Prerequisite: third-year standing in the Networking program.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 3007 [0.5 credit]

**IT Security Issues**

Basics of Information Technology security. Students are introduced to the goals of IT security, common threats and countermeasures including firewalls, SSL technologies and IP Masquerading. Several operating environments will be studied as examples. This course will also include a section on computer ethics.

Prerequisite: third-year standing in the Networking program.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 3008 [0.5 credit]

**Advanced Network Routing**

Routing within, and between, autonomous systems. Advanced control and optimization of routing protocols and manipulation of traffic paths with a focus on EIGRP and OSPF. Branch/Home Office connectivity and Internet reachability via BGP. Routing of IPv6 within an enterprise.

Prerequisite: NET 2001.

Lectures three hours a week, tutorial/laboratory three hours a week.

NET 3009 [0.5 credit]

**Software Engineering**

Introduction to all phases of software lifecycle: requirement analysis, function specification, software design, design documentation, coding, unit testing, system integration, product verification, quality assurance and control. Project management aspects. Software reuse. Source code control (configuration management).

Prerequisite: third-year standing in the Networking program.

Lectures three hours a week, tutorial/laboratory one hour a week.

NET 3010 [0.5 credit]

**Web Programming**

Architectures, protocols and languages used to develop dynamic Web content, including HyperText Markup Language (HTML, DHTML), Universal Resource Identifiers (URI) and HyperText Transport Protocol (HTTP) and Common Gateway Interface (CGI). JavaScript and Java are used to model cross-platform Web programming.

Prerequisite: NET 2006, NET 3000.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 3011 [0.5 credit]

**Advanced Network Switching**

VLANs and inter-VLAN routing in a multilayer switched environment. Variants of STP and the use of related enhancements. Techniques for network redundancy and load balancing. Securing a switched infrastructure. Supporting advanced services including multicasting, and maintaining QoS for converged traffic (wireless, voice, video).

Prerequisite: NET 2001.

Lectures three hours a week, tutorial/laboratory three hours a week.

NET 3900 [0.5 credit]

**Wireless Networks**

Study of 802.11 protocol family, Wi-Fi, and authentication protocols. Security and other design issues for WLANs. Deployment considerations for mobile networks, hotspots, bridges and access points. Wireless network management challenges.

Prerequisite: third-year standing in the Networking program.

Lectures two hours a week, tutorial/laboratory three hours a week.

NET 4000 [0.5 credit]

**Emerging Network Technologies**

Overview of technologies, protocols and techniques related to Information Technology networking that are either in their early stage of adoption or are not yet mainstream (i.e. beta or prototype stage). Focus will vary from year to year to reflect the evolutionary nature of this domain.

Prerequisite: fourth-year standing in the Networking program or permission of the instructor.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 4001 [0.5 credit]

**Network Simulation**

Introduction to discrete event simulation; fundamental stochastic models for networking; queueing theory; deterministic algorithms for networking; confidence intervals; introduction to network modeling. Simulation exercises including traffic monitoring, congestion, routing protocols, resource utilization and growth planning using OPNET simulation tool.

Prerequisite: BIT 2000.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 4003 [0.5 credit]

**Computer Systems Architecture**

History and evolution of computers. Models and functional descriptions of CPU, bus, memory, I/O. Internal data transfer and storage concepts. Bus protocols. Memory organization and cache principles. Digital logic and simple logic designs of CPU, buses, memory. Concepts of virtual machines, parallel computing, cloud computing.

Prerequisites: third year standing in the Networking program, NET 2003 and NET 3001.

Lectures three hours a week, tutorial/laboratory one hour a week.

NET 4005 [0.5 credit]

**Networked Applications**

Architectures for computing in modern data networks that adopt the Internet architecture. Topics covered include socket programming, RPC and RMI CORBA, introduction to XML. Client-server and peer-to-peer models. Modern architectures such as publish-subscribe and web services.

Prerequisite: NET 3010.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 4007 [0.5 credit]

**Multimedia Networking**

Audio and video compression. H.261, JPEG, MPEG and DVI. Accessing audio and video from a web server. Real Time Streaming Protocol (RTSP). Multimedia operating systems. Multimedia database. Network support for multimedia applications. Multimedia synchronization.

Prerequisite: fourth-year standing in Networking program or permission of the instructor.

Lectures three hours a week, tutorial/laboratory two hours a week.

NET 4009 [0.5 credit]

**Troubleshooting IP Networks**

Integrates planned maintenance and troubleshooting techniques, including, tools, applications and formalized methodologies. Study of issues in focused areas (such as routed vs. switched environments, addressing services, performance, security, multimedia), culminating in problem resolution throughout a complex enterprise network.

Prerequisite: NET 3011, NET 3008.

Lectures three hours a week, tutorial/laboratory three hours a week.

NET 4010 [0.5 credit]

**Secure Mobile Networking**

The concept, principle and rationale of mobile networking. Mobile network architecture, protocols, mobility management, routing and mobile TCP/IP; Security challenges, vulnerabilities and threats in mobile networks; Security defense techniques and countermeasures in mobile networks.

Prerequisite: fourth-year standing in Networking program or permission of the instructor.

Lectures three hours a week, tutorial/laboratory one hour a week.

NET 4900 [0.5 credit]

**Network Technology Project**

This course provides the opportunity to apply knowledge gained in previous courses towards the design and implementation of a major Networking related project. Working in teams or as individuals under the direction of faculty members, students undertake projects internally or in collaboration with industry.

Prerequisite: fourth-year standing in the Networking program.

Tutorial hours arranged.

NET 4901 [1.0 credit]

**Network Technology Project**

This course provides the opportunity to apply knowledge gained in previous courses towards the design and implementation of a major Networking related project. Working in teams or as individuals under the direction of faculty members, students undertake projects internally or in collaboration with industry.

Prerequisite: fourth-year standing in the Networking program.

Tutorial hours arranged.

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## Integrated Science (INSC)

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### Integrated Science Institute Faculty of Science

INSC 3907 [0.5 credit]

**Topics in Integrated Science**

Assignment(s) reviewing current research topics.

Prerequisite: at least 0.5 credit at the 3000-level or better (may be taken concurrently) and permission of the ISI Director.

INSC 3909 [0.5 credit]

**Independent Study**

The student, under the supervision of a faculty member, prepares a study in the focus areas of the student's program. Prior to or immediately upon registration, the student must consult with the ISI Director for topic approval and course regulations.

Prerequisite: at least 0.5 credit at the 3000-level or better (may be taken concurrently) and permission of the ISI Director.

INSC 4907 [1.0 credit]

**Honours Essay and Research Proposal**

A review of current research, and a research proposal, under the supervision of a faculty advisor (note: the research project is not actually carried out). Graded on the literature review, the research proposal, and an oral defense. The student arranges for a faculty advisor. Precludes additional credit for INSC 4908 [1.0].

Prerequisite: fourth-year standing in Honours Integrated Science and permission of the Integrated Science Institute.

INSC 4908 [1.0 credit]

**Honours Project**

Under the supervision of a faculty adviser, the student carries out a research project in the IS areas of study. Prior to or immediately upon registration, the student must consult with the ISI Director for topic approval and course regulations.

Precludes additional credit for INSC 4907 [1.0]  
Prerequisite: permission of the ISI Director.

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## Interdisciplinary Science (ISCI)

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### Faculty of Science

ISCI 1001 [0.5 credit]

#### Introduction to the Environment

The nature of the biosphere: scientific bases of important environmental issues; evolution of life; properties and dynamics of populations and ecosystems; biodiversity; introduction to identification skills; sustainability of renewable resources, including food. Not acceptable for credit in a Science program.

Precludes additional credit for ISCI 1000.

Prerequisite: a knowledge of Grade 10 advanced level Mathematics will be assumed.

Lectures/demonstrations three hours a week and project assignments.

ISCI 2000 [0.5 credit]

#### Natural Laws

Fundamental concepts and their environmental application for the non-science student: properties of atoms and molecules, chemical reactions, nuclear processes, mechanics, thermodynamics, electricity and magnetism; applications to energy production and consumption.

Not acceptable for credit in a Science program.

Precludes additional credit for ISCI 1002 (no longer offered).

Prerequisite: ISCI 1001 or permission of the Institute of Environmental Science.

Lecture/demonstrations three hours a week, a one-hour tutorial a week, and project assignments.

ISCI 2002 [0.5 credit]

#### Human Impacts on the Environment

Air and water pollution; global climatic change; waste management; industrial chemicals; sources and uses of energy; nuclear energy and radiation; risk assessment of technological hazards. Acceptable only as a free elective in a Science program.

Prerequisite: ISCI 2000 or ISCI 1002 or two experimental science grade 12 U/M courses or one first year university experimental science credit.

Lectures/demonstrations three hours a week and project assignments.

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## Interdisciplinary Studies (DIST)

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### Institute of Interdisciplinary Studies

### Faculty of Arts and Social Sciences

DIST 3901 [0.5 credit]

#### Themes in Interdisciplinary Inquiry

Examination of topics of interest to a number of disciplines, along with various methods and styles of thought used to study them. Students will synthesize the various perspectives. Open only to students in Directed Interdisciplinary Studies and Child Studies.

Prerequisite: third-year standing in Child Studies or Directed Interdisciplinary Studies.

Seminar three hours a week.

DIST 3902 [0.5 credit]

#### Selected Topics in Interdisciplinary Studies

An examination of one or more interdisciplinary topics selected by faculty to present interdisciplinary thought and research not available elsewhere in the university curriculum.

Prerequisite: third-year standing or permission of the Institute.

Seminar three hours a week.

DIST 4401 [0.5 credit]

#### A Seminar in United States Studies

A required course for students in United States Studies area in Directed Interdisciplinary Studies designed to allow discussion and research on topics of an interdisciplinary nature.

DIST 4901 [0.5 credit]

#### Directed Reading

Individual or small-group tutorial related to the theme of a Directed Interdisciplinary Studies program. Written permission from the Director of Interdisciplinary Studies is required before registering; please contact the DIS administrator.

Prerequisite: for Directed Interdisciplinary Studies students with fourth year Honours standing and a CGPA of 9.00 or better or permission of the Institute.

DIST 4902 [0.5 credit]

#### Directed Reading

Individual or small-group tutorial related to the theme of a Directed Interdisciplinary Studies program. Written permission from the Director of Interdisciplinary Studies is required before registering; please contact the DIS administrator.

Prerequisite: for Directed Interdisciplinary Studies students with fourth year Honours standing and a CGPA of 9.00 or better or permission of the Institute.

DIST 4903 [0.5 credit]

#### Selected Topics in Interdisciplinary Studies

An examination of one or more interdisciplinary topics selected by faculty to present interdisciplinary thought and research not available elsewhere in the university curriculum.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

DIST 4904 [0.5 credit]

#### Selected Topics in Interdisciplinary Studies

An examination of one or more interdisciplinary topics selected by faculty to present interdisciplinary thought and research not available elsewhere in the university curriculum.

Prerequisite: fourth-year standing or permission of the Institute.

Seminar three hours a week.

DIST 4905 [0.5 credit]

**Directed Interdisciplinary Studies Fieldwork I**

Fieldwork related to the theme of a Directed Interdisciplinary Studies program. A proposal with a fieldwork research question and a supervisor must be approved prior to registration. A paper relating the fieldwork to the student's DIS program must be submitted. Graded as *Sat/Uns*.

Prerequisite: fourth-year Honours standing in Directed Interdisciplinary Studies or permission of the Institute.

DIST 4906 [0.5 credit]

**Directed Interdisciplinary Studies Fieldwork II**

Fieldwork related to the theme of a Directed Interdisciplinary Studies program. A proposal with a fieldwork research question and a supervisor must be approved prior to registration. A paper relating the fieldwork to the student's DIS program must be submitted. Graded as *Sat/Uns*.

Prerequisite: fourth-year Honours standing in Directed Interdisciplinary Studies or permission of the Institute.

DIST 4908 [1.0 credit]

**Honours Project**

Interdisciplinary research project for Honours students in the fourth year of all IIS programs except Cognitive Science. In selecting a project, students must consult their Program Coordinator. Only the Program Coordinator can assign a supervisor or grant approval to register in this course. Registration in this course is limited to students eligible for fourth-year standing in the B.A. Honours program in IIS.

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## International Affairs (INAF)

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### Norman Paterson School of International Affairs Faculty of Public Affairs

INAF 3000 [1.0 credit]

#### **Policy in a Global Context**

Analysis of international policy processes relevant to governments, non-governmental organizations, international organizations and multinational corporations, drawing upon theories of international relations, Political science, law and economics. Emphasis on analytical and normative aspects of public policy processes in international relations.

Prerequisites: third-year standing in the B.P.A.P.M. program and registration in the International Studies Specialization.

Lectures or seminars three hours a week.

INAF 4101 [0.5 credit]

#### **Special Topics in Conflict Analysis and International Affairs**

Selected issues in conflict analysis from an interdisciplinary perspective.

Prerequisites: fourth-year standing in the B.P.A.P.M. program and registration in the International Studies Specialization.

Lectures or seminars three hours a week.

INAF 4102 [0.5 credit]

#### **Special Topics in Development and International Affairs**

Analysis of selected issues in international aspects of development from an interdisciplinary perspective.

Prerequisites: ECON 3601 and ECON 3602, or ECON 3603 or ECON 3508, and fourth-year standing in the B.P.A.P.M. program and registration in either the International Studies Specialization or the Development Studies Specialization.

Lectures or seminars three hours a week.

INAF 4103 [0.5 credit]

#### **Special Topics in International Political Economy and International Affairs**

Analysis of issues in international political economy from an interdisciplinary perspective.

Prerequisites: fourth-year standing in the B.P.A.P.M. program and registration in the International Studies Specialization.

Lectures or seminars three hours a week.

INAF 4202 [0.5 credit]

#### **Issues in Development Management**

An examination of the application of organization theory to policy implementation and evaluation for developing and transitional systems, with an emphasis on the role of cultural differences and divergent value systems in development management. (Also listed as PSCI 4409.)

Prerequisites: ECON 3603 and fourth-year standing in the B.P.A.P.M. program and registration in either the International Studies Specialization or the Development Studies Specialization.

Lectures or seminars three hours a week.

## Italian (ITAL)

### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

#### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

ITAL 1010 [0.5 credit]

#### First-Year Italian I

For students with no knowledge of Italian. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for ITAL 1000 (no longer offered) or ITAL 1110. Four hours a week.

ITAL 1020 [0.5 credit]

#### First-Year Italian II

Continuation of first-year Italian. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for ITAL 1000 (no longer offered) or ITAL 1110. Prerequisite: grade of C or higher in ITAL 1010, or permission of the School. Four hours a week.

ITAL 1110 [1.0 credit]

#### Intensive First-Year Italian

For students with no knowledge of Italian. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for ITAL 1000 (no longer offered), ITAL 1010 and ITAL 1020. Eight hours a week (one term).

ITAL 2010 [0.5 credit]

#### Second-Year Italian I

Further study of Italian to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for ITAL 2000 (no longer offered) or ITAL 2110. Prerequisite: grade of C or higher in ITAL 1020, ITAL 1110, or ITAL 1000 (no longer offered), or permission of the School. Four hours a week.

ITAL 2020 [0.5 credit]

#### Second-Year Italian II

Continuation of second-year Italian. Further study of Italian to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for ITAL 2000 (no longer offered) or ITAL 2110. Prerequisite: grade of C or higher in ITAL 2010, or permission of the School. Four hours a week.

ITAL 2110 [1.0 credit]

#### Intensive Second-Year Italian

Further study of Italian to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for ITAL 2000 (no longer offered) or ITAL 2010 or ITAL 2020. Prerequisite: grade of C or higher in ITAL 1020, ITAL 1110, or ITAL 1000 (no longer offered), or permission of the School. Eight hours a week (one term).

ITAL 3110 [1.0 credit]

#### Intensive Third-Year Italian

Further study of Italian to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.

Precludes additional credit for ITAL 3000.

Prerequisite: grade of C or higher in ITAL 2000 (no longer offered), ITAL 2020, ITAL 2110, or permission of the School.

Six hours a week (one term).

ITAL 3601 [0.5 credit]

#### Topics in Italian Culture

Topics may vary from year to year. Texts in Italian. Language of instruction: Italian.

Prerequisite: grade of C or higher in ITAL 2000 (no longer offered), ITAL 2020, ITAL 2110 or equivalent.

Three hours a week.

ITAL 4110 [1.0 credit]

#### Intensive Fourth-Year Italian

Advanced spoken and written Italian with intensive practice in aural comprehension and speaking in a range of situations and contexts, in reading and in composition in a range of modes and genres. Metalinguistic study. Compulsory attendance.

Prerequisite: grade of C or higher in ITAL 3000 or ITAL 3110, or permission of the School.

Six hours a week (one term).

ITAL 4900 [1.0 credit]

#### Independent Study

Research in a topic in Italian language, literature or linguistics under the supervision of a member of the School.

Prerequisite: third- or fourth-year standing in the Minor in Italian, grade of C or higher in ITAL 3000 (no longer offered) or ITAL 3110 or equivalent, or permission of the School.

ITAL 4901 [0.5 credit]

#### Independent Study

Research in a topic in Italian language, literature or linguistics under the supervision of a member of the School.

Prerequisite: third- or fourth-year standing in the Minor in Italian, grade of C or higher in ITAL 3000 (no longer offered) or ITAL 3110 or equivalent, or permission of the School.

## Japanese (JAPA)

### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

#### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

JAPA 1010 [0.5 credit]

#### First-Year Japanese I

For students with no knowledge of Japanese. Oral skills, reading and writing. Compulsory attendance.

Precludes additional credit for JAPA 1110 or JAPA 1200 (no longer offered).

Four hours a week (one term).

JAPA 1020 [0.5 credit]

#### First-Year Japanese II

Continuation of first-year Japanese. Oral skills, reading and writing. Compulsory attendance.

Precludes additional credit for JAPA 1110, JAPA 1200 or JAPA 1201 (no longer offered).

Prerequisite: grade of C or higher in JAPA 1010, or permission of the School.

Four hours a week (one term).

JAPA 1110 [1.0 credit]

#### Intensive First-Year Japanese

For students with no knowledge of Japanese. Oral skills, reading and writing. Compulsory attendance.

Precludes additional credit for JAPA 1200 (no longer offered), JAPA 1010 and JAPA 1020.

Eight hours a week (one term).

JAPA 2110 [1.0 credit]

#### Intensive Second-Year Japanese

Further study of Japanese to reach a more advanced level of ability in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for JAPA 1200 and JAPA 1201 (no longer offered).

Prerequisite: grade of C or higher in JAPA 1020 or JAPA 1110, or permission of the School.

Eight hours a week (one term).

JAPA 3010 [0.5 credit]

#### Third-Year Japanese I

Further study of Japanese to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.

Precludes additional credit for JAPA 2200 (no longer offered).

Prerequisite: grade of C or higher in JAPA 2110 or JAPA 1200 or JAPA 1201, or permission of the School.

Three hours a week.

JAPA 3020 [0.5 credit]

#### Third-Year Japanese II

Continuation of third-year Japanese to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.

Precludes additional credit for JAPA 2200 (no longer offered).

Prerequisite: grade of C or higher in JAPA 3010, or permission of the School.

Three hours a week.

JAPA 4010 [0.5 credit]

#### Fourth-Year Japanese I

Development of speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes and in specific contexts such as the academic, business and technical domains. Compulsory attendance.

Precludes additional credit for JAPA 3200 (no longer offered).

Prerequisite: grade of C or higher in JAPA 3020 or JAPA 2200, or permission of the School.

Three hours a week.

JAPA 4020 [0.5 credit]

#### Fourth-Year Japanese II

Continuation of fourth-year Japanese. Further development of speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes and in specific contexts such as the academic, business and technical domains. Compulsory attendance.

Precludes additional credit for JAPA 3200 (no longer offered).

Prerequisite: grade of C or higher in JAPA 4010, or permission of the School.

Three hours a week.

JAPA 4210 [0.5 credit]

#### Functional Contemporary Japanese I

Further study of Japanese to reach a more advanced level, aimed at developing speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes in contexts such as the academic, business and technical domains.

Precludes additional credit for JAPA 4200 (no longer offered).

Prerequisite: grade of C or higher in JAPA 3200, JAPA 4020 or permission of the School.

Three hours a week.

JAPA 4220 [0.5 credit]

#### Functional Contemporary Japanese II

Continuation of JAPA 4210. Further development of speaking and writing abilities more complex than those used in daily communication. Development of language use for specific purposes in contexts such as the academic, business and technical domains.

Precludes additional credit for JAPA 4200 (no longer offered).

Prerequisite: grade of C or higher in JAPA 4210 or permission of the School.

Three hours a week.

JAPA 4900 [1.0 credit]

#### Independent Study

Research in a topic in Japanese language, literature or linguistics under the supervision of a member of the School.

Prerequisite: third- or fourth-year standing and enrolment in the Minor in Japanese, a grade of C or higher in JAPA 3200, JAPA 4020 or equivalent, or permission of the School.

JAPA 4901 [0.5 credit]

#### Independent Study

Research in a topic in Japanese language, literature or linguistics under the supervision of a member of the School.

Prerequisite: third- or fourth-year standing and enrolment in the Minor in Japanese, a grade of C or higher in JAPA 3200 (no longer offered), JAPA 4020 or equivalent, or permission of the School.



## Journalism and Communication (JOUR)

### School of Journalism and Communication Faculty of Public Affairs

JOUR 1000 [1.0 credit]

#### Introduction to Journalism Studies

In first term, the basics of journalistic literacy and writing with an explanation of journalistic style. In second term, an introduction to the social, philosophical and historical contexts of journalism.

Prerequisite: For Journalism Honours students only.  
Lectures and discussion three hours a week.

JOUR 2106 [0.5 credit]

#### The Documentary

Examination of the work of individual film makers, of documentary styles and of organizations and institutions in the context of the history of documentary film making, including documentaries made for television. Non-fiction films other than documentaries may be considered. (Also listed as FILM 2106.)

Precludes additional credit for JOUR 2105 (FILM 2105).

Prerequisite: FILM 1000 or permission of the School.  
Lectures and screening two hours, two days a week.

JOUR 2201 [1.0 credit]

#### Fundamentals of Reporting

An introduction to the techniques of news gathering, the standard rules of news and feature writing, elements of news judgment, interviewing skills, a sense of narrative, and ethical reflection.

Precludes additional credit for JOUR 2200 (last offered 1995-96).

Prerequisite: for second-year Honours Journalism students and students who transfer into the program.  
Lectures, discussion and practicum six hours a week.

JOUR 2205 [0.5 credit]

#### Journalism's View of the Languages and Institutions of Public Life

An introduction to the major political institutions of Canada; the policy process and the avenues for public participation in government at the federal, provincial and municipal levels; the economy; the arts community; and the like.

Prerequisite: for second-year Honours Journalism students and students who transfer into the program, and for students enrolled in the Strategic Public Opinion and Policy Analysis specialization area of the Bachelor of Public Affairs and Policy Management.

Lectures and discussion three hours a week.

JOUR 2501 [0.5 credit]

#### Communications Law I

A survey of laws that affect the Canadian media. Specific areas include the development of freedom of expression, the Charter of Rights and Freedoms, and statutory and common law limitations on freedoms of the press, including publication bans, libel and contempt of court. (Also listed as MCOM 2501.)

Precludes additional credit for JOUR 3501, MCOM 3501 (last offered 1996-97).

Prerequisite: JOUR 1000 or MCOM 1101 or FYSM 1207, permission of the School, or registration in the Communication Information Technology Policy specialization area of the Bachelor of Public Affairs and Policy Management.

Lectures and discussion three hours a week.

JOUR 3000 [1.0 credit]

#### The Modern Environment

A seminar course for Journalism students in which texts drawn from the social sciences, literature, journalism and philosophy are considered for their contributions to an understanding of contemporary society and the issues that provide the background to much of contemporary journalism.

Prerequisite: third- or fourth-year B.J. (Hons.) standing, or permission of the School.

Seminar three hours a week.

JOUR 3005 [0.5 credit]

#### International Media Systems

Examination of the flow of global communication and information and their impact on our views of the world. Attention to the relationship between Canadian media and regional and international media institutions and systems. (Also listed as MCOM 3005.)

Prerequisite: MCOM 2101 or third- or fourth-year B.J. (Hons.) standing, or permission of the School, or third-year standing in the Bachelor of Public Affairs and Policy Management and registration in the Communication Information Technology Policy specialization area.

Lectures and discussion three hours a week.

JOUR 3105 [0.5 credit]

#### Questions of Documentary Practice

Theoretical implications of documentary film and documentary television practice. (Also listed as FILM 3105.)

Prerequisite: 1.0 credit in Film Studies at the 2000-level, or permission of the School.

JOUR 3205 [1.0 credit]

#### Intermediate Reporting

The course will enhance students' skills in information-gathering, news and feature writing, story development, news judgment, computer-assisted reporting, interviewing skills and ethics.

Precludes additional credit for JOUR 3200 (last offered 1996-97).

Prerequisite: JOUR 2201.

Lectures and practicum three hours a week.

JOUR 3207 [0.5 credit]

#### Introduction to Radio Journalism

An introduction to the principles and practices of radio reporting. In this practical course students will produce journalistic reports for radio and will begin producing newscasts.

Precludes additional credit for JOUR 3206 (last offered 2006-07).

Prerequisite: JOUR 2201

Note: JOUR 3207 and JOUR 3208 may not be taken in the same term.

Lectures and practicum six hours a week.

JOUR 3208 [0.5 credit]

#### Introduction to Television Journalism

An introduction to the principles and practices of television reporting. In this practical course students will produce journalistic reports for television and will begin producing newscasts.

Precludes additional credit for JOUR 3206 (last offered 2006-07).

Prerequisite: JOUR 2201

Note: JOUR 3207 and JOUR 3208 may not be taken in the same term.

Lectures and practicum six hours a week.

Courses - Journalism (JOUR)

JOUR 3303 [1.0 credit]

**Film and Society**

An examination of film in relation to social and intellectual developments of the twentieth century. The ways in which the cinema has both shaped and been shaped by some of these developments are considered. (Also listed as FILM 3303.)

Prerequisite: at least 1.0 credit in Film Studies and third-year standing, or permission of the Discipline or the School.

Screening three hours a week, lecture one hour a week.

JOUR 3405 [0.5 credit]

**Communication in a Global Context**

Structures and flow of global communication and information and its impact on our views of the world. (Also listed as COMM 3405.)

Precludes additional credit for JOUR/MCOM 3005 (no longer offered).

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or third- or fourth-year B.J.(Honours) standing, or PAPM 2000 and registration in the Communication Information Technology Policy specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

JOUR 3407 [0.5 credit]

**Comparative Media Studies**

The comparative study of one or more media organizations and/or types of media content with reference to their operation, audiences, and impacts. (Also listed as COMM 3407.)

Precludes additional credit for JOUR/MCOM 3006 (no longer offered).

Prerequisite: COMM 2101 and third-year standing in Communication Studies, or third- or fourth-year B.J.(Honours) standing, or PAPM 2000 and registration in the Communication Information Technology Policy specialization of the Bachelor of Public Affairs and Policy Management, or permission of the School of Journalism and Communication.

Lectures three hours a week.

JOUR 3502 [0.5 credit]

**Telecommunications Regulation**

The law regulating Canadian broadcasting and communications industries. Focus on the Canadian Radio-Television and Telecommunications Commission. Topics may include: administrative formulation of policy, ownership rules, program content and quality, access to the media, cablevision licensing and control, alternative sanctions. (Also listed as MCOM 3502 and LAWS 3502.)

Prerequisite: one of LAWS 2003, LAWS 2004 or LAWS 2005, or a 2000-level Journalism or Mass Communication credit.

Lectures and discussion three hours a week.

JOUR 4000 [1.0 credit]

**Theoretical and Critical Aspects of Journalism**

Theoretical overview of the news media in Canada, and the conditions under which they operate; examination of critiques of the media, including ethics.

Precludes additional credit for JOUR 2000 (last offered 1995-96).

Prerequisite: for fourth-year Honours Journalism students and students who have fourth-year standing in the Bachelor of Public Affairs and Policy Management and who are registered in the Strategic Public Opinion and Policy Analysis specialization area.

Lectures and discussion three hours a week.

JOUR 4100 [0.5 credit]

**Special Topic**

Examination of a topic in journalism not covered in depth in other courses. Seminar three hours a week.

JOUR 4101 [0.5 credit]

**Special Topic**

An examination of a topic in journalism not covered in depth in other courses. Topics may vary from year to year.

Seminar three hours a week.

JOUR 4201 [1.0 credit]

**Specialized Reporting**

A seminar/workshop in one area of public affairs reporting. Offerings may include politics and government, international issues, the arts, the economy, science and technology, social issues, sports. Emphasis on explanatory/analytical reporting, culminating in an extended work of journalism in any medium, resources permitting.

Prerequisites: JOUR 3205 and JOUR 3206.

Lectures, discussion and seminars three hours a week.

JOUR 4204 [0.5 credit]

**Professional Practices: Online Publishing**

A workshop course designed to give students instruction in online reporting and publishing.

Prerequisite: for fourth-year B.J. (Hons.) Students only.

Note: no more than two of JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207 and JOUR 4208 may be taken and they may not be taken simultaneously. JOUR 4204 may not be repeated.

Workshops averaging eight hours per week.

JOUR 4205 [0.5 credit]

**Professional Practices: Newspaper Publishing**

A workshop course designed to give students instruction in community newspaper publishing.

Prerequisite: for fourth-year B.J. (Hons.) students only.

Note: no more than two of JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207 and JOUR 4208 may be taken and cannot be taken simultaneously. JOUR 4205 may not be repeated.

Workshops averaging eight hours a week.

JOUR 4206 [0.5 credit]

**Professional Practices: Radio News and Current Affairs**

A workshop course designed to give students instruction in radio news and current affairs.

Prerequisite: for fourth-year B.J. (Hons.) students only.

Note: no more than two of JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207, and JOUR 4208 may be taken and cannot be taken simultaneously. JOUR 4206 may not be repeated.

Workshops averaging eight hours a week.

JOUR 4207 [0.5 credit]

**Professional Practices: Television News and Current Affairs**

A workshop course designed to give students instruction in television news and current affairs.

Prerequisite: for fourth-year B.J. (Hons.) students only.

Note: no more than two of JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207 and JOUR 4208 may be taken and cannot be taken simultaneously. JOUR 4207 may not be repeated.

Workshops averaging eight hours a week.

JOUR 4208 [0.5 credit]

**Professional Practices: Specialized Media**

A workshop course designed to give students instruction in a specialized area such as radio documentary, video documentary, film documentary, editing, magazine writing, photojournalism. Not all specialties will be offered each year.

Precludes additional credit for JOUR 3201 (last offered in 1997-98).

Prerequisite: for fourth-year B.J. (Hons.) students only.

Note: no more than two of JOUR 4204, JOUR 4205, JOUR 4206, JOUR 4207 and JOUR 4208 may be taken and cannot be taken simultaneously. JOUR 4208 may not be repeated.

Lecture and practicum two hours a week.

JOUR 4307 [0.5 credit]

**Gender, Diversity and the Journalist**

Using theoretical and textual analysis, this course examines the roles that social concepts of gender have played in several of the following: journalism history, journalistic expression and professional practice, professional status, cultural representations and expectations of the journalist, and the alternative or specialized media.

Prerequisite: third- or fourth-year B.J. (Honours) standing, or permission of the School.

Seminar three hours a week.

JOUR 4900 [1.0 credit]

**Honours Tutorial**

Students analyze some major achievements in contemporary journalism, through individual or group research. Students also have the opportunity to acquire background and experience in the managerial aspects and production of print and broadcast journalism.

Prerequisite: fourth-year B.J. (Honours) standing.

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## Language Studies (LANG)

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School of Linguistics and Language Studies  
Faculty of Arts and Social Sciences

### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

LANG 1010 [0.5 credit]

#### Introduction to a Language I

Introductory study of a selected language. Oral skills; basic reading and writing skills. The language taught will vary from year to year. Compulsory attendance. Four hours a week.

LANG 1020 [0.5 credit]

#### Introduction to a Language II

Continuation of LANG 1010. Oral skills; basic reading and writing skills. Compulsory attendance. Prerequisite: grade of C or higher in LANG 1010, or permission of the School. Four hours a week.

LANG 1110 [1.0 credit]

#### Intensive Introduction to a Language

Introductory study of a selected language. Oral skills; basic reading and writing skills. The language taught will vary from year to year. Compulsory attendance. Eight hours a week (one term).

LANG 2110 [1.0 credit]

#### Continuing Intensive Study of a Language

Further study of a selected language to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. The language taught will vary from year to year. Compulsory attendance.

Prerequisite: grade of C or higher in LANG 1020 or LANG 1110 or permission of the School. Eight hours a week (one term).

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## Latin (LATN)

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College of the Humanities  
Faculty of Arts and Social Sciences

LATN 1005 [0.5 credit]

### Introduction to Latin I

A course for beginners in Latin, designed to give students a grasp of basic grammatical forms and vocabulary (with reference to English derivatives) through the reading of continuous Latin.

Lectures and practice periods four hours a week.

LATN 1006 [0.5 credit]

### Introduction to Latin II

A course for students with some previous knowledge of the language: study of grammatical forms and constructions; acquisition of reading skills.

Prerequisite: LATN 1005 or equivalent.

Lectures and practice periods four hours a week.

LATN 2200 [0.5 credit]

### Intermediate Latin I

Further study of the language; introduction to the reading of Latin authors.

Prerequisite: LATN 1006 or equivalent.

Precludes additional credit for LATN 2001.

Tutorials three hours a week.

LATN 2201 [0.5 credit]

### Intermediate Latin II

Continued study of the language; reading of selected prose and poetry by Latin authors; development of translation skills.

Precludes additional credit for LATN 2001.

Prerequisite: LATN 2200 or equivalent.

Tutorials three hours a week.

LATN 3900 [0.5 credit]

### Studies in Latin Poetry

Reading and critical discussion of selections from Latin poetry.

Prerequisite: LATN 2201 or equivalent.

Tutorials three hours a week.

LATN 3901 [0.5 credit]

### Studies in Latin Prose

Reading and critical discussion of selections from Latin prose.

Prerequisite: LATN 2201 or equivalent.

Tutorials three hours a week.

LATN 4900 [0.5 credit]

### Directed Study (Poetry)

LATN 4901 [0.5 credit]

### Directed Study (Prose)

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## Latin American and Caribbean Studies (LACS)

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Latin American and Caribbean Studies  
Committee

Institute of Interdisciplinary Studies  
Faculty of Arts and Social Sciences

LACS 1001 [0.5 credit]

### Introduction to Latin American and Caribbean Studies I

An introduction to the history, culture, societies, and literatures of the region. Students will get a broad overview of the region and will be introduced to the disciplines used to study these societies.

Lectures three hours per week.

LACS 1002 [0.5 credit]

### Introduction to Latin American and Caribbean Studies II

An interdisciplinary introduction to the major political, economic, environmental, and geographical issues confronting the region.

Lectures three hours per week.

## Law (LAWS)

### Department of Law Faculty of Public Affairs

**Note:** some graduate courses may also be open to interested fourth-year students with permission of the Department.

LAWS 1000 [1.0 credit]

#### Introduction to Legal Studies

Concepts, sources, nature and function of law; law and social change; historical and constitutional foundations of the Canadian legal system; common and civil law traditions; statutory interpretation and precedent; legal institutions; the role of judges, lawyers and lay persons; accessibility; alternative dispute resolution. Lectures and discussion three hours a week.

LAWS 2105 [0.5 credit]

#### Social Justice and Human Rights

Theories and practices of law and social justice. Issues examined may include: civil democracy and repression; global governance and the rule of law; democratic movements and social power; human rights instruments, regimes and remedies; armed conflict; and humanitarian intervention.

Prerequisite: one of LAWS 1000 [1.0], HUMR 1001 [1.0], PAMP 1000 [1.0], PSCI 1000 [1.0], (PSCI 1001 and PSCI 1002).

Lectures and discussion three hours a week.

LAWS 2201 [0.5 credit]

#### Persons and Property

Origins and scope of the concept of person in law and how concepts of legal personality change over time. Origins and scope of the concept of property and how concepts of property change over time.

Precludes additional credit for LAWS 2003 [1.0] (no longer offered).

Prerequisites: LAWS 1000.

Lectures three hours a week.

LAWS 2202 [0.5 credit]

#### Obligations

The concepts employed by the law for creating and enforcing legal obligations between persons within society, including contract, tort, fiduciary obligation and restitution. Consideration is given to the role of persons and the role of the state in ordering private legal obligations.

Precludes additional credit for LAWS 2003 [1.0] (no longer offered).

Prerequisites: LAWS 1000.

Lectures three hours a week.

LAWS 2301 [0.5 credit]

#### Criminal Justice System

The institutional and social production of criminal law in Canada. Processes, personnel, and agencies in the criminal legal system. The role of discretion and mechanisms of accountability. The accused and the place of the victim. Issues and problems in sentencing and punishment. Theoretical frameworks.

Precludes additional credit for LAWS 2004 [1.0] (no longer offered).

Prerequisites: LAWS 1000.

Lectures three hours a week.

LAWS 2302 [0.5 credit]

#### Criminal Law

The legal and social dimensions of criminal liability and responsibility in Canada, including issues and problems surrounding mens rea, actus reus, and the attachment of liability. Excuses and justifications, the Canadian Criminal Code and the role of the Charter in the criminal legal system.

Precludes additional credit for LAWS 2004 [1.0] (no longer offered).

Prerequisites: LAWS 1000.

Lectures three hours a week.

LAWS 2501 [0.5 credit]

#### Law, State and Constitution

Law relating to the state, society and the constitution, with a focus on the historical framework, federalism, and constitutional reform in Canada.

Precludes additional credit for LAWS 2005 [1.0] (no longer offered).

Prerequisites: 1.0 credit from: LAWS 1000 [1.0], PAMP 1000 [1.0], PSCI 1000 [1.0], PSCI 1001, PSCI 1002.

Lectures three hours a week.

LAWS 2502 [0.5 credit]

#### Law, State and Citizen

Law relating to the state and its relationship to individuals and groups in society, with a focus on the administrative process, basic values and the Charter.

Precludes additional credit for LAWS 2005 [1.0] (no longer offered).

Prerequisites: 1.0 credit from LAWS 1000 [1.0], PAMP 1000 [1.0], PSCI 1000, PSCI 1001 [1.0], PSCI 1002.

Lectures three hours a week.

LAWS 2601 [0.5 credit]

#### Public International Law

Examination of the role of law in contemporary international relations. Nature, history and sources of international law; international personality of states; the status of international organizations and individuals; creation and effect of international obligations; importance and functions of law in the settlement of international disputes.

Precludes additional credit for LAWS 3603 (no longer offered).

Prerequisites: 1.0 credit from LAWS 1000 [1.0], PAMP 1000 [1.0], PSCI 1000 [1.0], PSCI 1001, PSCI 1002.

Lectures three hours a week.

LAWS 2908 [0.5 credit]

#### Approaches in Legal Studies I

Introduction to interdisciplinary research and analysis in law and legal studies; finding and analyzing primary and secondary legal sources; introduction to the interrelationship between theory, practice and research. Students are strongly encouraged to take this course in the second year of their program.

Prerequisites: LAWS 1000.

LAWS 3000 [0.5 credit]

#### The Legal Process

Advanced topics in the legal process such as the nature and function of law, dispute resolution and law making.

Prerequisite: third-year standing.

Lectures three hours a week.

LAWS 3001 [0.5 credit]

#### Women and the Legal Process

How the legal process has affected the status of women. Areas of concentration within the Canadian context include the criminal law, citizenship and immigration, education, employment, and welfare and social services.

Prerequisite: third-year standing.

Lectures three hours a week.

LAWS 3003 [0.5 credit]

**Contracts**

The enforcement of promises and agreements; basic doctrines and underlying principles of the law of contract are studied from formation of the contract to remedies for breach of contract; role of contract for economic and social purposes is also considered.

Prerequisite: LAWS 2003 [1.0] (no longer offered) or LAWS 2202.

Lectures three hours a week.

LAWS 3005 [0.5 credit]

**Law and Regulation**

Definitions and goals of regulation; contemporary theories and debates about legal and non-legal approaches to regulation. Approaches studied may include market mechanisms, public agency regulation, self-regulation and governance in co-operation with associations in civil society.

Prerequisite: 1.0 credit from: LAWS 2003 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2201, LAWS 2202, LAWS 2501, LAWS 2502.

Lectures three hours a week.

LAWS 3006 [0.5 credit]

**Mediation**

Theory and practice of mediation; historical roots and influences; contrasts with formal litigation and other dispute resolution processes; issues of social and legal control; critiques, including feminist, Marxist and critical race theory; issues of power, gender, race and class; application to contemporary issues and disputes.

Prerequisites: LAWS 1000 and 1.0 credit from LAWS 2003 (no longer offered), LAWS 2004 (no longer offered), LAWS 2005 (no longer offered), LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502, LAWS 2601, BUSI 2601.

Lectures three hours a week.

LAWS 3101 [0.5 credit]

**Philosophy of Law: The Nature of Law**

The concept of law, leading theories of law and related concepts such as rules and obligations, power and authority, coercion, and justice.

Precludes additional credit for PHIL 3101.

Prerequisite: third-year standing.

Lectures three hours a week.

LAWS 3102 [0.5 credit]

**Philosophy of Law: The Logic of the Law**

The nature of legal reasoning and concepts particularly used in the course of legal reasoning such as rights and duties, ownership and possession, liability and punishment. (Also listed as PHIL 3102.)

Prerequisite: third-year standing.

Lectures three hours a week.

LAWS 3105 [0.5 credit]

**Theory of Law and Politics**

Theories of law and politics; prominent thinkers and schools of thought; influence on legal and political institutions. Topics include law and ethics, justice and equity, positivism and natural law, state absolutism, codifications, and anthropological and historical theories of law and society.

Prerequisites: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2004 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502, LAWS 2601; or 2.0 credits from PSCI 1000 [1.0], PSCI 2300 [1.0].

LAWS 3106 [0.5 credit]

**Sociology of Law**

Development of law in the context of modernity, the West and capitalism. Writings on law by Durkheim, Weber and Marx; their influence on the development of the sociology of law. (Also listed as SOCI 3480.)

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2004 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502, LAWS 2601.

LAWS 3201 [0.5 credit]

**Business Enterprise Frameworks**

Forms of carrying on business activity: proprietorships, partnerships, corporations and Crown entities. The rights and obligations of such business enterprises both internally and in relation with other persons. The relationship between legal form and economic function. The role of state intervention.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2201, LAWS 2202.

Lectures three hours a week.

LAWS 3202 [0.5 credit]

**Intellectual Property**

Critical assessment of copyright, patents, trademarks, trade secrets and other forms of intellectual property; regulation and governance of information technology including self-regulation, standard setting, licencing, competition policy and international dimensions.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2201, LAWS 2202, LAWS 2501, LAWS 2502.

Lectures three hours a week.

LAWS 3203 [0.5 credit]

**The Legal Nature of Property**

An examination of the nature and functions of property as a legal and social institution, with particular reference to theories of property, the scope of property interests, and the relationship between individual property rights and the state.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2201, LAWS 2202.

Lectures three hours a week.

LAWS 3205 [0.5 credit]

**Consumer Law**

Need for consumer protection in the provision of goods and services; traditional legal protection by statute and common law; legislative responses to consumer pressures; judicial response in recent Canadian, English and American law; reform of consumer law.

Prerequisite: LAWS 2003 [1.0] (no longer offered) or LAWS 2202 or BUSI 2601.

Lectures three hours a week.

LAWS 3206 [0.5 credit]

**Banking Law**

The law relating to banks and banking; the nature of the legal relationship created; legal rights and duties of the parties involved. Consumer and corporate aspects of banking (including computerization and electronic funds transfers); regulations of banking.

Prerequisite: LAWS 2003 [1.0] (no longer offered) or LAWS 2202 or BUSI 2601.

Lectures three hours a week.

LAWS 3207 [0.5 credit]

**International Transactions**

Topics may include: the international sale of goods, finance of transnational transactions, international carriage of goods, insurance, agency and trading houses; other forms of trade, e.g., counter-trade, foreign investment; settlement of international disputes by litigation and arbitration.

Prerequisite: LAWS 2003 [1.0] (no longer offered) or LAWS 2202 or BUSI 2601.

## Courses - Law (LAWS)

LAWS 3208 [0.5 credit]

**International Trade Regulation**

International regulation of trade and investment through bilateral, regional and multilateral treaties and agreements. Topics may include: WTO, NAFTA, the EU, UNCTAD, intergovernmental commodity agreements, dispute settlement.

Prerequisite: LAWS 2003 [1.0] (no longer offered) or LAWS 2005[1.0] (no longer offered) or LAWS 2601 or LAWS 2202 or LAWS 2501 or BUSI 2601.

Lectures three hours a week.

LAWS 3303 [0.5 credit]

**Injury and Compensation**

Problems of injury compensation; legal responses in their economic, historical, comparative, philosophical or sociological contexts; definitions of personal injury; objectives and effectiveness of legal intervention; forms of compensation; relation between private law and state regulation.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2201, LAWS 2202.

Lectures three hours a week.

LAWS 3304 [0.5 credit]

**Private Law, Historical Change**

Private law and socio-economic change, emphasizing nineteenth-century Canada; comparison with the United States; influence of eighteenth-century English developments. Topics may include contracts and market economy, corporations and entrepreneurship, private law and the employer/employee relationship; property and tort in gender relations.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2201, LAWS 2202.

Lectures three hours a week.

LAWS 3305 [0.5 credit]

**Crime and State in History**

The history of the relationship between the criminal law system and society. Changing issues in the criminal law and the nature of institutional responses, covering medieval to early nineteenth-century England and nineteenth to early twentieth-century Canada. (Also listed as HIST 3305).

Prerequisite: third-year standing.

Lectures three hours a week.

LAWS 3306 [0.5 credit]

**Crime, Law, Process & Politics**

Criminal law process in Canada; structure and use of the process examined for fairness, defects, and possible reform initiatives. Issues concerning gender, race and class bias in the implementation and application of the criminal law.

Prerequisite: 1.0 credit from LAWS 2004 [1.0] (no longer offered), LAWS 2301, LAWS 2302.

Lectures three hours a week.

LAWS 3307 [0.5 credit]

**Youth and Criminal Law**

A review of the Youth Criminal Justice Act within the framework of the Canadian justice system, with particular emphasis on historical and philosophical developments and objectives. Current topics include: constitutional issues, procedure, confessions, transfers, sentencing options, alternative measures, reviews, and possible amendments.

Prerequisite: 1.0 credit from LAWS 2004 [1.0] (no longer offered), LAWS 2301, LAWS 2302.

Lectures three hours a week.

LAWS 3308 [0.5 credit]

**Punishment and the Law**

This course explores justifications and practices of punishment and social control from a socio-legal perspective. Rationalizations and justifications for punishment are considered. Different forms of punishment and control within the law will be examined as well as different theoretical perspectives of punishment.

Prerequisite: LAWS 2004 [1.0] (no longer offered) or LAWS 2301.

Lectures three hours a week.

LAWS 3401 [0.5 credit]

**Employment Law**

Legal regulation of the employment relationship; its contractual basis; defining employment; rights and duties of employees and employers; termination of employment; statutory regulation through employment standards legislation, human rights codes, workers' compensation acts, occupational health and safety and related statutes.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered) LAWS 2201, LAWS 2202, LAWS 2501, LAWS 2502, BUSI 2601.

Lectures three hours a week.

LAWS 3402 [0.5 credit]

**Landlord and Tenant Relations**

An examination of the landlord and tenant relationship in Ontario, focusing on the rights and duties under common law and statute, the distinction between residential and commercial tenancies, recent regulation of residential tenancies, and implications of rent control and security of tenure for housing policy.

Prerequisite: LAWS 2003 [1.0] (no longer offered) or LAWS 2202.

Lectures three hours a week.

LAWS 3405 [0.5 credit]

**Labour Law**

Role of law in industrial relations; effect of law on collective bargaining relationships; recognition of bargaining agent; regulation of bargaining; administration of the collective agreement; methods of conflict resolution.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2201, LAWS 2202, LAWS 2501, LAWS 2502. Permission may be given to students in Business or Directed Interdisciplinary Studies who have completed BUSI 2601.

Lectures three hours a week.

LAWS 3408 [0.5 credit]

**Legal Aspects of Sport**

Legal regulation of sporting activities in Canada. Subjects include constitutional power to regulate sport, government involvement in sports administration, sports violence, civil liability for sports injuries, sex discrimination, professional and intercollegiate leagues, player employment contracts, disciplinary proceedings.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered) LAWS 2201, LAWS 2202, LAWS 2501, LAWS 2502.

Lectures three hours a week.

LAWS 3500 [0.5 credit]

**Constitutional Law**

An investigation of the Canadian constitution. Sovereignty, the nature and units of executive, legislative, and judicial power in Canada as interpreted by the courts. The distribution of powers under the Canadian constitution, including an investigation of contemporary problems of federalism. Problems of judicial review.

Prerequisite: LAWS 2005 [1.0] (no longer offered) or LAWS 2501 or PSCI 2003.

Lectures three hours a week.



LAWS 3501 [0.5 credit]

### **Law in the Information Society**

Legal responses to challenges of the information society. Topics may include privacy, surveillance and monitoring, access to information, freedom of expression, control of objectionable content, Charter and human rights issues, and security.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2004 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502.

Lectures three hours a week.

LAWS 3502 [0.5 credit]

### **Telecommunications Regulation**

The law regulating Canadian broadcasting and communications industries. Focus on the Canadian Radio-Television and Telecommunications Commission. Topics may include: administrative formulation of policy, ownership rules, program content and quality, access to the media, cablevision licensing and control, alternative sanctions. (Also listed as JOUR 3502 and MCOM 3502.)

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2004 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502; or 1.0 credit at the 2000-level in Journalism or Communication Studies.

Lectures three hours a week.

LAWS 3503 [0.5 credit]

### **Equality & Discrimination**

Human rights issues and law in Canada; history and present day experiences of discrimination; critical exploration of law's effectiveness in responding to discrimination; meaning(s) of equality and discrimination; focus on Human Rights Codes - interpretation, administration, enforcement - some reference to s.15 of the Charter.

Precludes additional credit for LAWS 3503 [1.0] (no longer offered).

Prerequisite: LAWS 2004 [1.0] (no longer offered) or LAWS 2005 [1.0] (no longer offered) or LAWS 2105 or LAWS 2302 or LAWS 2502.

Lectures and seminars three hours a week.

LAWS 3504 [0.5 credit]

### **Law and Aboriginal Peoples**

The legal situation of aboriginal peoples in Canada. Topics include status, aboriginal rights, treaties, legislative jurisdiction and the constitutional framework, aboriginal claims, and self-government. Comparative references to aboriginal policy in other countries.

Prerequisite: LAWS 2005 [1.0] (no longer offered) or LAWS 2501 or LAWS 2502 or LAWS 3500 or LAWS 3503 or LAWS 3503 [1.0] (no longer offered) or LAWS 3509.

Lectures three hours a week.

LAWS 3506 [0.5 credit]

### **Administrative Law**

Structure and procedure of Canadian administrative authorities; policy, statutory and judicial environments in which they operate. Topics include techniques for implementing public policy and structuring public authorities; statutory interpretation; procedural safeguards; exercise of statutory discretion; reconciling efficiency and fairness.

Prerequisites: LAWS 2005 [1.0] (no longer offered) or LAWS 2502 or LAWS 3005 or LAWS 3502/JOUR 3502/MCOM 3502 (no longer offered).

Lectures three hours a week.

LAWS 3508 [0.5 credit]

### **Health Law**

Legal/ethical issues in health care regulation. Topics may include: regulation of health professions; economics of health care; informed consent/choice; regulation of drugs, devices and research; medical malpractice and other liability; mental health issues; patient/client records.

Precludes additional credit for LAWS 3505 (no longer offered).

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2004 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502.

Lectures three hours a week.

LAWS 3509 [0.5 credit]

### **The Charter of Rights Topics**

Selected issues in the Canadian Charter of Rights and Freedoms. The topics of this course may vary from year to year, and are announced in advance of registration. Precludes additional credit for LAWS 3503 [1.0] (no longer offered).

Prerequisite: LAWS 2004 [1.0] (no longer offered) or LAWS 2005 [1.0] (no longer offered) or LAWS 2105 or LAWS 2201 or LAWS 2302 or LAWS 2502.

Lectures and seminars three hours a week.

LAWS 3602 [0.5 credit]

### **International Human Rights**

The developing international law relating to the protection of human rights. General concepts, rules and institutions. Specific issues include self-determination, aboriginal rights, the refugee problem, and torture. The inherent problems and overall potential of international law.

Precludes additional credit for LAWS 4604 (no longer offered).

Prerequisite: 1.0 credit from: LAWS 2105, LAWS 2502, LAWS 2601, LAWS 3503, LAWS 3503 [1.0] (no longer offered), LAWS 3509, LAWS 3603 (no longer offered), LAWS 3603 [1.0] (no longer offered).

Lectures three hours a week.

LAWS 3604 [0.5 credit]

### **International Organizations**

Nature, character, legal status and jurisdiction of intergovernmental international organizations. Rights and duties of states arising from membership in international organizations. Distinction between international and supra-national institutions. United Nations system, selected subsidiary organs, and specialized agencies; non-governmental organizations at times of crisis.

Precludes additional credit for LAWS 4600 (no longer offered).

Prerequisite: LAWS 2601 or LAWS 3603 (no longer offered) or LAWS 3603 [1.0] (no longer offered).

LAWS 3800 [0.5 credit]

### **Law of Environmental Quality**

Various aspects of environmental law; pollution control, legal actions and remedies; legal foundations for participation in decision-making processes. Social, economic and political forces influencing the formulation and implementation of environmental law. Alternative forms of regulation that may articulate different demands.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2004 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502.

Lectures three hours a week.

## Courses - Law (LAWS)

LAWS 3804 [0.5 credit]

**Law of the Family**

Legal framework surrounding the family and family relationships in Canadian society. Topics include marriage and cohabitation, matrimonial support, custody and access, and dissolution of marriage. State interventions through law; law and change in family structures; equality issues; dispute resolution processes. (Also listed as SOWK 3804)

Precludes additional credit for LAWS 3804 [1.0] (no longer offered).

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2201, LAWS 2202.

Lectures three hours a week.

LAWS 3806 [0.0 credit]

**Cooperative Work Term 1**

Prerequisite: registration in the B.A. Honours (concentration in Business Law or concentration in Law, Policy and Government) Cooperative Program, completion of Co-op preparation classes offered by the Co-op office and permission of the Department.

LAWS 3807 [0.0 credit]

**Cooperative Work Term 2**

Prerequisite: registration in the B.A. Honours (concentration in Business Law or concentration in Law, Policy and Government) Cooperative Program and permission of the Department.

LAWS 3808 [0.0 credit]

**Cooperative Work Term 3**

Prerequisite: registration in the B.A. Honours (concentration in Business Law or concentration in Law, Policy and Government) Cooperative Program and permission of the Department.

LAWS 3809 [0.0 credit]

**Cooperative Work Term 4**

Prerequisite: registration in the B.A. Honours (concentration in Business Law or concentration in Law, Policy and Government) Cooperative Program and permission of the Department.

LAWS 3903 [0.5 credit]

**Selected Legal Topics**

The topics of this course may vary from year to year, and are announced in advance of registration.

Prerequisite: third-year standing.

Lectures three hours a week.

LAWS 3904 [0.5 credit]

**Selected Legal Topics**

The topics of this course may vary from year to year, and are announced in advance of registration.

Prerequisite: third-year standing.

Lectures three hours a week.

LAWS 3908 [0.5 credit]

**Approaches in Legal Studies II**

Advanced approaches to interdisciplinary research and analysis in law and legal studies. Emphasis on the important role of theory. Approaches considered will vary by section, and may include theoretical, quantitative, qualitative, literary, or historical approaches.

Prerequisites: LAWS 2908 and third-year Honours standing.

Honours students are strongly encouraged to take this course in the third year of their program.

Lectures three hours a week.

LAWS 4001 [0.5 credit]

**Law, Family and Gender**

Relationship between family law and ideology of the family, gender roles and the reproduction of family structures. Social ramifications of family law; potential for family law reform as an agency of social change.

Prerequisites: fourth-year Honours standing and one of LAWS 3001, LAWS 3804.

Seminars three hours a week.

LAWS 4002 [0.5 credit]

**Feminist Theories of Law**

The literature comprising feminist perspectives on law; theoretical bases of these perspectives; place of feminist theories within other critiques of law; significance of different feminist theories for equality theory and law reform strategies; unique contributions of the various perspectives.

Prerequisite: LAWS 3001 or fourth-year Honours standing.

Seminars three hours a week.

LAWS 4006 [0.5 credit]

**Religion and State in Canada**

Legal nature of the interaction of religion and state within an historical framework. Emphasis on Canada after the Charter of Rights and Freedoms and on religious pluralism and resistance to state intervention in religion. Interdisciplinary readings drawn from legal, historical and theological sources.

Prerequisite: LAWS 1000.

Seminars three hours a week.

LAWS 4100 [0.5 credit]

**Modern Legal Theory**

Realist and post-realist legal scholarship; emphasis on Canadian, American and British approaches. Topics include the Canadian treatise tradition, American legal realism, empirical approaches to legal problems, the sociological movement in law, critical and Canadian feminist legal scholarship, Marxian theories of law, normative economic theory.

Prerequisites: 2.0 credits from LAWS 2003 [1.0] (no longer offered), LAWS 2004 [1.0] (no longer offered), LAWS 2005 [1.0] (no longer offered), LAWS 2105, LAWS 2201, LAWS 2202, LAWS 2301, LAWS 2302, LAWS 2501, LAWS 2502.

LAWS 4101 [0.5 credit]

**Contemporary Justice Theories**

Selected major contemporary theories of justice such as those associated with Rawls, Walzer, and Habermas, with emphasis on both their procedural and substantive elements and their concrete ramifications for law, policy and political practice.

Prerequisite: fourth-year Honours standing.

Seminars three hours a week.

LAWS 4102 [0.5 credit]

**Controversies in Rights Theory**

Selected controversies in rights theories and practices. Illustrative questions may include: Are human rights culturally relative? Can rights be justified after the demise of natural rights philosophy? Do rights undermine "difference"? Do communities benefit from a rights-based culture? Are "rights" forms of governance?

Precludes additional credit for LAWS 3503 [1.0] (no longer offered).

Prerequisite: fourth-year Honours standing.

Seminars three hours a week.

LAWS 4103 [0.5 credit]

**Special Topic in the Philosophy of Law**

Detailed study of a special topic in philosophy of law. (Also listed as PHIL 4407)

Prerequisite: eligibility for fourth-year standing in a Law or Philosophy Honours program or permission of either Department.

Seminar two hours a week.

LAWS 4104 [0.5 credit]

**Special Topic in the Philosophy of Law**

Detailed study of a special topic in philosophy of law. (Also listed as PHIL 4408.)

Prerequisite: eligibility for fourth-year standing in a Law or Philosophy Honours program or permission of either Department.

Seminar two hours a week.

LAWS 4105 [0.5 credit]

**Global Justice Theory**

Selected theories of global justice as they pertain to legality, which may include questions such as the justice of military force and just war theory, global social justice and global inequality, sovereignty and cosmopolitan conceptions of justice, demands for global democracy and human rights.

Prerequisite: fourth-year Honours standing and one of LAWS 2105, PHIL 2103, PSCI 3307.

Seminars three hours a week.

LAWS 4106 [0.5 credit]

**Law and Violence**

Examination of how law defines, justifies, and addresses individual, collective and state violence: contemporary and historical case studies; theoretical inquiries into the relationship between law, legality and different forms of violence.

Prerequisite: fourth-year Honours standing.

Seminar three hours a week.

LAWS 4107 [0.5 credit]

**Law in Modern Society**

Sociological and legal theory accounts of the changing role and function of law in modern society with particular reference to advanced capitalist societies. Topics include: the welfare state and the use of regulatory law; juridification and legalization; counter-trends, deregulation, informalism, legal pluralism. (Also listed as SOCI 4303.)

Prerequisite: one of LAWS 3101, LAWS 3105, LAWS 3105 [1.0] (no longer offered), LAWS 3106, or SOCI 3801.

Seminars three hours a week.

LAWS 4200 [0.5 credit]

**International Economic Law**

Selected topics in international economic law. May include: the legal regulation of international economic activity; methods of dispute settlement; standardization and development of an autonomous international trade law; and selected conventions and institutions governing international economic law.

Prerequisite: LAWS 3207 or LAWS 3208.

Seminar three hours a week.

LAWS 4202 [0.5 credit]

**Accountability of Management**

Role, function, and legal regulation of persons managing business enterprises. Status, social responsibility, fiduciary obligations and rights. Control and accountability of managers, obligations owed to the enterprise unit itself, constitutional rights of members, standards imposed by statutory regulation.

Prerequisite: LAWS 3201.

Lectures three hours a week.

LAWS 4204 [0.5 credit]

**Legal Issues in eCommerce**

An examination of selected legal topics relevant to the conduct of electronic commerce. Topics include types of regulation, government support, jurisdiction challenges, contract disputes and consumer protection. Court and alternative dispute resolution policy of Domain Names challenges are also included.

Prerequisite: 1.0 credit from LAWS 2003 [1.0] (no longer offered), LAWS 2201, LAWS 2202.

Lectures and discussions three hours a week.

LAWS 4209 [0.5 credit]

**Topics in Business Law**

Examination of a selected advanced topic in business law. The topics of this course may vary from year to year and are announced in advance of registration.

Prerequisite: fourth-year Honours standing and one of LAWS 2201, LAWS 2202.

Seminars three hours a week.

LAWS 4302 [0.5 credit]

**Regulation of Corporate Crime**

Legal, policy and theoretical perspectives on the regulation of corporate crime. Nature and causes of corporate crime. Selected case studies on the role of the state in regulating corporate behaviour. Failure of the criminal justice system to respond to corporate crime.

Prerequisites: one of LAWS 2302 or LAWS 2004 [1.0] (no longer offered), and one of LAWS 3005, LAWS 3201, LAWS 3800.

Seminars three hours a week.

LAWS 4303 [0.5 credit]

**Drugs, The User and The State**

This course explores the state's attempts to control drugs and drug users by exploring different aspects of national and international drug control. The Canadian experience of drug control, viewed from different perspectives, will be explored within a broader socio-legal context.

Prerequisite: fourth-year Honours standing and one of LAWS 2301, LAWS 2302.

LAWS 4304 [0.5 credit]

**Policing and Social Surveillance**

A wide-ranging theoretical consideration of the emergence and transformation of "policing" activities through an examination of law and changes in social relations, with special attention to the myriad agencies involved in contemporary security provision. Evolving notions of risk, surveillance, the state, and the private-public dichotomy.

Prerequisite: fourth-year Honours standing and one of LAWS 2301, LAWS 2302

Seminars three hours a week.

LAWS 4305 [0.5 credit]

**Criminal Justice Reform**

Social transformation and criminal justice reform. Theoretical and practical reasons for the use of criminal law as an instrument of social control. Specific reform initiatives and processes. Alternate responses to social problems.

Prerequisites: fourth-year Honours standing and 1.0 credit from LAWS 2004 [1.0] (no longer offered), LAWS 2301, LAWS 2302.

Seminars three hours a week.

LAWS 4306 [0.5 credit]

**Criminal Law Issues**

Selected issues and problems in the area of criminal law. The topics may vary from year to year depending on demand and interest and are announced in advance of registration.

Prerequisite: fourth-year Honours standing and 1.0 credit from LAWS 2004 [1.0] (no longer offered), LAWS 2301, LAWS 2302.

LAWS 4307 [0.5 credit]

**Medical Criminal Law Issues**

Legal-medical issues, conflicts and relationships in the field of social control. Topics include mental disorder and criminal liability, diversion of offenders to civil commitment in hospital, insanity, automatism, fitness to stand trial, prediction of dangerousness, regulation of psychoactive drugs.

Prerequisites: fourth-year Honours standing and 1.0 credit from LAWS 2004 [1.0] (no longer offered), LAWS 2301, LAWS 2302.

Seminars three hours a week.

Courses - Law (LAWS)

LAWS 4308 [0.5 credit]

**Sentencing**

Theories of sentencing, current sentencing laws and practices, perceptions of sentencing. Data on sentencing practice across Canada. Reforms in other jurisdictions. Critical review of the Canadian Sentencing Commission. Multidisciplinary approach using research and theory in law, criminology, social psychology and sociology. Prerequisites: fourth-year Honours standing and one of LAWS 2004 [1.0] (no longer offered), LAWS 2301, LAWS 2302. This course may not be taken by students who have completed the course as a special topics course. Seminars three hours a week.

LAWS 4309 [0.5 credit]

**State Security and Dissent**

Historical and contemporary analysis of legal responses of Canadian governments to dissent, political opposition, insurrection, etc. Includes trial of political offences (treason, sedition, riot), national security measures (War Measures/Emergencies Act, Official Secrets Act), and other special powers (police, labour, immigration, parliamentary privilege, etc.) Prerequisites: fourth-year Honours standing and one of LAWS 3305, LAWS 3503, or LAWS 3509 or HIST 3305. Seminars three hours a week.

LAWS 4402 [0.5 credit]

**Employment Dispute Resolution**

Theory and practice of dispute resolution in employment relations; analysis of such techniques as negotiation, grievance and interest arbitration, mediation, investigation and litigation applied to a range of employment disputes such as collective agreements, termination of employment, discrimination, harassment, occupational health and safety, Precludes additional credit for LAWS 4400. Prerequisites: fourth-year Honours standing and one of LAWS 3006, LAWS 3401, LAWS 3405. Seminars three hours a week.

LAWS 4501 [0.5 credit]

**Comparative Constitutional Law**

The topics of this course may vary from year to year. Topics may include comparative federalism, comparative study of civil liberties and human rights, comparative bases and theories of judicial review in their social, political, economic or historical contexts. Prerequisite: LAWS 3500.

LAWS 4504 [0.5 credit]

**Aboriginal Criminal Justice**

Aboriginal peoples and the administration of Canadian criminal justice including policing, courts, corrections and aftercare. Content and effects of past and present policies, processes and laws. Alternatives such as self-government and self-determination; potential approaches to an appropriate justice system for Aboriginal peoples. Prerequisites: fourth-year Honours standing and one of LAWS 2004 [1.0] (no longer offered), LAWS 2301, LAWS 2302. Seminars three hours a week.

LAWS 4507 [0.5 credit]

**Administrative Law and Control**

Examination of characteristics and selected problems of control of administrative action. Topics include: varieties of traditional and constitutional, legal and judicial control, impact of the Charter, reforms to administrative law control systems in Canada, and comparisons with developments outside Canada. Also offered at the graduate level, with additional or different requirements, as PADM 5307, for which additional credit is precluded. Prerequisites: LAWS 2005 [1.0] (no longer offered) or LAWS 2501 and LAWS 2502 or LAWS 3005 or LAWS 3506 or PADM 5414. Lectures three hours a week.

LAWS 4601 [0.5 credit]

**Transnational Law and Human Rights**

Examination of the role of law in addressing human rights issues that transcend traditional categories of domestic and international law; the potential and limits of law in addressing human rights issues; the growth of transnational approaches to law and human rights. Prerequisites: LAWS 3503 and LAWS 3602. Seminars three hours a week.

LAWS 4603 [0.5 credit]

**Transitional Justice**

Legal and ethical responses to human rights violations in the transition to democracy. Topics include: dilemmas of the rule of law; truth and reconciliation; prosecution and punishment; amnesty; retribution and revenge; restorative justice; administrative remedy; reparations. Theoretical arguments about justice in context of country and international case studies. Prerequisite: fourth-year Honours standing. Seminars three hours a week.

LAWS 4605 [0.5 credit]

**Topics in International Law**

Topics vary from year to year and are announced in advance. May include transnational environmental issues; the international law of armed conflict, peacekeeping and neutrality; the law of international treaties and transnational agreements; state responsibility under international law. Prerequisite: fourth-year honours standing and one of LAWS 2601, LAWS 3603 (no longer offered), LAWS 3603 [1.0] (no longer offered). Seminars three hours a week.

LAWS 4606 [0.5 credit]

**International Law of Armed Conflict**

UN Charter prohibition of the use of force. Exceptional, permissible uses of armed force. Role of Security Council in determining legality of armed intervention. Collective security, peacemaking, peacekeeping, neutrality, prohibited means of warfare. Humanitarian International Law. The Geneva Red Cross Conventions, war crimes, the role of International Criminal Court. Prerequisite: fourth year honours standing and one of LAWS 2601, LAWS 3603 (no longer offered). Seminars three hours a week.

LAWS 4607 [0.5 credit]

**Immigration and Refugee Law**

Immigrants and refugees; demographics; Canadian, international and human rights law and policy. The Canadian Immigration Act. Legal and social problems including entry and removal, family reunion, citizenship, remedies, the rights of clandestine migrants; settlement rights; non-discrimination; asylum; a nation's right to determine membership. Prerequisite: LAWS 2005 [1.0] (no longer offered) or LAWS 2502. Seminars three hours a week.

LAWS 4701 [0.5 credit]

**Special Topic in Criminal Justice and Social Policy**

Examination of a selected topic in criminal justice and social policy. Topics to be announced well in advance of registration each year. This course is part of the Summer School in Criminal Justice and Social Policy and is offered by the Department of Law. (Also listed as SOWK 4701 and SOCI 4701.) Prerequisite: fourth-year Honours standing or permission of the Department.

LAWS 4702 [0.5 credit]

**Special Topic in Criminal Justice and Social Policy**

Examination of a selected topic in criminal justice and social policy. Topics to be announced well in advance of registration each year. This course is part of the Summer

School in Criminal Justice and Social Policy and is offered by the Department of Sociology and Anthropology. (Also listed as SOWK 4702 and SOCI 4702.)

Prerequisite: fourth-year Honours standing or permission of the Department.

LAWS 4703 [0.5 credit]

**Special Topic in Criminal Justice and Social Policy**

Examination of a selected topic in criminal justice and social policy. Topics to be announced well in advance of registration each year. This course is part of the Summer School in Criminal Justice and Social Policy and is offered by the School of Social Work. (Also listed as SOWK 4703 and SOCI 4703)

Prerequisite: fourth-year Honours standing or permission of the Department.

LAWS 4800 [0.5 credit]

**Environment and Social Justice**

The potential of environmental law to protect the environment and people while promoting opportunities for informed participation in environmental decision making by groups traditionally excluded from these processes; contemporary issues of social justice raised by legal regulation of the environment.

Prerequisite: fourth-year Honours standing.

Seminars three hours a week.

LAWS 4801 [0.5 credit]

**Risk and the Legal Process**

Application of risk assessment and management in various legal arenas including insurance, liability and tort, litigation management, environmental protection, and sentencing and parole.

Prerequisite: fourth-year Honours standing.

Seminars three hours a week.

LAWS 4806 [0.5 credit]

**The Civilist Tradition**

Study of several European legal systems based on Roman law. Development of Roman law, including Justinian's corpus juris civilis. Reception of Roman law by various European legal systems. Comparative analysis of selected articles of the French, Austrian and German codes.

Prerequisites: LAWS 1000 and another law course or a classics course.

Lectures three hours a week.

LAWS 4901 [0.5 credit]

**Tutorial in Law**

Members of the Department are prepared to give reading courses in selected fields. Students are encouraged to inquire from individual instructors or the Supervisor of Honours in what fields such reading courses are available.

Prerequisites: Written acceptance by a faculty member and permission of the Department.

LAWS 4902 [0.5 credit]

**Tutorial in Law**

Members of the Department are prepared to give reading courses in selected fields. Students are encouraged to inquire from individual instructors or the Supervisor of Honours in what fields such reading courses are available.

Prerequisites: Written acceptance by a faculty member and permission of the Department.

LAWS 4903 [0.5 credit]

**Advanced Legal Topics**

The topics of this course may vary from year to year, and are announced in advance of registration.

Prerequisite: fourth-year Honours standing.

LAWS 4904 [0.5 credit]

**Advanced Legal Topics**

The topics of this course may vary from year to year and are announced well in advance of the period of registration.

Prerequisite: fourth-year Honours standing.

LAWS 4908 [1.0 credit]

**Honours Paper**

Students in the BA (Honours) Law or BA Combined (Honours) Law Program may write an Honours paper during their final year under the supervision of a faculty member of the Department of Law. The Honours Paper is evaluated by both the supervisor and a second reader. Students intending to proceed to graduate studies are strongly encouraged to complete an Honours paper.

Prerequisite: fourth-year Honours standing in Law with a law GPA of 9.00 or better or permission of the Supervisor of Undergraduate Studies, and written acceptance by a faculty member.

## Linguistics (LING)

### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

LING 1001 [0.5 credit]

#### Introduction to Linguistics

Nature of language and linguistic knowledge. Formal description and analysis of language: phonetics, phonology, morphology, syntax and semantics.

Precludes additional credit for LALS 1000 and LALS 1001 (no longer offered).

Lectures three hours a week.

LING 1100 [0.5 credit]

#### The Mysteries of Language

This course explores some intriguing mysteries of language – whether it is unique to humans, how children master its complexities so easily, how the brain handles language, how languages are born and die. These questions lead us to interesting discoveries about the human mind.

Precludes additional credit for LALS 1100 (no longer offered).

Lectures three hours a week.

LING 2001 [0.5 credit]

#### Phonetics

Description of speech sounds; transcription systems; articulation; acoustics of speech sounds; perception of speech sounds; cross-linguistic diversity and phonetic universals; the role of phonetics in grammar.

Precludes additional credit for LALS 2001 (no longer offered), and for LALS 3001 if taken prior to 2004.

Prerequisite: LALS 1000 or LALS 1001 or LING 1001.

Lectures three hours per week.

LING 2005 [0.5 credit]

#### Linguistic Analysis I

Phonological, morphological and syntactic analysis of linguistic data. Coursework consists primarily of practical exercises in data analysis.

Precludes additional credit for LALS 2003 or LALS 2005 (no longer offered).

Prerequisite: LALS 1000 or LALS 1001 or LING 1001.

Lectures three hours a week.

LING 2006 [0.5 credit]

#### Linguistic Analysis II

Analysis of linguistic data from various linguistic subdisciplines: e.g. historical linguistics, sociolinguistics, child language and neurolinguistics. Coursework consists primarily of practical exercises in data analysis.

Precludes additional credit for LALS 2006 (no longer offered).

Prerequisite: LALS 1000 or LALS 1001 or LING 1001.

Lectures three hours a week.

LING 2504 [0.5 credit]

#### Language and Communication

Some of the central topics in the study of language and communication as pursued by linguists and philosophers. Topics include: the nature of meaning; the connections between language, communication and cognition; language as a social activity. (Also listed as PHIL 2504 and COMM 2504.)

Precludes additional credit for LALS 2504, LALS 2800 [1.0], MCOM 2504, MCOM 2800 [1.0], and PHIL 2800 [1.0].

Prerequisite: second-year standing.

Lectures three hours a week.

LING 2604 [0.5 credit]

#### Speech and Language Problems

Congenital, developmental and acquired disorders of language, speech and voice; prevalences, types, causes and effects; related research.

Precludes additional credit for LALS 2604 (no longer offered).

Lectures three hours a week.

LING 3001 [0.5 credit]

#### Language Typology and Universals

Cross-linguistic survey of syntactic and morphological patterns found in the languages of the world. Typological classification and identification of language universals.

Precludes additional credit for LALS 3001 (no longer offered).

Prerequisite: LALS 2003 (no longer offered) or LALS 2005 or LING 2005.

Lectures three hours a week.

LING 3002 [0.5 credit]

#### Phonology I

The sound-systems of languages, analysis of phonological structure; generative phonology; phonological rules and derivations; cross-linguistic diversity and universals; segmental phonology; stress; tone.

Precludes additional credit for LALS 3002 (no longer offered).

Prerequisite: LALS 2001 or LING 2001.

Lectures three hours a week.

LING 3004 [0.5 credit]

#### Syntax I

Introduction to syntactic theory. Representation and analysis of sentence structure, syntactic relations and syntactic dependencies. Testing of grammatical hypotheses.

Precludes additional credit for LALS 3004 (no longer offered).

Prerequisite: LALS 2003 or LALS 2005 (no longer offered) or LING 2005.

Lectures three hours a week.

LING 3005 [0.5 credit]

#### Morphology

Introduction to word structure and morphological theory. Topics include inflectional and derivational morphology, morphological processes, and interaction of morphology with phonology and syntax.

Precludes additional credit for LALS 3005 (no longer offered).

Prerequisites: LALS 2003 or LALS 2005 (no longer offered) or LING 2005.

Lectures three hours a week.

LING 3009 [0.5 credit]

#### Special Topic in Linguistics

Selected topics in general linguistics not ordinarily treated in the regular course program. Contents of the course vary from year to year.

Prerequisite: LALS 1000 or LALS 1001 or LING 1001, or permission of the instructor.

Lectures and discussion three hours per week.

LING 3101 [0.5 credit]

#### Historical Linguistics

Language change; sound change; analogy; the comparative method; internal reconstruction; the philological method; historical linguistics and pre-history; language change and theories of grammar.

Precludes additional credit for LALS 2101 and LALS 3101 (no longer offered).

Prerequisite: LALS 2001 or LING 2001.

Lectures three hours a week.

LING 3504 [0.5 credit]

**Pragmatics**

The study of language in its conversational and cultural contexts. Topics include: conversational implicature; deixis; the semantics-pragmatics boundary; speaker's reference; speech acts. May include cross-cultural pragmatics. (Also listed as PHIL 3504.)

Precludes additional credit for LALS 2800 [1.0], LALS 3504, MCOM 3504, MCOM 2800 [1.0], and PHIL 2800 [1.0]. Prerequisite: third-year standing, and one of LALS 1000, LALS 1001, LING 1001, PHIL 2001, PHIL/LALS/LING/MCOM 2504 or LALS 3505/PHIL 3506, or LING 3505 or the permission of the Department of Philosophy or School of Linguistics and Language Studies. Lectures three hours a week.

LING 3505 [0.5 credit]

**Semantics I**

Study of language meaning. Lexical meaning and meanings of larger linguistic expressions, including nominal units, verbal units, and sentences. Meaning relationships between utterances. Relationship between linguistic meaning (semantics) and contextual meaning (pragmatics). Basic formal treatments of semantics. (Also listed as PHIL 3506.)

Precludes additional credit for LALS 3505 (no longer offered).

Prerequisite: third-year standing, and one of LALS 1000, LALS 1001, LING 1001, PHIL 2001, PHIL/LALS/LING/MCOM 2504 or PHIL/LALS/LING 3504, or permission of the Department of Philosophy or School of Linguistics and Language Studies.

Lectures three hours a week.

LING 3601 [0.5 credit]

**Language Processing and the Brain I**

Introduction to adult language processing and neurolinguistics. Psychological processes underlying speech production and perception, word recognition and sentence processing. Biological foundation and neuro-cognitive mechanisms of language. Experimental techniques and methodologies of current psycholinguistic studies. (Also listed as PSYC 3709.)

Precludes additional credit for LALS 2601 and LALS 3601 (no longer offered).

Prerequisite: LALS 1000 or LALS 1001 or LING 1001 or PSYC 2700 and third-year standing, or permission of the instructor.

Lectures three hours a week.

LING 3603 [0.5 credit]

**Child Language**

Milestones associated with the development of grammatical, pragmatic and metalinguistic competence from birth to about age ten, and the relative contributions of the environment, cognitive development and inborn knowledge to this development. (Also listed as PSYC 3508.)

Precludes additional credit for LALS 2603 (no longer offered).

Prerequisite: LALS 1000 or LALS 1001 or LING 1001 or PSYC 2700 and third-year standing, or permission of the instructor.

Lectures three hours per week.

LING 3801 [0.5 credit]

**Structure of a Specific Language**

Description and analysis of the structure of a specific language applying phonology, morphology, syntax, and semantics. Language to be studied will be announced in advance by the School.

Precludes additional credit for LALS 3801 (no longer offered).

Prerequisite: one of LALS 2001 or LALS 2003 or LALS 2005 or LING 2001 or LING 2005.

Lectures three hours a week.

LING 3900 [1.0 credit]

**Independent Study**

Research under the supervision of a member of the School. Normally available only to third- and fourth-year students in Linguistics.

Prerequisite: permission of the instructor.

LING 3901 [0.5 credit]

**Independent Study**

Research under the supervision of a member of the School. Normally available only to third- and fourth-year students in Linguistics.

Prerequisite: permission of the instructor.

LING 4001 [0.5 credit]

**Phonology II**

Advanced topics in phonology; markedness and natural rules; rule ordering; phonology and morphology; phonology and phonetics; optimality theory.

Precludes additional credit for LALS 4001 (no longer offered).

Prerequisite: LALS 3002 or LING 3002, or permission of the instructor.

Lectures three hours a week.

LING 4002 [0.5 credit]

**Syntax II**

Current issues in syntactic theory, analysis and argumentation. Critical reading and analysis of primary texts.

Precludes additional credit for LALS 4002 (no longer offered).

Prerequisite: LALS 3004 or LING 3004, or permission of the instructor.

Lectures three hours a week.

LING 4009 [0.5 credit]

**Special Topic in Linguistics**

Examination of a topic or more specialized area in linguistics or language study. Topic to be announced.

This course may be taken more than once.

Prerequisite: third- or fourth-year standing in Linguistics or permission of the instructor.

Lectures three hours a week.

LING 4507 [0.5 credit]

**Semantics II**

Further study of language meaning. Syntax-semantics interface. Semantic compositionality, including a basic formal approach. Other possible topics: discourse semantics, formal pragmatics, semantics and cognition, issues in contemporary semantic theory. (Also listed as PHIL 4505.)

Precludes additional credit for LALS 4507 (no longer offered).

Prerequisite: LALS 3505 or LING 3505 or PHIL 3506 or permission of the Department of Philosophy or School of Linguistics and Language Studies.

Lectures three hours a week.

LING 4601 [0.5 credit]

**Language Processing and the Brain II**

Further study of psychological and neurolinguistic mechanisms of adult language processing. May include topics from first language acquisition.

Precludes additional credit for LALS 4601 (no longer offered).

Prerequisite: LALS 3601 or LING 3601 or permission of the instructor.

Lectures three hours a week.

LING 4701 [0.5 credit]

**Seminar in Phonology**

In-depth exploration of an issue of current interest in phonological theory.

Prerequisite: LALS 4001 (no longer offered) or LING 4001. May be taken concurrently, with the permission of the instructor.

Lectures three hours a week.

Courses - Linguistics (LING)

LING 4702 [0.5 credit]

**Seminar in Syntax**

In-depth exploration of an issue of current interest in syntactic theory.

Prerequisite: LALS 4002 (no longer offered) or LING 4002. May be taken concurrently, with the permission of the instructor.

Lectures three hours a week.

LING 4900 [1.0 credit]

**Independent Study in Linguistics**

Permits fourth-year Honours students to pursue their interests in a selected area of linguistics.

Prerequisite: permission of the instructor.

LING 4901 [0.5 credit]

**Independent Study in Linguistics**

Permits fourth-year Honours students to pursue their interests in a selected area of linguistics.

Prerequisite: permission of the instructor.

LING 4910 [1.0 credit]

**Honours Thesis in Linguistics**

Open to all candidates for the B.A. (Honours) in Linguistics. A thesis project selected in consultation with the School and carried out under the direction of a faculty supervisor.

Prerequisite: fourth-year Honours standing in Linguistics; one of LALS 3002, LALS 3004, LALS 3505, or LALS 3601 or LING 3002, LING 3004, LING 3505, or LING 3601; and permission of the instructor (ordinarily requiring a CGPA of 10.0 in the major).



## Mathematics (MATH)

School of Mathematics and Statistics  
Faculty of Science

Note:

- Consult the regulations concerning Deferred Examinations in the Academic Regulations section of this Calendar.
- See also the course listings under Statistics (STAT) in this Calendar.

### Prerequisites for First-year Mathematics Courses in B.Math. Programs

Students who do not have the required Ontario Grade 12 Mathematics courses or equivalents may take MATH 0005 and MATH 0006 in lieu of Advanced Functions, MATH 0107 in lieu of the algebra component of Calculus and Vectors. These 0000-level mathematics courses serve as alternate prerequisites for MATH 1002 and MATH 1102. These courses would be in addition to the minimum 15.0 credits required in General programs, or 20.0 credits required in Honours programs.

MATH 0005 [0.5 credit]

#### Precalculus: Functions and Graphs

Review of algebraic manipulations. Polynomials: the remainder theorem, and the factor theorem; graphing. Real and Complex roots. Absolute values. Inequalities. Functions, including composition of functions, and Inverse functions. Logarithmic and exponential functions.

Not available for degree credit for students who have successfully completed: Grade 12 Mathematics – Advanced Functions, or an equivalent High School functions course.

Prerequisite: Grade 11 Functions (University/College Preparation), or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 0006 [0.5 credit]

#### Precalculus: Trigonometric Functions and Complex Numbers

Angles and the unit circle, radian measure. Definitions of trigonometric functions. Fundamental relations, Law of Sines and Cosines. Analytic trigonometry, graphs, inverse functions.

Trigonometric identities and equations. Applications in science and engineering.

Complex numbers in polar form, de Moivre's Theorem, n-th roots of complex numbers.

Prerequisite: Grade 11 Functions (University/College Preparation), or MATH 0005, or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 0107 [0.5 credit]

#### Algebra and Geometry

Vectors in the plane and in 3-space. Linear combinations and linear independence. Equations of lines and planes in space. Solution of systems of linear equations. Proofs by induction. Binomial Theorem. Logic.

Prerequisite: Grade 11 Functions (University/College Preparation) or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 1002 [1.0 credit]

#### Calculus and Introductory Analysis I

Elementary functions. Limits. Continuity. Differentiation. L'Hôpital's rules. Indefinite and definite integrals. Improper integrals. Sequences and series, Taylor's formulae. Introduction to differential equations.

Strongly recommended for students intending to specialize in mathematics, statistics, physics, or related areas.

Precludes additional credit for MATH 1004, MATH 1005, MATH 1007, MATH 1009, and MATH 2007.

Prerequisites: Grade 12 Mathematics: Advanced Functions, and Grade 12 Mathematics: Calculus and Vectors, with grades of at least 75% in each; or MATH 0005 and MATH 0006 with grades of B/better in each; or equivalents; or permission of the School of Mathematics and Statistics.

Lectures three hours a week, tutorial one hour a week.

MATH 1004 [0.5 credit]

#### Calculus for Engineering or Physics

Limits. Differentiation of the elementary functions. Rules of differentiation. Inverse trigonometric functions. Applications of differentiation: max-min problems, curve sketching, approximations. Definite and indefinite integrals, techniques of integration. Applications: area, volume, centre of mass, moment of inertia.

Restricted to students in the Faculty of Engineering, or in B.Sc. programs of the Department of Physics (except Double Honours Mathematics and Physics).

Precludes additional credit for MATH 1002, MATH 1007, MATH 1009.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions, or MATH 0005 and MATH 0006, or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 1005 [0.5 credit]

#### Differential Equations and Infinite Series for Engineering or Physics

First-order differential equations. Second-order linear equations with constant coefficients, undetermined coefficients, variation of parameters. Systems of equations. Sequences and series, convergence tests, estimation of sums. Power series, Taylor series, remainders. Fourier series.

Restricted to students in the Faculty of Engineering, or in B.Sc. programs of the Department of Physics (except Double Honours Mathematics and Physics).

Precludes additional credit for MATH 1002, MATH 2007, and MATH 2404.

Prerequisites: i) MATH 1004; and ii) MATH 1104 (or MATH 1107), either previously or concurrently; or equivalents; or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 1007 [0.5 credit]

#### Elementary Calculus I

Limits. Differentiation of the elementary functions, including trigonometric functions. Rules of differentiation. Applications of differentiation: max-min problems, curve sketching, approximations. Introduction to integration: definite and indefinite integrals, areas under curves, fundamental theorem of calculus.

Precludes additional credit for BIT 1000, BIT 1100, MATH 1002, MATH 1004, MATH 1009.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions; or MATH 0005 and MATH 0006; or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 1009 [0.5 credit]

**Calculus: with Applications to Business**

Applications of mathematics to business. Limits. Differentiation of the elementary functions. Rules of differentiation. Max-min problems, curve sketching. Functions of several variables, partial differentiation, constrained max-min. Definite and indefinite integrals. Precludes additional credit for MATH 1002, MATH 1004, MATH 1007, and for MATH 1401/ECON 1401, and for MATH 1402/ECON 1402.

This course is not acceptable for (substitute) credit in any of the following degree programs:

B.Math., and also B.Sc., B.C.S., B.Eng., B.I.D.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions, or MATH 0005, or equivalent.

Lectures three hours a week, tutorial one hour a week.

MATH 1102 [1.0 credit]

**Algebra I**

Fields, complex numbers, integers modulo a prime. Vector spaces, matrix algebra, linear dependence, bases, linear transformations, bilinear and quadratic forms, inner products, eigenvalues, diagonalization.

Strongly recommended for students intending to specialize in mathematics, statistics, physics, or related areas.

Precludes additional credit for MATH 1104, MATH 1107, MATH 1119, MATH 2107.

Note: MATH 1119 is not an acceptable substitute for half of MATH 1102.

Prerequisites: Grade 12 Mathematics: Advanced Functions, and Grade 12 Mathematics: Calculus and Vectors, with grades of at least 75% in each; or MATH 0005, MATH 0006, and MATH 0107 with grades of at least B in each; or equivalents; or permission of the School of Mathematics and Statistics.

Lectures three hours a week, tutorial one hour a week.

MATH 1104 [0.5 credit]

**Linear Algebra for Engineering or Science**

Systems of linear equations. Matrix algebra. Determinants. Complex numbers. Eigenvalues. Diagonalization and applications.

Precludes additional credit for BIT 1001, BIT 1101, MATH 1102, MATH 1107, MATH 1119.

Note: MATH 1119 is not an acceptable substitute for MATH 1104.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions, or MATH 0005, or equivalent, or permission of the School.

Lectures three hours a week and tutorial one hour a week.

MATH 1107 [0.5 credit]

**Linear Algebra I**

Systems of linear equations; vector space of n-tuples, subspaces and bases; matrix transformations, kernel, range; matrix algebra and determinants. Dot product. Complex numbers (including de Moivre's Theorem, and n-th roots). Eigenvalues, diagonalization and applications.

Precludes additional credit for BIT 1001, BIT 1101, MATH 1102, MATH 1104 and MATH 1119.

Note: MATH 1119 is not an acceptable substitute for MATH 1107.

Prerequisite: Ontario Grade 12 Mathematics: Advanced Functions, or MATH 0005, or equivalent, or permission of the School.

Lectures three hours a week and tutorial one hour a week.

MATH 1119 [0.5 credit]

**Linear Algebra: with Applications to Business**

Introduction to systems of linear equations, geometric interpretation in two and three dimensions, introduction to matrices, vector addition and scalar multiplication, linear dependence, matrix operations, rank, inversion, invertible matrix theorem, determinants. Use of illustrative examples related to business.

Precludes additional credit for, but is **not** an acceptable substitute for: MATH 1102, MATH 1104, MATH 1107. Precludes additional credit for MATH 1109, MATH 1401/ECON 1401, and MATH 1402/ECON 1402.

This course is not acceptable for (substitute) credit in any of the following degree programs: B.Math., and also B.Sc., B.C.S., B.Eng., B.I.D.

Prerequisite: Ontario Grade 12 Mathematics of Data Management; or Ontario Grade 12 Mathematics: Advanced Functions, or MATH 0005, or equivalent, or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 1401 [0.5 credit]

**Elementary Mathematics for Economics I**

Functional relations: including functional forms and error terms. Graphing economic magnitudes: scatter diagrams, time-series graphs, and functional relationships. Applied calculus: the mechanics of differentiation and integration, elasticity, and consumer/producer surplus. Applied algebra: solving systems of linear equations and Keynesian national-income analysis. Approaches to problem solving. (Also listed as ECON 1401.)

Precludes additional credit for MATH 1009 and MATH 1119.

This course is not acceptable for (substitute) credit in any of the following degree programs: B.Math., and also B.Sc., B.C.S., B.Eng., B.I.D.

Prerequisites: Ontario Grade 12 U Advanced Functions, or MATH 0005, or equivalent; and ECON 1000 or FYSM 1003, which may be taken concurrently with MATH 1401/ECON 1401.

Lectures three hours a week, tutorial one hour a week.

MATH 1402 [0.5 credit]

**Elementary Mathematics for Economics II**

Calculus: including partial differentiation, definite and indefinite integrals, techniques of integration, and unconstrained optimization. Vectors and matrices: scalar multiplication, inner product, linear dependence, matrix operations, rank, invertible matrix theorem, and determinants.

Economic applications such as profit maximization, comparative statics, and the Leontief input-output model. (Also listed as ECON 1402.)

Precludes additional credit for MATH 1009 and MATH 1119.

This course is not acceptable for (substitute) credit in any of the following degree programs: B.Math., and also B.Sc., B.C.S., B.Eng., B.I.D.

Prerequisites: ECON 1000 or FYSM 1003 with a grade of C- or higher, and ECON 1401/MATH 1401 with a grade of C- or higher.

Lectures three hours a week, tutorial one hour a week.

MATH 1805 [0.5 credit]

**Discrete Structures I**

An introduction to discrete mathematics and discrete structures. Topics include: propositional and predicate calculus, Boolean algebra, introduction to complexity of algorithms, mathematical reasoning, counting, recurrences, relations, introduction to graphs. (Also listed as COMP 1805.) This course is available to Science students only as a free option.

Prerequisites: two OACs in Mathematics, or two Grade 12 university-preparation Mathematics courses (after Summer 2002); and one of: COMP 1005 or COMP 1007 or COMP 1405 or SYSC 1100 (which may be taken concurrently).

Lectures three hours a week.

MATH 2000 [1.0 credit]

**Calculus and Introductory Analysis II (Honours)**

Higher dimensional calculus, chain rule, gradient, line and multiple integrals with applications. Use of implicit and inverse function theorems. Real number axioms, limits, continuous functions, differentiability, infinite series, uniform convergence, the Riemann integral.

Precludes additional credit for MATH 2004, MATH 2008, MATH 2009 and MATH 3009.

Prerequisites: i) MATH 1002 with a grade of C+ or higher, or MATH 2007 with a grade of B+ or higher; and ii) MATH 1102 with a grade of C+ or higher, or MATH 1107 with a grade of B+ or higher; or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 2004 [0.5 credit]

**Multivariable Calculus for Engineering or Physics**

Fourier series; expansions for even and odd functions; half-range expansions. Surfaces in  $R^3$ . Differential calculus of functions of several variables. Extrema and Lagrange multipliers. Exact differentials. Line integrals. Double integrals; polar coordinates; applications. Triple integrals; cylindrical and spherical coordinates; applications.

Precludes additional credit for: MATH 2008, MATH 2009 and MATH 2000.

Prerequisites: i) MATH 1005 or MATH 2007; and ii) MATH 1104 or MATH 1107; or permission of the School; enrolment in the Faculty of Engineering, or in B.Sc. programs of the Department of Physics (except Double Honours Mathematics and Physics).

Lectures three hours a week, tutorial one hour a week.

MATH 2007 [0.5 credit]

**Elementary Calculus II**

Techniques of integration, improper integrals. Polar coordinates, parametric equations. Indeterminate forms, sequences and series, Taylor's formula and series. Precludes additional credit for MATH 1002 and MATH 1005.

Prerequisite: i) MATH 1004, or a grade of C- or higher in MATH 1007; or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 2008 [0.5 credit]

**Intermediate Calculus**

Partial differentiation, chain rule, gradient, line and multiple integrals with applications, transformations of multiple integrals.

Precludes additional credit for: MATH 2004, MATH 2009, and MATH 2000.

Prerequisites: one of MATH 1002, MATH 1005 or MATH 2007, and one of MATH 1102, MATH 1004 or MATH 1107.

Lectures three hours a week and one hour tutorial.

MATH 2009 [0.5 credit]

**Intermediate Calculus for Science Students**

Differential equations; differential calculus of functions of several variables; multiple integration; introduction to Fourier series.

Precludes additional credit for: MATH 2004, MATH 2008, and MATH 2000.

Prerequisites: i) MATH 2007, or MATH 1002; and ii) MATH 1107 or MATH 1104 or MATH 1102; or their equivalents, or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 2100 [1.0 credit]

**Algebra II (Honours)**

Introduction to group theory: permutation groups, Lagrange's theorem, normal subgroups, homomorphism theorems. Introduction to ring theory: ring of polynomials, integral domains, ideals, homomorphism theorems. Hermitian form, spectral theorem for normal operators, classical groups.

Precludes additional credit for MATH 2108 and MATH 3101.

Prerequisite: MATH 1102 with a grade of C+ or higher, or MATH 2107 with a grade of B+ or higher, or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 2107 [0.5 credit]

**Linear Algebra II**

Finite-dimensional vector spaces (over  $R$  and  $C$ ), subspaces, linear independence and bases. Linear transformations and matrices. Inner product spaces (over  $R$  and  $C$ ); Orthonormal bases. Eigenvalues and diagonalization. Bilinear and quadratic forms; principal axis theorem.

Precludes additional credit for MATH 1102.

Prerequisites: i) MATH 1104, or a grade of C- or higher in MATH 1107 or MATH 1109; and ii) a grade of C- or higher in MATH 1007 or equivalent; or permission of the School.

**Note:** in item i), MATH 1119 is NOT acceptable as a substitute for MATH 1109.

Lectures three hours a week and one hour tutorial.

MATH 2108 [0.5 credit]

**Abstract Algebra I**

Sets and relations, number theory, group theory, ring theory, cardinal numbers.

Precludes additional credit for MATH 3101 and MATH 2100.

Prerequisite: MATH 1102 or MATH 2107.

Lectures three hours a week and one hour tutorial.

MATH 2200 [0.0 credit]

**Co-operative Work Term Report 1 (Honours)**

On completion of the work term, the student must submit to the School of Mathematics and Statistics a written report on the work performed. Graded *Sat* or *Uns*.

Prerequisites: registration in the Co-operative Education Option of an Honours program offered by the School of Mathematics and Statistics, completion of the Co-op preparation classes offered by the Co-op office, and permission of the School.

MATH 2210 [0.5 credit]

**Introduction to Geometry**

An introduction to classical geometry; Euclidean plane geometry; plane tiling; polytopes in three and four dimensions; curved surfaces; Euler characteristic.

This course is intended for a general audience, and is available to B.Math. students for credit only as a free elective.

Prerequisite: Grade 12 Mathematics and second-year standing.

Lectures three hours a week, tutorial one hour a week.

Courses - Mathematics (MATH)

MATH 2404 [0.5 credit]

**Ordinary Differential Equations I**

First-order equations, linear second- and higher-order equations, linear systems, stability of second-order systems.

Precludes additional credit for MATH 1005 and MATH 2454.

Prerequisites: MATH 1002 and MATH 1102 (or MATH 1107 and MATH 2007).

Lectures three hours a week and one hour tutorial.

MATH 2454 [0.5 credit]

**Ordinary Differential Equations (Honours)**

Existence and uniqueness theorems. First-order equations, linear second- and higher-order equations, linear systems, stability of second-order systems.

Precludes additional credit for MATH 2404.

Prerequisites: MATH 1002 or MATH 2007 or MATH 1005 with a grade of C+ or higher, and MATH 1102 or MATH 2107 with a grade of C+ or higher.

Lectures three hours a week, tutorial one hour a week.

MATH 2800 [0.5 credit]

**Discrete Mathematics and Algorithms**

An introduction to discrete mathematics and algorithms in the context of the computational sciences. Basic number theory and counting methods, algorithms for strings, trees and sequences. Applications to DNA and protein sequencing problems. Analysis and complexity of algorithms. (Also listed as CMPS 2800.)

Only one of MATH 1805/COMP 1805 or MATH 2800/CMPS 2800 may count for credit in a B.Math. program.

Prerequisites: COMP 1006 and at least one of MATH 1007, MATH 1107, or STAT 2507.

Lectures three hours a week.

MATH 2907 [0.5 credit]

**Directed Studies (Honours)**

Available only to Honours students whose program requires a 0.5 credit not offered by the School of Mathematics and Statistics.

MATH 3001 [0.5 credit]

**Real Analysis (Honours)**

Metric spaces and their topologies, continuous maps, completeness, compactness, connectedness, introduction to Banach spaces.

Prerequisite: MATH 2000 or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3002 [0.5 credit]

**Calculus of Differential Forms and Geometry (Honours)**

Differential forms and vector fields. Line and surface integrals. The divergence theorem and Stokes' theorem. Exterior algebra. Geometry of curves and surfaces. Mean and Gaussian curvatures. Gauss-Bonnet theorem.

Prerequisite: MATH 2000 or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3007 [0.5 credit]

**Functions of a Complex Variable**

Analytic functions, contour integration, residue calculus, conformal mapping. Intended for non-engineering students.

Precludes additional credit for MATH 3057 and PHYS 3807.

Prerequisite: one of MATH 2004, MATH 2008 or MATH 2009, or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3008 [0.5 credit]

**Ordinary Differential Equations (Honours)**

Analytic ordinary differential equations: series solutions of ordinary differential equations about ordinary and regular singular points. Asymptotic solutions. Sturm-Liouville theory. Bessel and Legendre functions. Fourier series.

Precludes additional credit for MATH 3404 and PHYS 3808.

Prerequisites: MATH 2000; and MATH 2454.

Lectures three hours a week and one hour tutorial.

MATH 3009 [0.5 credit]

**Introductory Analysis**

The real number system, sequences and series, functions of a single real variable, derivatives, the definite integral, uniform convergence.

Precludes additional credit for MATH 2000.

Prerequisite: one of MATH 2004, MATH 2008, MATH 2009, or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3057 [0.5 credit]

**Functions of a Complex Variable (Honours)**

Analytic functions, contour integration, residue calculus, conformal mapping.

Precludes additional credit for MATH 3007 and PHYS 3807.

Prerequisite: MATH 2000 or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3101 [0.5 credit]

**Algebraic Structures with Computer Applications**

Introduction to algebraic structures: groups, rings, fields, lattices, and Boolean algebras; with applications of interest to students in Computer Science.

This course may not be used to meet the 3000-level course requirements in any General or Honours program in Mathematics and Statistics.

Precludes additional credit for MATH 2108 and MATH 2100.

Prerequisite: MATH 2107, or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3106 [0.5 credit]

**Introduction to Group Theory (Honours)**

Homomorphism theorems; groups acting on sets; permutation groups and groups of matrices; Sylow theory for finite groups; finitely generated abelian groups; generators and relations; applications.

Precludes additional credit for MATH 3108.

Prerequisite: MATH 2100, or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 3107 [0.5 credit]

**Linear Algebra III**

Similarity and unitary triangularization of matrices. Direct methods of solving a system of linear equations. Iterative techniques. Bounds for eigenvalues. Power method and deflation techniques of approximation. Emphasis is primarily on computational aspects.

Prerequisites: i) a grade of C- or higher in MATH 1102 or MATH 2107; and ii) credit in MATH 1002 or MATH 2007; or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3108 [0.5 credit]

**Abstract Algebra II**

Groups and rings. Permutations. Finite symmetry groups. Polynomials, unique factorization domains. Quotient rings, ideals. Field extensions, finite fields. Polynomial equations. Geometric constructions - three famous problems: duplication of the cube, trisection of an arbitrary angle, quadrature of the circle.

Precludes additional credit for MATH 3106 and MATH 3158.

Prerequisite: MATH 2108, or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3158 [0.5 credit]

**Rings and Fields (Honours)**

Rings; integral domains; Euclidean and principal ideal domains; polynomial rings over a field; modules over principal ideal domains and applications; fields; algebraic extensions of fields; finite fields; applications.

Precludes additional credit for MATH 3108.

Prerequisite: MATH 2100, or permission of the School. Lectures three hours a week, tutorial one hour a week.

MATH 3200 [0.0 credit]

**Co-operative Work Term Report 2 (Honours)**

On completion of the work term, the student must submit to the School of Mathematics and Statistics a written report on the work performed. Graded *Sat* or *Uns*.

Prerequisites: Registration in the Co-operative Education Option of an Honours program offered by the School of Mathematics and Statistics, and permission of the School.

MATH 3201 [0.0 credit]

**Co-operative Work Term Report 3 (Honours)**

On completion of the work term, the student must submit to the School of Mathematics and Statistics a written report on the work performed. Graded *Sat* or *Uns*.

Prerequisites: registration in the Co-operative Education Option of an Honours program offered by the School of Mathematics and Statistics, and permission of the School.

MATH 3206 [0.5 credit]

**Plane Projective Geometry**

Axioms of Desarguesian geometry, principle of duality; projectivities, perspectivities, and the fundamental theorem; collineations (homologies and elations); correlations (polarities and conics); algebraic model; projective curves; introduction to finite projective planes.

Precludes additional credit for MATH 3256.

Prerequisite: MATH 2100 or MATH 2108 or MATH 3101.

Lectures three hours a week and one hour tutorial.

MATH 3210 [0.5 credit]

**Euclidean and Non-Euclidean Geometry**

Euclidean isometry and similarity groups; geometry of circles; inversion; hyperbolic geometry: Poincaré disk model of the hyperbolic plane.

Precludes additional credit for MATH 3205.

Prerequisite: MATH 2100 or MATH 2108 or MATH 3101.

Lectures three hours a week, tutorial one hour a week.

MATH 3306 [0.5 credit]

**Elements of Set Theory (Honours)**

Axioms of set theory. Development of the systems of natural numbers and the real numbers. Axiom of choice, Zorn's lemma, well-ordering. The Schröder-Bernstein theorem, cardinal numbers, ordinal numbers, transfinite induction, cardinal and ordinal arithmetics.

Prerequisite: MATH 2100 or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3404 [0.5 credit]

**Ordinary Differential Equations II**

Series solutions of ordinary differential equations of second order about regular singular points; asymptotic solutions. Systems of ordinary differential equations of first order; matrix methods. Existence and uniqueness theorems. Nonlinear autonomous systems of order 2; qualitative theory. Numerical solutions of ordinary differential equations.

Precludes additional credit for MATH 3008.

Prerequisites: MATH 2404, MATH 2008; and MATH 1102 or MATH 2107.

Lectures three hours a week and one hour tutorial.

MATH 3705 [0.5 credit]

**Mathematical Methods I**

Laplace transforms, Fourier series and Fourier transforms, solutions of partial differential equations of mathematical physics, boundary value problems, applications.

This course may be taken for credit as a 3000-level Honours Mathematics course, by students in any Honours program in the School of Mathematics and Statistics.

Precludes additional credit for PHYS 3808.

Prerequisites: i) MATH 1005 or MATH 2404, and ii) MATH 2004 or MATH 2008 or MATH 2009; or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3800 [0.5 credit]

**Modeling and Computational Methods for Experimental Science**

Mathematical modeling in the experimental sciences: design, analysis and pitfalls. Computational methods directly applicable to problems in science will be described, including: function evaluation, interpolation, solution of linear equations, root finding, integration, solution of differential equations, Fourier series and Monte Carlo methods. (Also listed as CMPS 3800.)

Precludes additional credit for MATH 3806/COMP 3806.

Prerequisites: i) MATH 1107 or MATH 1104; ii) MATH 1005 or MATH 2007; and iii) knowledge of a computer language.

Lectures three hours a week.

MATH 3801 [0.5 credit]

**Linear Programming**

Formulation of linear programming problems, the simplex method, duality theory, implementations, extensions and applications. Network flow problems and the network simplex method.

Precludes additional credit for ECON 4004, SYSC 3200. Prerequisite: MATH 1102 or MATH 2107, or permission of the School.

Lectures three hours a week and one hour tutorial.

MATH 3802 [0.5 credit]

**Combinatorial Optimization**

Dijkstra's algorithm and Bellman-Ford algorithm for the minimum weight dipath problem, the minimum weight spanning tree problem, augmenting path algorithm and preflow-push algorithm for the max-flow min-cut problem, connections to linear programming, matchings in bipartite graphs and the assignment problem, the transportation problem, and the general minimum-cost flow problem.

Prerequisite: MATH 3801, or permission of the School.

Lectures three hours a week, tutorial one hour a week.

MATH 3804 [0.5 credit]

**Design and Analysis of Algorithms I**

An introduction to the design and analysis of algorithms. Topics include: recurrence relations, sorting and searching, divide-and-conquer, dynamic programming, greedy algorithms, amortized analysis. (Also listed as COMP 3804.)

Prerequisites: COMP 2002, and either COMP 2805 or both of MATH 2007 and MATH 2108 or equivalents.

Lectures three hours a week.

MATH 3806 [0.5 credit]

**Numerical Analysis (Honours)**

Elementary discussion of error, polynomial interpolation, quadrature, linear systems of equations and matrix inversion, non-linear equations, difference equations and ordinary differential equations. (Also listed as COMP 3806.)

Precludes additional credit for MATH 3800.

Prerequisites: i) MATH 1002, MATH 1005 or MATH 2007; and ii) MATH 1102 or MATH 2107; and (iii) knowledge of a computer language.

Lectures three hours a week and one hour tutorial.

MATH 3807 [0.5 credit]

**Mathematical Software (Honours)**

Incorporation of basic numerical methods into efficient, reliable software. The course includes examination of existing software systems, e.g., linear systems, non-linear systems, optimization, or differential equations. (Also listed as COMP 3807.)

Prerequisite: MATH 3806.

Lectures three hours a week and one hour tutorial.

MATH 3808 [0.5 credit]

**Mathematical Analyses of Games of Chance**

This course covers mathematics used in the modern casino gaming industry. The topics include probabilities, odds, house advantages, variance and risks, optimal strategies, random walks and gambler's ruin, and gaming revenue estimation. Examples are taken from various games such as Roulette, Blackjack, and Poker. Prerequisite: one of STAT 2655, STAT 2605, STAT 2507, STAT 2606, STAT 3502, or MATH 3825 or MATH 3855.

Lectures three hours a week, tutorial one hour a week.

MATH 3809 [0.5 credit]

**Introduction to Number Theory and Cryptography**

Congruences, distribution of primes, general cryptographic systems, public key cryptographic systems and authentication using number theory, primality testing and factoring in relation to cryptography, continued fractions and Diophantine equations.

Prerequisites: MATH 2108 or MATH 3101 or MATH 2100; knowledge of a computer language.

Lectures three hours a week and one hour tutorial.

MATH 3815 [0.5 credit]

**Mathematics for Molecular Biology**

Linear recurrences; difference equations; graph theory and trees; heuristic and approximation algorithms; software tools; DNA sequencing methods; alignment; string similarity; genetic mapping.

Prerequisite: MATH 1102 (or MATH 1107); and MATH 1002 (or MATH 2007).

Lectures three hours a week.

MATH 3816 [0.5 credit]

**Mathematics for Evolutionary Biology**

Population dynamics; evolutionary trees; predator-prey models; game theory; evolutionary genetics; nonlinear dynamics and chaos; pattern formation.

Prerequisite: MATH 1002 (or MATH 2007); and MATH 1102 (or MATH 1107).

Lectures three hours a week.

MATH 3819 [0.5 credit]

**Modern Computer Algebra**

Algorithms for multiplication, division, greatest common divisors and factorization over the integers, finite fields and polynomial rings. Basic tools include modular arithmetic, discrete Fourier transform, Chinese remainder theorem, Newton iteration, and Hensel techniques. Some properties of finite fields and applications to cryptography.

Prerequisite: MATH 2108 or MATH 3101 or MATH 2100, or permission of the School.

Lectures three hours a week, tutorial/laboratory one hour a week.

MATH 3825 [0.5 credit]

**Discrete Structures and Applications**

Enumeration: elementary methods, inclusion and exclusion, recurrence relations, generating functions and applications. Graph theory and algorithms: connectivity, planarity, Hamilton paths and Euler trails. Error-correcting codes.

Precludes additional credit for MATH 3805 and MATH 3855.

Prerequisite: one of MATH 2108 or MATH 3101.

Lectures three hours a week, tutorial one hour a week.

MATH 3855 [0.5 credit]

**Discrete Structures and Applications (Honours)**

Enumeration: inclusion and exclusion, recurrence relations, generating functions and applications. Graph theory: connectivity, planarity, Hamilton paths and Euler trails. Error-correcting codes. Designs and finite geometries. Symmetry and counting. (Also listed as COMP 3805.)

Precludes additional credit for MATH 3805 and MATH 3825.

Prerequisite: MATH 2100, or a grade of B or higher in MATH 2108 or MATH 3101.

Lectures three hours a week, tutorial one hour a week.

MATH 3907 [0.5 credit]

**Directed Studies**

Available only to students whose program requires a 0.5 credit not offered by the School of Mathematics and Statistics.

MATH 4002 [0.5 credit]

**Fourier Analysis (Honours)**

Fourier series, Fourier integrals; introduction to harmonic analysis on locally compact abelian groups, Plancherel Theorem, Pontryagin duality; selected applications.

Prerequisite: MATH 3001 or permission of the School.

Lectures three hours a week.

MATH 4003 [0.5 credit]

**Functional Analysis (Honours)**

Banach spaces and bounded linear operators, Hahn-Banach extension and separation, dual spaces, bounded inverse theorems, uniform boundedness principle, applications. Compact operators. Also offered at the graduate level, with additional or different requirements, as MATH 5008, for which additional credit is precluded.

Prerequisite: MATH 4007 or permission of the School.

Lectures three hours a week.

MATH 4007 [0.5 credit]

**Measure and Integration Theory (Honours)**

Lebesgue measure and integration on the real line; sigma algebras and measures; integration theory;  $L_p$  spaces; Fubini's theorem; decomposition theorems and Radon-Nikodym derivatives. Also offered at the graduate level, with additional or different requirements, as MATH 5007, for which additional credit is precluded.

Prerequisite: MATH 3001 or permission of the School.

Lectures three hours a week.

MATH 4102 [0.5 credit]

**Group Representations and Applications (Honours)**

An introduction to the group representations and character theory, with selected applications.

Also offered at the graduate level, with additional or different requirements, as MATH 5102, for which additional credit is precluded.

Prerequisites: MATH 3106, or a grade of B or higher in MATH 3108.

Lectures three hours a week.

MATH 4105 [0.5 credit]

**Rings and Modules (Honours)**

Fundamental concepts in rings and modules, structure theorems, applications.

Prerequisite: MATH 3158 or permission of the School.

Lectures three hours a week.

MATH 4106 [0.5 credit]

**Group Theory (Honours)**

Fundamental principles as applied to abelian, nilpotent, solvable, free and finite groups; representations. Also offered at the graduate level, with additional or different requirements, as MATH 5106, for which additional credit is precluded.

Prerequisite: MATH 3106 or permission of the School.

Lectures three hours a week.

MATH 4107 [0.5 credit]

**Commutative Algebra (Honours)**

Fields, including algebraic and transcendental extensions, Galois theory, valuation theory; Noetherian commutative rings, including Noether decomposition theorem and localization.

Prerequisite: MATH 3158 or permission of the School.

Lectures three hours a week.

MATH 4108 [0.5 credit]

**Homological Algebra and Category Theory (Honours)**

Axioms of set theory; categories, functors, natural transformations; free, projective, injective and flat modules; tensor products and homology functors, derived functors; dimension theory. Also offered at the graduate level, with additional or different requirements, as MATH 5108, for which additional credit is precluded.

Prerequisite: MATH 3158 or permission of the School.

Lectures three hours a week.

MATH 4109 [0.5 credit]

**Fields and Coding Theory (Honours)**

Introduction to field theory, emphasizing the structure of finite fields, primitive elements and irreducible polynomials. The influence of computational problems will be considered. Theory and applications of error-correcting codes: algebraic codes, convolution codes, decoding algorithms, and analysis of code performance.

Prerequisite: MATH 2100, or MATH 3101 or MATH 2108 or equivalent; or permission of the School.

Lectures three hours a week.

MATH 4200 [0.0 credit]

**Co-operative Work Term Report 4 (Honours)**

On completion of the work term, the student must submit to the School of Mathematics and Statistics a written report on the work performed. Graded *Sat* or *Uns*.

Prerequisites: Registration in the Co-operative Education Option of an Honours program offered by the School of Mathematics and Statistics, and permission of the School.

MATH 4201 [0.0 credit]

**Co-operative Work Term Report 5 (Honours)**

On completion of the work term, the student must submit to the School of Mathematics and Statistics a written report on the work performed. Graded *Sat* or *Uns*.

Prerequisites: Registration in the Co-operative Education Option of an Honours program offered by the School of Mathematics and Statistics, and permission of the School.

MATH 4205 [0.5 credit]

**Introduction to General Topology (Honours)**

Topological spaces, maps, subspaces, product and identification topologies, separation axioms, compactness, connectedness. Also offered at the graduate level, with additional or different requirements, as MATH 5205, for which additional credit is precluded.

Prerequisite: MATH 3001 or permission of the School.

Lectures three hours a week.

MATH 4206 [0.5 credit]

**Introduction to Algebraic Topology (Honours)**

An introduction to homotopy theory. Topics include the fundamental group, covering spaces and the classification of two-dimensional manifolds. Also offered at the graduate level, with additional or different requirements, as MATH 5206, for which additional credit is precluded.

Prerequisites: MATH 3106 and MATH 4205; or permission of the School.

Lectures three hours a week.

MATH 4207 [0.5 credit]

**Foundations of Geometry (Honours)**

A study of at least one modern axiom system of Euclidean and non-Euclidean geometry, embedding of hyperbolic and Euclidean geometries in the projective plane, groups of motions, models of non-Euclidean geometry.

Prerequisite: MATH 3106 (may be taken concurrently) or permission of the School.

Lectures three hours a week.

MATH 4208 [0.5 credit]

**Introduction to Differentiable Manifolds (Honours)**

Introduction to differentiable manifolds; Riemannian manifolds; vector fields and parallel transport; geodesics; differential forms on a manifold; covariant derivative; Betti numbers.

Prerequisite: MATH 3002 or permission of the School.

Lectures three hours a week.

MATH 4305 [0.5 credit]

**Analytic Number Theory (Honours)**

Dirichlet series, characters, Zeta-functions, prime number theorem, Dirichlet's theorem on primes in arithmetic progressions, binary quadratic forms. Also offered at the graduate level, with additional or different requirements, as MATH 5305, for which additional credit is precluded.

Prerequisite: MATH 3057 or permission of the School.

Lectures three hours a week.

MATH 4306 [0.5 credit]

**Algebraic Number Theory (Honours)**

Algebraic number fields, bases, algebraic integers, integral bases, arithmetic in algebraic number fields, ideal theory, class number. Also offered at the graduate level, with additional or different requirements, as MATH 5306, for which additional credit is precluded.

Prerequisite: MATH 3158 (may be taken concurrently) or permission of the School.

Lectures three hours a week.

MATH 4600 [0.5 credit]

**Case Studies in Operations Research (Honours)**

Applications of the principles of Operations Research to practical problems in business, management, and science. Students present at least one case and analyze cases in the published literature. Cases may also be presented by visiting practitioners.

Note: students in Honours Mathematics/Statistics programs may only take this course as a free option.

Prerequisites: STAT 2509 (or STAT 2559) and MATH 3801; or permission of the School.

Seminars three hours a week.

MATH 4700 [0.5 credit]

**Partial Differential Equations (Honours)**

First-order partial differential equations. Classification of second-order linear partial differential equations; the diffusion equation, wave equation and Laplace's equation; separation of variables; Fourier and Laplace transform methods for the solution of initial/boundary value problems; Green's functions.

Prerequisites: MATH 3057 and one of MATH 3008 or MATH 3705, or permission of the School.

Lectures three hours a week.

Courses - Mathematics (MATH)

MATH 4701 [0.5 credit]

**Topics in Partial Differential Equations (Honours)**

Theory of distributions, initial-value problems based on 2-dimensions wave equations, Laplace transform, Fourier integral transform, diffusion problems, Helmholtz equation with application to boundary and initial-value problems in cylindrical and spherical coordinates. Also offered at the graduate level, with additional or different requirements, as MATH 5407, for which additional credit is precluded.

Prerequisites: MATH 3008 and one of MATH 3002 or MATH 3057 or permission of the School.

Lectures three hours a week.

MATH 4703 [0.5 credit]

**Dynamical Systems (Honours)**

Basic concepts of dynamical systems. Vector formulation for systems. Theory of autonomous systems in one, two and higher dimensions. Limit sets, stability. Phase plane, qualitative interpretation, limit cycles and attractors. Parametric dependence, bifurcations and chaos. Applications.

Prerequisites: MATH 3001 and MATH 3008 or permission of the School.

Lectures three hours a week.

MATH 4801 [0.5 credit]

**Topics in Combinatorics (Honours)**

An in-depth study of one or more topics from: generating functions, Polya's theory of counting, block designs, coding theory, partially ordered sets and Ramsey theory.

Prerequisites: MATH 2100 and MATH 3805 or permission of the School.

Lectures three hours a week.

MATH 4802 [0.5 credit]

**Introduction to Mathematical Logic (Honours)**

Symbolic logic, propositional and predicate calculi, set theory and model theory, completeness.

Prerequisite: MATH 2100 or permission of the School.

Lectures three hours a week.

MATH 4803 [0.5 credit]

**Computable Functions (Honours)**

Recursive functions and computability, algorithms, Church's thesis, Turing machines, computational logic, NP-completeness. (Also listed as COMP 4803.)

Prerequisite: MATH 2100 or MATH 3805 or permission of the School.

Lectures three hours a week.

MATH 4805 [0.5 credit]

**Theory of Automata (Honours)**

Finite automata and regular expressions, properties of regular sets, context-free grammars, pushdown automata, deterministic context-free languages. Turing machines, the Chomsky hierarchy. Undecidability, intractable problems. (Also listed as COMP 4805.)

Also offered at the graduate level, with additional or different requirements, as MATH 5605, for which additional credit is precluded.

Prerequisite: MATH 3805 or MATH 3106 or MATH 3158 or permission of the School.

Lectures three hours a week.

MATH 4806 [0.5 credit]

**Numerical Linear Algebra (Honours)**

Matrix computations, conditioning and stability, direct methods for linear systems, classical iterative methods: Jacobi, Gauss-Seidel; modern iterative methods, Arnoldi decomposition, GMRES and other Krylov subspace based methods for sparse and structured matrices; numerical solution of eigenvalue problems, implementation using suitable programming language, application to differential equations and optimization problems. (Also listed as COMP 4806.)

Prerequisites: MATH 1102 or MATH 2107; MATH 2000 and MATH 3806; or permission of the School.

Lectures three hours a week.

MATH 4807 [0.5 credit]

**Game Theory (Honours)**

Two-person zero-sum games; infinite games; multistage games; differential games; utility theory; two-person general-sum games; bargaining problem; n-person games; games with a continuum of players. Also offered at the graduate level, with additional or different requirements, as MATH 5607, for which additional credit is precluded.

Prerequisite: MATH 3001 or permission of the School.

Lectures three hours a week.

MATH 4808 [0.5 credit]

**Graph Theory and Algorithms (Honours)**

Paths, circuits, Eulerian and Hamiltonian graphs, connectivity, colouring problems, matching, Ramsey theory, network flows.

Prerequisite: MATH 3805 or MATH 3106 or MATH 3158 or permission of the School.

Lectures three hours a week.

MATH 4809 [0.5 credit]

**Mathematical Cryptography (Honours)**

Topics covered include: a general survey of public key cryptography; classical applications of finite fields and number theory; relevant background in geometry and algebraic curves; computational issues concerning elliptic curves; elliptic curve cryptosystems; security issues.

Prerequisite: MATH 3158, or permission of the School.

Lectures three hours a week.

MATH 4811 [0.5 credit]

**Combinatorial Design Theory (Honours)**

Existence and construction of combinatorial designs: finite geometries, pairwise balanced designs, balanced incomplete block designs, Steiner triple systems, symmetric designs, PBD closure, latin squares, transversal designs, and applications to information theory.

Prerequisite: MATH 3805, or permission of the School.

Lectures three hours a week.

MATH 4816 [0.5 credit]

**Numerical Analysis for Differential Equations**

Floating point arithmetic; numerical solution of ODEs; finite difference methods for PDEs; stability, accuracy and convergence: von Neumann analysis, CFL condition, Lax Theorem. Finite element methods: boundary value problems and elliptic PDEs. Spectral and pseudo-spectral methods.

Also offered at the graduate level as MATH 5806, with different or additional requirements, and for which additional credit is precluded.

Prerequisites: MATH 2454 and MATH 3806, or permission of the School.

Lectures three hours a week.



MATH 4821 [0.5 credit]

**Quantum Computing (Honours)**

Space of quantum bits; entanglement. Observables in quantum mechanics. Density matrix and Schmidt decomposition. Quantum cryptography. Classical and quantum logic gates. Quantum Fourier transform. Shor's quantum algorithm for factorization of integers.

Also offered at the graduate level, with additional or different requirements, as MATH 5821, for which additional credit is precluded.

Prerequisites: MATH 1102 (or MATH 2107) with a grade of C+ or better, and permission of the School.

Lectures three hours a week.

MATH 4822 [0.5 credit]

**Wavelets and Digital Signal Processing (Honours)**

Lossless compression methods. Discrete Fourier transform and Fourier-based compression methods. JPEG and MPEG. Wavelet analysis. Digital filters and discrete wavelet transform. Daubechies wavelets. Wavelet compression.

Also offered at the graduate level, with additional or different requirements, as MATH 5822, for which additional credit is precluded.

Prerequisites: MATH 1102 (or MATH 2107) with a grade of C+ or better, and permission of the School.

MATH 4905 [0.5 credit]

**Honours Project (Honours)**

Consists of a written report on some approved topic or topics in the field of mathematics, together with a short lecture on the report.

Prerequisite: B.Math.(Honours) students only.

MATH 4906 [0.5 credit]

**Directed Studies (Honours)**

Prerequisite: B.Math.(Honours) students only.

MATH 4907 [0.5 credit]

**Directed Studies (Honours)**

Prerequisite: B.Math.(Honours) students only.

## Mechanical Engineering (MECH)

Department of Mechanical and Aerospace Engineering  
Faculty of Engineering

MECH 3002 [0.5 credit]

### Machine Design and Practice

The design of mechanical machine elements is studied from theoretical and practical points of view. Topics covered include: design factors, fatigue, and discrete machine elements. Problem analysis emphasizes the application to practical mechanical engineering problems.

Prerequisites: MAAE 2001, MAAE 3202.

Lectures three hours a week, problem analysis three hours a week.

MECH 3310 [0.5 credit]

### Biofluid Mechanics

Applications of fundamental fluid mechanics to human circulatory and respiratory systems. Basic viscous flow theory including: blood flow in the heart and large arteries, air flow in extra-thoracic (nose-mouth throat) airways and lungs.

Prerequisite: MATH 2004 and MAAE 2300.

Lectures three hours per week, laboratories or tutorials three hours per week.

MECH 3700 [0.5 credit]

### Principles of Manufacturing

Manufacturing processes, materials. Casting: solidification and heat flow theory, defect formation, casting design. Metal forming: elementary plasticity theory, plastic failure criteria, force and work calculations. Bulk and sheet forming. Joining: heat flow and defect formation theory, residual stresses. Machining theory and methods. Hardening: diffusion, wear resistance.

Prerequisite: MAAE 2700.

Lectures three hours a week, problem analysis and laboratories one hour a week.

MECH 3710 [0.5 credit]

### Biomaterials

Materials used in biomedical applications: metals, polymers, ceramics and composites. Material response and degradation. Properties of biologic materials; bone, cartilage, soft tissue. Materials selection for biocompatibility.

Prerequisite: MAAE 2700.

Lectures three hours per week, laboratories and problem analysis three hours per week.

MECH 4003 [0.5 credit]

### Mechanical Systems Design

Design of mechanical systems: establishing design criteria, conceptual design, design economics, value analysis, synthesis and optimization. Mechanical elements/systems: gear and flexible drive systems, fluid power systems. These elements are utilized in group design projects.

Prerequisite: MECH 3002.

Lectures three hours a week, problem analysis three hours a week.

MECH 4006 [0.5 credit]

### Vehicle Engineering I

The course emphasizes the engineering and design principles of road transport vehicles. Topics to be covered include: performance characteristics, handling behaviour and ride quality of road vehicles.

Prerequisites: MAAE 2101, MAAE 3004 (Dynamics of Machinery) and third- or fourth-year status in Engineering.

Lectures three hours a week.

MECH 4007 [0.5 credit]

### Vehicle Engineering II

Engineering and design principles of off-road vehicles and air cushion technology. Topics include: mechanics of vehicle-terrain interaction - terramechanics, performance characteristics of off-road vehicles, steering of tracked vehicles, air cushion systems and their performance, applications of air cushion technology to transportation.

Prerequisites: MAAE 2101, MAAE 3004 (Dynamics of Machinery) and third-or fourth-year status in Engineering.

Lectures three hours a week.

MECH 4013 [0.5 credit]

### Biomedical Device Design

Medical Devices: the industry and its regulation. Design methodologies. Examination of specific medical devices: surgical equipment, orthopedic devices, rehabilitation engineering, life support, artificial organs. Case studies.

Prerequisite: MECH 4210.

Lectures three hours per week, laboratories or tutorial three hours per week.

MECH 4101 [0.5 credit]

### Mechanics of Deformable Solids

Course extends the student's ability in design and stress analysis. Topics include: introductory continuum mechanics, theory of elasticity, stress function approach, Lamé and Mitchell problems, stress concentrations, thermoelasticity and plasticity.

Prerequisite: MAAE 3202 and MAAE 4102.

Lectures three hours a week.

MECH 4103 [0.5 credit]

### Fatigue and Fracture Analysis

Elastic and elasto-plastic fracture mechanics. Fatigue design methods, fatigue crack initiation and growth Paris law and strain-life methods. Fatigue testing, scatter, mean stress effects and notches. Welded and built up structures, real load histories and corrosion fatigue. Damage tolerant design and fracture control plans.

Prerequisite: MAAE 3202 and MAAE 4102.

Lectures three hours a week.

MECH 4104 [0.5 credit]

### Vibration Analysis

Free and forced vibrations of one and two degree-of-freedom systems. Vibration measurement and isolation. Numerical methods for multi-degree-of-freedom systems. Modal analysis techniques. Dynamic vibration absorbers. Shaft whirling. Vibration of continuous systems: bars, plates, beams and shafts. Energy methods. Holzer method.

Prerequisite: MAAE 3004.

Lectures three hours per week.

MECH 4210 [0.5 credit]

### Biomechanics

The biomechanics of biological systems; muscles and movement, nerves and motor control. Measurements of motion, strain and neural signals. The hand and manipulation; locomotion and the leg.

Prerequisite: MAAE 3202, MECH 3310, MECH 3710.

Lectures three hours per week, laboratories or tutorials three hours per week.

MECH 4305 [0.5 credit]

### Fluid Machinery

Types of machines. Similarity: performance parameters; characteristics; cavitation. Velocity triangles. Euler equation: impulse and reaction. Radial pumps and compressors: analysis, design and operation. Axial pumps and compressors: cascade and blade-element methods; staging; off-design performance; stall and surge. Axial turbines. Current design practice.

Prerequisite: MAAE 3300.

Lectures three hours a week.

MECH 4401 [0.5 credit]

**Power Plant Analysis**

Criteria of merit; selection of power plant for transportation and power generation applications; interrelation among mechanical, thermodynamic and aerodynamic design processes; jet propulsion, turbojets and turbofans; alternative proposals for vehicular power plant; combined cycle applications.

Precludes additional credit for Engineering AERO 4402.

Prerequisite: MAAE 2400.

Lectures three hours a week.

MECH 4403 [0.5 credit]

**Power Generation Systems**

Energy sources and resources. Basic elements of power generation. Hydro-electric, fossil-fuel and fissile-fuel power plants. Other methods of conversion. Future methods of conversion. Economic and environmental considerations. Power generation systems. Future power needs.

Prerequisite: MAAE 2400.

Lectures three hours a week.

MECH 4406 [0.5 credit]

**Heat Transfer**

Mechanisms of heat transfer: fundamentals and solutions. Steady and transient conduction: solution and numerical and electrical analog techniques. Convective heat transfer: free and forced convection for laminar and turbulent flows; heat exchangers. Heat transfer between black and grey surfaces, radiation shields, gas radiation, radiation interchange.

Precludes additional credit for AERO 4446.

Prerequisite: MAAE 2400, MAAE 3300 or MAAE 3310, or ENVE 3001 and permission of the Department of Mechanical and Aerospace Engineering.

Lectures three hours a week.

MECH 4407 [0.5 credit]

**Heating & Air Conditioning**

Environmental demands for residential, commercial and industrial systems. Methods of altering and controlling environment. Air distribution. Refrigeration methods, equipment and controls. Integrated year-round air-conditioning and heating systems; heat pumps. Cooling load and air-conditioning calculations. Thermal radiation control. Component matching. System analysis and design.

Prerequisites: MAAE 2400 and third- or fourth- year status in Engineering.

Lectures three hours a week.

MECH 4408 [0.5 credit]

**Thermofluids and Energy Systems Design**

Integration of fluid mechanics, thermodynamics, and heat transfer for design of energy conversion systems. Chemical kinetics and mass transfer. Efficient combustion, fuel cells and batteries. Efficient operation and design of engines, power generators, boilers, furnaces, incinerators, and co-generation systems. Emerging energy systems.

Prerequisites: MAAE 3400 and MECH 4406.

Lectures three hours per week.

MECH 4501 [0.5 credit]

**State Space Modeling & Control**

Review of matrices. Geometric structure and dynamics of linear systems. Controllability and observability. Pole placement design of controllers and observers. Design of regulator and servo systems. Transmission zeros. Eigenstructure assignment. Relationship to frequency or classical control techniques. Computer solutions using MATLAB. Applications.

Precludes additional credit for SYSC 5502.

Prerequisite: MAAE 4500 or SYSC 4505 or MAAE 3502 (taken before 1999-2000).

Lectures three hours a week.

MECH 4503 [0.5 credit]

**An Introduction to Robotics**

History of robotics and typical applications. Robotic actuators and sensors. Kinematics of manipulators, inverse kinematics, differential relationships and the Jacobian. Manipulator dynamics. Trajectory generation and path planning. Robot control and performance evaluation. Force control and compliance. Applications in manufacturing and other industries.

Prerequisites: MATH 3705 and SYSC 3600.

Lectures three hours a week.

MECH 4604 [0.5 credit]

**Finite Element Methods**

Finite element methodology with emphasis on applications to stress analysis, heat transfer and fluid flow using the simplest one- and two-dimensional elements. Direct equilibrium, variational and Galerkin formulations. Computer programs and practical applications. Higher order elements.

Prerequisites: MAAE 3202 and MAAE 3300.

Lectures three hours a week.

MECH 4704 [0.5 credit]

**Integrated Manufacturing - CIMS**

Overview of the topics essential to CIMS including integration of design and assembly techniques, numerical analysis, statistical process control and related production technologies within the manufacturing enterprise. Also offered at the graduate level, with additional or different requirements, as MECH 5704, for which additional credit is precluded.

Prerequisite: AERO 3700 or MECH 3700.

Lectures three hours a week.

MECH 4705 [0.5 credit]

**CAD/CAM**

Introduction to contemporary computer aided design and manufacturing (CAD/CAM). Topics covered include mathematical representation, solid modeling, drafting, mechanical assembly mechanism design, (CNC) machining. Current issues such as CAD data exchange standards, rapid prototyping, concurrent engineering, and design for X (DFX) are also discussed.

Prerequisite: MAAE 2001 (Engineering Graphics and Design) and fourth-year status in Engineering. Lectures three hours a week.

MECH 4805 [0.5 credit]

**Measurement and Data Systems**

Experimental data, accuracy and uncertainty analysis. Analog systems. Sensors. Signal conditioning. Op-Amps, instrumentation amplifiers, charge amplifiers, filters. Digital techniques. Encoders, A/D D/A converters. Data acquisition using microcomputers. Hardware and software considerations. Interfacing. Applications to measurement of motion, strain, force/torque, pressure, fluid flow, temperature.

Precludes additional credit for Engineering ELEC 4805.

Prerequisites: STAT 3502, SYSC 3600 and ELEC 3605 or ELEC 2501.

Lectures three hours a week.

MECH 4806 [0.5 credit]

**Mechatronics**

Introduction to the integration of mechanical, electronic and software components to build mechatronic devices. Mechanical and electrical systems modeling, simulation and implementation. Basic automation and computer requirements. Design tools and examples of mechatronic applications.

Prerequisite: MAAE 4500 or AERO 4540 or SYSC 4505.

Lectures three hours per week.

MECH 4907 [1.0 credit]

**Engineering Project**

Students are required to complete a major project in engineering analysis, design, development or research. Opportunities to develop initiative, self-reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc.

Prerequisite: completion of, or concurrent registration in MECH 4003, and fourth-year status in the Mechanical Engineering program.

MECH 4917 [1.0 credit]

**Biomechanical Engineering Project**

Students are required to complete a major project in biomechanical engineering analysis, design, development or research. Opportunities to develop initiative, self-reliance, creative ability and engineering judgment. The results must be submitted in a comprehensive report with appropriate drawings, charts, bibliography, etc.

Prerequisite: completion of, or concurrent registration in MECH 4013, and fourth-year status in the Biomedical and Mechanical Engineering program.

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## Mechanical and Aerospace Engineering (MAAE)

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### Department of Mechanical and Aerospace Engineering Faculty of Engineering

MAAE 2001 [0.5 credit]

**Engineering Graphical Design**

Engineering drawing techniques; fits and tolerances; working drawings; fasteners. Elementary descriptive geometry; true length, true view, and intersection of geometric entities; developments. Assignments will make extensive use of Computer-Aided Design (CAD) and will include the production of detail and assembly drawings from actual physical models.

Precludes additional credit for ECOR 1001.

Prerequisite: ECOR 1010 or ECOR 1000 before 2003.

Lectures and tutorials two hours a week, laboratory four hours a week.

MAAE 2101 [0.5 credit]

**Engineering Dynamics**

Review of kinematics and kinetics of particles: rectilinear and curvilinear motions; Newton's second law; energy and momentum methods. Kinematics and kinetics of rigid bodies: plane motion of rigid bodies; forces and accelerations; energy and momentum methods.

Precludes additional credit for CIVE 2101 or ECOR 2101.

Prerequisites: ECOR 1101 and MATH 1005 and MATH 1104.

Lectures three hours a week, problem analysis three hours a week.

MAAE 2202 [0.5 credit]

**Mechanics of Solids I**

Review of Principles of Statics; friction problems; Concepts of stress and strain at a point; statically determinate and indeterminate stress systems; torsion of circular sections; bending moment and shear force diagrams; stresses and deflections in bending; stress and strain transformations.

Precludes additional credit for CIVE 2200.

Prerequisites: ECOR 1101, MATH 1005 and MATH 1104.

Lectures three hours a week, problem analysis and laboratory three hours a week.

MAAE 2300 [0.5 credit]

**Fluid Mechanics I**

Fluid properties. Units. Kinematics, dynamics of fluid motion: concepts of streamline, control volume, steady and one-dimensional flows; continuity, Euler, Bernoulli, steady flow energy, momentum, moment of momentum equations; applications. Fluid statics; pressure distribution in fluid at rest; hydrostatic forces on plane and curved surfaces; buoyancy.

Prerequisites: MATH 1005, MATH 1104 and ECOR 1101.

Lectures three hours a week, laboratory and problem analysis three hours a week.

MAAE 2400 [0.5 credit]

**Thermodynamics & Heat Transfer**

Basic concepts of thermodynamics: temperature, work, heat, internal energy and enthalpy. First law of thermodynamics for closed and steady-flow open systems. Thermodynamic properties of pure substances; changes of phase; equation of state. Second law of thermodynamics: concept of entropy. Simple power and refrigeration cycles. Introduction to heat transfer: conduction, convection and radiation.

Prerequisites: CHEM 1101 or CHEM 1001 and CHEM 1002, MATH 1005 and MATH 1104.

Lectures three hours a week, laboratory and problem analysis three hours a week.

MAAE 2700 [0.5 credit]

**Engineering Materials**

Materials (metals, alloys, polymers) in engineering service; relationship of interatomic bonding, crystal structure and defect structure (vacancies, dislocations) to material properties; polymers, phase diagrams and alloys; microstructure control (heat treatment) and mechanical properties; material failure; corrosion.

Precludes additional credit for CIVE 2700.

Prerequisites: CHEM 1101 or CHEM 1001 and CHEM 1002 and ECOR 1101.

Lectures three hours a week, problem analysis and laboratory three hours a week.

MAAE 3004 [0.5 credit]

**Dynamics of Machinery**

Kinematic and dynamic analysis of mechanisms and machines. Mechanism force analysis. Static and dynamic balancing. Kinematic and dynamic analysis of cams. Free and forced vibration of single-degree-of-freedom systems. Introduction to multibody dynamics.

Prerequisite: MAAE 2101.

Lectures three hours a week, problem analysis and laboratories two hours a week.

MAAE 3202 [0.5 credit]

**Mechanics of Solids II**

Buckling instability; torsion of non-circular sections; unsymmetric bending and shear centre; energy methods; complex stresses and criteria of yielding; elementary theory of elasticity; axisymmetric deformations.

Precludes additional credit for CIVE 3202.

Prerequisite: MAAE 2202.

Lectures three hours a week, problem analysis and laboratory three hours a week.

MAAE 3300 [0.5 credit]

**Fluid Mechanics II**

Review of control volume analysis. Dimensional analysis and similitude. Compressible flow: isentropic flow relations, flow in ducts and nozzles, effects of friction and heat transfer, normal and oblique shocks, two-dimensional isentropic expansion. Viscous flow theory: hydrodynamic lubrication and introduction to boundary layers.

Precludes additional credit for MAAE 3303.

Prerequisites: MATH 2004 and MAAE 2300.

Lectures three hours a week, problem analysis and laboratory three hours a week.

MAAE 3400 [0.5 credit]

**Applied Thermodynamics**

Gas and vapour power cycles: reheat, regeneration, combined gas/vapour cycles, cogeneration. Heat pump and refrigeration cycles: vapour compression cycles, absorption refrigeration and gas refrigeration. Mixtures of perfect gases and vapours: psychometry and combustion. Principles of turbomachinery.

Prerequisite: MAAE 2400.

Lectures three hours a week, problem analysis and laboratories one hour a week.

MAAE 3901 [0.5 credit]

**Mech & Aero Engineering Lab**

Students perform a series of laboratory exercises dealing with a wide range of mechanical engineering topics. Included in this course is a group design project. Students relate theory and practice and develop experience with modern engineering equipment, measurement techniques and design methodology. Good reporting practice is emphasized.

Precludes additional credit for MAAE 4901.

Prerequisite: third-year status in Engineering.

Lectures and tutorials one hour a week, laboratory five hours a week.

MAAE 4102 [0.5 credit]

**Materials: Strength & Fracture**

Analysis and prevention of failures in metals and composite materials; plasticity analysis and plastic collapse; micro-mechanisms of fracture, conditions leading to crack growth and transition temperature effects, fracture mechanics, fatigue, environmentally assisted cracking, non-destructive evaluation and testing. Mechanical properties of structural composites.

Prerequisite: MAAE 2700.

Lectures three hours a week.

MAAE 4500 [0.5 credit]

**Feedback Control Systems**

Introduction to the linear feedback control. Analysis and design of classical control systems. Stability and the Routh-Hurwitz criteria. Time and frequency domain performance criteria, robustness and sensitivity. Root locus, Bode and Nyquist design techniques. Control system components and industrial process automation.

Precludes additional credit for MAAE 3502 or SYSC 4505.

Prerequisites: MATH 3705 and SYSC 3600.

Lectures three hours a week.

MAAE 4906 [0.5 credit]

**Special Topics: Mech & Aero Eng.**

At the discretion of the Faculty, a course may be offered that deals with selected advanced topics of interest to Aerospace and Mechanical Engineering students.

Prerequisite: permission of the Department.

MAAE 4917 [0.5 credit]

**Undergraduate Directed Study**

Student carries out a study, analysis, and solution of an engineering problem. Results presented in the form of a written report. Carried out under the close supervision of a faculty member. Intended for students interested in pursuing graduate studies. Requires supervising faculty member and proposal from student.

Prerequisite: permission of the Department and completion of, or concurrent registration in, AERO 4907 or MECH 4907.

## Music (MUSI)

### School for Studies in Art and Culture Faculty of Arts and Social Sciences

*Note:* the majority of courses are open to non-Majors; students are advised to consult the Discipline. Priority is given to Music students.

MUSI 1000 [0.5 credit]

#### Introduction to the Study of Music

Introduction to issues and methods in the study of music. Development of writing and research skills; methodological approaches in all academic areas of music (historical musicology, ethnomusicology, popular music studies, music theory).

Prerequisite: first-year enrolment in the B.Mus., B.A. Music or B.A. Hons. Music program.

Lectures three hours a week.

MUSI 1001 [0.5 credit]

#### A History of Western Classical Music: Medieval to the Present

Western classical music from the medieval period to the present. Major historical periods (Medieval, Renaissance, Baroque, Classical, Romantic, Modern, Postmodern) are examined through representative music ranging from Gregorian chant to contemporary experimental trends.

Lectures three hours a week.

MUSI 1002 [0.5 credit]

#### Issues in Popular Music

History of world popular music from the 19th century until the present. Topics may include the growth of the music industry, the impact of technology, stardom, world music, the role of the press, copyright, censorship, and sexuality.

Lectures three hours a week.

MUSI 1106 [0.5 credit]

#### Elementary Materials of Music I

An introduction to the rudiments of music and aural training. Not available to B.Mus. students or those with sufficient expertise to enrol in MUSI 1701.

Precludes additional credit for MUSI 1105.

Lectures three hours a week.

MUSI 1107 [0.5 credit]

#### Elementary Materials of Music II

A continuation of MUSI 1106. Successful completion of this course will fulfil the prerequisite for entry into MUSI 1701. Not available to B.Mus. students or those with sufficient expertise to enrol in MUSI 1701.

Precludes additional credit for MUSI 1105.

Lectures three hours a week.

MUSI 1701 [0.5 credit]

#### Theoretical Studies I

An introduction to the organizational principles underlying tonal music: intervals, rhythm, metre, chords, scales and harmonic progressions.

Precludes additional credit for MUSI 1501 and MUSI 1700.

Prerequisite: permission of the Discipline.

Lectures three hours a week.

MUSI 1712 [1.0 credit]

#### Theoretical Studies II

Concentration on the rhythmic, melodic and harmonic materials of tonal practice for both sight-reading and dictation. The practical component includes African singing, drumming and dancing.

Precludes additional credit for MUSI 1501 and MUSI 1700.

Labs and workshops three hours a week.

MUSI 1900 [0.5 credit]

#### Performance I

Individual vocal or instrumental instruction in classical, traditional or popular idioms.

Prerequisite: audition and enrolment in the B.Mus. program.

Individual tuition ten hours a term.

MUSI 1901 [0.5 credit]

#### Performance II

Individual vocal or instrumental instruction in classical, traditional or popular idioms.

Prerequisite: MUSI 1900 and enrolment in the B.Mus. program.

Individual tuition ten hours a term.

MUSI 1912 [0.0 credit]

#### Choral Ensemble I

Participation in a choral ensemble, by arrangement with the Supervisor of Performance and Practical Studies. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: first-year standing in the B.Mus. program and permission of the Choral Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 1913 [0.0 credit]

#### Choral Ensemble II

A continuation of MUSI 1912. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: first-year standing in the B.Mus. program and permission of the Choral Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 1914 [0.0 credit]

#### Instrumental Ensemble I

Participation in an instrumental ensemble, by arrangement with the Supervisor of Performance and Practical Studies. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: first-year standing in the B.Mus. program and permission of the Ensemble Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 1915 [0.0 credit]

#### Instrumental Ensemble II

A continuation of MUSI 1914. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: first-year standing in the B.Mus. program and permission of the Ensemble Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 2005 [0.5 credit]

#### Introduction to Jazz History

A survey of ragtime and jazz from their roots in pre-twentieth-century black music and white music to contemporary jazz idioms, including an examination of New Orleans jazz and Dixieland, swing, bebop, cool jazz, and free jazz.

Precludes additional credit for MUSI 2205.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2006 [0.5 credit]

**Popular Musics before 1945**

Selected aspects of the development of Anglo-American popular musics from their roots in the nineteenth century until the shifts and tensions which led to the advent of rock 'n' roll and soul in the 1950s. Genres to be examined include blues, country, the sentimental ballad, and Broadway music.

Precludes additional credit for MUSI 2203, MUSI 2206, MUSI 2208.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2007 [0.5 credit]

**Popular Musics after 1945**

Selected aspects of the development of Anglo-American and world popular musics from the advent of rock 'n' roll and soul to the present. Early rock 'n' roll, British rhythm 'n' blues, Motown, West Coast music, punk, heavy metal, new wave, disco and country.

Precludes additional credit for MUSI 2207, MUSI 2208, MUSI 2209.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2008 [0.5 credit]

**An Introduction to Ethnomusicology**

Ethnomusicological research methods and issues are introduced and illustrated through case studies of musics from around the world.

Precludes additional credit for MUSI 2300.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2009 [0.5 credit]

**Music of Asia**

A comparative and analytical study of music in Asia, including India, China, Korea, Indonesia, Japan, and the Arabic world, through an examination of the music, musical instruments and theoretical systems.

Precludes additional credit for MUSI 2301.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2100 [0.5 credit]

**Music in the Middle Ages**

A survey of music in its courtly, national and ecclesiastical contexts from the fourth to the fifteenth centuries, including the study of secular monophony, medieval polyphony and liturgical music.

Precludes additional credit for MUSI 2000.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2101 [0.5 credit]

**Music in the Renaissance**

A survey of music from 1400 to 1650, including works from the Burgundian and Flemish schools, French chanson, sacred Latin music, Italian and Elizabethan madrigal, and dance music. Transitions from the renaissance to baroque style.

Precludes additional credit for MUSI 2001.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2102 [0.5 credit]

**Music in the Baroque Era**

A survey of the major genres and composers in the period 1600 to 1750. Instrumental music, oratorio, motet, cantata, sonata, concerto, and opera genres. Monteverdi, Schütz, Lully, Couperin, Rameau, Vivaldi, Bach, and Handel.

Precludes additional credit for MUSI 2001.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2103 [0.5 credit]

**Music in the Classical Era**

European music from the early 18th century to the beginning of Romanticism. The evolution of the Classical style in important works of composers from the 1720s and the Viennese school of Haydn, Mozart, and Beethoven.

Precludes additional credit for MUSI 2002.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2104 [0.5 credit]

**Music in the Romantic Era**

European classical music from c.1790 to c.1910. Important genres (art song, symphony, opera, etc.); individual and national styles in the context of the socio-political climate of the period.

Precludes additional credit for MUSI 2002.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2105 [0.5 credit]

**Twentieth-Century Music to World War II**

A survey of European classical music from c. 1890 to c. 1945. Idioms to be examined in the socio-political climate of the period include Debussyan impressionism, Viennese expressionism, nationalism, and Stravinskian neoclassicism.

Precludes additional credit for MUSI 2003.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2106 [0.5 credit]

**Music Since World War II**

Selected aspects of the musical avant-garde in the Western classical tradition in the socio-political climate of the post-War period. Serialism, colouristic and textural composition, music of political commitment, electronic music, musical theatre, process music and the music of chance.

Precludes additional credit for MUSI 2004.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 2601 [0.5 credit]

**Introduction to Instrumentation**

Introduction to the fundamentals of effective and professional arranging. All aspects of the various instruments of the orchestra and matters having to do with the practicalities of orchestration for both small and large ensembles, and accepted professional standards of score presentation.

Prerequisites: MUSI 1701, MUSI 1712, and MUSI 2700 (may be taken concurrently), or permission of the instructor.

MUSI 2602 [0.5 credit]

**Composition I**

Introduction to theories and technicalities involved in original creative writing through the preparation of individual assignments; based in the practice of recent music in the Western Classical tradition while allowing for the music of other Western styles and traditions to be addressed.

Prerequisite: MUSI 1701, MUSI 1712, and MUSI 2700 (may be taken concurrently), or permission of the instructor. MUSI 2601 is recommended.

Lectures and workshops three hours a week.

MUSI 2603 [1.0 credit]

**Survey of Computer Music Applications**

Introduction to various applications commonly used in the production of computer music.

Prerequisite: enrolment in one of the programs of the School for Studies in Art & Culture or permission of the instructor.

Precludes additional credit for ACUL 2105.

Lectures and studio demonstrations three hours a week.

Courses - Music (MUSI)

MUSI 2605 [0.5 credit]

**Choral Conducting**

Introduction to the special stylistic features of choral music from the Renaissance to the present as well as to a variety of practical techniques (vocal production, gesture, conducting patterns, diction, etc.).  
Prerequisite: second-year standing in the B.Mus. program or permission of the instructor.  
Lectures three hours a week.

MUSI 2700 [0.5 credit]

**Theoretical Studies III: Common Practice**

A study of the harmonic, melodic, rhythmic and formal structures of music of the common practice period, with emphasis on the development of written musical skills. Precludes additional credit for MUSI 2500.  
Prerequisite: MUSI 1701 and MUSI 1712, or permission of the instructor.  
Lectures two hours a week throughout the fall and winter terms.

MUSI 2701 [0.5 credit]

**Theoretical Studies IV: Popular Music Practice**

A study of the rhythmic, melodic, harmonic and formal structures of popular musics.  
Prerequisite: MUSI 1701 and MUSI 1712, or permission of the Discipline.  
Lectures three hours a week.

MUSI 2712 [1.0 credit]

**Theoretical Studies V: Aural Training**

A practical study of music as an aural phenomenon. Hearing skills and aural concentration are developed through recall, reproduction, aural analysis and transcription. Sound materials are drawn from a wide range of sources, live and recorded.  
Precludes additional credit for MUSI 2501.  
Prerequisite: MUSI 1701 and MUSI 1712, or permission of the instructor.  
Labs and workshops three hours a week through the fall and winter terms.

MUSI 2703 [0.5 credit]

**Theoretical Studies VI: Practical Skills**

A practical study of rhythm, harmony and melody on the keyboard, with an emphasis on vocal and instrumental accompaniment and the development of improvisation skills in a variety of styles.  
Precludes additional credit for MUSI 1502.  
Prerequisites: MUSI 1701 and MUSI 1712, or permission of the Discipline.  
Labs three hours a week.

MUSI 2900 [0.5 credit]

**Performance III**

A continuation of MUSI 1901.  
Prerequisite: second-year standing in the B.Mus. program and MUSI 1901, or permission of the Discipline.  
Individual tuition ten hours a term.

MUSI 2901 [0.5 credit]

**Performance IV**

A continuation of MUSI 2900.  
Prerequisite: second-year standing in the B.Mus. program and MUSI 2900, or permission of the Discipline.  
Individual tuition ten hours a term.

MUSI 2912 [0.0 credit]

**Choral Ensemble III**

A continuation of MUSI 1913. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.  
Prerequisite: second-year standing in the B.Mus. program and permission of the Choral Director.  
Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 2913 [0.0 credit]

**Choral Ensemble IV**

A continuation of MUSI 2912. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.  
Prerequisite: second-year standing in the B.Mus. program and permission of the Choral Director.  
Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 2914 [0.0 credit]

**Instrumental Ensemble III**

A continuation of MUSI 1915. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.  
Prerequisite: second-year standing in the B.Mus. program and permission of the Ensemble Director.  
Ensemble work approximately two hours a week through either the fall or winter term, and participation in concerts.

MUSI 2915 [0.0 credit]

**Instrumental Ensemble IV**

A continuation of MUSI 2914. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.  
Prerequisite: second-year standing in the B.Mus. program and permission of the Ensemble Director.  
Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 3102 [0.5 credit]

**Music in the United States in the Twentieth Century**

A survey of contemporary American music. Topics include: Ives and the experimental tradition; Copland, Thomson, Harris and the American nationalists; the neoromantics; Gershwin and the third stream; and post-1945 developments in indeterminacy and minimalism.  
Precludes additional credit for MUSI 3102.  
Prerequisite: second-year standing.  
Lectures three hours a week.

MUSI 3103 [0.5 credit]

**Canadian Music**

An examination of various issues related to the study of music in Canada and by Canadians, and an examination of various genres of Canadian music, including art music, folk music, popular music, First Peoples music and music of various immigrant groups.  
Precludes additional credit for MUSI 3100.  
Prerequisite: second-year standing.  
Lectures three hours a week.

MUSI 3104 [0.5 credit]

**Popular Musics of Canada**

A survey of popular musics in Canada from early colonial times to the present. The course will consider a wide range of musical styles and genres, along with related cultural and historical issues.  
Precludes additional credit for MUSI 3100.  
Prerequisite: second-year standing.  
Lectures three hours a week.

MUSI 3106 [0.5 credit]

**Popular Musics of the World**

Popular musics of the world, including those of Africa, Asia, Central and Eastern Europe, Latin America, the Caribbean and Oceania. Special attention to the interaction between some world popular musics and the Western record industry.  
Prerequisite: MUSI 2008 or MUSI 2009.  
Lectures three hours a week.



MUSI 3107 [0.5 credit]

**Classical Indian Music I**

An introduction to the history and theory of classical Indian music including ragas, instruments, rhythm and improvisation.

Prerequisite: second-year standing, or permission of the instructor.

Lectures three hours a week.

MUSI 3302 [0.5 credit]

**Music and Gender I**

The role of gender in the theory and practice of music in western and non-western cultures.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 3400 [0.5 credit]

**A History of Opera before 1800**

A survey of the development of opera from the beginnings to about 1800. The major monuments of Italian, French, German and English opera, by such composers as Monteverdi, Cavalli, Scarlatti, Purcell, Lully, Gluck, Rameau, Mozart and Haydn.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 3401 [0.5 credit]

**A History of Opera from 1800 to 1945**

A study of romantic and contemporary opera through an examination of selected works from Weber's *Der Freischütz* to Britten's *Peter Grimes*, including an investigation of national styles from Wagnerian music drama and Italian verismo to Russian realism and German expressionism.

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 3402 [0.5 credit]

**Film Music**

The use of music in film, from the silent era to the present day, studying the techniques, styles and theory of film music through the examination of selected scenes. (Also listed as FILM 3402.)

Prerequisite: second-year standing.

Lectures three hours a week, screening two hours a week.

MUSI 3403 [0.5 credit]

**Music Industries**

An introduction to the structure and history of the music industries. (Also listed as MCOM 3404.)

Prerequisite: second-year standing.

Lectures three hours a week.

MUSI 3405 [0.5 credit]

**Musical Theatre**

A survey of the styles, works, and artists of the musical theatre genre as well as the artistic elements that comprise musical theatre.

Prerequisite: second-year standing

Lectures three hours a week.

MUSI 3600 [1.0 credit]

**Composition II**

An introductory course in composition designed to enable students to develop abilities in the writing of original music. The study and appreciation of modern and contemporary styles and techniques are encouraged.

Prerequisite: MUSI 2601 and MUSI 2602, or permission of the instructor.

Seminars three hours a week.

MUSI 3603 [0.5 credit]

**Computer Music Techniques**

An introduction to the techniques of sound synthesis primarily through practical experience at the digital synthesizer and computer. The basics of machine operations, software and computer applications to composition and synthesis. Enrolment is limited.

Prerequisite: second-year standing, ACUL 1105 and ACUL 2105, or permission of the instructor.

Lectures three hours a week, plus individual studio time.

MUSI 3604 [0.5 credit]

**Computer Music Projects**

A continuation of MUSI 3603. The various applications of digital equipment are examined through the realization of original projects. Students may focus on studio composition, software development or analytic research. Appropriate compositional techniques and problem solving strategies are also discussed. Enrolment is limited.

Prerequisite: MUSI 3603, or permission of the instructor. Lectures three hours a week, plus individual studio time.

MUSI 3700 [0.5 credit]

**Theoretical Studies VII: Seminar in Theory Topics**

A study of a selected topic in music theory. Topics will change yearly and may include: methods of music analysis, analysis of selected works, styles and structures of common practice or post common practice period, music, modal, tonal, or post-tonal counterpoint, history of music theory.

Prerequisite: additional credit for MUSI 3500.

Prerequisite: MUSI 2700 or permission of the instructor.

Seminars three hours a week.

MUSI 3701 [0.5 credit]

**Theoretical Studies VIII: Jazz Styles and Structures**

Techniques of arranging and composition for small and large ensembles will be studied through the examination of selected works drawn from the jazz repertoire. Works will be selected for stylistic and theoretical analysis, for exercises in aural recognition, and for arranging purposes.

Prerequisite: additional credit for MUSI 4203 (taken in 1994-95) or MUSI 4204 (taken in 1995-96).

Prerequisite: MUSI 2701 or permission of the instructor.

Workshops three hours a week.

MUSI 3702 [0.5 credit]

**Introduction to Physics and Psychoacoustics of Music**

Basic topics in physics and psychoacoustics, with an emphasis on those concepts that are most useful for music performance, analysis and composition, and for musicology.

Prerequisite: second-year standing

Lectures three hours a week.

MUSI 3703 [0.5 credit]

**Improvisation in Theory and Practice**

This course examines selected forms of improvisation from diverse musical and cultural traditions. In addition to weekly seminar meetings, the class will engage in experiential forms of learning by actively improvising in a weekly performance-oriented seminar.

Prerequisite: third-year standing

Discussion seminar 1.5 hours per week, performance seminar 1.5 hours per week.

MUSI 3900 [0.5 credit]

**Performance V**

A continuation of MUSI 2901.

Prerequisite: third-year standing in B. Mus. and MUSI 2901, or permission of the Discipline.

Individual tuition ten hours a term.

MUSI 3901 [0.5 credit]

**Performance VI**

A continuation of MUSI 3900.

Prerequisite: third-year standing in the B.Mus. program and MUSI 3900, or permission of the Discipline.

Individual tuition ten hours a term.

MUSI 3912 [0.0 credit]

**Choral Ensemble V**

A continuation of MUSI 2913. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: third-year standing in the B.Mus. program and permission of the Choral Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 3913 [0.0 credit]

**Choral Ensemble VI**

A continuation of MUSI 3912. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: third-year standing in the B.Mus. program and permission of the Choral Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 3914 [0.0 credit]

**Instrumental Ensemble V**

A continuation of MUSI 2915. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: third-year standing in the B.Mus. program and permission of the Ensemble Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 3915 [0.0 credit]

**Instrumental Ensemble VI**

A continuation of MUSI 3914. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: third-year standing in the B.Mus. program and permission of the Ensemble Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 4005 [0.5 credit]

**Issues in Jazz Studies**

An examination of key issues in the study of jazz including history/historiography, gender, genre, race, politics, identity and performance.

Prerequisite: MUSI 2005 and third-year standing.

MUSI 4006 [0.5 credit]

**Issues in the Study of Popular Music**

An introduction to current issues in the study of popular music. The course will be organized around a series of case studies.

Prerequisite: third-year standing, MUSI 1002, and at least one of MUSI 2005, 2006, or 2007.

Seminars three hours a week.

MUSI 4102 [0.5 credit]

**Theory and Methods in Ethnomusicology**

Selected readings and discussion of major works in ethnomusicology, focusing on schools of thought and contemporary issues. Introduction to a variety of methods and strategies for ethnomusicological research, including field work, musical transcription and data analysis.

Prerequisite: third-year standing.

Seminars three hours a week.

MUSI 4103 [0.5 credit]

**Ethnomusicology of Canadian Traditions**

Anthropological, sociological, and analytical approaches to ethnomusicology are examined in the context of selected developments in folklore and ethnomusicological research on Canadian music traditions. Also offered at the graduate level, with additional requirements, as MUSI 5015, for which additional credit is precluded.

Prerequisite: fourth-year standing or permission of the instructor.

Seminars three hours a week.

MUSI 4104 [0.5 credit]

**Musics of Canada's First Peoples**

The context and significance of musical expressions for representative Canadian First Nations and the contributions of individuals in the creation of music and meaning in First Peoples' communities. Also offered at the graduate level, with additional requirements, as MUSI 5016, for which additional credit is precluded.

Prerequisite: fourth-year standing or permission of the instructor.

Seminars three hours a week.

MUSI 4107 [0.5 credit]

**Classical Indian Music II**

A continuation of MUSI 3107, featuring more in-depth study of the history and theory of classical Indian music.

Prerequisite: third-year standing or permission of the instructor.

Seminars three hours a week.

MUSI 4109 [1.0 credit]

**Specialized Studies**

A course designed for Music Honours students who have acquired an extensive background through courses in theory, musicology or composition. The course offerings change from year to year.

Prerequisite: permission of the instructor.

Lectures and seminars three hours a week.

MUSI 4200 [0.5 credit]

**Special Topics**

Courses focusing on one selected aspect of music, in the area of either musicology, theory or composition. The course offerings change from year to year.

Prerequisite: permission of the instructor.

Lectures and seminars three hours a week.

MUSI 4201 [0.5 credit]

**Special Topics**

Courses focusing on one selected aspect of music, in the area of either musicology, theory or composition. Course offerings change from year to year.

Prerequisite: permission of the instructor.

Lectures and seminars three hours a week.

MUSI 4205 [0.5 credit]

**Specialized Studies**

Courses designed for Music Honours students who have acquired an extensive background through courses in theory, musicology, performance, or composition. Course offerings change from year to year.

Prerequisite: permission of the instructor.

Lectures and seminars three hours a week.

MUSI 4206 [0.5 credit]

**Specialized Studies**

Courses designed for Music Honours students who have acquired an extensive background through courses in theory, musicology, performance, or composition. Course offerings change from year to year.

Prerequisite: permission of the instructor.

Lectures and seminars three hours a week.

MUSI 4209 [1.0 credit]

**Specialized Studies**

A course designed for Music Honours students who have acquired an extensive background through courses in theory, musicology or composition. Course offerings change from year to year.

Prerequisite: permission of the instructor.

Lectures and seminars three hours a week.

MUSI 4300 [0.5 credit]

**Notation of Medieval and Renaissance Music**

Major paleographic and transcriptional problems encountered in early chant notation, square and Franconian notations, innovations of the Ars Nova and mannerist phrases, white notation, and various lute tablatures. Detailed study and transcription of selected examples from the ninth to sixteenth centuries.

Prerequisite: MUSI 2100, MUSI 2101 or permission of the instructor.

Lectures three hours a week.

MUSI 4303 [0.5 credit]

**Music and Gender II**

The relationship between the social and formal organization of music and the social and formal organization of sexual difference. The role of music in the social construction of gender; the role of gender in the determination of musical style and taste.

Precludes additional credit for MUSI 3303 or MUSI 4204 (taken in 1992-93).

Prerequisite: MUSI 3302 or permission of the instructor.

Seminars three hours a week.

MUSI 4700 [0.5 credit]

**Theoretical Studies IX: Seminar in Theory Topics**

A study of a selected topic in music theory. Topics will change yearly and may include: methods of music analysis; analysis of selected works; styles and structures of common practice or post common practice period music; modal, tonal, or post-tonal counterpoint; history of music theory.

Prerequisite: MUSI 2700 or permission of the instructor.

Seminars three hours a week.

MUSI 4701 [0.5 credit]

**Theoretical Studies X: Advanced Jazz Theory**

A continuation of MUSI 3701, this course focuses on advanced techniques related to jazz theory, composition, arranging, and analysis.

Prerequisite: MUSI 3701 or permission of the instructor.

Seminars three hours a week.

MUSI 4702 [0.5 credit]

**Topics in Music Perception and Cognition**

Selected advanced topics in the perception and cognition of music. Where appropriate, emphasis will be placed upon areas of overlap between psychological research and issues in aesthetics and cultural theory.

Prerequisites: third-year standing and MUSI 3702, or permission of the department.

Seminars three hours a week.

MUSI 4703 [0.5 credit]

**Performance Practice**

How music in earlier periods of the Western tradition was performed, the "authentic" movement of the twentieth century, and the boundaries within which compositions of Asian high cultures and jazz and popular music standards can be realized.

Prerequisite: permission of the instructor.

Seminars three hours a week.

MUSI 4800 [0.5 credit]

**Practicum in Music**

Practical experience in music-specific projects such as recording studios, librarianship, research, multimedia, etc. at local institutions. A maximum of one credit of practicum may be offered in fulfilment of Music requirements.

Prerequisites: Honours Music registration with third- or fourth-year standing and a B+ or better average in Music courses; or permission of the Practica Supervisor.

MUSI 4801 [0.5 credit]

**Practicum in Music**

Practical experience in music-specific projects such as recording studios, librarianship, research, multimedia, etc. at local institutions. A maximum of one credit of practicum may be offered in fulfilment of Music requirements.

Prerequisites: Honours Music registration with third- or fourth-year standing and a B+ or better average in Music courses; or permission of the Practica Supervisor.

MUSI 4900 [1.0 credit]

**Performance VII**

A continuation of MUSI 3901. This course may not be taken in addition to or concurrently with MUSI 4907.

Prerequisite: fourth-year standing in the B.Mus. program, MUSI 3901, and permission of both the Discipline and the instructor.

Individual tuition twenty hours over two consecutive terms.

MUSI 4906 [1.0 credit]

**Honours Portfolio in Composition**

The course requires the composition of an original work of substantial proportions, with an accompanying analytical paper. Application to the Discipline for permission to register must be received by September 1.

Precludes additional credit for MUSI 4600.

Prerequisite: fourth-year standing, MUSI 3600 and permission of the Discipline.

MUSI 4907 [1.0 credit]

**Graduating Recital**

The course requires a public recital arranged in consultation with the Supervisor of Performance and Practical Studies. An outline of the program must be submitted one week before the last day for course changes.

Precludes additional credit for MUSI 4900.

Prerequisites: fourth-year standing in B.Mus., MUSI 3901, and permission of both the Discipline and the instructor.

Individual tuition twenty hours over two consecutive terms.

MUSI 4908 [1.0 credit]

**Honours Essay in Musicology**

An Honours research essay of approximately 50 pages. A written outline of the project must be submitted to the Honours committee changes by the first day of classes.

Prerequisite: fourth-year standing and permission of the Discipline.

MUSI 4909 [1.0 credit]

**Portfolio in New Media**

The course requires the creation of an original work (or works) of substantial proportions using applications in the electronic studios. A high level of independence and originality will be required. Requests to the Discipline for permission to register must be received by September 1.

Prerequisite: permission of the Discipline and enrolment in the Sonic Design program.

MUSI 4912 [0.0 credit]

**Choral Ensemble VII**

A continuation of MUSI 3913. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: fourth-year standing in the B.Mus. program and permission of the Choral Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 4913 [0.0 credit]

**Choral Ensemble VIII**

A continuation of MUSI 4912. Registration, but not participation, is restricted to students in the B. Mus. program. Graded Sat/Uns.

Prerequisite: fourth-year standing in the B.Mus. program and permission of the Choral Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 4914 [0.0 credit]

**Instrumental Ensemble VII**

A continuation of MUSI 3915. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: fourth-year standing in the B.Mus. program and permission of the Ensemble Director.

Ensemble work approximately two hours a week throughout either the fall or winter term and participation in concerts.

MUSI 4915 [0.0 credit]

**Instrumental Ensemble VIII**

A continuation of MUSI 4914. Registration, but not participation, is restricted to students in the B.Mus. program. Graded Sat/Uns.

Prerequisite: fourth-year standing in the B.Mus. program and permission of the Ensemble Director.

Ensemble work approximately two hours a week throughout either the fall or winter term participation in concerts.

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## Natural Sciences (NSCI)

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### Faculty of Science

NSCI 1000 [0.5 credit]

**Seminar in Science**

This cross-disciplinary course presents a survey of current issues in science. The course provides new science students with an orientation to the study of science at the university level. The course is structured around seminars, oral and written presentations.

Restricted to students in the first year of B.Sc. programs or B.A. Biology programs.

Lectures and tutorials three hours a week.

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## Neuroscience (NEUR)

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Department of Neuroscience  
Faculty of Science

NEUR 4908 [1.0 credit]

### Honours Research Thesis

An independent research project undertaken under the direct supervision of a faculty advisor typically from the Department of Neuroscience.

Prerequisite: fourth-year standing in an Honours program and permission of the Department of Neuroscience.

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## Philosophy (PHIL)

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Department of Philosophy  
Faculty of Arts and Social Sciences

PHIL 1000 [0.5 credit]

### Introductory Philosophy: Fields, Figures and Problems

What is metaphysics? Who was Socrates? What is Freedom? This introduction sketches many branches of philosophy and the important problems associated with each. It introduces great philosophers, present and past, and traces enduring philosophical themes.

Precludes additional credit for PHIL 1100 and FYSM 1208. This course is not suitable for students with previous formal study of philosophy.

PHIL 1100 [1.0 credit]

### Looking at Philosophy

Introduction to philosophy: the nature of logical thinking; the existence of God; the objectivity of values; the meaning of life; free will; determinism and responsibility; the relation between the mind and body; immortality and the possibility of knowledge.

This course is not intended for Majors (B.A. or B.A. Honours) in philosophy.

Precludes additional credit for FYSM 1208.

Lectures three hours a week.

PHIL 1200 [0.5 credit]

### The Meaning of Life

An introduction to the sorts of concerns expressed by the perennial philosophical question, "What is the meaning of life?" and to various philosophical theories aimed at addressing those concerns.

Lectures three hours a week.

PHIL 1301 [0.5 credit]

### Mind, World, and Knowledge

An introduction to philosophical issues concerning mind, language, knowledge and the world. Topics may include: the nature of being, the mental, the external, consciousness, perception, experience, meaning, truth, the nature of knowledge, scientific understanding, how language and thought represent the world.

Precludes additional credit for PHIL 1006 or PHIL 1501.

PHIL 1500 [1.0 credit]

### Contemporary Moral, Social and Religious Issues

Moral theories, atheism or theism, feminism, and free will. Moral arguments concerning abortion, affirmative action, racism, human rights, children's rights, world hunger, capital punishment, euthanasia, censorship, pornography, legal paternalism, animal rights and environmental protection.

Precludes additional credit for FYSM 1209 and PHIL 1550.

Lectures three hours a week.

PHIL 1550 [0.5 credit]

### Introduction to Ethics and Social Issues

An introduction to understanding, assessing, and formulating ethical arguments concerning controversial issues. Particular issues studied, such as world hunger, capital punishment, abortion, animal rights, terrorism, may vary each time the course is offered.

Precludes additional credit for FYSM 1209 and PHIL 1500.

Lectures three hours a week.

Courses - Philosophy (PHIL)

PHIL 1600 [1.0 credit]

**History of Philosophy**

Major figures and developments in philosophy from the early Greeks to the present. Descriptive and comparative approach, providing an understanding of the place of philosophers in the history of thought. Appreciation of critical reasoning is included for comprehending philosophical developments.

Precludes additional credit for FYSM 1300.

Lectures three hours a week.

PHIL 2001 [0.5 credit]

**Introduction to Logic**

An introduction to the techniques and philosophical implications of formal logic with emphasis on translation of expressions into symbolic form, testing for logical correctness, the formulation and application of rules of inference, and the relation between logic and language.

Open to first-year students.

Lectures three hours a week.

PHIL 2003 [0.5 credit]

**Critical Thinking**

Assessment of reasoning and the development of cogent patterns of thinking. Reference to formal logic is minimal. Practice in criticizing examples of reasoning and in formulating one's own reasons correctly and clearly.

Open to first-year students.

Lectures three hours a week.

PHIL 2005 [1.0 credit]

**Greek Philosophy and the Western Tradition**

The Greek tradition from its pre-Socratic beginnings to Hellenistic and Roman philosophy (Cynicism, Epicureanism, Stoicism, Scepticism); focus on Socrates, Plato, and Aristotle. Its conservation and reappropriation in the Middle Ages and Renaissance.

Precludes credit for PHIL 2006, CLCV 2006, PHIL 2007, CLCV 2007, PHIL 2008.

Prerequisite: 0.5 credit in PHIL, or second-year standing.

Lectures three hours a week.

PHIL 2010 [0.5 credit]

**Issues in Theoretical Philosophy**

Issues drawn from epistemology, metaphysics, philosophy of mind, philosophy of language, and related fields will be examined through careful study of significant philosophical texts after 1900, along with some ensuing debates.

Prerequisite: enrolment in Honours or Combined Honours Philosophy programs, or in philosophy, Ethics, and Public Affairs, or permission of the Department.

Lectures and discussion three hours a week.

PHIL 2020 [0.5 credit]

**Issues in Practical Philosophy**

Issues drawn from ethics, social and political philosophy, and related fields will be examined through careful study of significant philosophical texts after 1900, along with some ensuing debates.

Prerequisite: enrolment in Honours or Combined Honours Philosophy programs, or in philosophy, Ethics, and Public Affairs, or permission of the Department.

Lectures and discussion three hours a week.

PHIL 2101 [0.5 credit]

**History of Ethics**

An introduction to ethical theories through a study of some of the major figures in moral philosophy, such as Aristotle, Hume, Kant and Mill.

Prerequisite: 0.5 credit in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2103 [0.5 credit]

**Philosophy of Human Rights**

Philosophical introduction to human rights sources, concepts, justifications, consequences, and challenges to them. Evolution of selected human rights as a) demands made in political struggles; b) declarations supported by moral or political principles and arguments; c) codes ratified and implemented by governments and international organizations.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2104 [0.5 credit]

**Computer Ethics**

Philosophical foundations of computer ethics. The ethical impact of computerization on intellectual property rights, the right to privacy, and freedom of expression; ethical issues of risk management and reliability; professional codes. Ethical problems posed by specific technologies and research areas may also be included. Primarily intended for Computer Science students.

Precludes additional credit for PHIL 2106.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2106 [0.5 credit]

**Information Ethics**

Ethical aspects of the influence of information technology on intellectual property rights, privacy, free speech, work and society. Also included are an introduction to philosophical ethics and discussions of moral responsibilities of IT professionals, codes of professional ethics, hacker ethics, viruses and software piracy.

Precludes additional credit for PHIL 2104.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2201 [0.5 credit]

**Introduction to Marxist Philosophy**

The evolution of Marx's social and political views in the setting of 18<sup>th</sup>- and 19<sup>th</sup>- century anarchism, liberalism and conservatism. Themes of humanism, freedom, rights, the state, democracy, alienation, and inequality, primarily as they develop into the theory of historical materialism.

Precludes additional credit for PHIL 2200.

Prerequisite: 0.5 credit in philosophy or permission of the Department.

Lectures three hours a week.

PHIL 2202 [0.5 credit]

**Topics in Marxist Philosophy**

The dialectical materialism of Marx, Engels, and Lenin is compared with traditional materialist, idealist, and mechanist philosophy. Marxist views on issues such as equality, ethical objectivity, human well-being, matter and mind, the existence of God, knowledge versus skepticism, freedom of the will, and justice.

Precludes additional credit for PHIL 2200.

Prerequisite: PHIL 2201 or 0.5 credit in the history of philosophy at the 2000-level or above.

Lectures three hours a week.

PHIL 2301 [0.5 credit]

**Introduction to the Philosophy of Science**

Philosophical issues arising out of the attempt to understand the world scientifically. Topics may include: scientific methodology, revolution, observation, explanation, causation, induction, reduction, the difference between natural and social scientific understanding, realism, instrumentalism, constructivism.

Prerequisite: a course in philosophy or second-year standing.

PHIL 2306 [0.5 credit]

**Philosophy and Feminism**

A study of philosophical issues arising from feminism. The course includes discussions of the relations between feminism, reason and ideological commitment, as well as critical evaluation of contemporary views on selected topics (e.g. abortion, pornography and censorship, affirmative action, and beauty).

Prerequisite: 0.5 credit in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2307 [0.5 credit]

**Gender and Philosophy**

Topics may include the role of gender categories in the history of philosophy, theories of gender and sexual orientation, the politics of gender and sexuality, the place of the body in philosophical theory, and the influence of gender and gender metaphors on science and medicine.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2380 [0.5 credit]

**Introduction to Environmental Ethics**

Major questions in environmental ethics: How should human beings view their relationship to the rest of nature? Is responsible stewardship of the environment compatible with current technology? Must future generations be protected? Do animals, other life forms, endangered species, ecosystems and/or the biosphere have value or rights?

Lectures three hours a week.

Precludes additional credit for PHIL 1804.

PHIL 2405 [0.5 credit]

**Philosophy of the Paranormal**

Examination of claims, concepts, theories and methods in parapsychology. Their scientific character and the relation of paranormal phenomena to philosophical issues such as survival of death, human nature, time, space, causality and perception.

Prerequisite: 0.5 credit in philosophy or permission of the Department.

Lectures three hours a week.

PHIL 2408 [0.5 credit]

**Bioethics**

Ethical and political issues in medicine, public health, biotechnology, and the life sciences. Topics may include reproductive ethics, research on human subjects, animal research and treatment, justice and health care, physician-patient relationships, death and the end of life, and genetic engineering.

Precludes additional credit for PHIL 3408.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2501 [0.5 credit]

**Introduction to Philosophy of Mind**

An introduction to major philosophical issues concerning human cognition. Topics may include: the relation of mind to body, knowledge of other minds, the relation of mental states to personhood and personal identity, mental illness, consciousness, intentionality, action, mental realism.

Precludes additional credit for PHIL 2502.

Prerequisite: a course in philosophy or second-year standing.

PHIL 2504 [0.5 credit]

**Language and Communication**

Some of the central topics in the study of language and communication as pursued by linguists and philosophers. The nature of meaning; the connections between language, communication and cognition; language as a social activity. (Also listed as COMM 2504 and LING 2504.)

Precludes additional credit for COMM 2800, LALS 2504, LALS 2800 and PHIL 2800.

Prerequisite: second-year standing.

Lectures three hours a week.

PHIL 2520 [0.5 credit]

**Introduction to Philosophical Logic**

An introduction to features of rational thinking activity, its expression, and its relation to the world, focusing on such topics as predication, truth, negation, necessity, entailment, logical form, or quantification.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2540 [0.5 credit]

**Personal Identity and the Self**

Philosophical perspectives on personal identity, the self, and the underlying issue of the relationship of the mind to the body. Both philosophical and psychological concepts of identity are discussed, as are related issues such as memory, introspection, and self-knowledge.

Precludes additional credit for PHIL 2502.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2550 [0.5 credit]

**Moral Psychology**

An examination of psychological underpinnings of morality, focusing on studies at the intersection of philosophy, psychiatry, and psychology.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2601 [0.5 credit]

**Philosophy of Religion**

A philosophical examination of some characteristic concepts of religion, such as faith, hope, worship, revelation, miracle, God. (Also listed as RELI 2738.)

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 2807 [0.5 credit]

**Philosophy of Art**

Philosophical approaches to the study of art. Topics such as: the nature of art and artistic value; representation and symbolism in art; art and artifice; art and the emotions; art, culture and ideology; post-structuralism and art; theories of creativity; relationship between artworks and audiences. (Also listed as ARTH 2807.)

Lecture three hours a week.

PHIL 2900 [1.0 credit]

**Truth and Propaganda**

Ancient and modern techniques of persuasion from analytical, ethical and jurisprudential perspectives. Objectivity and bias, advertising and public relations ethics, the viability of democracy in the light of pressures on and within the modern mass media.

Prerequisite: 0.5 credit in philosophy or second-year standing.

Lectures three hours a week.

Courses - Philosophy (PHIL)

PHIL 3000 [0.5 credit]

**Topics in Ancient Philosophy**

A study of philosophers, texts, problems and issues in ancient philosophy, generally with a focus on Plato and Aristotle.

Prerequisite: 0.5 credit in philosophy or second-year standing.

Lectures three hours a week.

PHIL 3001 [0.5 credit]

**Early Greek Philosophy**

A study of the pre-Socratic Greek philosophers and of the Sophists and Socrates. (Also listed as CLCV 3001).

Prerequisite: PHIL 2005 or permission of the Department.

Lectures three hours a week.

PHIL 3002 [0.5 credit]

**17th Century Philosophy**

European philosophy of the 17<sup>th</sup> century. Representative works of writers such as Francis Bacon, Descartes, Spinoza, Leibniz, and Locke.

Prerequisite: enrolment in Honours or Combined Honours Philosophy programs, or in Philosophy, Ethics and Public Affairs, or permission of the department.

Lectures three hours a week.

PHIL 3003 [0.5 credit]

**18th Century Philosophy**

European philosophy of the 18<sup>th</sup> century. Representative works of writers such as Berkeley, Hume, and Kant.

Prerequisite: enrolment in Honours or Combined Honours Philosophy programs, or in Philosophy, Ethics and Public Affairs, or permission of the department.

Lectures three hours a week.

PHIL 3005 [0.5 credit]

**19th Century Philosophy**

European philosophy in the 19<sup>th</sup> century. May include Hegel, Marx, Schopenhauer, Kierkegaard, Nietzsche, Mill. Precludes additional credit for PHIL 3007.

Prerequisite: 0.5 credit in the history of philosophy at the 2000-level or above, or permission of the Department.

Lectures three hours a week.

PHIL 3009 [0.5 credit]

**Topics in European Philosophy**

A study of philosophers, texts, problems and issues in any period of European philosophy.

Prerequisite: 0.5 credit in the history of philosophy at the 2000-level or above or permission of the Department.

Lectures three hours a week.

PHIL 3010 [0.5 credit]

**Philosophical Traditions**

A study of philosophers, texts, and doctrines beyond the Western tradition. Traditions covered will vary but may include Asian, African, Muslim or Aboriginal philosophy, possibly with critical comparison to Western counterparts.

Precludes additional credit for PHIL 2004.

Prerequisite: a course in PHIL or second-year standing.

Lectures three hours a week.

PHIL 3102 [0.5 credit]

**Philosophy of Law: The Logic of Law**

Legal reasoning and analysis of concepts of particular significance to the law, including justice, rights and duties, liability, punishment, ownership and possession. (Also listed as LAWS 3102.)

Prerequisite: 0.5 credit in philosophy or permission of the Department.

Lectures three hours a week.

PHIL 3104 [0.5 credit]

**The Roots of Analytic Philosophy**

In the context of the work of such writers as Frege and Bradley, a discussion of early philosophical works of Russell, Moore and Wittgenstein. In addition some early representatives of positivism and pragmatism will be examined.

Precludes additional credit for PHIL 3800.

Prerequisite: PHIL 2010 or permission of the department.

Lectures and seminar three hours a week.

PHIL 3140 [0.5 credit]

**Epistemology**

Fundamental issues concerning the relation between evidence, rationality, and knowledge. Topics may include: skepticism, the nature of belief, the structure of justification, the relative contributions of reason and sense experience to knowledge, innate knowledge, the problem of induction, and the knowledge of other minds.

Precludes additional credit for PHIL 2300.

Prerequisite: PHIL 2010 or permission of the department.

Lectures three hours a week.

PHIL 3150 [0.5 credit]

**Metaphysics**

Philosophical issues concerning the fundamental nature of being. Topics may include: time and temporality, space, substance, universals/particulars, identity, causation, freedom/determinism, the nature of norms.

Precludes additional credit for PHIL 2302.

Prerequisite: PHIL 2010 or permission of the department.

Lectures three hours a week.

PHIL 3301 [0.5 credit]

**Issues in the Philosophy of Science**

Selected topic(s) in the philosophy of science or in the philosophy of a particular science (such as philosophy of mathematics, philosophy of physics, philosophy of biology, and philosophy of the social sciences).

Prerequisite: PHIL 2010 or PHIL 2301 or permission of the department.

Lectures three hours a week.

PHIL 3306 [0.5 credit]

**Symbolic Logic**

A review of the basic techniques of propositional and predicate logic. Natural deduction and consistency trees. Soundness and completeness. Alternative semantics. Extensions to basic logic: identity, modal logic with possible world semantics, three valued systems, deontic logic.

Precludes additional credit for PHIL 3305.

Prerequisite: PHIL 2001 or permission of the Department.

Lectures three hours a week.

PHIL 3320 [0.5 credit]

**Contemporary Ethical Theory**

Critical study of modern ethical theories, their views on the nature of morality and the justification of moral claims. Topics may include utilitarianism, libertarianism, communitarianism, egoism, neo-Kantianism, virtue ethics, social contract ethics, feminist ethics, and moral rights.

Precludes additional credit for PHIL 2102.

Prerequisite: PHIL 2020 or PHIL 2101 or permission of the department.

Lectures three hours a week.

PHIL 3330 [0.5 credit]

**Topics in History of Social and Political Philosophy**

A critical examination of selected topics and perspectives in the history of social and political philosophy.

Precludes additional credit for PHIL 3300.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.



PHIL 3340 [0.5 credit]

**Topics in Contemporary Social and Political Philosophy**

A critical examination of some contemporary approaches to topics in social and political philosophy, such as liberalism, feminism, contractarianism, Marxism, libertarianism, and communitarianism.

Precludes additional credit for PHIL 3300.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 3350 [0.5 credit]

**Philosophy, Ethics, and Public Affairs**

Advanced study of a set of public policy issues, a particular theory or group of theories, or a particular philosopher, concerning philosophical and ethical aspects of public affairs.

Prerequisite: third-year standing or permission of the department..

Lectures three hours a week.

PHIL 3380 [0.5 credit]

**Environments, Technology and Values**

Advanced treatment of ethical issues concerning technologies and environments, including: sustainable development, women and the environment, biological diversity, intrinsic or natural value or rights of non-humans, humans' relation to the rest of the natural world, obligations to future generations, liberty versus equality.

Precludes additional credit for PHIL 2804.

Prerequisite: PHIL 1804 or PHIL 2380 and third-year standing, or permission of the Department.

Lectures three hours a week.

PHIL 3450 [0.5 credit]

**Topics in Aesthetics**

Topics may include theories of aesthetic norms and valuation from ancient Greece onward, or applications of aesthetic theory to various genres of art.

Precludes additional credit for PHIL 2400, PHIL 3400, PHIL 3401, and PHIL 3402.

Prerequisite: At least 0.5 credit in philosophy, or HUMS 1000, or ARTH 2807, or permission of the Department.

Seminar two hours a week.

PHIL 3501 [0.5 credit]

**Philosophy of Cognitive Science**

Philosophical issues arising from cognitive science. Topics may include: the proper methodology for studying the mind, the very possibility of a "science of mind", the computer model of the mind and reactions to it.

Prerequisite: PHIL 2501 or PHIL 2502 or second-year standing in Cognitive Science, or permission of the department.

PHIL 3502 [0.5 credit]

**Mind and Action**

Philosophical thought concerning the relation between mentality and agency. Topics may include: the relation between belief, desire, and behaviour; rationality and normativity; representing and doing; subjectivity and intersubjectivity; physical and psychological laws; mental causation. Authors may include; Wittgenstein, Heidegger, Ryle, Sellars, Anscombe, Davidson, Taylor, and McDowell.

Prerequisite: PHIL 2501 or PHIL 2502, or permission of the Department.

PHIL 3504 [0.5 credit]

**Pragmatics**

The study of language use in its conversational and cultural contexts. Topics include: conversational implicature; deixis; the semantics-pragmatics boundary; speaker's reference; speech acts. May include cross-cultural pragmatics. (Also listed as LING 3504).

Precludes additional credit for LALS 2800 [1.0], LALS 3504, MCOM 2800 [1.0], MCOM 3504 and PHIL 2800 [1.0].

Prerequisite: third-year standing, and one of FYSM 1206, LALS 1000, LALS 1001, LING 1001, PHIL 2001, PHIL/LALS/LING/COMM/MCOM 2504 or LALS/LING 3505/PHIL 3506; or permission of the Department of Philosophy or School of Linguistics and Applied Language Studies.

Lectures three hours a week.

PHIL 3506 [0.5 credit]

**Semantics**

Study of language meaning. Lexical meaning and meanings of larger linguistic expressions, including nominal units, verbal units, and sentences. Meaning relationships between utterances. Relationship between linguistic meaning (semantics) and contextual meaning (pragmatics). Basic formal treatments of semantics. (Also listed as LING 3505.)

Precludes additional credit for LALS 3505.

Prerequisites: third-year standing, and one of LALS 1000, LALS 1001, LING 1001, PHIL 2001, PHIL/LALS/LING/COMM/MCOM 2504 or PHIL/LALS/LING 3504; or permission of the Department of Philosophy or School of Linguistics and Applied Language Studies.

Lectures three hours a week.

PHIL 3530 [0.5 credit]

**Philosophy of Language**

An intensive introduction to philosophy of language. Topics may include meaning, reference and truth, speech acts, the nature of concepts, language learning, metaphor, compositionality, context-sensitivity.

Prerequisite: a course in philosophy or second-year standing.

Lectures three hours a week.

PHIL 3901 [0.5 credit]

**Independent Study**

Essays and/or examinations based on a list of readings provided by the instructor.

Prerequisite: normally restricted to students with at least 3.0 credits in philosophy and with high standing in philosophy courses and permission of the Department.

PHIL 3902 [0.5 credit]

**Independent Study**

Essays and/or examinations based on a list of readings provided by the instructor.

Prerequisite: normally restricted to students with at least 3.0 credits in philosophy and with high standing in philosophy courses and permission of the Department.

PHIL 3903 [0.5 credit]

**Independent Study**

Essays and/or examinations based on a list of readings provided by the instructor.

Prerequisite: normally restricted to students with at least 3.0 credits in philosophy and with high standing in philosophy courses and permission of the Department.

Courses - Philosophy (PHIL)

PHIL 3906 [0.5 credit]

**Independent Study**

Essays and/or examinations based on a bibliography constructed by the student in consultation with the instructor.

Prerequisite: normally restricted to students with at least 3.0 credits in philosophy and with high standing in philosophy courses and permission of the Department.

PHIL 3907 [0.5 credit]

**Independent Study**

Essays and/or examinations based on a bibliography constructed by the student in consultation with the instructor.

Prerequisite: normally restricted to students with at least 3.0 credits in philosophy and with high standing in philosophy courses and permission of the Department.

PHIL 3908 [0.5 credit]

**Independent Study**

Essays and/or examinations based on a bibliography constructed by the student in consultation with the instructor.

Prerequisite: normally restricted to students with at least 3.0 credits in philosophy and with high standing in philosophy courses and permission of the Department.

PHIL 4003 [0.5 credit]

**Seminar in philosophy Before the Modern Period**

Detailed study of selected philosophers or issues in philosophy before the modern period. Also offered at the graduate level, with additional or different requirements, as PHIL 5600, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4004 [0.5 credit]

**Seminar in philosophy Before the Modern Period**

Detailed study of selected philosophers or issues in philosophy before the modern period. Also offered at the graduate level, with additional or different requirements, as PHIL 5600, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4005 [0.5 credit]

**Seminar in Modern Philosophy**

Detailed study of selected philosophers or issues in modern philosophy. Also offered at the graduate level, with additional or different requirements, as PHIL 5600, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4006 [0.5 credit]

**Seminar in Modern Philosophy**

Detailed study of selected philosophers or issues in modern philosophy. Also offered at the graduate level, with additional or different requirements, as PHIL 5600, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4007 [0.5 credit]

**Seminar in Contemporary Philosophy**

Detailed study of selected philosophers or issues in contemporary philosophy. Also offered at the graduate level, with additional or different requirements, as PHIL 5500, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4008 [0.5 credit]

**Seminar in Contemporary Philosophy**

Detailed study of selected philosophers or issues in contemporary philosophy. Also offered at the graduate level, with additional or different requirements, as PHIL 5500, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4100 [0.5 credit]

**Special Topic**

Detailed study of a special topic in philosophy. Also offered at the graduate level, with additional or different requirements, as PHIL 5000, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4210 [0.5 credit]

**Seminar in philosophy of Language or Linguistics**

Detailed study of selected issues or the work of selected philosophers in philosophy of language or on philosophical topics in linguistics. Also offered at the graduate level, with additional or different requirements, as PHIL 5200, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth year standing in a Philosophy Honours programme or permission of the Department.

Seminar two hours a week.

PHIL 4220 [0.5 credit]

**Seminar in philosophy of Mind or Cognition**

Detailed study of selected issues or the work of selected philosophers in philosophy of mind or philosophical aspects of cognition. Also offered at the graduate level, with additional or different requirements, as PHIL 5200, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth year standing in a Philosophy Honours programme or permission of the Department.

Seminar two hours a week.

PHIL 4230 [0.5 credit]

**Seminar in Metaphysics, Epistemology, or Philosophy of Science**

Detailed study of selected issues or the work of selected philosophers in metaphysics, epistemology, or philosophy of science. Also offered at the graduate level, with additional or different requirements, as PHIL 5250, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth year standing in a Philosophy Honours programme or permission of the Department.

Seminar two hours a week.

PHIL 4300 [0.5 credit]

**Seminar in Ethical Theory or Meta-Ethics**

Detailed study of selected issues pertaining to ethical theory or issues of meta-ethics such as realism, relativism, moral knowledge. Also offered at the graduate level, with additional or different requirements, as PHIL 5300, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4320 [0.5 credit]

**Seminar in Ethics or Moral Philosophy**

Detailed study of selected issues in ethics or moral philosophy. Also offered at the graduate level, with additional or different requirements, as PHIL 5350, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4330 [0.5 credit]

**Seminar in Social or Political Philosophy**

Detailed study of selected issues in social or political philosophy. Also offered at the graduate level, with additional or different requirements, as PHIL 5350, for which additional credit is precluded when topics are the same.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4403 [0.5 credit]

**Special Topic in Applied Ethics**

Detailed study of a special topic in applied ethics. Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4404 [0.5 credit]

**Special Topic in Applied Ethics**

Detailed study of a special topic in applied ethics. Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4405 [0.5 credit]

**Special Topic in Aesthetics or Philosophy of Art**

Detailed study of a special issue or a single author in aesthetics and/or philosophy of art.

Prerequisite: eligibility for fourth-year standing in philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4406 [0.5 credit]

**Special Topic in Aesthetics or Philosophy of Art**

Detailed study of a special issue or a single author in aesthetics and/or philosophy of art.

Prerequisite: eligibility for fourth-year standing in philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4407 [0.5 credit]

**Special Topic in Philosophy of Law**

Detailed study of a special topic in philosophy of law. (Also listed as LAWS 4103.)

Prerequisite: eligibility for fourth-year standing in a Law or Philosophy Honours program or permission of either Department.

Seminar two hours a week.

PHIL 4408 [0.5 credit]

**Special Topic in Philosophy of Law**

Detailed study of a special topic in philosophy of law. (Also listed as LAWS 4104.)

Prerequisite: eligibility for fourth-year standing in a Law or Philosophy Honours program or permission of either Department.

Seminar two hours a week.

PHIL 4503 [0.5 credit]

**Special Topic in Philosophy of Computing**

Detailed study of a special topic in philosophy of computing.

Prerequisite: eligibility for fourth-year standing in philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4504 [0.5 credit]

**Special Topic in Philosophy of Computing**

Detailed study of a special topic in philosophy of computing.

Prerequisite: eligibility for fourth-year standing in philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4505 [0.5 credit]

**Semantics II**

Further study of language meaning. Syntax-semantics interface. Semantic compositionality, including a basic formal approach. Other possible topics: discourse semantics, formal pragmatics, semantics and cognition, issues in contemporary semantic theory. Also listed as LING 4507.

Precludes additional credit for LALS 4507.

Prerequisite: LALS/LING 3505 or PHIL 3506 or permission of the Department of Philosophy or School of Linguistics and Applied Language Studies.

Lectures three hours a week.

PHIL 4507 [0.5 credit]

**Contemporary Formal Semantics**

Topics may include: desiderata for an empirical theory of meaning; philosophical and logical precursors to contemporary truth-conditional semantics; Montague grammar and/or other intensional frameworks; quantification, anaphora, and logical form; boundaries between syntax, semantics and pragmatics; recent applications of formal semantics.

Prerequisite: two of PHIL 2001, LALS/LING/COMM/MCOM/PHIL 2504, LALS 2003, LALS 2005, LING 2005, LALS 3505, LING 3505.

Lectures three hours a week.

PHIL 4603 [0.5 credit]

**Special Topic in Feminist Philosophy**

Detailed study of a special topic in feminist philosophy.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4604 [0.5 credit]

**Special Topic in Feminist Philosophy**

Detailed study of a special topic in feminist philosophy.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4606 [0.5 credit]

**Special Topic in Continental Philosophy**

Prerequisite: eligibility for fourth-year standing in philosophy Honours program or permission of the Department.

Seminar two hours a week.

## Courses - Philosophy (PHIL)

PHIL 4607 [0.5 credit]

**Special Topic in Continental Philosophy**

Prerequisite: eligibility for fourth-year standing in philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4701 [0.5 credit]

**Special Topic in Logic**

Detailed study of a special topic in Logic.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4702 [0.5 credit]

**Special Topic in Logic**

Detailed study of a special topic in Logic.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4703 [0.5 credit]

**Special Topic in Philosophical Logic**

Detailed study of a special topic in Philosophical Logic.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4704 [0.5 credit]

**Special Topic in Philosophical Logic**

Detailed study of a special topic in Philosophical Logic.

Prerequisite: eligibility for fourth-year standing in a Philosophy Honours program or permission of the Department.

Seminar two hours a week.

PHIL 4900 [1.0 credit]

**Tutorial**

Prerequisite: permission of the Department. Note: Students who wish to enrol in a tutorial course must consult the Undergraduate Supervisor, before registration.

PHIL 4901 [0.5 credit]

**Tutorial**

Prerequisite: permission of the Department. Note: Students who wish to enrol in a tutorial course must consult the Undergraduate Supervisor, before registration.

PHIL 4902 [0.5 credit]

**Tutorial**

Prerequisite: permission of the Department. Note: Students who wish to enrol in a tutorial course must consult the Undergraduate Supervisor, before registration.

PHIL 4903 [0.5 credit]

**Tutorial**

Prerequisite: permission of the Department. Note: Students who wish to enrol in a tutorial course must consult the Undergraduate Supervisor, before registration.

PHIL 4904 [0.5 credit]

**Tutorial**

Prerequisite: permission of the Department. Note: Students who wish to enrol in a tutorial course must consult the Undergraduate Supervisor, before registration.

PHIL 4906 [0.5 credit]

**Tutorial**

Prerequisite: permission of the Department. Note: Students who wish to enrol in a tutorial course must consult the Undergraduate Supervisor, before registration.

## Physics (PHYS)

### Department of Physics Faculty of Science

*Note:* Please consult with the Physics Department for advice on which first year course to take.

PHYS 1001 [0.5 credit]

#### Foundations of Physics I

This calculus-based course covers mechanics, gravitation, oscillations, and thermodynamics. The laboratory is an essential and autonomous part of the course. This is a specialist course for students intending to take further courses in Physics.

Precludes additional credit for PHYS 1003 and PHYS 1007.

Prerequisites: Grade 12 Physics or equivalent, plus Grade 12 Calculus and Vectors or Grade 12 Advanced Functions and Introductory Calculus or equivalent, plus one of MATH 1004 or MATH 1002 (the MATH course may be taken concurrently); or permission of the Physics Department. Although not a requirement, Grade 12 Advanced Functions or Grade 12 Geometry and Discrete Mathematics or equivalent is recommended.

Lectures three hours a week, laboratory or tutorial three hours a week.

PHYS 1002 [0.5 credit]

#### Foundations of Physics II

An introduction to relativity, electricity, magnetism, wave motion and quantum mechanics. The laboratory is an essential and autonomous part of the course. This is a specialist course for students intending to take further courses in physics.

Precludes additional credit for PHYS 1004 and PHYS 1008.

Prerequisites: PHYS 1001, or PHYS 1003, or PHYS 1007 with a grade of B-; MATH 1004 or MATH 1002 (may be taken concurrently); or permission of the Department. Lectures three hours a week, laboratory or tutorial three hours a week.

PHYS 1003 [0.5 credit]

#### Introductory Mechanics and Thermodynamics

Mechanics, gravitation, oscillations, and thermodynamics. The application of calculus to solve problems in these areas of physics is introduced. This course is intended for students in the physical sciences and engineering. The laboratory is an essential and autonomous part of the course.

Precludes additional credit for PHYS 1001 and PHYS 1007.

Prerequisites: Grade 12 Physics or equivalent, plus Grade 12 Advanced Functions or Grade 12 Advanced Functions and Introductory Calculus or equivalent, plus one of MATH 1004 or MATH 1002 (the MATH course may be taken concurrently). Note that Grade 12 Calculus and Vectors or Grade 12 Geometry and Discrete Mathematics is strongly recommended.

Lectures three hours a week, laboratory or tutorial three hours a week.

PHYS 1004 [0.5 credit]

#### Introductory Electromagnetism and Wave Motion

This calculus-based course introduces electricity, magnetism, oscillations, waves and optics. The laboratory is an essential and autonomous part of the course.

Precludes additional credit for PHYS 1002 and PHYS 1008.

Prerequisites: MATH 1004, ECOR 1101 (may be taken concurrently) or PHYS 1001 or PHYS 1003 or PHYS 1007 (a grade of at least B- is required for PHYS 1007), or permission of the Department.

Lectures three hours a week, laboratory or tutorial three hours a week.

PHYS 1007 [0.5 credit]

#### Elementary University Physics I

Mechanics, properties of matter, thermodynamics. Applications chosen in part from the life sciences. For students who lack the prerequisites for PHYS 1001 or PHYS 1003, or who do not intend to take upper-year courses in Physics.

Precludes additional credit for PHYS 1001 and PHYS 1003 and BIT 1002.

Prerequisite: (i) Grade 12 Advanced Functions or Grade 12 Geometry and Discrete Mathematics or equivalent, or MATH 0107 (may be taken concurrently); or (ii) Grade 12 Calculus and Vectors or Grade 12 Advanced Functions and Introductory Calculus or equivalent, or MATH 1007 (may be taken concurrently); or (iii) permission of the Physics Department.

Lectures three hours a week, laboratory or tutorial three hours per week.

PHYS 1008 [0.5 credit]

#### Elementary University Physics II

Electricity and magnetism, DC and AC circuits, wave motion and light. Elements of modern physics. Applications chosen in part from the life sciences.

Precludes additional credit for PHYS 1002 and PHYS 1004 and BIT 1003.

Prerequisite: PHYS 1001 or PHYS 1003 or PHYS 1007.

Lectures three hours a week, laboratory or tutorial three hours per week.

PHYS 1901 [0.5 credit]

#### Planetary Astronomy

Description of the known stellar, galactic and extra-galactic systems together with the instruments used to study them. Modern ideas concerning the structure, origin and evolution of our own planet. Formation of the Moon - Earth system. Study of the planets in our solar system. A 14" telescope is available for student use.

Precludes additional credit for PHYS 2203.

Lectures two and one-half hours a week.

Note: Science students may only take this course as a free elective.

PHYS 1902 [0.5 credit]

#### From our Star to the Cosmos

Starting with the Sun, the course studies its composition and source of power, then compares our Sun with the other stars in the galaxy and beyond. Modern ideas concerning the structure, origin and evolution of the universe, pulsars and supernovae are examined. A 14-inch telescope is available for student use.

Precludes additional credit for PHYS 2203.

Lectures two and one-half hours a week.

Note: Science students may only take this course as a free elective.

PHYS 2004 [0.5 credit]

#### Modern Physics for Engineers

Introduction to aspects of modern physics relevant to engineering. Thermal radiation. Concepts of relativistic kinematics. Wave-particle duality. Elements of quantum mechanics. Optical and x-ray spectra, lasers. Nuclear physics and applications. Condensed matter physics. Precludes additional credit for PHYS 2604.

Prerequisites: PHYS 1002 or PHYS 1004 or PHYS 1008 with a grade of B- or better, plus MATH 1004 and MATH 1104 or equivalent. Restricted to B.Eng. students not in the Engineering Physics program. Students in programs other than B.Eng. must obtain permission of the Department.

Lectures three hours a week.

## Courses - Physics (PHYS)

PHYS 2101 [0.5 credit]

**Mechanics and Properties of Matter**

Equations of motion for a single particle. Harmonic oscillation. Noninertial reference frames. Orbits in a central force field. Motion of systems of particles and of rigid bodies. Introduction to special relativity. Laboratory experiments in classical mechanics and properties of matter.

Prerequisites: PHYS 1001 and PHYS 1002, or PHYS 1003 and PHYS 1004, alternatively PHYS 1007 and PHYS 1008 with an overall average of B- or better; MATH 1004 and MATH 1104, or MATH 1002 and MATH 1102.

Lectures three hours a week, laboratory three hours a week, tutorials (optional) once a week.

PHYS 2202 [0.5 credit]

**Wave Motion and Optics**

Physical optics based on electromagnetic theory, oscillator model for dispersion, absorption, scattering, Huygen's principle, reflection and transmission as coherent scattering. Interference, coherence length, diffraction, polarization, double refraction. Geometrical optics.

Prerequisites: PHYS 1001 and PHYS 1002, or PHYS 1003 and PHYS 1004 (PHYS 1007 and PHYS 1008 are also acceptable provided a minimum average grade of B- is presented); plus MATH 1004 and MATH 1104, or MATH 1002 and MATH 1102.

Lectures three hours a week, laboratory three hours a week.

PHYS 2203 [0.5 credit]

**Astronomy**

The observational basis of astronomy. The history of astronomy, properties of light, solar system observations and stellar astronomy.

Precludes additional credit for PHYS 1901 and PHYS 1902.

Prerequisites: PHYS 1002 or PHYS 1004 or permission of the department. PHYS 1008 with a grade of B- or better may also be used if MATH 1004 or MATH 1007 or MATH 1002 have been successfully completed.

Lectures three hours a week.

PHYS 2305 [0.5 credit]

**Electricity and Magnetism**

Electrostatics, field intensities in various charge configurations, Gauss' law, electrostatic energy. Dielectric materials, dipoles, molecular polarizability. Steady currents, properties of electrical conductors. Magnetic effects of currents and motion of charges in electric and magnetic fields. Time varying currents, electromagnetic induction. Magnetic materials and magnetic measurements.

Prerequisites: PHYS 1001, PHYS 1002, or PHYS 1003 and PHYS 1004, alternatively PHYS 1007 and PHYS 1008 with an overall grade of B- or better.

Lectures three hours a week, laboratory three hours a week.

PHYS 2306 [0.5 credit]

**Physics of Electrical and Electronic Measurements I**

D.C. and A.C. circuit theory. Resonant circuits. Basic measuring devices, the oscilloscope; impedances, bandwidth, noise; vacuum tubes, transistors, useful approximations for circuit design; feedback, amplifiers, oscillators; operational circuits; digital circuits. Lectures emphasize the physical basis of instrument design. Laboratory emphasizes modern digital instrumentation.

Prerequisites: PHYS 1001, PHYS 1002 or PHYS 1003 and PHYS 1004, alternatively PHYS 1007 and PHYS 1008 with an overall grade of B- or better.

Lectures three hours a week, laboratory three hours a week.

PHYS 2604 [0.5 credit]

**Modern Physics I**

The course is designed to provide a logical transition from classical to modern physics. Special relativity. Kinetic theory. Thermal radiation. Rutherford scattering, atomic models. Photoelectric effect, Compton scattering. Bohr theory of the hydrogen atom. Atomic energy states, optical spectra, lasers. X-rays. Radioactivity. Quantum Mechanics.

Precludes additional credit for PHYS 2004.

Prerequisites: PHYS 1001 and PHYS 1002, or PHYS 1003 and PHYS 1004 (PHYS 1007 and PHYS 1008 are also acceptable provided a minimum average grade of B- is presented); plus MATH 1004 and MATH 1104, or MATH 1002 and MATH 1102.

Lectures three hours a week, laboratory three hours a week.

PHYS 2903 [0.5 credit]

**Physics and the Imagination**

Physics has had a profound influence on music, philosophy, literature, film, and art. This is examined in a conceptual, non-technical, manner. A selection of topics will be studied.

Note: Faculty of Science students may only take this course as a free elective.

Prerequisite: second-year standing.

Lectures and discussion groups three hours a week.

PHYS 2906 [0.5 credit]

**Co-operative Work Term Report 1**

Provides practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer. Written and oral reports will be required. Graded as *Sat* or *Uns*.

Prerequisite: registration in the Physics Co-operative option and permission of the Department.

Four-month work term.

PHYS 3007 [0.5 credit]

**Third Year Physics Laboratory: Selected Experiments and Seminars**

Students complete a small number of experiments selected from modern optics, holography, atomic physics, nuclear spectroscopy, radiation, etc. An exercise on literature searches and student seminars on experimental and numerical methods are included.

Prerequisites: PHYS 2202 and PHYS 2604, or permission of the Department.

Six hours a week.

PHYS 3008 [0.5 credit]

**Third Year Physics Laboratory: Selected Experiments and Workshop**

Students complete a small number of experiments selected from modern optics, holography, atomic physics, nuclear spectroscopy, radiation, etc. Instruction on instrumentation building techniques will be given.

Prerequisites: PHYS 2202 and PHYS 2604, or permission of the department.

Six hours a week.

PHYS 3207 [0.5 credit]

**Topics in Biophysics**

An introduction is made to biophysics. Topics in biology: animal movement, food irradiation, DNA damage and repair following irradiation, quantum tunneling in enzyme kinetics. Applications of physics in medicine: radiobiology, cancer treatment, and medical imaging.

Prerequisites: PHYS 2604 or permission of the Department.

Lectures three hours a week, tutorial or seminar one hour a week.

PHYS 3308 [0.5 credit]

**Electromagnetism**

Electrostatic field and magnetostatics. Examples involving Laplace's and Poisson's equations; vector potential; Faraday's laws of induction; Maxwell's equations, waves in vacuum and dielectric media, guided waves.

Precludes additional credit for ELEC 3909.

Prerequisites: PHYS 2202, PHYS 2604, MATH 2004 or MATH 2008, and MATH 3705, or permission of the Department.

Lectures three hours a week.

PHYS 3402 [0.5 credit]

**Heat and Thermodynamics**

Zeroth, First, Second and Third Laws of Thermodynamics; enthalpy, Helmholtz and Gibbs functions and the Maxwell relations; phase transitions; thermodynamics of magnetism; cryogenics cooling by Joule-Thompson effect, adiabatic expansion of a gas, adiabatic demagnetization, helium dilution refrigeration; black body radiation; negative temperatures.

Prerequisites: PHYS 2101 and PHYS 2305, MATH 2007, MATH 2008, MATH 2107 and MATH 2401 or permission of the Department.

Lectures three hours a week.

PHYS 3606 [0.5 credit]

**Modern Physics II**

Elements of condensed matter physics, semiconductors, superconductivity. Elements of nuclear physics, fission, fusion, power generation. Introduction to particle physics. Ionizing radiation: production, interactions, detection. Medical physics: radiation biophysics, cancer therapy, imaging.

Also offered, with different requirements, as PHYS 3608 for which additional credit is precluded.

Prerequisites: PHYS 2604 and PHYS 3701, or permission of the Department.

Lectures three hours a week, laboratory two hours a week.

PHYS 3608 [0.5 credit]

**Modern Applied Physics**

Elements of condensed matter physics, semiconductors, superconductivity. Modern optics. Elements of nuclear physics, fission, fusion, power generation. Ionizing radiation: production, interactions, detection. Medical physics: radiation biophysics, cancer therapy, imaging.

Also offered, with different requirements, as PHYS 3606 for which additional credit is precluded.

Prerequisites: PHYS 2604 and PHYS 3701, or permission of the Department.

Lectures three hours a week, laboratory three hours a week.

PHYS 3701 [0.5 credit]

**Elements of Quantum Mechanics**

Analysis of interference experiments with waves and particles; fundamental concepts of quantum mechanics, Schrödinger equation; angular momentum, atomic beams; hydrogen atom; atomic and molecular spectroscopy; Pauli principle; simple applications in the physics of elementary particles.

Prerequisites: PHYS 2604, MATH 2000 [1.0] (may be taken concurrently), or MATH 2004 or MATH 2008, and MATH 3705 (may be taken concurrently), or permission of the Department.

Lectures three hours a week.

PHYS 3801 [0.5 credit]

**Classical Mechanics**

Introduction to Lagrangian and Hamiltonian mechanics: Poisson brackets, tensors and dyadics; rigid body rotations: introductory fluid mechanics coupled systems and normal coordinates; relativistic dynamics.

Prerequisites: PHYS 2101, PHYS 2202, PHYS 2305, MATH 2007, MATH 2008, MATH 2107, MATH 2401 or permission of the Department.

Lectures three hours a week.

PHYS 3802 [0.5 credit]

**Advanced Dynamics**

Equations of motion for a single particle. Oscillatory Motion. Lagrangian and Hamiltonian formulations of mechanics. Central force motion. Motion of systems of particles and of rigid bodies.

Prerequisites: PHYS 2202, PHYS 2604, and MATH 2004, or permission of the Department.

Lectures three hours a week.

PHYS 3807 [0.5 credit]

**Mathematical Physics I**

Boundary Value problems involving curvilinear coordinates; spherical harmonics, Bessel functions, Green's functions. Functions of a complex variable: analytic functions, contour integration, residue calculus.

Precludes additional credit for MATH 3007 or MATH 3057.

Prerequisites: PHYS 2202, MATH 2004, MATH 3705 or permission of the Department.

Lectures three hours a week, tutorial one hour a week.

PHYS 3808 [0.5 credit]

**Mathematical Physics II**

Solution of second-order total differential equations by Frobenius' method. Sturm-Liouville theory. Special functions: Legendre, Bessel, Hermite, Laguerre and associated functions. Partial differential equations: method of separation of variables, eigenfunctions and eigenvalues and eigenfunction expansions. Green's function techniques for solving inhomogeneous partial differential equations.

Precludes additional credit for MATH 3004, MATH 3008, MATH 3705, and PHYS 3806.

Prerequisites: PHYS 3807 or MATH 3007 or permission of the Department.

Lectures three hours a week.

PHYS 3904 [0.0 credit]

**Co-operative Work Term Report 2**

Provides practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer. Written and oral reports will be required. Graded as *Sat* or *Uns*.

Prerequisites: registration in the Physics Co-operative option and permission of the Department.

Four-month work term.

PHYS 3905 [0.0 credit]

**Co-operative Work Term Report 3**

Provides practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer. Written and oral reports will be required. Graded as *Sat* or *Uns*.

Prerequisites: registration in the Physics Co-operative option and permission of the Department.

Four-month work term.

Courses - Physics (PHYS)

PHYS 3906 [0.0 credit]

**Co-operative Work Term Report 4**

Provides practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer. Written and oral reports will be required. Graded as *Sat* or *Uns*.

Prerequisites: registration in the Physics Co-operative option and permission of the Department.  
Four-month work term.

PHYS 4007 [0.5 credit]

**Fourth-Year Physics Laboratory: Selected Experiments and Seminars**

Students complete a small number of experiments selected from modern optics, holography, atomic physics, nuclear spectroscopy, radiation, etc. An exercise on literature searches and student seminars on experimental and numerical methods are included.

Prerequisites: PHYS 3606 (or PHYS 3608) and registration in the Engineering Physics program.  
Laboratory, six hours a week.

PHYS 4008 [0.5 credit]

**Fourth-Year Physics Laboratory: Selected Experiments and Workshop**

Students complete a small number of experiments selected from modern optics, holography, atomic physics, nuclear spectroscopy, radiation, etc. Instruction on instrumentation building techniques will be given.

Prerequisite: PHYS 3007.  
Six hours a week.

PHYS 4201 [0.5 credit]

**Astrophysics**

Stellar evolution, including stellar modeling, main sequence stars, red giants and the end states of stars such as neutron stars and black holes. Neutrino astrophysics.

Prerequisite: PHYS 3701, PHYS 3606 or PHYS 3608 and PHYS 4409, or permission of the Department. (PHYS 3606 or PHYS 3608 and PHYS 4409 may be taken concurrently)  
Lectures three hours a week.

PHYS 4202 [0.5 credit]

**Cosmology**

Observational evidence for the Big Bang. Introduction to general relativity, expansion dynamics and contents of the universe. Physical processes in the expanding universe, inflation, nucleosynthesis, the cosmic microwave background, dark matter, and dark energy.

Prerequisites: PHYS 3701, PHYS 3606 or 3608 and PHYS 4409, or permission of the Department. (PHYS 3606 or PHYS 3608 and PHYS 4409 may be taken concurrently.)  
Lectures three hours per week.

PHYS 4203 [0.5 credit]

**Physical Applications of Fourier Analysis**

Fourier transform, convolution. Sampling theorem. Applications to imaging: descriptors of spatial resolution, filtering. Correlation, noise power. Discrete Fourier transform, FFT. Filtering of noisy signals. Image reconstruction in computed tomography and magnetic resonance. Laplace transform. Integral transforms, application to boundary value problems.

Prerequisites: MATH 3705, or permission of the Department.  
Lectures three hours a week.

PHYS 4208 [0.5 credit]

**Modern Optics**

Electromagnetic wave propagation; reflection, refraction; Gaussian beams and guided waves. Laser theory: stimulated emission, cavity optics, modes, gain and bandwidth; atomic and molecular lasers. Mode locking, Q switching. Diffraction theory, coherence, Fourier optics, holography, laser applications. Optical communication systems, nonlinear effects: devices, fibre sensors, integrated optics.

Also offered at the graduate level, with different requirements, as PHYS 5318 for which additional credit is precluded.

Prerequisites: PHYS 2202, PHYS 3606 (or PHYS 3608), and PHYS 3308 or permission of the Department.

Lectures three hours a week.

PHYS 4307 [0.5 credit]

**Electromagnetic Radiation**

Electromagnetic wave propagation in a vacuum, dielectrics, conductors, and ionized gases, reflection, refraction, polarization at the plane boundary between two media; waveguide and transmission line propagation; dipole and quadrupole radiation fields; antenna systems. Electromagnetic mass, radiation pressure. Tensor notation, transformation of the electromagnetic fields.

Prerequisites: PHYS 3308, PHYS 3801, PHYS 3807 and PHYS 3808 (except for Mathematics and Physics Double Honours students), or permission of the Department.

Lectures three hours a week.

PHYS 4407 [0.5 credit]

**Statistical Physics**

Equilibrium statistical mechanics and its relation to thermodynamics. Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics are derived, and applied in appropriate physical situations. Fluctuations. Kinetics and transport processes, including the Boltzmann transport equation and some of its applications.

Prerequisite: PHYS 3402, PHYS 2602 or PHYS 3601, PHYS 3701 or PHYS 3602, PHYS 4707 (may be taken concurrently); or permission of the Department.  
Lectures three hours a week.

PHYS 4409 [0.5 credit]

**Thermodynamics and Statistical Physics**

The three Laws of Thermodynamics, enthalpy, Helmholtz and Gibbs functions. Equilibrium statistical mechanics and its relation to thermodynamics. Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac statistics.

Precludes additional credit for PHYS 3402 and PHYS 4407.

Prerequisites: PHYS 3701 (may be taken concurrently), MATH 2004 and MATH 3705, or permission of the Department.

PHYS 4508 [0.5 credit]

**Solid State Physics**

An introduction to solid state physics. Topics include crystal structure, phonons and lattice vibrations, conductors, semiconductors, insulators and superconductivity.

Prerequisites: PHYS 3606 or PHYS 3608, and PHYS 3701, or permission of the Department.

Lectures three hours a week.



PHYS 4602 [0.5 credit]

**Particle Physics**

Properties of leptons, quarks and hadrons. The fundamental interactions, conservation laws, invariance principles and quantum numbers. Resonances in hadron-hadron interactions. Three body phase space. Dalitz plots. Quark model of hadrons, mass formulae. Weak interactions, parity violation, decay of neutral kaons, CP violation, Cabibbo theory. Also offered at the graduate level, with additional or different requirements, as PHYS 5602, for which additional credit is precluded.

Prerequisite: PHYS 4707 or permission of the Department.

Lectures three hours a week.

PHYS 4608 [0.5 credit]

**Nuclear Physics**

Ground state properties of nuclei. Nuclear models, binding energy, properties of excited nuclei. Alpha, beta and gamma decay. Passage of radiation through matter, detectors. Nuclear reactions, cross sections, fission, fusion. Elements of neutron physics.

Prerequisites: PHYS 3606 or PHYS 3608 or permission of the Department.

Lectures three hours a week.

PHYS 4707 [0.5 credit]

**Introduction to Quantum Mechanics I**

The basic interpretative postulates of quantum mechanics are applied to simple one-dimensional problems, and angular momentum theory.

Prerequisites: PHYS 3701 and PHYS 3807 or equivalent, or permission of the Department.

Lectures three hours a week.

PHYS 4708 [0.5 credit]

**Introduction to Quantum Mechanics II**

Scattering theory and application; bound state problems; approximation methods.

Prerequisite: PHYS 4707 or permission of the Department.

Lectures three hours a week.

PHYS 4807 [0.5 credit]

**Computational Physics**

Computational methods used in analysis of experimental data. Introduction to probability and random variables. Monte Carlo methods for simulation of random processes. Statistical methods for parameter estimation and hypothesis tests. Confidence intervals. Multivariate data classification. Unfolding methods. Examples primarily from particle and medical physics. Also offered at the graduate level, with different requirements, as PHYS 5002, for which additional credit is precluded.

Prerequisite: an ability to program in FORTRAN, Java, C or C++, and permission of the Department.

Lectures three hours a week.

PHYS 4901 [0.5 credit]

**Special Topics in Physics**

Each year, at the direction of the Department, a course on a special topic may be offered.

Prerequisite: permission of the Department.

PHYS 4905 [0.0 credit]

**Cooperative Work Term Report 5**

Provides practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer. Written and oral reports will be required. Graded as *Sat* or *Uns*.

Prerequisites: registration in the Physics Co-operative education option and permission of the Department.

Four-month work term.

PHYS 4906 [0.0 credit]

**Cooperative Work Term Report 6**

Provides practical experience for students enrolled in the Co-operative option. Students must receive satisfactory evaluations from their work term employer. Written and oral reports will be required. Graded as *Sat* or *Uns*.

Prerequisites: registration in the Physics Co-operative education option and permission of the Department.

Four-month work term.

PHYS 4907 [0.5 credit]

**Fourth-Year Project**

Same as PHYS 4909 except that it extends over the fall term only. (See PHYS 4909 for details.)

Prerequisite: permission of the Department.

A minimum of six hours laboratory or private study a week.

PHYS 4908 [0.5 credit]

**Fourth-Year Project**

Same as PHYS 4909 except that it extends over the winter term only. (See PHYS 4909 for details.)

Prerequisite: permission of the Department.

A minimum of six hours laboratory or private study a week.

PHYS 4909 [1.0 credit]

**Fourth-Year Project**

These are advanced projects of an experimental or theoretical nature with an orientation towards research.

A written progress report, by mid-term for PHYS 4907, PHYS 4908, and by mid-year for PHYS 4909, must be submitted to the student's supervisor prior to the last day for withdrawal from the course. A written and an oral report are required at the conclusion of the project.

Prerequisite: permission of the Department.

A minimum of six hours laboratory or private study a week.

## Political Science (PSCI)

### Department of Political Science Faculty of Public Affairs

PSCI 1000 [1.0 credit]

#### Introduction to Political Science

Contemporary political issues and problems: political thought, focusing upon the clash of modern ideologies; comparative government, starting from the Canadian system, and including one other western democracy, a post-communist system and a developing country; international politics; methods of inquiry.

Precludes additional credit for PSCI 1001, PSCI 1002 and PSCI 1003.

Lectures two hours a week, tutorials one hour a week.

PSCI 1001 [0.5 credit]

#### Great Political Questions

Introduction to the central ideas and debates shaping the contemporary political world – east, north, west and south. Topics will vary from year to year but may include liberty and equality, state and nation, sovereignty and anarchy, democracy and dictatorship, and political identity and culture. The combination of two of PSCI 1001, PSCI 1002, and PSCI 1003 is an alternative Introduction to Political Science to that offered in PSCI 1000.

Precludes additional credit for PSCI 1000.

Lectures two hours a week, tutorials one hour a week.

PSCI 1002 [0.5 credit]

#### Global Political Issues

Contemporary political issues in Canada and around the world. Topics will vary from year to year but may include war and peace, human rights, wealth and poverty, Canadian unity, aboriginal politics, nationalism, and globalization. The combination of two of PSCI 1001, PSCI 1002, and PSCI 1003 is an alternative Introduction to Political Science to that offered in PSCI 1000.

Precludes additional credit for PSCI 1000.

Lectures two hours a week, tutorials one hour a week.

PSCI 1003 [0.5 credit]

#### North American Politics

Introduction to politics in Canada, the United States, and Mexico. Topics will include political culture and ideologies, constitutions, political institutions and democracy, national sovereignty and continental integration. The combination of two of PSCI 1001, PSCI 1002, and PSCI 1003 is an alternative Introduction to Political Science to that offered in PSCI 1000.

Precludes additional credit for PSCI 1000.

Lectures two hours a week, tutorials one hour a week.

PSCI 2001 [1.0 credit]

#### Introduction à la politique canadienne

Une vue générale du processus politique et des institutions politiques au Canada. Travaux peuvent être présentés en français ou en anglais.

Precludes additional credit for PSCI 2002 and PSCI 2003.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2002 [0.5 credit]

#### Canadian Political Environment

An examination of the cultural, social, and economic context of Canadian politics, including interest groups and social movements, regionalism, language, ethnicity, and gender.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2003 [0.5 credit]

#### Canadian Political Institutions

An examination of Canadian political institutions, including federalism, Parliament, the constitution, political parties and the electoral system.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2101 [0.5 credit]

#### Comparative Politics of the Global North

Domestic politics in states of the Global North. Comparison of political and economic regimes, political institutions, actors, political processes and cultures, and patterns of public policy making.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2102 [0.5 credit]

#### Comparative Politics of the Global South

Introduction to domestic politics in post-colonial and developing states of the Global South. Topics may include nationalism, authoritarianism, economic development, revolution, democratization, and the politics of gender, religion, and ethnicity.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2200 [0.5 credit]

#### Introduction to U.S. Politics

An examination of several important aspects of the U.S. political system, including separation of powers, checks and balances, and federalism.

Prerequisite: second-year standing.

Lectures two hours a week, tutorial one hour a week.

PSCI 2300 [1.0 credit]

#### History of Political Thought

Western political thought from classical times to the nineteenth century: Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau and other thinkers.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2401 [0.5 credit]

#### Public Affairs Analysis

Introduction to central concepts and processes involved in public affairs. Exploration of public issues, policy approaches and decision-making structures using theoretical, empirical and applied approaches.

Precludes additional credit for PSCI 2400.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2500 [0.5 credit]

#### Gender and Politics

Introduction to gender and politics of diversity, including how feminist activism and organizing finds expression in the political process and structures of representation such as political parties, legislatures and the state.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2601 [0.5 credit]

#### International Relations: Global Politics

Introduction to theories, concepts and issues in global politics. Topics may include conflict and intervention, peace and security, international institutions, norms and ethics, human rights, gender, culture, and globalization.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2602 [0.5 credit]

#### International Relations: Global Political Economy

Introduction to the international political economy. Topics may include contemporary changes in the global political economy, multinational corporations, foreign economic policy, global and regional economic institutions, environmental issues, international development and relations between rich and poor countries.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2701 [0.5 credit]

**Introduction to Research Methods in Political Science**

Introduction to the logic and design of research. Measurement and inference in qualitative and quantitative political science.

Precludes additional credit for PSCI 2700.

Prerequisite: second-year standing.

Lectures two hours a week, tutorials one hour a week.

PSCI 2702 [0.5 credit]

**Quantitative Research Methods in Political Science**

The logic and methods of the quantitative study of politics, with emphasis on the application and interpretation of statistical techniques for data analysis. Students are strongly encouraged to take this course the same year as PSCI 2701.

Prerequisite: PSCI 2701 or permission of the Department.

Precludes additional credit for PSCI 2700.

Lectures two hours a week, tutorials one hour a week.

PSCI 3000 [0.5 credit]

**Canadian Provincial Politics**

A comparative examination of the nature of Canadian provincial politics. Topics include: political culture, history, party systems, electoral systems and voting behaviour.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3003 [0.5 credit]

**Canadian Urban Politics**

The nature and problems of Canadian urban politics.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3004 [0.5 credit]

**Political Parties and Elections in Canada**

The evolution of the party system, the growth of major and minor party movements and the electoral process in Canada.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3005 [0.5 credit]

**Ontario Government and Politics**

A survey of the political process and political institutions in Ontario.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3006 [0.5 credit]

**Social Power in Canadian Politics**

The role of social forces in the Canadian political process, including interest groups, social movements, elites and classes.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3007 [0.5 credit]

**Constitutional Politics in Canada**

The politics of the Canadian constitution. Particular attention to historical and contemporary constitutional reform.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3100 [0.5 credit]

**Politics of Development in Africa**

The historical background of African independence, and contemporary struggle for democracy and economic development in Africa.

Prerequisite: third-year standing and one of GPOL 1000 or PSCI 2102.

Lectures three hours a week.

PSCI 3101 [0.5 credit]

**Politics of War in Africa**

The recurrent crises of war, and political instability in Africa, along with regional and international efforts to resolve them.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3102 [0.5 credit]

**Politics of Development of China**

The evolving structures and processes of government in (greater) China with particular emphasis on politics in the People's Republic of China and secondary emphasis on Taiwan and Hong Kong.

Prerequisite: third-year standing and one of GPOL 1000 or PSCI 2102.

Lectures three hours a week.

PSCI 3103 [0.5 credit]

**State, Society and Economy in Northeast Asia**

The relationship between government structures, society and the economy in Northeast Asia with particular emphasis on Japan and Korea.

Prerequisite: third-year standing and one of GPOL 1000 or PSCI 2102.

Lectures three hours a week.

PSCI 3105 [0.5 credit]

**Imperialism**

Ideologies, practices, and legacies of western dominance over Asia, Africa, and Latin America. Examines the complexities of imperial control and the colonial relationship from the nineteenth century to present.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3107 [0.5 credit]

**The Causes of War**

Alternate theories of the causes of war. Such alternate perspectives as biological, social and comparative historical approaches, including the results of peace research activities of the past two decades.

Prerequisite: third-year standing and one of GPOL 1000 or PSCI 2601.

Lectures three hours a week.

PSCI 3108 [0.5 credit]

**Politics of Popular Culture**

Examines political themes in popular culture. Cultural media may include film, literature, television, music, cartoons/comics, and the news media. Political themes may include war, ethnicity, nationalism, revolution, citizenship, gender and sexuality.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3109 [0.5 credit]

**The Politics of Law and Morality**

Politics of moral regulation in Canada, the United States and other jurisdictions. The treatment in law and public policy of such human rights issues as: capital punishment, sexual orientation, euthanasia, abortion, new reproductive technologies, racial discrimination, religious and equality rights.

Prerequisite: third-year standing and one of PSCI 2002, PSCI 2003 or PSCI 2101.

Lectures three hours a week.

PSCI 3200 [0.5 credit]

**U.S. Constitutional Politics**

The central role played by the U.S. Constitution in the country's political life, from the Framers to current controversies. Includes issues of race, class and gender.

Prerequisite: third-year standing and one of GPOL 1000 or PSCI 2102 or PSCI 2200 or PAMP 2000.

Lectures three hours a week.

Courses - Political Science (PSCI)

PSCI 3203 [0.5 credit]

**Government and Politics in the Middle East**

The evolution and functioning of political systems in the Middle East region, with emphasis on the problems of political stability, the impact of the West, the role of Islam, and war and peace.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3204 [0.5 credit]

**Politics of Latin America**

An overview of the evolution of Latin American political systems, including the impact of the European conquest, democratization, economic liberalization, state-civil society relations, gender politics, revolutionary movements, and relations with the United States.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3205 [0.5 credit]

**Mexican Politics**

An introduction to the politics, society and economy of Mexico. Topics include processes of democratization and economic liberalization, human rights, the environment, the role of women, labour, and indigenous peoples, and social policy. Special emphasis on Mexico's role in the North American political economy.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2102 or PSCI 2602

Lectures three hours a week.

PSCI 3206 [0.5 credit]

**The Government and Politics of Western Europe**

Changes in West European states and societies. Major institutions, structures and processes, with an emphasis on how European states are responding to social, political and economic changes.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3207 [0.5 credit]

**The Government and Politics of European Integration**

The process of European integration; the European Union and its institutions; core EU policies, challenges to the integration process (e.g. democratic legitimacy, enlargement); theories of European integration.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3208 [0.5 credit]

**Reform and Political Change in the Russian Federation**

The ongoing process of post-Soviet reform in Russia: the implications of market reform; the process of democratization; and constitutional change in Russia's federal system. Historical perspectives from the Soviet experience, and comparative insights with the other Soviet successor states.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3209 [0.5 credit]

**Reconstruction and Transformation in Europe and Eurasia**

The politics of dramatic political changes, such as revolution, secession, constitutional revision, and systemic reform. The course will include selected historical and comparative cases from Europe and the former Soviet Union.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3210 [0.5 credit]

**Electoral Politics in the U.S.**

An overview of specific aspects of U.S. electoral politics, including presidential and congressional elections, incumbency, the two-party system, campaign spending limits, the role of the media, and voter turnout.

Prerequisite: third-year standing and PSCI 2101 or PSCI 2200.

Lectures three hours a week.

PSCI 3300 [0.5 credit]

**Politics and Literature**

A study of imaginative prose in which political ideas and/or political settings dominate. Literature as political communication, the impact of literature upon politics, the peculiar value of literature in the study of politics, its shortcomings.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3302 [0.5 credit]

**Comparative Political Thought**

A comparative survey of political thought focusing on a range of traditions that may include readings from Aboriginal, African, Chinese, Indian, Jewish, Latin American, Muslim, and Persian perspectives.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3303 [0.5 credit]

**Feminist Political Theory**

Introduction to feminist philosophical responses to sexism, taking into consideration the different waves of feminist discourse. Topics may include the concept of gender; women's diversity and its implications; 'intersectionality'; gender, capitalism and the family; and new approaches to feminist knowledge and feminist agency.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3305 [0.5 credit]

**Canadian Political Ideas**

The sources and development of political ideas in French and English Canada.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3307 [0.5 credit]

**Politics of Human Rights**

Politics of human rights in its historical and cultural context, including: early liberal theories of natural rights; utilitarian and Marxist critiques; contemporary rights debates; different generations of rights; feminism and women's rights; cultural relativism; state sovereignty; and, problems of implementation and enforcement.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3308 [0.5 credit]

**Modern Political Thought**

A survey of trends in modern political thought, including some of liberalism, conservatism, neo-conservatism, Marxist and neo-Marxist socialism, communitarianism, postmodernism and globalization.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3309 [0.5 credit]

**Modern Ideologies**

A survey of ideologies, mainly since 1900, including some of nationalism, utopian socialism, communism, fascism, populism, environmentalism and feminism.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3311 [0.5 credit]

**History of Muslim Political Thought**

A survey of political thought among Muslims, tracing the emergence and influence of juridical, philosophical and administrative approaches to politics on Muslim civilization.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3401 [0.5 credit]

**Canadian Public Administration**

Study of the institutions and dynamics of government in Canada, with emphasis on political context, administrative reforms, policy development and ongoing challenges. Analysis may include federal, provincial and/or municipal levels of government.

Prerequisite: third year standing and one of PSCI 2002, PSCI 2003, PSCI 2400, PSCI 2401, or PAPM 2000.

Lectures three hours a week.

PSCI 3402 [0.5 credit]

**Canadian Public Policy**

Policy communities and policy networks in Canada with particular attention paid to policy issues, the political environment, policy instruments, impact and outcomes.

Prerequisite: third-year standing and one of PSCI 2002, PSCI 2003, PSCI 2400, PSCI 2401, or PAPM 2000.

Lectures three hours a week.

PSCI 3404 [0.5 credit]

**Comparative Public Administration**

Comparative study of government institutions and public services in different countries. Themes may include public sector reform, relations with civil society, and contrast between developed and developing nations.

Prerequisite: third-year standing and one of PSCI 2101, PSCI 2400, or PSCI 2401.

Lectures three hours a week.

PSCI 3405 [0.5 credit]

**Comparative Public Policy Analysis**

The formation and impact of public policy: a variety of political systems as well as a variety of policy areas. Emphasis on developing skills for the analysis of policy formation and impact.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2101, PSCI 2400, PSCI 2401, or PAPM 2000.

Lectures three hours a week.

PSCI 3406 [0.5 credit]

**Public Affairs and Media Strategies**

The public affairs and issue management strategies of corporations, government departments, and other institutions in Canada from a comparative perspective.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3407 [0.5 credit]

**Public Opinion and Public Policy**

Consideration of Canadian and comparative quantitative data and literature relating to several areas of public opinion on key policy issues, including value systems and social inequality, work, health, the family, social welfare, national identity and the environment.

Prerequisite: PSCI 2701 and PSCI 2702.

Lectures three hours a week.

PSCI 3409 [0.5 credit]

**Comparative Politics of Social Welfare**

Comparative political analysis of the establishment, growth, reform and contraction of the welfare state. Topics may include pensions, health and education; the role of political discourses and societal responses; and case studies from various countries.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3500 [0.5 credit]

**Gender and Politics: Global North**

How gender relations affect politics. Emphasis on representation, governance, and civil society. Topics may include citizenship, nation, welfare states and social movement politics.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2101, PSCI 2500, or PSCI 3307.

Lectures three hours a week.

PSCI 3502 [0.5 credit]

**Gender and Politics: Global South**

A contemporary approach to the role of gender in political systems of the South. Topics may include gender and development, human rights, social policies, globalization, state-civil society relations, political participation and citizenship.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2102, PSCI 2500 or PSCI 3307.

Lectures three hours a week.

PSCI 3600 [0.5 credit]

**International Institutions**

Origins, structure and functioning of international institutions with emphasis on the United Nations as well as regional organizations. Topics include peace and security, international aid and development, human rights and the control of global resources.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2601 or PSCI 2602.

Lectures three hours a week.

PSCI 3601 [0.5 credit]

**Theories of International Politics**

Examination of the major theoretical approaches to the study of international politics. Topics may include realism, liberalism, Marxism, constructivism, feminism, and poststructuralism.

Prerequisite: third-year standing and one of GPOL 1000 or PSCI 2601.

Lectures three hours a week.

PSCI 3603 [0.5 credit]

**Strategic Thought and International Security**

The ideas of classical and contemporary strategic thinkers. International security issues and concepts.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3605 [0.5 credit]

**Comparative Study of Foreign Policy**

The utility of comparative analysis in the study of the objectives, strategies and decision-making processes involved in the foreign policies of states.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2601 or PSCI 2602.

Lectures three hours a week.

PSCI 3606 [0.5 credit]

**Canadian Foreign Policy**

The traditions, domestic influences, objectives, capabilities, and decision-making processes, and analysis of selected contemporary issues.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2001, PSCI 2002, PSCI 2003, PSCI 2601 or PSCI 2602.

Lectures three hours a week.

PSCI 3607 [0.5 credit]

**North American Security and Defence Policy**

The evolution of Canadian and U.S. security and defence policy as it pertains to North America. Contemporary issues and development.

Prerequisite: third-year standing.

Lectures three hours a week.

Courses - Political Science (PSCI)

PSCI 3700 [0.5 credit]

**Government and Politics of South Asia**

Patterns of colonialism, evolving political regimes and issues in development and foreign policy in the countries of South Asia, including India, Pakistan, Bangladesh, Sri Lanka, and other member states of SAARC.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2102.

Lectures three hours a week.

PSCI 3701 [0.5 credit]

**Government and Politics of South-East Asia**

Patterns of colonialism, evolving political regimes and issues in development and foreign policy in the countries of Southeast Asia, including Burma, Thailand, Vietnam, Malaysia, Indonesia, the Philippines, and other member states of ASEAN.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2102.

Lectures three hours a week.

PSCI 3702 [0.5 credit]

**Israeli-Palestinian Relations**

The origins and evolution of the Israeli-Palestinian conflict and peace process.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2601 or PSCI 2602.

Lectures three hours a week.

PSCI 3703 [0.5 credit]

**Governing in the Global Economy**

The main approaches and policy issues in the political economy of advanced industrialized states. The relationship between state and market and the ways in which national states have responded to the pressures of governing in an increasingly interdependent global economy.

Prerequisite: third-year standing and one of GPOL 1000, PSCI 2602.

Lectures three hours a week.

PSCI 3704 [0.5 credit]

**Post-Communist Transformation in East/Central Europe**

A comparative examination of the rise and fall of communism in East/Central Europe and social and institutional transformation in the post-communist period.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3705 [0.5 credit]

**East/Central Europe and the European Union**

A comparative examination of East and Central European post-communist transformation in the context of European Union enlargement and accession process: questions of identity, security, stability and economic integration as well as political and social challenges.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3709 [0.5 credit]

**Ancient and Medieval Political Thought**

The significance for political theory of the ancient and medieval controversies over nature/convention, power/knowledge, time/eternity, theory/practice, and science/mysticism. Thinkers such as Homer, the pre-Socratics, Plato and Aristotle, the neo-Platonists, Augustine, and the Scholastics.

Prerequisite: PSCI 2300 or permission of the Department.

Lectures three hours a week.

PSCI 3801 [0.5 credit]

**Environmental Politics**

An introduction to environmental issues in contemporary political argument. Topics include: environmental movements and green parties; environmental ethics and animal rights; economic approaches to environmental management; the politics of sustainable development; and, the international politics of the environment.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3802 [0.5 credit]

**Globalization and Human Rights**

An examination of the various dimensions and meanings of globalization and its relationship with human rights. The main emphasis will be on the implications of the emerging global economy for economic, social, political and cultural rights. (Also listed as SOCI 3027 and ANTH 3027.)

Prerequisite: third-year standing and one of: GPOL 1000, SOCI 1010 [1.0], ANTH 1003[1.0], ANTH 1010[1.0], ISSC 1001[1.0], PSCI 2601, PSCI 2602, LAWS 2105, PHIL 2103 or (ANTH 1001 and ANTH 1002), or (SOCI 1001 and SOCI 1002).

Lectures three hours a week.

PSCI 3805 [0.5 credit]

**Politics of Race**

The meaning, sources and practice of racialism, as well as efforts to combat it, in a comparative context. Case studies will include South Africa, the United States, and Canada.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3809 [0.5 credit]

**Selected Topics in Political Science**

A lecture course on a selected contemporary topic in Political Science. Topic may vary from year to year and will be announced in advance of the registration period by the Department of Political Science.

Prerequisite: third-year standing.

Lectures three hours a week.

PSCI 3900 [1.0 credit]

**Études dirigées**

Une programme de lectures choisies et de travaux écrits dans le domaine de spécialisation d'un membre du département. Consulter le conseiller des études de premier cycle (Undergraduate supervisor) pour les sujets offerts.

Prerequisite: third-year standing in the Political Science *Mention : Français* program.

PSCI 3901 [0.0 credit]

**Cooperative Work Term 1**

Prerequisite: registration in the B.A. Honours Co-operative Program, completion of Co-op preparation classes offered by the Co-op Office and permission of the Department.

PSCI 3902 [0.0 credit]

**Cooperative Work Term 2**

Prerequisite: registration in the B.A. Honours Co-operative Program and permission of the Department.

PSCI 3903 [0.0 credit]

**Cooperative Work Term 3**

Prerequisite: registration in the B.A. Honours Co-operative Program and permission of the Department.

PSCI 3904 [0.0 credit]

**Cooperative Work Term 4**

Prerequisite: registration in the B.A. Honours Co-operative Program and permission of the Department.

PSCI 3905 [1.5 credits]

#### **Washington Center Internship**

A one-term internship in the NAFTA Leaders Program of The Washington Center offered in Washington D.C. Evaluated by faculty members of The Washington Center, but governed by Carleton University regulations and coordinated by the Department of Political Science at Carleton University. Graded *Sat* or *Uns*.

Prerequisite: selection to The Washington Center Internship Program and one of PSCI 2200, PSCI 3200, or PSCI 3210 and permission of the department.

Internship four days a week.

PSCI 3906 [1.0 credit]

#### **Internship Placement in Political Science**

The internship provides students with an opportunity to work with an organization whose focus is on some aspect of politics. Students will complete a research paper related to their placement. Students must locate a faculty member to assist in finding and then supervising the placement.

Precludes additional credit for GPOL 3100, Carleton/Leeds Parliamentary Exchange and the Washington Internship.

Prerequisite: third-year Honours standing with a minimum Political Science CGPA of 9.0 or permission of the Department.

PSCI 4000 [1.0 credit]

#### **Topics in Canadian Government and Politics**

Section A: Political Economy of Canada. Selected issues in Canadian political economy including the role of the state in the Canadian economy, the political aspects of foreign ownership and economic structure and political change. Section B: Canadian Political Institutions. Selected topics on institutions of Canadian Government at the federal level. Section C: Canadian Political Behaviour. Voting, public opinion, political violence, socialization and other aspects of political behaviour in Canada. Religion, class and region as determinants of political cleavage.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4002 [0.5 credit]

#### **Policy Seminar: Problems of Northern Development**

The issues, the policy processes and the problems of policy implementation in the political and economic development of Canada's northern territories.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4003 [0.5 credit]

#### **Politics and the Media**

The role of the mass media in the Canadian political system from a comparative perspective.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4005 [0.5 credit]

#### **Stability, Justice and Federalism**

Canada's unity crisis in a comparative perspective with particular attention to federalism, nationalism and regionalism.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2003 or PSCI 2101.

Seminar three hours a week.

PSCI 4006 [0.5 credit]

#### **Legislatures and Representation in Canada**

The role of Parliament and of the individual M.P. in terms of policy making, party discipline, and differing conceptions of representation. Also offered at the graduate level, with additional or different requirements, as PSCI 5006, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours per week.

PSCI 4008 [0.5 credit]

#### **National Security and Intelligence in the Modern State**

The state's response to foreign espionage, alleged subversion, terrorism, and counterintelligence. Major focus on the Canadian experience, but with extensive use of materials chronicling the practices of KGB, CIA, BIS, ASIO, MOSSAD, etc.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4009 [0.5 credit]

#### **Quebec Politics**

Society, culture, economy and politics in Quebec. Special attention to the politically relevant changes since 1960 and the central place of Quebec within the Canadian federation.

Prerequisite: fourth-year Honours standing and a reading knowledge of French or permission of the Department.

Seminar three hours a week.

PSCI 4103 [0.5 credit]

#### **The Modern State**

A survey of recent thinking about the state in western societies drawing on perspectives such as those of feminists, Marxists, Weberians, poststructuralists and others. Topics may include: the rise of the modern state, economic governance, the public sphere, citizenship, sovereignty and territoriality.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4104 [0.5 credit]

#### **Theory and Practice in Third World Development**

The various theoretical approaches to the analysis of development and underdevelopment, of the historical experience of important models of development and of their application to selected countries in Asia, Africa and Latin America.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000 or PSCI 2102.

Seminar three hours a week.

PSCI 4105 [0.5 credit]

#### **Selected Problems in Third World Development**

The nature of international factors that influence Third World development such as multinational corporations, the new international division of labour, the new protectionism, the role of international debt, the politics of the Green Revolution, technology, and development assistance.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, or PSCI 2102.

Seminar three hours a week.

Courses - Political Science (PSCI)

PSCI 4107 [0.5 credit]

**Political Participation in Canada**

The causes and implications of political participation by individuals with special reference to Canada. Topics include citizen participation in campaign and party organizations, political protest movements, interest groups, and community associations.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of PSCI 2002, PSCI 2003, PSCI 2101, PSCI 2102, PSCI 2700, or (PSCI 2701 and PSCI 2702).

Seminar three hours a week.

PSCI 4108 [0.5 credit]

**Canadian Provincial Government and Politics**

The political processes and institutions of the provinces.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4109 [0.5 credit]

**The Politics of the Canadian Charter of Rights and Freedoms**

The genesis and impact of the Charter of Rights and Freedoms. Particular emphasis on the politics of aboriginal, language, and equality rights.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4203 [0.5 credit]

**Southern Africa After Apartheid**

The pathology of apartheid, the reasons for its end, and prospects for democratization and development in southern Africa in the era of globalization. Also offered at the graduate level, with additional or different requirements, as PSCI 5203, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2102 or PSCI 3100.

Seminar three hours a week.

PSCI 4204 [0.5 credit]

**Elections**

The conduct and meaning of elections in contemporary states. Attention to the connection of elections to concepts of representation, policy mandates, and political parties, and to electoral systems and referendums.

Precludes additional credit for PSCI 5204.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2003, PSCI 2101, PSCI 2102, PSCI 2700, or (PSCI 2701 and PSCI 2702).

Seminar three hours a week.

PSCI 4205 [0.5 credit]

**Identity Politics**

The strategies and ideologies of social movements in the Canadian political process, such as the women's movement and the environmental movement.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4206 [0.5 credit]

**Indigenous Politics of North America**

Issues of governance regarding the original peoples of Canada, Mexico and the United States since the European invasion. Contemporary movements for restoration of cultural, political, socio-economic, land and self-governance rights, emphasizing domestic and international strategies. Also offered at the graduate level, with additional or different requirements, as PSCI 5100, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2001, PSCI 2002, PSCI 2003, PSCI 2101, PSCI 2102, and PSCI 3205.

Seminar three hours a week.

PSCI 4207 [0.5 credit]

**Globalization, Adjustment and Democracy in Africa**

The nature of global pressures in Africa, as states go through a 'second wind' of political and economic change. Also offered at the graduate level, with different requirements, as PSCI 5107, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2102, PSCI 2602, or PSCI 3100.

Seminar three hours a week.

PSCI 4208 [0.5 credit]

**Queer Politics**

An examination of lesbian, gay, bisexual and transgender movements in comparative perspective. Topics may include relationship recognition, discrimination, and state regulation of queer sexualities.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4302 [0.5 credit]

**Political Thought in the Modern Muslim Middle East**

Contemporary secular and religious responses to the challenges of modernity. Readings include writings of Arab, Turkish, and Iranian intellectuals. Also offered at the graduate level with different requirements, as PSCI 5305, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of PSCI 2300 or PSCI 3311.

Seminar three hours a week.

PSCI 4303 [0.5 credit]

**Governmentality and Politics**

Examination of Foucault's concept of governmentality and work which has developed this idea, especially the relevance of governmentality for global political studies. Topics may include sovereignty, biopolitics, technopolitics, neoliberalism and citizenship. Also offered at the graduate level, with different requirements, as PSCI 5303 and SOCI 5407, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4305 [1.0 credit]

**Contemporary Political Theory**

Recent work in political theory, stressing major approaches to the understanding of contemporary political life such as historicism, the sociology of knowledge, positivism, phenomenology, critical theory, existentialism, neo-classicism. Works by such thinkers as Gramsci, Mannheim, Popper, Strauss, Cassirer, Habermas, Sartre, and Voegelin.

Prerequisite: fourth-year Honours standing and one of GPOL 1000 or PSCI 2300 or permission of the Department.

Seminar three hours a week.



PSCI 4308 [0.5 credit]

**History of Political Enquiry**

An examination of methods adopted by major thinkers in the history of political philosophy, amidst changing understandings of metaphysics and science. Thinkers to be considered may include Plato, Aristotle, Descartes, Bacon, Kant, Hegel, Nietzsche, and Heidegger, among others.

Precludes additional credit for PSCI 4304.

Prerequisite: PSCI 2300 or permission of the Department.

Seminar three hours a week.

PSCI 4309 [0.5 credit]

**Contemporary Approaches to Political Enquiry**

An examination of contemporary critiques and developments in modern science and social science. Thinkers to be considered may include Gadamer, Strauss, Oakeshott, Voegelin, Polanyi, Feuerabend, Heidegger, Kojève, Schmitt, Foucault, and Derrida.

Precludes additional credit for PSCI 4304.

Prerequisite: PSCI 2300 or permission of the Department.

Seminar three hours a week.

PSCI 4310 [1.0 credit]

**Political Theories of Democracy and Empire**

An exploration of how ancient and modern conceptions of empire differ and how the pursuit of empire abroad can undermine good government at home in political theories including Thucydides, Plato, Aristotle, Xenophon, Machiavelli, Hobbes, Hegel, Tocqueville and Heidegger.

Precludes additional credit for PSCI 5308.

Prerequisite: fourth-year Honours standing and one of GPOL 1000, PSCI 2300 or permission of the Department.

Seminar three hours a week.

PSCI 4400 [0.5 credit]

**Socio-Technical Change and Public Policy Design**

Joint implications of contemporary science, technology and demographics for the design of public policy. The main emphasis of the course will be general patterns of change and design relating to public policy.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4402 [0.5 credit]

**Gender, State and Public Policy**

Interaction of gender politics and the state. Feminist approaches to analyzing the state as a site of gendered engagement. Emphasis on representation, state feminism and gender-based analysis.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2101, PSCI 2102, PSCI 2500, PSCI 3500, or PSCI 3502.

Seminar three hours a week.

PSCI 4403 [0.5 credit]

**Reproductive Rights Policy in North America**

The interaction between social movements, legislatures and courts in formulating reproductive rights policy in Canada, the U.S. and Mexico.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2002, PSCI 2003, PSCI 2200, PSCI 3200, PSCI 3201.

Seminar three hours a week.

PSCI 4407 [0.5 credit]

**Public Policy: Content and Creation**

The content and creation of public policy. Focus on the explanation, prediction and design of policy. Perspectives and examples are drawn from a variety of frameworks and from both Canadian and non-Canadian contexts.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2400, PSCI 2401, PSCI 3402, PSCI 3405, PSCI 3409 or PAMP 2000.

Seminar three hours a week.

PSCI 4408 [0.5 credit]

**Public Affairs Management and Analysis**

Theories and practice in the management of public affairs, including the environment and administration of the public sector, public opinion, and public communications.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of PSCI 2400 or PSCI 2401, PSCI 3401, PSCI 3404 or PAMP 2000.

Seminars three hours a week.

PSCI 4409 [0.5 credit]

**Issues in Development Management**

An examination of the application of organization theory to policy implementation and evaluation for developing and transitional systems, with an emphasis on the role of cultural differences and divergent value systems in development management. (Also listed as INAF 4202.)

Prerequisites: ECON 3603 and fourth-year standing in the B.P.A.P.M. program and registration in either the International Studies specialization or the Development Studies specialization or permission of the Department.

Lectures or seminars three hours a week.

PSCI 4500 [0.5 credit]

**Gender and Globalization**

How globalization affects women's involvement in politics and how they organize to conceptualize and pursue gender justice in official politics; grass roots projects and cultural transformations; ideology; stand-alone movements; and mixed-sex movements like nationalism and democratization.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2101, PSCI 2102, PSCI 2601, PSCI 2602, PSCI 2500, PSCI 3500, PSCI 3502.

Seminars three hours a week.

PSCI 4501 [0.5 credit]

**Gender, Identity and Politics in Post-Communist Societies**

The relationships between political transformation, identity-building, ethnicity and gender politics in the transitional states of Europe and the former Soviet Union, considered in comparative perspective. (Also listed as EURR 4205.)

Prerequisite: fourth-year Honours standing or permission of the Department and one of GPOL 1000, PSCI 2101, PSCI 2102, PSCI 2500, PSCI 3208, PSCI 3209, PSCI 3500, PSCI 3502, PSCI 3704, or PSCI 3705.

Seminar three hours a week.

PSCI 4502 [0.5 credit]

**Post-Soviet States and Societies**

The relationship between social forces and state structures at both the national and local levels in the USSR and the post-communist states. (Also listed as EURR 4002.)

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 3209, PSCI 3704, PSCI 3705, or HIST 3600.

Seminar three hours a week.

Courses - Political Science (PSCI)

PSCI 4503 [0.5 credit]

**Politics of Central Eurasia**

Examination of the Caucasus and Central Asia, from Chechnya to former Soviet republics of the region, Afghanistan and Chinese Turkestan. Interests of Russia, China, and the United States. Emphasis on underdevelopment, oil and gas, terrorism, Islam. Also listed as EURR 4207.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4504 [0.5 credit]

**Politics of the Caucasus and Caspian Basin**

Examination of the South Caucasus (Azerbaijan, Georgia, Armenia), the Russian-held North Caucasus, including Chechnya, and relations with Iran. Emphasis on state and society, oil and gas, transregional communications, interests of western powers, ethnic relations.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4505 [0.5 credit]

**Transitions to Democracy**

A comparative analysis of processes of democratization. Diverse theoretical approaches to understanding the timing, causes, nature, and limitations of democratization. Examples from Europe and Russia, Latin America, Africa, and Asia.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2102, PSCI 3100, PSCI 3204, PSCI 3208, PSCI 3209, PSCI 3500, PSCI 3502, PSCI 3704, or PSCI 3705.

Seminar three hours a week.

PSCI 4506 [0.5 credit]

**Women and Politics in North America**

The efforts of women in North America to increase their political role through public activism, including in party organizations, social movements, legislatures, courts and the executive branch of government.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2002, PSCI 2003, PSCI 2200, PSCI 3200, PSCI 3201.

Seminar three hours a week.

PSCI 4601 [0.5 credit]

**Foreign Policies of Soviet Successor States**

The foreign policies of the USSR and of Russia and selected other successor states, with special emphasis on the search for a new security order. (Also listed as EURR 4208.)

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2102, PSCI 2601, PSCI 2602, PSCI 3107, PSCI 3208, PSCI 3209, PSCI 3600, PSCI 3603, PSCI 3703.

Seminar three hours a week.

PSCI 4602 [0.5 credit]

**Bargaining and Negotiation**

The theory and practice of bargaining and negotiation. The seminar includes national and international levels, government and mixed public-private negotiations, and bilateral and multilateral situations. Special attention is given to the needs of weaker parties. Simulations included.

Prerequisite: fourth-year Honours standing or permission of the department.

Seminars three hours a week.

PSCI 4603 [0.5 credit]

**Analysis of International Political Economy**

Various theoretical approaches to the study of the international political economy, with a focus on historical development and changing international structures.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2602, PSCI 3600, or PSCI 3703.

Seminar three hours a week.

PSCI 4604 [0.5 credit]

**Selected Problems in International Political Economy**

Contemporary problems and issues in the international political economy, with particular attention given to advanced industrial countries.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2602, PSCI 3600, or PSCI 3703.

Seminar three hours a week.

PSCI 4605 [0.5 credit]

**Gender in International Relations**

Analysis of feminist approaches to international relations. Substantive issues include the role of women in war and militarization, the gender dimensions of global political economy and gender issues in international development.

Prerequisite: fourth-year Honours standing or permission of the Department and one of GPOL 1000, PSCI 2601, PSCI 2602, PSCI 3500, PSCI 3303 or PSCI 3502.

Seminars three hours a week.

PSCI 4606 [0.5 credit]

**American Foreign Policy**

The sources, trends and conflicting interpretations of the international roles of the United States since World War II. Foreign policy machinery and processes assessed in terms of the relative importance of perceptions, ideology, self-interest, and domestic and foreign pressures.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2101, PSCI 2601, PSCI 2602, PSCI 3200, PSCI 3201, PSCI 3603, PSCI 3703.

Seminar three hours a week.

PSCI 4607 [0.5 credit]

**Politics of North America**

A seminar examining the evolving relationship between Canada, the United States and Mexico, including political, economic, social, environmental and defence aspects. Precludes additional credit for PSCI 5607.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2002, PSCI 2003, PSCI 2601, PSCI 2602, PSCI 3107, PSCI 3205, PSCI 3603, PSCI 3703.

Seminar three hours a week.

PSCI 4608 [0.5 credit]

**European Integration and European Security**

A seminar focusing on issues related to the formation of supra-national decision-making structures in Europe. Also offered at the graduate level, with different requirements, as PSCI 5608, and as EURR 4104/5104, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the department.

Seminar three hours a week.

PSCI 4609 [0.5 credit]

**Selected Topics in European Integration Studies**

A seminar focusing on selected topics related to European integration in the post-World War II period. Also offered as EURR 4106 for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the department.  
Seminar three hours a week.

PSCI 4700 [0.5 credit]

**Origins and Evolution of the Discipline of International Relations**

Development of the academic field of International Relations. A critical examination of the historiography of the field, focusing on its great debates, institutional and national boundaries, and contemporary identity. Also offered at the graduate level, with additional or different requirements, as PSCI 5600, for which additional credit is precluded.

Prerequisite: fourth-year Honours standing or permission of the Department.  
Seminars three hours a week.

PSCI 4701 [0.5 credit]

**Intermediate Polimetrics for Micro Data**

Research designs and statistical techniques primarily used in analyzing survey data. Selected topics may vary from year to year. Students doing Honours papers based on micro data are advised to take this course. Also offered at the graduate level, with additional or different requirements, as PSCI 5701, for which additional credit is precluded.

Prerequisite: PSCI 2700 or (PSCI 2701 and PSCI 2702), or permission of the Department.  
Seminar three hours a week.

PSCI 4702 [0.5 credit]

**Intermediate Research Methods for Applied Political Science**

Applied methods for policy, politics and public affairs. Primarily quantitative, but may have qualitative elements. Also offered at the graduate level, with additional or different requirements, as PSCI 5702 for which additional credit is precluded.

Prerequisite: PSCI 2700 or (PSCI 2701 and PSCI 2702), or permission of the Department.  
Seminar three hours a week.

PSCI 4800 [0.5 credit]

**Advanced International Relations Theory**

Exploration of concepts, themes, and practices in contemporary international relations theory. Topics may include anarchy, empire, sovereignty, power, institutions, inequality, security, war, ethics, governance, and identity. Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 3107, PSCI 3303, PSCI 3307, PSCI 3600, PSCI 3601 or PSCI 3703.

Seminar three hours a week.

PSCI 4801 [0.5 credit]

**Selected Problems in Global Politics**

The application of international relations theories to specific global problems, both historical and contemporary. Selected issues may focus on one or more of conflict analysis, terrorism, the environment, migration, globalization and global civil society.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2601, PSCI 2602, PSCI 3107, PSCI 3600, PSCI 3601, PSCI 3603, and PSCI 3703.

Seminar three hours a week.

PSCI 4802 [0.5 credit]

**International Politics of Africa**

Focus on a particular theme related to the interactions of African states within the African subsystem and with other sectors in the international system.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2601, PSCI 2602, PSCI 3100 or PSCI 3101.  
Seminar three hours a week.

PSCI 4803 [0.5 credit]

**Foreign Policies of Major East Asian Powers**

The foreign policies of the East Asian powers, with special attention to China and Japan; an analysis of the domestic sources of policy, capabilities, interests, decision-making processes and foreign relations.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2102, PSCI 2601, PSCI 2602, PSCI 3102, or PSCI 3103.

Seminar three hours a week.

PSCI 4804 [0.5 credit]

**International Relations of South and Southeast Asia**

Foreign policy orientations of the regional actors and interaction with non-regional actors. Special emphasis on enduring sources of conflict within the area, and emerging patterns of co-operation, including comparison of ASEAN with SAARC.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of GPOL 1000, PSCI 2601, PSCI 2602, PSCI 3107, PSCI 3600, PSCI 3601, PSCI 3603, PSCI 3703.

Seminar three hours a week.

PSCI 4805 [0.5 credit]

**Political Economy of Global Finance**

An exploration of the organization of the global financial system. Issues to be covered include the relationship between global finance and the state and the problems associated with governing global finance. Also offered at the graduate level, with additional or different requirements, as PSCI 5802, for which additional credit is precluded.

Prerequisite: fourth-year Honours or permission of the Department, and one of GPOL 1000, PSCI 2602, PSCI 3600, or PSCI 3703.

Seminars three hours a week.

PSCI 4806 [0.5 credit]

**Transatlantic Security Issues**

NATO as a political and military alliance. NATO and 21<sup>st</sup>-century threats. Security roles for the E.U. Broader transatlantic security issues.

Precludes additional credit for PSCI 5803.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminars three hours a week.

PSCI 4807 [0.5 credit]

**Migration and Mobility: Politics of Citizenship and Identity**

How flows of people -- migrants, temporary workers and refugees -- challenge state sovereignty, citizenship and belonging. Emphasis on role of the state, supranational structures and international organizations in migration and mobility.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

Courses - Political Science (PSCI)

PSCI 4808 [0.5 credit]

**Global Environmental Politics**

Global politics of transboundary environmental issues such as biodiversity protection, climate change and desertification. The perspectives, actors, institutions and economic relationships affecting international policy responses to these issues.

Prerequisite: fourth-year Honours standing or permission of the Department, and one of PSCI 2401, PSCI 2601, PSCI 2602, or PSCI 3801.

Seminar three hours a week.

PSCI 4809 [0.5 credit]

**Honours Seminar on a Selected Topic in Political Science**

A seminar on a selected contemporary topic in Political Science. Topic may vary from year to year and will be announced in advance of the registration period by the Department of Political Science.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4817 [0.5 credit]

**International Politics of Forced Migration**

The relationship between international politics and the causes, consequences and responses to forced migration, internal displacement and refugees. Seminars and case studies are used to examine the evolution of the global refugee regime and the challenges it faces today.

Prerequisites: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4818 [0.5 credit]

**The Environmental State**

The institutions and practices of modern environmental governance. The course draws on approaches and arguments from comparative politics, international relations, and political theory.

Prerequisite: fourth-year Honours standing or permission of the Department.

Seminar three hours a week.

PSCI 4900 [1.0 credit]

**Tutorial in a Selected Field**

Tutorials or reading courses on selected topics in which seminars are not available.

Prerequisite: permission of the Department and agreement of an instructor.

Tutorial hours arranged.

PSCI 4901 [0.5 credit]

**Tutorial in a Selected Field**

Tutorials or reading courses on selected topics in which seminars are not available.

Prerequisite: permission of the Department and agreement of an instructor.

Tutorial hours arranged.

PSCI 4902 [0.5 credit]

**Tutorial in a Selected Field**

Tutorials or reading courses on selected topics in which seminars are not available.

Prerequisite: permission of the Department and agreement of an instructor.

Tutorial hours arranged.

PSCI 4903 [0.5 credit]

**British Parliamentary Politics**

Parliament and the legislative process. Offered in London, U.K., by faculty members of Leeds University but governed by Carleton regulations and co-ordinated by Carleton's Department of Political Science.

Prerequisite: selection to the Carleton-Leeds Parliamentary Internship Exchange.

Seminar three and one-half hours a week.

PSCI 4904 [3.0 credits]

**Carleton-Leeds Parliamentary Internships (3.0 credits)**

Parliamentary internships in Ottawa (Fall term) and London, U.K. (Winter term). Academic requirements are met through an essay and an oral examination. Graded *Sat* or *Uns*.

Prerequisite: selection to the Carleton-Leeds Parliamentary Internship Exchange.

Internship four days a week.

PSCI 4905 [0.5 credit]

**Washington Center Seminar I**

A seminar offered by The Washington Center, governed by Carleton regulations, and co-ordinated by Carleton's Department of Political Science.

Prerequisite: selection to The Washington Center Internship Program and one of PSCI 2200, PSCI 3200, or PSCI 3210.

Seminar three hours a week.

PSCI 4906 [0.5 credit]

**Washington Center Seminar II**

A seminar offered by The Washington Center, governed by Carleton regulations, and co-ordinated by Carleton's Department of Political Science.

Prerequisite: selection to The Washington Center Internship Program and one of PSCI 2200, PSCI 3200, or PSCI 3210.

Seminar three hours a week.

PSCI 4908 [1.0 credit]

**Honours Graduation Essay**

The Honours essay is supervised under the direction of a faculty member who is either selected by the candidate or assigned early in the year. The Honours essay is evaluated by both the supervisor and an appointed reader. Students intending to proceed to post-graduate studies are strongly encouraged to complete an Honours essay.

Prerequisite: fourth-year Honours standing in Political Science with a Political Science CGPA of 9.00 or better, or permission of the Supervisor of Undergraduate Studies.

Tutorial hours arranged.

PSCI 4909 [1.0 credit]

**Mémoire de recherche**

Un travail de recherche dans le domaine de spécialisation d'un membre du département. Consulter le conseiller des études de premier cycle (Undergraduate supervisor) pour les sujets offerts.

Prerequisite: fourth-year Honours standing in the Political Science *Mention : Français* program.\*

\* Students should refer to the Department of Political Science course requirements for the Honours Essay, which may be obtained from the Departmental Office.

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## Portuguese (PORT)

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School of Linguistics and Language Studies  
Faculty of Arts and Social Sciences

### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

PORT 1010 [0.5 credit]

#### First-Year Portuguese I

For students with no knowledge of Portuguese. Oral skills; basic reading and writing skills. Compulsory attendance.  
Four hours a week.

PORT 1020 [0.5 credit]

#### First-Year Portuguese II

Continuation of first-year Portuguese. Oral skills; basic reading and writing skills. Compulsory attendance.  
Prerequisite: Grade of C or higher in PORT 1010 or permission of the School.  
Four hours a week.

## Psychology (PSYC)

### Department of Psychology Faculty of Arts and Social Sciences

PSYC 1001 [0.5 credit]

#### Introduction to Psychology I

A survey of topics associated with psychology's role as a natural science, including neuroscience, cognition, and learning.

Precludes additional credit for PSYC 1000.

Lecture three hours a week.

PSYC 1002 [0.5 credit]

#### Introduction to Psychology II

A survey of topics associated with psychology's role as a social science, including social psychology, personality and abnormal psychology.

Precludes additional credit for PSYC 1000.

Prerequisite: PSYC 1001.

Lecture three hours a week.

PSYC 2001 [0.5 credit]

#### Introduction to Research Methods in Psychology

A general introduction to research methodologies employed within contemporary psychology. Topics covered include research designs (experimental, quasi-experimental) and techniques (observations, surveys), basic descriptive statistics, and how to interpret and report research findings.

Precludes additional credit for PSYC 2000.

Prerequisite: PSYC 1001 and PSYC 1002.

Lecture three hours a week.

PSYC 2002 [0.5 credit]

#### Introduction to Statistics in Psychology

A general introduction to statistical techniques employed within contemporary Psychology. Topics covered include basic data analysis using descriptive and inferential statistics (t-tests, ANOVA, correlation, chi-square).

Prerequisite: PSYC 1001, PSYC 1002, and PSYC 2001.

Precludes additional credit for GEOG 2006.

PSYC 2003 [0.5 credit]

#### Origins of Modern Psychology

Survey of the evolution of psychology in Europe and North America, with an emphasis on psychology as a specialized area of knowledge and practice in the nineteenth and twentieth centuries.

Precludes additional credit for PSYC 2300.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 2009 [0.5 credit]

#### Psychology Research Laboratory

Laboratory for experimental research methods in psychology. Covers research design, collecting, analyzing, and summarizing data, and writing research reports.

Intended to be a practical compliment to PSYC 2001 and PSYC 2002.

Prerequisites: PSYC 1001, PSYC 1002 and PSYC 2001.

PSYC 2100 [0.5 credit]

#### Introduction to Social Psychology

Introduction to contemporary theory and research in social psychology. Areas covered include attitude structure and change, small groups and social learning.

Precludes additional credit for SOCI 2150.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 2200 [0.5 credit]

#### Biological Foundations of Behaviour

An introduction to the biological basis of behaviour with reference to biological mechanisms associated with sensory and perceptual processes, motivation, emotion, learning and cognition.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 2301 [0.5 credit]

#### Introduction to Health Psychology

Using a multidisciplinary approach, this introductory course outlines the reciprocal interactions among physical health and illness, and psychological factors, including emotional well-being, coping and appraisal processes.

Precludes additional credit for PSYC 3406.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures and seminars three hours a week.

PSYC 2400 [0.5 credit]

#### Introduction to Forensic Psychology

Forensic psychology, including a critical review of theories, methods, and research findings. Topics covered may include development of offending, eyewitness testimony, victim studies, risk assessment, offender rehabilitation, offender classification, and police studies.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 2500 [0.5 credit]

#### Foundations of Developmental Psychology

Basic principles of developmental psychology with a concentration on theories and methods. Emphasis is on the psychology of childhood.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 2600 [0.5 credit]

#### Introduction to the Study of Personality

Introduction to the study of personality. Consideration of problems, methods and theories.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 2700 [0.5 credit]

#### Introduction to Cognitive Psychology

Introduction to cognitive processes, including a survey of theories, issues, methods and findings. Topics covered may include pattern recognition, attention, imagery, learning (animal and human), memory, language, and thinking.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 2800 [0.5 credit]

#### Introduction to Human Factors

Theoretical foundation, philosophy and practical application of techniques for analyzing from a psychological perspective how people interact with designed environments. A major goal is to determine how these environments should be designed to suit human capabilities.

Prerequisite: PSYC 1001 and PSYC 1002.

Lecture three hours a week.

PSYC 3000 [1.0 credit]

#### Design and Analysis in Psychological Research

Techniques in data analysis, probability theory, sampling distribution theory and the ideas and procedures of estimation, classical and Bayesian approaches to hypothesis testing, linear regression and curve fitting, distribution free hypothesis testing, and the analysis of variance methods in experimental design. Limited enrolment. Intended for Honours students in Psychology.

Prerequisites: PSYC 2001, PSYC 2002, and third-year standing.

Lectures and tutorial four hours a week.

PSYC 3100 [1.0 credit]

**Social Psychology (Honours Seminar)**

Analysis of historical and contemporary developments in social psychology theory, research and methodology. Students may be required to complete independent research projects. Intended for Honours students.

Prerequisites: enrolment in Honours Psychology with a CGPA of 9.00 or higher in the major; PSYC 2001 and PSYC 2002, PSYC 2100, third-year standing and permission of the Department.

Lectures, seminars and tutorials six hours a week.

PSYC 3101 [0.5 credit]

**Applied Social Psychology**

Analysis of one or more social problems from the point of view of social psychology. The problems studied vary from year to year and may include war and peace, prejudice and discrimination, gender roles, politics and social change, leisure and quality of working life.

Prerequisite: PSYC 2100.

Lectures and seminars three hours a week.

PSYC 3102 [0.5 credit]

**Cognitive Processes in Social Psychology**

In-depth coverage of one or more sub-areas of social psychology introduced in PSYC 2100. Topics may include attitudes, impression formation, attribution of social causality, decision making, and social judgment.

Prerequisite: PSYC 2100.

Lectures and seminars three hours a week.

PSYC 3103 [0.5 credit]

**Group Processes in Social Psychology**

In-depth coverage of one or more sub-areas of social psychology introduced in PSYC 2100. Topics may include interaction in the dyad, coalition formation in larger groups, history and theory of small group research, North American, West-European and East-European models of group behaviour, and training groups in industry. (Also listed as SOWK 3103.)

Prerequisite: PSYC 2100 or permission of the Department.

Lectures and seminars three hours a week.

PSYC 3105 [0.5 credit]

**Organizational Psychology**

Introduction to the study and practice of industrial/organizational psychology. Representative topics will be drawn from the areas of work behaviour, work motivation, work stress, personnel selection, performance appraisal, human factors, conflict, leadership, and organizational change.

Prerequisite: PSYC 2100.

Lecture and seminar, 3 hours per week.

PSYC 3200 [1.0 credit]

**Behavioural Neuroscience (Honours Seminar)**

A detailed consideration of biological approaches to the study of behaviour and of research methods used in behavioural neuroscience. Intended for Honours students.

Prerequisites: enrolment in Honours Psychology with a CGPA of 9.00 or higher in the major; PSYC 2001, PSYC 2002, PSYC 2200, third-year standing and permission of the Department.

Lectures, seminars and laboratory tutorials six hours a week.

PSYC 3202 [0.5 credit]

**Sensory Processes**

The physiological basis of sensation. Topics include sensory mechanisms, neuropsychological bases of perception and psychological phenomena encountered in the various senses.

Prerequisite: PSYC 2200.

Lectures and seminars three hours a week.

PSYC 3203 [0.5 credit]

**Field Course in Animal Behaviour**

Offered in the Department of Biology as BIOL 3605. Only those modules dealing with animal behaviour topics may be offered for Psychology credit.

Prerequisite: permission of the Department.

PSYC 3204 [0.5 credit]

**Drugs and Behaviour**

Introduction to synaptic mechanisms and the arrangements of the transmitter-specific brain systems, followed by a discussion of neuro-pharmacological bases of normal and abnormal behaviour and of the behavioural effects of various classes of psychoactive drugs such as stimulants, tranquilizers, opiates.

Prerequisite: PSYC 2200.

Lectures and seminars three hours a week.

PSYC 3205 [0.5 credit]

**Psychopharmacology and Behavioural Medicine**

An examination of the relationship between endogenous neurochemical, hormonal and immunological states and various physiological and behavioural pathologies. The contribution of psychological variables to these pathologies will be assessed.

Prerequisite: PSYC 3204 or permission of the Department.

Lectures and seminars three hours a week.

PSYC 3207 [0.5 credit]

**Human Neuropsychology**

Human experimental neuropsychology with emphasis on the basic principles and methods used to study brain-behaviour relationships in normal and brain-damaged subjects. Topics include the development and structure of the human nervous system and the principles of neurology.

Prerequisite: PSYC 2200.

Lectures three hours a week.

PSYC 3300 [1.0 credit]

**Health and Illness (Honours Seminar)**

Theoretical and empirical approaches within the psychology of health and illness. A multidisciplinary perspective includes the interaction of biological, developmental, personality, and social factors and their influence on physical health, well-being, and illness. Students may be required to complete independent research projects.

Prerequisites: third-year standing in Honours Psychology with a CGPA of 9.00 or higher in the major; PSYC 2001 and PSYC 2002; one of PSYC 2200 or PSYC 2301, one of PSYC 2100, PSYC 2500, or PSYC 2600, and permission of the Department.

Lectures, seminars, and laboratory tutorials six hours a week.

PSYC 3301 [0.5 credit]

**Sport and Performance Psychology**

How psychological processes influence outcomes across sport and performance environments. Topics may include self-confidence, goal-setting, arousal regulation, imagery, group dynamics, burnout, injury recovery, and how person and situational factors affect the pursuit of excellence.

Prerequisites: PSYC 2100, PSYC 2500 or PSYC 2600.

Lectures three hours a week.

PSYC 3400 [1.0 credit]

**Forensic Psychology (Honours Seminar)**

Theoretical and research methodologies in the study of forensic psychology are examined through a detailed consideration of selected topics. Students may be required to complete independent research projects.

Prerequisites: third-year standing in the Honours Psychology program with a CGPA of 9.00 in the Major; PSYC 2001, PSYC 2002, PSYC 2400 and permission of the department.

Courses - Psychology (PSYC)

PSYC 3402 [0.5 credit]

**Criminal Behaviour**

Psychosocial approaches to the classification and treatment of offenders; theories and research relevant to selected patterns of law breaking and selected offender types; the effectiveness of offender treatment.

Prerequisite: one of PSYC 2100, PSYC 2400, or PSYC 2600.

Lectures and seminars three hours a week.

PSYC 3403 [0.5 credit]

**Addiction**

Neurobiological and social bases of drug and behavioural addictions. Contemporary theoretical approaches to addiction; approaches to current prevention and treatment.

Prerequisites: PSYC 1001, PSYC 1002 and one of PSYC 2200, PSYC 2301 or PSYC 2400.

Lectures three hours a week.

PSYC 3405 [0.5 credit]

**Psychology of Motivation and Emotion**

Historical review of the concepts of motivation and emotion. Examination of such current concepts as anxiety, stress and depression, among the emotions, and obesity, sexual behaviour and the need to achieve, among the motivations.

Prerequisite: PSYC 1001 and PSYC 1002.

Lectures and seminars three hours a week.

PSYC 3500 [1.0 credit]

**Developmental Psychology (Honours Seminar)**

The major theoretical and empirical approaches within developmental psychology are examined through a detailed consideration of selected topics. Students may be required to complete independent research projects. Intended for Honours students.

Prerequisites: third-year standing in the Honours Psychology program with a CGPA of 9.00 or higher in the Major; PSYC 2001, PSYC 2002, PSYC 2500, and permission of the Department.

Lectures, seminars and laboratory tutorials six hours a week.

PSYC 3505 [0.5 credit]

**Exceptional Children**

An overview of childhood exceptionalities including intellectual differences, communication disorders, sensory and physical impairments, developmental and behavioural problems.

Prerequisite: PSYC 2500.

Lectures and seminars three hours a week.

PSYC 3506 [0.5 credit]

**Cognitive Development**

Human cognitive development is examined with a focus on memory, thinking and language through the life span. Topics may include perceptual and language development, emergent literacy, development of strategies and development of reading and arithmetic skills.

Prerequisites: PSYC 2500 and PSYC 2700.

Lectures three hours a week.

PSYC 3507 [0.5 credit]

**Social Development**

The development of the individual is examined with a focus on social cognition and social behaviour. Topics may include the role of temperament in development, the role of parents, siblings and peers in social/emotional development, the development of prosocial and aggressive behaviour, moral development and the development of self and other understanding.

Prerequisite: PSYC 2500.

Lectures three hours a week.

PSYC 3508 [0.5 credit]

**Child Language**

Milestones associated with the development of grammatical, pragmatic and metalinguistic competence from birth to about age ten, and the relative contributions of the environment, cognitive development and inborn knowledge to this development. (Also listed as LING 3603.)

Precludes additional credit for LALS 2603 (no longer offered).

Prerequisite: LALS 1000 or LALS 1001 or LING 1001 or PSYC 2700 and third-year standing, or permission of the instructor.

Lectures three hours per week.

PSYC 3509 [0.5 credit]

**Adolescence and Emerging Adulthood**

The physical, cognitive, social and moral development of adolescents and emerging adults in multiple contexts including family, peers, media and culture. Major theories and contemporary issues and concerns.

Prerequisite: PSYC 2500.

Lectures three hours a week.

PSYC 3600 [1.0 credit]

**Personality (Honours Seminar)**

Theories of personality and current controversies in the research literature. Research questions are developed and addressed by designing and conducting experiments to find answers to issues in personality psychology. Prerequisites: third-year standing in the Psychology Honours program with a CGPA of 9.00 or higher in the Major; PSYC 2001, PSYC 2002, and PSYC 2600, and permission of the Department.

Lectures, seminars and laboratory tutorials six hours a week.

PSYC 3603 [0.5 credit]

**Psychology of Women**

An examination of the literature on the psychology of women. Topics to be considered include: theories of female personality development, sex differences in ability and personality, biological influences on female behaviour, female sexuality, sex roles, women's roles throughout the life span.

Prerequisite: one of PSYC 2100, PSYC 2500, or PSYC 2600.

Lectures three hours a week.

PSYC 3604 [0.5 credit]

**Abnormal Psychology**

History of the concept of behavioural abnormality. Theory and selected research dealing with the nature and etiology of behavioural abnormality.

Prerequisites: PSYC 2600 or PSYC 2500.

Lectures three hours a week.

PSYC 3606 [0.5 credit]

**Issues in Personality**

Topics selected from areas of interest in Personality. When offered, detailed topic descriptions are available from the departmental office prior to registration.

Prerequisites: PSYC 2001, PSYC 2002, and PSYC 2600; or permission of the Department.

Lectures three hours a week.

PSYC 3700 [1.0 credit]

**Cognition (Honours Seminar)**

Issues and research methodologies in the study of cognitive processes involved in perception, attention, language, reasoning, problem solving, decision making, human learning, and memory. Major theoretical issues and empirical studies are explored.

Prerequisites: third-year standing in the Honours Psychology program with a CGPA of 9.00 in the Major; PSYC 2001, PSYC 2002, PSYC 2700, and permission of the Department.

Lectures, seminars, and laboratory tutorials six hours a week.



PSYC 3702 [0.5 credit]

**Perception**

A consideration of data and theory concerning perceptual processes. Discussion of psychophysical methodology, perception of form and space and perceptual learning.

Prerequisites: PSYC 1001 and PSYC 1002.

Lectures three hours a week.

PSYC 3709 [0.5 credit]

**Language Processing and the Brain**

Introduction to adult language processing and neurolinguistics. Psychological processes underlying speech production and perception, word recognition and sentence processing. Biological foundation and neuro-cognitive mechanisms of language. Experimental techniques and methodologies of current psycholinguistic studies. (Also listed as LING 3601.)

Precludes additional credit for LALS 2601 and LALS 3601 (no longer offered).

Prerequisite: LALS 1000 or LALS 1001 or LING 1001 or PSYC 2700 and third-year standing, or permission of the instructor.

Lectures three hours a week.

PSYC 3901 [0.5 credit]

**Practicum in Community Psychology**

Through seven-hour-a-week field placements and regular class forums, students pursue personal learning objectives concerning the application of psychology within the community. A term paper integrates experiential knowledge gained in the placement with theoretical and empirical knowledge gained from the literature review.

Prerequisite: open to third- and fourth-year Psychology students with permission of the Department.

PSYC 3902 [0.5 credit]

**Practicum in Community Psychology**

Through seven-hour-a-week field placements and regular class forums, students pursue personal learning objectives concerning the application of psychology within the community. A term paper integrates experiential knowledge gained in the placement with theoretical and empirical knowledge gained from the literature review.

Prerequisite: open to third- and fourth-year Psychology students with permission of the Department.

PSYC 4001 [0.5 credit]

**Special Topics in Psychology**

Each section of PSYC 4001 deals with a different topic. Topics change yearly. Students may register in more than one section of PSYC 4001 but can register in each section only once.

Prerequisites: each section will have its own.

Lectures three hours a week.

PSYC 4200 [0.5 credit]

**Seminar on Current Research in Neuroscience**

A discussion of important current research developments in behavioural and other fields of neuroscience.

Prerequisites: PSYC 3200.

PSYC 4207 [0.5 credit]

**Neuropsychology of Memory Disorders**

Memory disorders that have a neuropsychological origin will be covered.

Prerequisite: PSYC 3207.

Lecture and seminar three hours a week.

PSYC 4300 [0.5 credit]

**History and Theory of Psychology: Selected Topics**

Among topics that may be covered: the history of a particular period, the history of a content area or issues related to theory in psychology.

Prerequisites: third-year standing and PSYC 2003, or permission of the Department.

Lectures and seminars three hours a week.

PSYC 4402 [0.5 credit]

**Police Psychology**

Critical examination of theory and empirical research in the area of police psychology. Topics covered may include police culture, police selection, police suicide, police personality, stress debriefing, fitness evaluations, police training, crisis negotiations, and investigative techniques.

Prerequisite: PSYC 2400, fourth-year standing or permission of the Department.

Lecture and seminar three hours per week.

PSYC 4403 [0.5 credit]

**Female Offenders**

Feminist and social learning approaches to the assessment and treatment of female offenders. Theories and research relevant to selected patterns of law breaking and selected female offender types.

Prerequisite: PSYC 3402, fourth-year standing or permission of the Department.

Seminars three hours a week.

PSYC 4404 [0.5 credit]

**Sex Offenders**

Theory and research concerning the etiology and maintenance of sexual offending; assessment, treatment, and management of sex offenders. Introduction to fundamental issues and controversies in the area.

Prerequisites: PSYC 2400 and PSYC 3402, fourth-year standing or permission of the Department.

Seminars three hours a week.

PSYC 4500 [0.5 credit]

**Advanced Topics in Developmental Psychology**

Discussion of important current research in developmental psychology. In-depth exploration of theoretical and empirical issues related to selected topics in developmental psychology. The specific content for this course will vary from year to year.

Prerequisites: fourth-year standing, and one of PSYC 3500, PSYC 3505, PSYC 3506 or PSYC 3507.

Lecture and seminar three hours a week.

PSYC 4703 [0.5 credit]

**Cognition and Instruction**

General theories of skill and knowledge acquisition as they relate to learning in specific subject matter areas, cognitive analyses of talks and performances that are instructionally relevant, and cognitive-theoretical analyses of instructional interventions.

Prerequisites: third-year standing, PSYC 2001, PSYC 2002, and PSYC 2700, and permission of the Department.

Lectures three hours a week.

PSYC 4704 [0.5 credit]

**Psychology and Language**

The perception and production of language will be covered from a psychological perspective. Topics may include the biology of language, speech perception, word recognition, reading, text comprehension, and language development.

Prerequisite: PSYC 2700.

Lecture and seminar three hours a week.

PSYC 4800 [0.5 credit]

**Aspects of Product Design Methodology**

Important issues in designing successful computerized products, including design guidelines, usability testing and user-needs analysis. Experienced designers and researchers from industry participate. (Also listed as IMD 3001.)

Prerequisite: third-year standing.

Lectures three hours a week.

Courses - Psychology (PSYC)

PSYC 4805 [0.5 credit]

**Social Aspects of Computer Use**

The challenge of designing computer and communication systems for teams in complex organizational settings. Topics may include design and evaluation of training programs, attitudes toward computers, distributed group decision making. Organizational and interpersonal changes resulting from the introduction of computers into work settings.

Also offered at the graduate level, with additional or different requirements, as PSYC 5106, for which additional credit is precluded.

Prerequisite: PSYC 2800.

Lecture and seminar three hours a week.

PSYC 4900 [0.5 credit]

**Independent Study**

A reading or research course for selected students who wish to investigate a particular topic of interest. Available to third- and fourth-year students only. Normally students may not offer more than one credit of independent study in their total program.

Prerequisite: permission of the Department.

PSYC 4902 [0.5 credit]

**Independent Study**

A reading or research course for selected students who wish to investigate a particular topic of interest. Available to third- and fourth-year students only. Normally students may not offer more than one credit of independent study in their total program.

Prerequisite: permission of the Department.

PSYC 4905 [1.0 credit]

**Essay for B.A. (Honours) in Psychology**

During the fall term, exercises to develop skills necessary to write and read critically, including time management, literature searches, writing styles, and computer-assisted document preparation. During the winter term a substantial essay is prepared under the supervision and approval of the instructor.

Note: re-registration for this course will not be permitted.

Precludes additional credit for PSYC 4907 and PSYC 4908.

Prerequisites: fourth-year standing in B.A. (Honours) in Psychology, PSYC 3000, 1.0 additional credit in Psychology above the 2000-level and permission of the Department.

Lectures and discussion as scheduled by the instructor.

PSYC 4906 [1.0 credit]

**Essay for B.Sc. (Honours) in Psychology**

During the fall term, exercises to develop skills necessary to write and read critically, including time management, literature searches, writing styles, and computer-assisted document preparation. During the winter term a substantial essay is prepared under the supervision and approval of the instructor.

Note: re-registration for this course will not be permitted.

Precludes additional credit for PSYC 4907 and PSYC 4908.

Prerequisites: fourth-year standing in B.Sc. (Honours) in Psychology, PSYC 3000, 1.0 additional credit in Psychology above the 2000-level, a major CGPA of 6.5, and permission of the Department.

Lectures and discussion as scheduled by the instructor.

PSYC 4907 [1.0 credit]

**Thesis for B.Sc. with Honours in Psychology**

Open to all candidates for the B.Sc. degree with Honours in Psychology. A thesis project is conducted under the direct supervision of a Faculty Adviser from the Department of Psychology.

Precludes additional credit for PSYC 4906.

Prerequisites: fourth-year Honours standing in Psychology with a major CGPA of 9.0; PSYC 3000; one of PSYC 3100, PSYC 3200, PSYC 3300, PSYC 3400, PSYC 3500, PSYC 3600, or PSYC 3700; and permission of the Department.

Lectures as scheduled by the instructor; other hours as arranged with the Faculty Adviser.

PSYC 4908 [1.0 credit]

**Thesis for B.A. with Honours in Psychology**

Open to all candidates for the B.A. (Honours) in Psychology. A thesis project is conducted under the direct supervision of a Faculty Adviser from the Department of Psychology.

Precludes additional credit for PSYC 4905.

Prerequisites: fourth-year Honours standing in Psychology with a major CGPA of 10.0, PSYC 3000; one of PSYC 3100, PSYC 3200, PSYC 3300, PSYC 3400, PSYC 3500, PSYC 3600 or PSYC 3700; and permission of the Department.

Lectures as scheduled by the instructor; other hours as arranged with the Faculty Adviser.

## Public Affairs and Policy Management (PAPM)

Arthur Kroeger College of Public Affairs  
Faculty of Public Affairs

PAPM 1000 [1.0 credit]

### Introduction to Public Affairs and Policy Management

The theoretical, philosophical and ethical foundations for the study of public affairs and policy management. Drawing from classic and contemporary texts in political philosophy and theory, students will consider issues relating to the nature of democracy, civic society and social organizations, the public, public affairs and public interest.

Prerequisite: registration in the Bachelor of Public Affairs and Policy Management Program.

Lecture and discussion three hours a week.

PAPM 2000 [1.0 credit]

### Policy: Analysis, Implementation and Evaluation

The institutions and processes of policy-making, implementation and evaluation. Forces that shape policy deliberations and alternative tools for managing policy action and policy evaluation. Theoretical approaches to understanding the origins of policy, and methods by which programs are designed and assessed.

Prerequisite: PAPM 1000 and *Good Standing* in the Bachelor of Public Affairs and Policy Management program.

Lecture and discussion three hours a week.

PAPM 3000 [0.5 credit]

### Policy Research

An examination of the research strategies and techniques relevant to policy analysis and evaluation. Using the case study method, the role of research and research organizations in the policy process is discussed. The issue of ethical dilemmas in policy research is also considered.

Prerequisite: PSCI 2700 or MCOM 2001, or ECON 2201 and ECON 2202 and *Good Standing* in the Bachelor of Public Affairs and Policy Management program.

Lecture and discussion three hours a week

PAPM 3100 [0.5 credit]

### Co-operative Work Term

Prerequisite: registration in the B.P.A.P.M. Co-operative Option, completion of the Co-op preparation classes offered by the Co-op Office and permission of the Arthur Kroeger College.

PAPM 3101 [0.5 credit]

### Co-operative Work Term

Prerequisite: registration in the B.P.A.P.M. Co-operative Option and permission of the Arthur Kroeger College.

PAPM 3102 [0.5 credit]

### Co-operative Work Term

Prerequisite: registration in the B.P.A.P.M. Co-operative Option and permission of the Arthur Kroeger College.

PAPM 4000 [0.5 credit]

### Capstone Seminar in Public Affairs and Policy Management

A policy workshop focusing on the application of public affairs analysis to develop problem solving and research skills. The seminar will be policy-focused and organized by area of Specialization in the program. Students, working in small groups, will examine concrete policy problems, actual or simulated, in specific institutional contexts.

Prerequisite: PAPM 3000 and *Good Standing* in the Bachelor of Public Affairs and Policy Management program.

Seminar three hours a week.

PAPM 4100 [0.5 credit]

### Special Topics in Public Affairs and Policy Management

Analysis of selected issues in public affairs and policy management not ordinarily treated in the regular course program. The choice of topics will vary from year to year. Students should consult with the College regarding the topic offered.

Prerequisite: fourth-year standing in the B.P.A.P.M. program or permission of the Kroeger College.

Seminar three hours per week.

PAPM 4908 [1.0 credit]

### Honours Research Essay

The Honours essay, which represents a major research paper in the student's Area of Specialization, is carried out under the direction of a faculty supervisor who is either selected by the candidate or assigned early in the year. The Honours essay is evaluated by both the supervisor and an appointed reader.

Prerequisite: fourth-year standing in the Bachelor of Public Affairs and Policy Management program.

## Public Policy and Administration (PADM)

### School of Public Policy and Administration Faculty of Public Affairs

PADM 1501 [0.5 credit]

#### Public Administration in Nunavut

An introduction to the theoretical, constitutional and practical basis of public administration in Nunavut. Normally offered in Nunavut.  
Prerequisite: enrolment in the Certificate for Nunavut Public Service Studies.

PADM 1502 [0.5 credit]

#### Management of Federal-Territorial Relations

Introduction to managing the relationship between the territorial and federal governments, with examples drawn from Nunavut, the Northwest Territories and Yukon practices. Normally offered in Nunavut.  
Prerequisites: enrolment in the Certificate for Nunavut Public Service Studies and successful completion of PSCI 1002 and PADM 1501.

PADM 3105 [0.5 credit]

#### Management in the Public Sector

Consideration of constraints and opportunities of public-sector management, including government at all levels and para-statal organizations. Topics may include the accountability regimes, features of the human resource management context, administration of information and material resources, responsibilities and relationships of managers towards citizens.  
Prerequisite: third-year standing in the B.P.A.P.M. program.  
Seminar three hours a week.

PADM 4213 [0.5 credit]

#### Gender and Public Policy

Policy and policy-making as they pertain to gender relations within the state and in society. The negative and positive effects of public policy on gender relations in the family and the labour market. Also offered at the graduate level, with different requirements, as PADM 5213, for which additional credit is precluded.  
Precludes additional credit for PADM 4701, PADM 5701.  
Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4214 [0.5 credit]

#### Budgetary Policy in the Public Sector

Selected aspects of the expenditure and revenue budget and budgetary process at all levels of government. Critical review of actual budgets and budgetary processes. Also offered at the graduate level, with different requirements, as PADM 5214, for which additional credit is precluded.  
Precludes additional credit for PADM 5103.  
Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4220 [0.5 credit]

#### Regulation and Public Policy

Political, economic, legal, and organizational theories of regulation in the Canadian and comparative context. Processes and consequences of regulatory practice in selected Canadian public policy fields. Also offered at the graduate level, with different requirements, as PADM 5220, for which additional credit is precluded.  
Precludes additional credit for PADM 5002.  
Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4221 [0.5 credit]

#### Health Policy in Canada

Canadian health policies and programs set in a comparative political-economic and institutional context. Also offered at the graduate level, with different requirements, as PADM 5221, for which additional credit is precluded.

Precludes additional credit for PADM 4009, PADM 5009.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4224 [0.5 credit]

#### Aboriginal Policy

Canadian policies and programs on aboriginal peoples and aboriginal peoples' own policies as nations set in a comparative political-economic and institutional context. Also offered at the graduate level, with different requirements, as PADM 5224, for which additional credit is precluded.

Precludes additional credit for PADM 4806, PADM 5806.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4225 [0.5 credit]

#### Trade Policy

Canadian multilateral and regional trade policies and programs set in a comparative political-economic and institutional context. Also offered at the graduate level, with different requirements, as PADM 5225, for which additional credit is precluded.

Precludes additional credit for PADM 4807, PADM 5807.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4226 [0.5 credit]

#### Tax Policy

Canadian tax policies set in a comparative political-economic and institutional context. Also offered at the graduate level, with different requirements, as PADM 5226, for which additional credit is precluded.

Precludes additional credit for PADM 4509, PADM 5509.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4227 [0.5 credit]

#### Education Policy

Canadian policies and programs in education set in a comparative political-economic and institutional context. Also offered at the graduate level, with different requirements, as PADM 5227, for which additional credit is precluded.

Precludes additional credit for PADM 4809, PADM 5809.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4228 [0.5 credit]

#### Social Policy

The nature and historical development of social programs in capitalist countries, with particular focus on Canada. The course will concentrate on developing a critical understanding of the social forces shaping these programs. Also offered at the graduate level, with different requirements, as PADM 5228, for which additional credit is precluded.

Precludes additional credit for PADM 4604, PADM 5604.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4412 [0.5 credit]

**Ethics and Accountability in the Public Sector**

Philosophy, principles and values that have shaped Canada's framework of public sector ethics and accountability. The relationship between ethics, accountability and good governance and the reforms designed to limit unethical behaviour and strengthen accountability. Also offered as the graduate level, with different requirements, as PADM 5412, for which additional credit is precluded.

Precludes additional credit for PADM 4703.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4611 [0.5 credit]

**Science and Technology Policies**

Theory and practice regarding governmental policies for science and technology, and the use of scientific knowledge in the policy and regulatory processes of government. Concerns regarding the ethical issues and the transparency of science in government. Also offered at the graduate level, with different requirements, as PADM 5611, for which additional credit is precluded.

Precludes additional credit for PADM 5400.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4612 [0.5 credit]

**Industrial Policy, Innovation and Sustainable Production**

An examination of sustainable production theory and key drivers, barriers and opportunities influencing innovation in industrial systems and processes. The relationship of public policies and industry practices are explored in a number of sectors. Also offered at the graduate level, with different requirements, as PADM 5612, for which additional credit is precluded.

Precludes additional credit for PADM 4600, PADM 5600.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4615 [0.5 credit]

**Politics and Policy of Energy in Canada**

The dilemmas associated with energy policy in Canada. Economic, social and environmental dimensions of energy decision making; Canadian issues within the contexts of a changing international scene and long term energy transitions. Also offered at the graduate level, with different requirements, as PADM 5615, for which additional credit is precluded.

Precludes additional credit for PADM 5515.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4616 [0.5 credit]

**Environmental Policy**

Canadian environmental policies and programs in a comparative political-economic and institutional context. Also offered as the graduate level, with different requirements, as PADM 5616, for which additional credit is precluded.

Precludes additional credit for PADM 4008, PADM 5008.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

PADM 4817 [0.5 credit]

**Health Policy in Developing Countries**

Debates regarding health policy in the developing world, in the context of the global health sector reform movement, trade and intellectual property regimes, and strategies of corporate and NGO actors. Issues of gender, class and the determinants of health. Also offered at the graduate level, with different requirements, as IDMG 5617/PADM 5817, for which additional credit is precluded.

Prerequisite: fourth-year standing in the Public Policy and Administration Specialization of the B.P.A.P.M. program.

## Religion (RELI)

### College of the Humanities Faculty of Arts and Social Sciences

RELI 1710 [0.5 credit]

#### Judaism, Christianity, Islam

A survey of the history, beliefs and practices of these major religious traditions.

Precludes additional credit for RELI 1000.

Lecture three hours a week.

RELI 1711 [0.5 credit]

#### Asian Religions

A survey of the history, beliefs and practices of South Asia (particularly Hinduism and Buddhism) and the East Asian religions of China and Japan.

Precludes additional credit for RELI 1001.

Lecture three hours a week.

RELI 1730 [0.5 credit]

#### Interpretations of Religion

Introduction to the academic study of religion by considering its fundamental components: myth, symbol, scripture, doctrine, code, and ritual, drawing material from a variety of world religions.

Precludes additional credit for RELI 2002 and RELI 1205 and RELI 1402 and RELI 1731.

Lecture three hours a week.

RELI 1731 [0.5 credit]

#### Varieties of Religious Experience

The variety of religious experiences and their interpretations: myth, literature, art and religious doctrine. Topics include time, self, the other, journey and wisdom. Examples ranging from shamanistic experience to the abstractions of Buddhist philosophy.

Precludes additional credit for RELI 1205, RELI 1206 and RELI 1402 and RELI 2002.

Prerequisite: restricted to students registered in the Bachelor of Humanities program.

Lecture three hours a week.

RELI 2110 [0.5 credit]

#### Judaism

The history of Judaism and the Jewish people from the Second Temple until the present day. The organization, basic beliefs, social and ethical practices of the Jews and Judaism.

Precludes additional credit for RELI 1008 and RELI 2508.

Lecture three hours a week.

RELI 2120 [0.5 credit]

#### Judaism: the Biblical Era

An introduction to the history of Judaism and the Jews as seen through biblical and non-biblical sources. Emphasis on the evolution of leadership, community, and institutions as the Hebrews move from tribal to national identity.

Precludes additional credit for RELI 1002 and RELI 1200 and RELI 2206.

Lecture three hours a week.

RELI 2121 [0.5 credit]

#### Hebrew Bible

Introduces the Hebrew Bible within historical and religious frameworks. All texts are in English.

Prerequisite: RELI 1710 or RELI 1000 or RELI 2110 or RELI 2508 or permission of the department.

Precludes additional credit for RELI 3505C taught in 2007-2008.

Lecture three hours a week.

RELI 2122 [0.5 credit]

#### Early Judaism

Judaism and the Jewish people from the Maccabees to the Rabbinic Age. Sectarian movements (Pharisees, Sadducees, Qumran Covenanters) Christianity's rise; revolutionaries (Zealots, Bar Kochba), Jewish responses to Hellenism, reshaping of Judaism after destruction of the Second Temple, Rabbinic Judaism in Palestine and the Diaspora.

Precludes additional credit for RELI 2701.

Prerequisite: second-year standing.

Lecture three hours a week.

RELI 2125 [0.5 credit]

#### Second Temple Judaism

The religious changes Judaism underwent in the tumultuous period 515 BCE – 70 CE; the historical course of events that resulted in the final destruction of the temple.

Lecture three hours a week.

RELI 2130 [0.5 credit]

#### Jewish Ethics

Studies the major text on Jewish Ethics, "Chapters of the Elders" from various vantage points, including the historical and the theological.

Prerequisite: RELI 1710 or RELI 1000 or RELI 2110 or RELI 2508 or permission of the department.

Precludes additional credit for RELI 3505A taught in 2007-2008.

Lecture three hours a week.

RELI 2210 [0.5 credit]

#### Christianity

The range of Christian thought and history from the time of Jesus to the present.

Precludes additional credit for RELI 1007 and RELI 2507.

Lecture three hours a week.

RELI 2220 [0.5 credit]

#### Early Christianity

Introduction to the critical study of the writings of the New Testament with discussion of their Hellenistic and Jewish background, the historical Jesus, Paul and his letters, and historical and sociological explanations for the rise of the early church and interpretation of its writings.

Precludes additional credit for RELI 1003, RELI 1200 & RELI 2207.

Lecture three hours a week.

RELI 2235 [0.5 credit]

#### Women in Christian Tradition

The status of women in Christianity, including such themes as images of women and gender roles in churches, recent feminist theologies, practical questions such as inclusive language and the ordination of women, and alternative approaches to Christian spirituality.

Precludes additional credit for RELI 2003.

Lecture three hours a week.

RELI 2310 [0.5 credit]

#### Islam

The study of Muslim religious tradition and investigation of its organization, basic beliefs, social and ethical principles and practices.

Precludes additional credit for RELI 1009 and RELI 2509.

Lecture three hours a week.

RELI 2320 [0.5 credit]

**Islam in the Modern World**

An examination of Islam in the last two hundred years, including the nature of the Islamic resurgence and the new forms of Islamic vitality.

Precludes additional credit for RELI 2704 and RELI 2702.

Prerequisite: second-year standing.  
Lecture three hours a week.

RELI 2322 [1.0 credit]

**The Middle East: 1798 to 2000**

Civilization and culture of the Middle East from 1798 to the present with emphasis on the mutual discovery of East and West, the search for identity, the impact of colonialism and international rivalry, and social, religious and cultural change within a continuing tradition.

Precludes additional credit for RELI 2708 and HIST 2708.  
Lecture two hours a week.

RELI 2330 [0.5 credit]

**The Qur'an**

An examination of the Qur'an's content, form, style, central themes, canonization, and classical and contemporary interpretive traditions.

Prerequisite: RELI 1710 or permission of the department.  
Lecture three hours a week.

RELI 2322 [1.0 credit]

**The Middle East: 1798 to 2000**

Civilization and culture of the Middle East from 1798 to the present with emphasis on the mutual discovery of East and West, the search for identity, the impact of colonialism and international rivalry, and social, religious and cultural change within a continuing tradition. (Also listed as HIST 2708.)

Precludes additional credit for RELI 2708 and HIST 2708.  
Lecture two hours a week.

RELI 2410 [0.5 credit]

**Buddhism**

Basic beliefs and practices of the Buddhist tradition and a brief survey of its development and transformations in India, Sri Lanka, Southeast Asia, Tibet, China and Japan. Precludes additional credit for RELI 1006 and RELI 2106.

Lecture three hours a week.

RELI 2510 [0.5 credit]

**Hinduism**

Basic beliefs, practices, and social structures of the Hindu tradition as reflected in Hindu scriptures, myths and symbols, and philosophical schools.

Precludes additional credit for RELI 1005 and RELI 2005.

Lecture three hours a week.

RELI 2515 [0.5 credit]

**Religion and Aesthetics in India**

Myths and symbols of the Indian tradition expressed in Hindu and Buddhist art. Hindu theories of beauty and the interface of the arts with the spiritual traditions of India.

Prerequisite: second-year standing.  
Precludes additional credit for RELI 2005 (if taken before 2007-2008) and RELI 2008.  
Lecture three hours a week.

RELI 2710 [1.0 credit]

**Maccabees to Muhammad**

The early history, literature and ideas of Judaism, Christianity and Islam from 200 BCE to 750 CE.

Prerequisite: restricted to students in the Bachelor of Humanities program.

Precludes additional credit for RELI 2208)  
Lecture three hours per week.

RELI 2711 [0.5 credit]

**Love and Its Myths**

Major devotional movements in Hinduism and Christianity, focusing on the love of the divine and philosophical accounts of these ideas over time.

Lecture three hours a week.

RELI 2712 [0.5 credit]

**Religious Diversity of Canada**

An historical survey emphasizing the interactions of various religious traditions in Canada, including indigenous religions, Christian missionary and colonial traditions, immigrant and global diaspora religions.

Precludes additional credit for RELI 2307A taught in 2007-2008.

Lectures three hours a week.

RELI 2713 [0.5 credit]

**Mysticism**

An historical and functional study of mystical experience in its religious context, relying on examples from selected traditions such as the Christian, Buddhist, Hindu, Jewish and Muslim.

Precludes additional credit for RELI 2300.

Lecture three hours a week.

RELI 2730 [0.5 credit]

**Religion and Ethics**

The nature of religious ethics, both the explicit moral principles and rules of various religious traditions, and the general moral perspectives. A selection of contemporary moral issues examined in depth.

Precludes additional credit for RELI 2305.

Prerequisite: 0.5 credit in RELI or permission of the department.

Lecture three hours a week.

RELI 2731 [0.5 credit]

**Dimensions of Modern Atheism**

A historical survey of Western atheism as a major world religious tradition.

Prerequisite: second-year standing or permission of the department.

Lecture three hours a week.

RELI 2732 [0.5 credit]

**Death and Afterlife**

The meaning of death and afterlife in some religious traditions and secular philosophies with emphasis on the Hindu teaching of the immortal soul; the Hebraic idea of collective survival; the Christian doctrine of resurrection of the body; the Buddhist conception of no-soul and nirvana.

Precludes additional credit for RELI 2308.

Lecture three hours a week.

RELI 2734 [0.5 credit]

**Graeco-Roman Religions**

A study of religion in the ancient Mediterranean, concentrating on the rise of individualism, life after death, mystery religions, hero cults, gnosticism, asceticism, and magic. (Also listed as CLCV 2102.)

Precludes additional credit for RELI 2102.

Lecture three hours a week.

RELI 2736 [0.5 credit]

**Religion and Society**

Cross-cultural survey of religious institutions, focussing on theories and methodologies in the study of religion. Topics may include myth, totemism, cults, ritual, belief systems, altered states of consciousness, new religious and/or new age movements and the relationship of religion with other social institutions and processes. Also listed as ANTH 2550.

Precludes additional credit for RELI 2403 (no longer offered) and SOAN 2403 (no longer offered).

Prerequisite: ANTH 1001 or ANTH 1002, or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCI, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

Courses - Religion (RELI)

RELI 2738 [0.5 credit]

**Philosophy of Religion**

A philosophical examination of some characteristic concepts of religion, such as faith, hope, worship, revelation, miracle, God. (Also listed as PHIL 2601.)

Precludes additional credit for RELI 2601 or PHIL 2601. Prerequisite: a course in philosophy or second-year standing.

Lecture three hours a week.

RELI 2840 [0.5 credit]

**Topics in Religion**

Content of this course may vary from year to year. Please check departmental website for information on the topic.

Precludes credit for repeated topics.

Lecture three hours a week.

RELI 2841 [0.5 credit]

**Topics in Religion**

Contents of this course may vary from year to year. Please check departmental website for information on the topic.

Precludes credit for repeated topics.

Lecture three hours a week.

RELI 2842 [0.5 credit]

**Topics in Judaism**

Content of this course may vary from year to year. Please check departmental website for information on the topic.

Precludes credit for repeated topics.

Lecture three hours a week.

RELI 2843 [0.5 credit]

**Topics in Islam**

Content of the course may vary from year to year. Please check departmental website for information on the topic.

Lecture three hours a week.

RELI 3120 [0.5 credit]

**Rabbinic Texts**

Explores classical rabbinic texts in historical perspective. All texts are in English.

Prerequisite: RELI 2110 or RELI 2121 or RELI 2508 or permission of the department.

Lecture three hours a week.

RELI 3130 [0.5 credit]

**Love, Sex and Marriage in Judaism**

The Jewish tradition's teachings, laws and customs surrounding love, sex and marriage in historical perspective with emphasis on contemporary Jewish life.

Prerequisite: RELI 1710 or RELI 2110 or RELI 1000 or RELI 2508 or permission of the department.

Lecture three hours a week.

RELI 3131 [0.5 credit]

**Judaism and Gender**

An interdisciplinary survey of Judaism and gender highlighting the status and role of gender within Jewish thought, law, practice and experience.

Prerequisite: RELI 1710 or RELI 2110 or RELI 1000 or RELI 2508 or permission of the department.

Lecture three hours a week.

RELI 3220 [0.5 credit]

**Reformation Europe**

A history of the Protestant and Catholic Reformations of the sixteenth century, with emphasis on the theological disputes of the protagonists and the impact of these disputes on the social, political and cultural developments of the era. (Also listed as HIST 3708.)

Precludes additional credit for RELI 3708 and HIST 3708.

Prerequisite: 0.5 credit at the 2000-level in HIST or third-year standing.

Lecture three hours a week.

RELI 3222 [0.5 credit]

**Women in Early Christianity**

The role and presence of women in early Christianity up to the 3rd century, including women among Jesus' followers, women with authority in Paul's churches, and the changing role of women as Christianity became a Roman religion.

Prerequisite: RELI 2220 or RELI 2207 or permission of the department.

Lecture three hours a week.

RELI 3230 [0.5 credit]

**Jesus of Nazareth**

A study of the historical records of the life of Jesus, the methods used to interpret them, and the resulting images of Jesus.

Precludes credit for RELI 2205, RELI 3208 and RELI 3105.

Prerequisite: RELI 2207 or RELI 2220 or permission of the department.

Lectures three hours a week.

RELI 3231 [0.5 credit]

**Paul of Tarsus**

The social, religious, and historical context of Paul, the communities he founded, and the letters he wrote to them.

Precludes additional credit for RELI 3300 and RELI 3106.

Prerequisite: RELI 2207 or RELI 2220 or permission of the department.

Lecture three hours a week.

RELI 3232 [0.5 credit]

**Christian Discipline**

An historical survey of key Christian thought and practices at the individual and collective level. Topics may include self-discipline, body discipline, monastic discipline, church discipline and social discipline.

Precludes additional credit for RELI 3302 Section "A" taught in 2007-2008.

Prerequisite: third-year standing or permission of the department.

RELI 3320 [0.5 credit]

**Classical Muslim Thought I**

A survey of the development of the central ideas and schools of Muslim theology and philosophy from the eighth century to the end of the 12th century CE.

Prerequisite: RELI 2310.

Lecture three hours a week.

RELI 3321 [0.5 credit]

**Classical Muslim Thought II**

A survey of the development of the central ideas and schools of Muslim theology and philosophy from the beginning of the thirteenth century to the end of the sixteenth century CE. Prerequisite: RELI 3320 or permission of the department.

Lecture three hours a week.

RELI 3325 [0.5 credit]

**Contemporary Muslim Thought**

An investigation into the views of some leading contemporary Muslim intellectuals vis-à-vis problems pertaining to metaphysics, cosmology, religious pluralism, epistemology, law, hermeneutics, education, gender, bioethics, and democracy.

Prerequisite: RELI 2310 or permission of the department.

Lecture three hours a week.

RELI 3330 [0.5 credit]

**Sufism**

An introduction to the main practical and theoretical dimensions of Islam's mystical tradition as seen through the life and work of its key representatives.

Prerequisite: RELI 2710 or RELI 2713 or permission of the department.

Lecture three hours a week.



RELI 3331 [0.5 credit]

**Islam and Gender**

Introduction to ideas about gender in Muslim societies past and present. Topics include: gender in the Qur'an, the Hadith and Islamic law, sexualities, social change, and current debates on gender and sexuality in Muslim communities.

Prerequisite: RELI 2310 or WGST 2803 Section "A" or permission of the department.

Lecture three hours a week.

RELI 3340 [0.5 credit]

**The Life and Image of Muhammad**

Overview of the life and teaching of the Prophet Muhammad, and the most salient motifs and features of Muslim devotion to him.

Precludes additional credit for RELI 2340.

Prerequisite: RELI 1710 or permission of the department.

Lecture three hours a week.

RELI 3350 [0.5 credit]

**The Hadith Literature: An Introduction**

Transmission and cultural importance of the Hadith for medieval Muslims, along with contemporary debates about its origins. (Course readings in English; students may also elect to read the primary source texts in their Arabic original.)

Prerequisite: RELI 2310 or permission of the department.

Lecture three hours a week.

RELI 3420 [0.5 credit]

**Early Buddhism**

The development of early Buddhist philosophy, psychology and practice with emphasis on the Pali Canon and its commentators.

Precludes additional credit for RELI 3215.

Prerequisite: RELI 2106 or RELI 2410 or permission of the department.

Lecture three hours a week.

RELI 3422 [0.5 credit]

**Buddhism Beyond India**

The rise of the Mahayana and the dissemination and development of Buddhist thought and practice outside of India.

Precludes additional credit for RELI 3217.

Prerequisite: RELI 2106 or RELI 2410 or permission of the department.

Lecture three hours a week.

RELI 3520 [0.5 credit]

**Early Hinduism**

A historical survey of Hinduism from the Vedic era to the development of devotional Hinduism. Vedic religion and developments in early Hindu Philosophy and sectarian Hinduism.

Precludes additional credit for RELI 3015.

Lecture three hours a week.

RELI 3522 [0.5 credit]

**Modern Hinduism**

A survey of major developments in Hinduism since the period of colonial British rule. The development of "reform" Hinduism in the 18th and 19th centuries, and the emergence of Hindu nationalist movements in the 20th century.

Precludes additional credit for RELI 3007.

Lecture three hours a week.

RELI 3710 [0.5 credit]

**Religions and the Environment**

Attitudes in the major world religions to nature and the environment and recent responses by religious traditions to ecological degradation and crisis. Includes examination of religious sensibilities expressed in environmentalism.

Precludes additional credit for RELI 2307 (Section "A", taken fall 2003, fall 2004, fall 2005, summer 2006) and RELI 3100.

Prerequisite: third-year standing and RELI 1000 or RELI 1710 or RELI 1001 or RELI 1711; or permission of the department.

Lecture three hours a week.

RELI 3721 [0.5 credit]

**Modern Thought on Religion**

Modern religious theorists, modern theorists of religion, as well as critics of each. Attention will be given, in the mode of a social history of ideas, to the relation of such thought to the conditions of modernity.

Prerequisite: third-year standing or permission of the department.

Lecture three hours a week.

RELI 3722 [0.5 credit]

**Religion and Violence**

A thematic course that examines putative cases of "religion and violence" from a range of world traditions, but also interrogates aspects of the "religion and violence" rubric itself.

Precludes additional credit for RELI 2307 section "B" taught in 2007-2008.

Prerequisite: third-year standing or permission of the department.

Lecture three hours a week.

RELI 3731 [0.5 credit]

**Studies in Greek and Roman Art**

A study of a period or theme in the art and archaeology of Ancient Greece and Rome. Topics may vary from year to year. Please check departmental website for information on the topic. (Also listed as ARTH 3101 and CLCV 3305).

Precludes additional credit for RELI 3306 (if taken Summer 2005, Summer 2006, Summer 2007) and RELI 3305.

Prerequisite: second-year standing or permission of the department.

Lecture three hours a week.

RELI 3840 [0.5 credit]

**Topics in Religion**

Content of this course may vary from year to year. Please check departmental website for information on the topic.

Precludes credit for repeated topics.

Lecture three hours a week.

RELI 3841 [0.5 credit]

**Topics in Religion**

Content of this course may vary from year to year. Please check departmental website for information on the topic.

Precludes credit for repeated topics.

Lecture three hours a week.

RELI 3842 [0.5 credit]

**Topics in Judaism**

Content of this course may vary from year to year. Please check departmental website for information on the topic.

Precludes credit for repeated topics.

Lecture three hours a week.

Courses - Religion (RELI)

RELI 3843 [0.5 credit]

**Topics in Islam**

Content of this course may vary from year to year. Please check departmental website for information on topic. Precludes credit for repeated topics. Lecture three hours a week.

RELI 4740 [0.5 credit]

**Theory and Method**

Examination of selected theoretical and methodological models used in the interpretation of religious data. Precludes additional credit for RELI 3301 and RELI 4301.

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the department. Seminar three hours a week.

RELI 4840 [0.5 credit]

**Tutorial**

A tutorial on a topic in religious studies. Contents of the tutorial to be arranged with the supervising faculty member.

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the department.

RELI 4850 [0.5 credit]

**Seminar in the Study of Religion**

Content of this course may vary from year to year. Please consult the departmental website for information on the topic. Also offered at the graduate level with different requirements, as RELI 5850, for which additional credit is precluded.

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the department. Seminar three hours a week.

RELI 4851 [0.5 credit]

**Seminar in Western Religions**

Content of this course may vary from year to year. Please consult the departmental website for information on the topic. Also offered at the graduate level with different requirements, as RELI 5851, for which additional credit is precluded.

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the department. Seminar three hours a week.

RELI 4852 [0.5 credit]

**Seminar in Asian Religions**

Content of this course may vary from year to year. Please consult the departmental website for information on the topic. Also offered at the graduate level with different requirements, as RELI 5852, for which additional credit is precluded.

Prerequisite: fourth-year standing in the Honours B.A. Religion program, or permission of the department. Seminar three hours a week.

RELI 4990 [1.0 credit]

**Honours Research Essay**

Honours research paper (approx. 40 pages) is due on the last day of winter term classes. Written proposal due to the Proposal Board on the first day of fall term classes. Please consult department document for full requirements and information.

Precludes additional credit for RELI 4908 and RELI 4909.

Prerequisite: 10.0 CGPA and fourth-year standing in the Honours B.A. Religion program, or permission of the department.

**• Language Courses**

Language courses RELI 1010, RELI 2010 and RELI 3010 are intended for students specializing in a particular religious tradition. They are offered according to the availability of members of the Discipline. Courses taken at the 2000-level or above will be mainly independent study under the supervision of a member of the Discipline. Students interested in taking these courses should consult the Co-ordinator.

RELI 1010 [1.0 credit]

**Elementary Language Tutorial**

Elementary study of the language required for studying a religious tradition.

Precludes additional credit for RELI 1902 (no longer offered).

Prerequisite: Major/Minor in Religion or permission of the department.

Tutorial two hours a week.

RELI 1011 [1.0 credit]

**Introductory Hebrew I**

First level introduction for students with no knowledge of Hebrew. Presents essentials for biblical and modern Hebrew. (Also listed as HEBR 1904).

Precludes additional credit for RELI 1904 (no longer offered), HEBR 1904.

Three hours per week plus out-of-class requirements.

RELI 1015 [0.5 credit]

**Introductory Sanskrit I**

Classical Sanskrit grammar and vocabulary.

Three hours per week plus out-of-class requirements.

RELI 2010 [1.0 credit]

**Intermediate Language Tutorial**

Intermediate study of the language required for studying a religious tradition. Restricted to students registered in a Religion program.

Precludes additional credit for RELI 2902 (no longer offered).

Prerequisite: RELI 1902 or RELI 1010 or permission of the department.

Tutorial two hours a week.

RELI 2011 [1.0 credit]

**Introductory Hebrew II**

Second level introduction to the Hebrew language. Through reading modern and classical texts as well as conversation, students will learn vocabulary, grammar, and common idioms. (Also listed as HEBR 2904.)

Precludes additional credit for RELI 2904 (no longer offered), HEBR 2904.

Prerequisite: RELI 1904 or HEBR 1904 or RELI 1011 permission of the department.

Three hours per week plus out-of-class requirements.

RELI 2015 [0.5 credit]

**Introductory Sanskrit II**

Classical Sanskrit grammar and vocabulary.

Prerequisite: RELI 1015 or RELI 1905.

Three hours per week plus out of class requirements.

RELI 3010 [1.0 credit]

**Advanced Language Tutorial**

Advanced study of the language required for studying a religious tradition.

Precludes additional credit for RELI 3902 (no longer offered).

Prerequisite: RELI 2902 (no longer offered) or RELI 2010 or permission of the department.

Tutorial two hours a week.

RELI 3011 [1.0 credit]

**Advanced Hebrew**

Advanced study of the Hebrew language through reading modern and biblical texts as well as through listening to dialogues and short stories to learn the use of all language components including morphology, syntax, and expressions. (Also listed as HEBR 3904)

Prerequisite: RELI 2011, RELI 2904, HEBR 2904 or permission of the department.

Lecture three hours a week plus out-of-class requirements.

## Russian (RUSS)

### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

#### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

RUSS 1010 [0.5 credit]

#### First-Year Russian I

For students with no knowledge of Russian. Oral skills, reading and writing. Compulsory attendance.

Precludes additional credit for RUSS 1000.

Four hours a week.

RUSS 1020 [0.5 credit]

#### First-Year Russian II

Continuation of first-year Russian. Oral skills, reading and writing. Compulsory attendance.

Precludes additional credit for RUSS 1000.

Prerequisite: grade of C or higher in RUSS 1010, or permission of the School.

Four hours a week.

RUSS 2010 [0.5 credit]

#### Second-Year Russian I

Further study of Russian to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. Compulsory attendance.

Precludes additional credit for RUSS 2100.

Prerequisite: grade of C or higher in RUSS 1000, RUSS 1020, or permission of the School.

Four hours a week.

RUSS 2020 [0.5 credit]

#### Second-Year Russian II

Continuation of second-year Russian. Further study of Russian to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. Compulsory attendance.

Precludes additional credit for RUSS 2100 (no longer offered).

Prerequisite: grade of C or higher in RUSS 2010, or permission of the School.

Four hours a week.

RUSS 3010 [0.5 credit]

#### Third-Year Russian I

Further study of Russian to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.

Precludes additional credit for RUSS 3000 (no longer offered).

Prerequisite: grade of C or higher in RUSS 2020, RUSS 2200, or permission of the School.

Three hours a week.

RUSS 3020 [0.5 credit]

#### Third-Year Russian II

Continuation of third-year Russian. Progress toward a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance.

Precludes additional credit for RUSS 3000 (no longer offered).

Prerequisite: grade of C or higher in RUSS 3010, or permission of the School.

Three hours a week.

RUSS 4010 [0.5 credit]

#### Fourth-Year Russian I

Advanced spoken and written Russian with intensive practice in aural comprehension and speaking in a range of situations and contexts, in reading and in composition in a range of modes and genres. Metalinguistic study. Compulsory attendance.

Precludes additional credit for RUSS 4200.

Prerequisite: grade of C or higher in RUSS 3020 or RUSS 3000 (no longer offered), or permission of the School.

Three hours a week.

RUSS 4020 [0.5 credit]

#### Fourth-Year Russian II

Continuation of fourth-year Russian. Advanced spoken and written Russian with intensive practice in aural comprehension and speaking in a range of situations and contexts, in reading and in composition in a range of modes and genres. Metalinguistic study. Compulsory attendance.

Precludes additional credit for RUSS 4201.

Prerequisite: grade of C or higher in RUSS 4010, or permission of the School.

Three hours a week.

RUSS 4115 [0.5 credit]

#### Russian for Social Studies

Russian language skills for reading comprehension of modern history and social science texts, including attention to vocabulary and syntax. Compulsory attendance.

Precludes additional credit for Russian translation offered under EURR 4901.

Prerequisite: permission of the School. Not open to students with native-like Russian proficiency.

Three hours a week.

RUSS 4120 [0.5 credit]

#### Russian for Research

Russian language skills for conducting research in modern history and social sciences, including attention to translation of relevant texts. Compulsory attendance. Precludes additional credit for Russian translation offered under EURR 4902.

Prerequisite: grade of C in RUSS 4115, or permission of the School. Not open to students with native-like Russian proficiency.

Three hours a week.

RUSS 4900 [1.0 credit]

#### Independent Study

Research in a topic in Russian language, literature or linguistics under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing and enrolment in the Minor in Russian, grade of C or higher in RUSS 3020 or RUSS 3000 (no longer offered) or equivalent, or permission of the School.

RUSS 4901 [0.5 credit]

#### Independent Study

Research in a topic in Russian language, literature or linguistics under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing and enrolment in the Minor in Russian, grade of C or higher in RUSS 3000 (no longer offered) or RUSS 3020, or equivalent, or permission of the School.

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## Sexuality Studies (SXST)

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### Institute of Interdisciplinary Studies Faculty of Arts and Social Sciences

SXST 2101 [0.5 credit]

#### Sexuality Studies: A Critical Introduction

While sexuality is often considered the most private and 'natural' of personal concerns, it is saturated with issues of social power, historical change, and public politics. This course offers a critical introduction to interdisciplinary studies of sexuality, focusing on history, theory, and cultural practice.

Precludes additional credit for DIST 2101 (no longer offered).

Prerequisite: second-year standing or permission of the Institute.

Lectures three hours a week.

SXST 3101 [0.5 credit]

#### Theories of Sexuality

The critical study of sexuality emerging from challenges within the humanities and social sciences. Debates regarding sexuality and queer theory from a variety of post-modern, post-structuralist, postcolonial, and materialist thinkers.

Precludes additional credit for DIST 3101 (no longer offered).

Prerequisite: third-year standing and SXST 2101.

Lecture three hours a week.

SXST 3102 [0.5 credit]

#### Critical Methodologies in Sexuality

Methodological approaches in sexuality studies. How intersectionality, interdisciplinarity, ethical and epistemological matters impact knowledge production. Methodological approaches may include qualitative and quantitative study, discourse analysis, community-based research, institutional ethnography, oral history, and archival research.

Precludes additional credit for DIST 3102 (no longer offered).

Prerequisite: third-year standing and SXST 2101.

SXST 4101 [0.5 credit]

#### Interdisciplinary Studies of Sexuality

A study of selected issues in sexuality studies considered from an interdisciplinary perspective. The course may focus on any one, or combination of, sexuality studies in relation to history, theory, and/or cultural practice.

Precludes additional credit for DIST 4101 (no longer offered).

Prerequisite: SXST 2101 or permission of the Institute.  
Seminar three hours a week.

## Social Work (SOWK)

### School of Social Work Faculty of Public Affairs

SOWK 1000 [1.0 credit]

#### Introduction to Social Work and Social Welfare

Social work practice, principles and knowledge base, current social problems and related fields of practice. Analysis of the relationship between social welfare and Canadian society, and the interrelationship among social work practice, societal change, social problems and social programs.

Lecture three hours a week.

SOWK 2000 [1.0 credit]

#### Structural Analysis and Social Work

Establishes framework for the utilization of social science theory in social work practice. Contributions from psychology, social, political and economic theory in contexts of race, gender and class.

Prerequisites: Honours standing in the B.S.W. program and SOWK 1000, or permission of the School.

Lecture three hours a week.

SOWK 2003 [0.5 credit]

#### Drugs in Society: Theory, Policy and Practice

An examination of the extent and nature of alcohol and other drug use, theoretical explanations of drug dependence, history of drug policy development and current federal and provincial drug strategies. Strategies for social work practice are outlined.

Prerequisite: SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 2004 [0.5 credit]

#### Human Sexuality

Psychosocial and political issues surrounding human sexuality. The influence of culture; the range of individual differences in sexual and reproductive attitudes, values and behaviour; concerns of various sexually oppressed groups; sexual values and norms and social policy affecting sexual behaviour; implications for social work practice.

Prerequisite: SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 2100 [0.5 credit]

#### The Political Economy of Social Welfare

History and theories of welfare. Contemporary issues such as the nature of the labour market, the family, the voluntary sector, and the state as the institutions through which welfare is provided in contemporary society.

Prerequisites: Honours standing in the B.S.W. program and SOWK 1000, or permission of the School of Social Work.

Lecture three hours a week.

SOWK 2201 [0.5 credit]

#### Working with Children and Youth

Preventative and protective social work intervention with children and youth. Problems of child neglect, abuse and violence in the context of family, organizational mandate and social political contexts. Programs and services for children and youth.

Prerequisite: SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 2501 [0.5 credit]

#### Introduction to Research Methods in Social Work

Research methods used in social work. Topics include research paradigms, introduction to quantitative and qualitative analysis and how they relate to social work research; how to conduct a research project.

Precludes additional credit for SOWK 2500, which is no longer offered.

Prerequisites: SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

SOWK 2502 [0.5 credit]

#### Introduction to Statistical Analysis for Social Workers

Fundamentals of statistical analysis. Topics include descriptive and inferential statistics and their use in social work research. Statistical tests, including Chi-Square, t-tests, correlations and simple linear regressions.

Precludes additional credit for SOWK 2500, which is no longer offered.

Prerequisites: SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

SOWK 3000 [1.0 credit]

#### Foundations of Structural Analysis, Social Welfare and Social Work

Social work, social welfare policy and social services in Canada. Interactions between personal and social problems, political and state organization, households, and the economy.

Precludes additional credit for SOWK 1000, and SOWK 2000.

Prerequisites: Third-year Honours standing upon admission to the B.S.W. and permission of the School of Social Work.

Lecture three hours a week.

SOWK 3009 [0.5 credit]

#### Special Topics in Social Work

Theory, policy or direct practice that is not ordinarily treated in the regular course program. Choice of topics varies from year to year and is announced well in advance.

Prerequisite: third-year Honours standing; SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 3100 [0.5 credit]

#### Social Administration and Policy

Administration, management, social research and planning. Theory and practice of the welfare state and social policy; structure and management of major social programs; social administration as a form of social work practice.

Prerequisite: Honours standing in the B.S.W. Program; SOWK 1000, SOWK 2000 or SOWK 3000 and SOWK 2100 or permission of the School of Social Work. SOWK 3000 and SOWK 2100 may be taken concurrently.

Lecture three hours a week.

SOWK 3103 [0.5 credit]

#### Group Processes in Social Psychology

In-depth coverage of one or more sub-areas of social psychology introduced in PSYC 2100. Topics may include interaction in the dyad, coalition formation in larger groups, history and theory of small group research, North America, West-European and East-European models of groups behaviour, and training groups in industry. (Also listed as PSYC 3103).

Prerequisite: PSYC 2100 or permission of the School of Social Work.

Lecture three hours a week.

SOWK 3109 [0.5 credit]

**Special Topics in Social Work**

Theory, policy or direct practice that is not ordinarily treated in the regular course program. Choice of topics varies from year to year and is announced in advance of registration.

Prerequisite: third-year Honours standing; SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 3200 [0.5 credit]

**Social Work Practice in Communities and Organizations**

Major theories and practices pertaining to work in communities and human service organizations. Society's contribution to client problems and the impact of agency structures on services. Social change theories and methods for social work practitioners.

Prerequisites: Honours standing in the B.S.W. program; SOWK 1000, SOWK 2000, or SOWK 3000 and SOWK 2100; or permission of the School of Social Work. SOWK 3000 can be taken concurrently with SOWK 3600 or SOWK 3601.

Lecture three hours a week.

SOWK 3201 [0.5 credit]

**Social Work Practice: Individuals, Families and Groups**

Development of practice competency in work with individuals, families and groups. Integration of interpersonal and analytic skills in learning effective strategies within a structural framework. Influence of class, race and gender in shaping personal and social well-being.

Prerequisites: Honours standing in the B.S.W. program, SOWK 1000, SOWK 2000, or SOWK 3000 and SOWK 2100; or permission of the School of Social Work. SOWK 3000 can be taken concurrently with SOWK 3600 or SOWK 3601.

Lecture three hours a week.

SOWK 3202 [0.5 credit]

**Practice Skills in Social Work**

Practice of specific analytical and intervention skills needed for structural Social Work.

Precludes additional credit for SOWK 2202.

Prerequisite: SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 3206 [0.5 credit]

**Community Development and Social Change in an International Context**

Introduction to theories, models and methods of community organizing as a strategy for social change in an international context.

Prerequisites: PAPM 2000 or SOWK 1000 or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 3207 [0.5 credit]

**Human Rights Practice in Civil Society**

Examines the advocacy role and capacity of organizations in civil society to increase popular participation in promoting and protecting human rights; includes transnational and national non-governmental organizations, grassroots movements, community organizations, and virtual or Internet-based organizations.

Prerequisites: PAPM 1000 or SOWK 1000 or SOWK 3000 (which may be taken concurrently); or ISSC 1001 or permission of the School of Social Work.

Lecture three hours a week.

SOWK 3502 [0.5 credit]

**Qualitative Research Methods in Social Work**

Introduction to qualitative research. How to gather data that exists in terms of lived experience thickly embedded in the historical, interactional, emotional and relational worlds of everyday life. Draws on strategies from feminist research, participatory and social action research, phenomenological research and makes application to social work practice.

Prerequisites: SOWK 1000; or SOWK 3000, and SOWK 2500 or equivalent; or permission of the School of Social Work.

Lecture three hours a week.

SOWK 3600 [2.0 credits]

**Practicum I (Fall and Winter)**

Focus on integrating theory and practice in a community setting supervised by a field supervisor. Monthly seminar included. Graded as *Sat/Uns*.

Prerequisites: Honours standing in B.S.W., SOWK 2000, SOWK 2100 and concurrent enrolment in SOWK 3100. Also concurrent enrolment in SOWK 3201 in the fall term and SOWK 3200 in the winter term, and permission of the School of Social Work. Student must also be in good academic standing.

364 hours of field work over two terms.

SOWK 3601 [2.0 credits]

**Practicum I (Winter Term)**

Focus on integrating theory and practice in a community setting supervised by a field supervisor, regular seminars included. Graded as *Sat/Uns*.

Prerequisites: new third year-entry students only, Honours standing in B.S.W., SOWK 2100, SOWK 3100, SOWK 3200, SOWK 3201 and concurrent enrolment in SOWK 2000 or SOWK 3000, and permission of the School of Social Work.

364 hours of field work over one term.

SOWK 3804 [0.5 credit]

**Law of the Family**

Legal framework surrounding the family and family relationships in Canadian society. Topics include marriage and cohabitation, matrimonial support, custody and access, and dissolution of marriage. State interventions through law; law and change in family structures; equality issues; dispute resolution processes. (Also listed as LAWS 3804.)

Prerequisite: LAWS 2003.

Lectures three hours a week.

SOWK 4101 [0.5 credit]

**Poverty and Social Welfare Policy**

An examination of poverty and the distribution of income and wealth in Canada and in comparison with other countries; theories of poverty; Canadian social policies and their impact on poverty.

Prerequisite: SOWK 1000 and SOWK 2100; or SOWK 3000 and SOWK 2100; or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4102 [0.5 credit]

**Aboriginal Peoples and Social Policy**

Social welfare issues from an Aboriginal perspective (Canadian, international), including child welfare, racism, justice, violence against women and children, substance abuse. Policy issues within a historical and contemporary social, political and economic context. Implications of self-determination for Aboriginal social policy and programs.

Prerequisite: third-year Honours standing, SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4103 [0.5 credit]

**Practice and Policy in Immigration**

Canadian immigration policies and practices. The historical context of immigration policies; direct practice with immigrants and refugees; settlement and integration issues; immigrants and refugee women; intergenerational family relations; resources and community organizing.

Prerequisite: third-year Honours standing, SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4105 [0.5 credit]

**Management of Non-Profit Organizations**

Introduction to theories, models and methods of managing non-profit organizations; role, nature and values of the non-profit sector in a market society; practical knowledge of management in different types of non-profit organizations (e.g. cooperatives, voluntary associations, public advocacy and community service organizations).

Prerequisites: PAMP 3000; or SOWK 2100 and SOWK 3100 (which may be taken concurrently).

Lecture three hours a week.

SOWK 4200 [0.5 credit]

**Honours Integrative Seminar**

Designed to help students to arrive at a synthesis of theory and practice, and to develop skills of critical self-evaluation.

Prerequisites: fourth-year Honours standing in the B.S.W. program; SOWK 2100, SOWK 3100, SOWK 3200, SOWK 3201, SOWK 3600 or SOWK 3601; and SOWK 4600 or SOWK 4601 and SOWK 4602.

Lecture three hours a week.

SOWK 4203 [0.5 credit]

**Social Work Practice from an Aboriginal Perspective**

Cultural identity of the original peoples of Canada, their traditional values, cultural-based behaviour and the effects on them of changing times and relations. Emphasis on culture-specific skills and approaches. Role of the political, legal, and constitutional status of Canadian aboriginal peoples.

Prerequisite: third-year Honours standing, SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4204 [0.5 credit]

**Social Work and Aging**

Social perspectives on aging with focus on models of practice that contribute to the independence of elderly people. Social programs and policies, such as social insurance, social services, housing, public health and health care. Social, psychological and political issues related to independence in later life.

Prerequisite: third-year Honours standing, SOWK 1000, or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4206 [0.5 credit]

**Feminist Counseling**

Examines theory, practice and literature. Commonalities arising from sexism, racism, class oppression, heterosexism, disability, ageism, etc.

Prerequisite: SOWK 3201; or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4209 [0.5 credit]

**Special Topics in Social Work**

Theory, policy or direct practice that is not ordinarily treated in the regular course program. Choice of topics varies from year to year and is announced in advance of registration.

Prerequisite: third-year Honours standing; SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4300 [0.5 credit]

**Social Work: Persons with Disabilities**

Social work roles in regards to persons with disabilities. Structural analysis of policies and practices pertaining to such persons: cultural, historical, medical, social, political and economic. The disability rights perspective as it opposes the medical model and "ableist" ideals.

Precludes additional credit for SOWK 3009 (when listed as Social Work with People with Disabilities).

Prerequisite: third-year Honours standing, SOWK 1000; or SOWK 3000 (which may be taken concurrently); or permission of the School of Social Work.

Lecture three hours a week.

SOWK 4600 [2.0 credits]

**Practicum II**

Development, application, testing and integration of knowledge, theory and skills in practice with individuals, families, groups and communities, in research or in social administration and policy. Graded Sat/Uns.

Precludes additional credit for SOWK 4601 and SOWK 4602.

Prerequisites: third-year Honours standing in the B.S.W. program; SOWK 2100, SOWK 3100, SOWK 3200, SOWK 3201, SOWK 3600 or SOWK 3601, and permission of the School of Social Work. Student must also be in good academic standing.

364 hours of fieldwork and bi-weekly seminars.

SOWK 4601 [1.0 credit]

**Practicum IIA**

Development, application, testing and integration of knowledge, theory and skills in practice with individuals, families, groups and communities, in research or social administration and policy. Graded Sat/Uns.

Precludes additional credit for SOWK 4600.

Prerequisite: Honours standing in the B.S.W. program, SOWK 2100, SOWK 3100, SOWK 3200, SOWK 3201, SOWK 3600 or SOWK 3601, and permission of the School of Social Work. Student must also be in good academic standing.

182 hours of fieldwork and bi-weekly seminars.

SOWK 4602 [1.0 credit]

**Practicum IIB**

Development, application, testing and integration of knowledge, theory and skills in practice with individuals, families, groups and communities, in research or social administration and policy. Graded Sat/Uns.

Precludes additional credit for SOWK 4600.

Prerequisites: Honours standing in the B.S.W. program, SOWK 2100, SOWK 3100, SOWK 3200, SOWK 3201; SOWK 3600 or SOWK 3601; SOWK 4601; and permission of the School of Social Work. Student must also be in good academic standing.

182 hours of fieldwork and bi-weekly seminars.

SOWK 4701 [0.5 credit]

**Special topic in Criminal Justice and Social Policy**

Selected topic in criminal justice and social policy. Topics announced in advance. Part of the Summer School in Criminal Justice and Social Policy and offered by the Department of Law. (Also listed as LAWS 4701 and SOCI 4701).

Prerequisite: fourth-year Honours standing or permission of the School of Social Work.



SOWK 4702 [0.5 credit]

**Special topic in Criminal Justice and Social Policy**

Selected topic in criminal justice and social policy. Topics announced in advance. Part of the Summer School in Criminal Justice and Social Policy and offered by the Department of Sociology. (Also listed as LAWS 4702 and SOCI 4702).

Prerequisite: fourth-year Honours standing or permission of the School of Social Work.

SOWK 4703 [0.5 credit]

**Special topic in Criminal Justice and Social Policy**

Selected topic in criminal justice and social policy. Topics announced in advance. Part of the Summer School in Criminal Justice and Social Policy and offered by the School of Social Work. (Also listed as LAWS 4703 and SOCI 4703).

Prerequisite: fourth-year Honours standing or permission of the School of Social Work.

SOWK 4900 [0.5 credit]

**Independent Study**

A reading or research course for students who wish to investigate a particular topic of interest. Students may take a maximum of 1.0 credit of independent study in their total program.

Prerequisite: third- or fourth-year standing in the B.S.W. and permission of the School of Social Work.

SOWK 4902 [0.5 credit]

**Independent Study**

A reading or research course for students who wish to investigate a particular topic of interest. Students may take a maximum of 1.0 credit of independent study in their total program.

Prerequisite: third- or fourth-year standing in the B.S.W. and permission of the School of Social Work.

SOWK 4908 [1.0 credit]

**Honours Essay**

Research essay undertaken under the supervision of a faculty adviser. The project may take the form of an experiment, a case study, historical research, or such other work as meets with the adviser's approval. Faculty regulations apply.

Prerequisites: third- or fourth-year Honours standing in the B.S.W. and permission of the School of Social Work.

## Sociology (SOCl)

### Department of Sociology and Anthropology Faculty of Arts and Social Sciences

**Note: students in any Sociology and/or Anthropology program should consult the departmental Program information in this Calendar.**

SOCl 1001 [0.5 credit]

#### Introduction to Sociology I

Introduction to the comparative study of social groups, classes and institutions. The main emphasis is on industrialized societies with special attention given to Canadian society.

Precludes additional credit for SOCl 1000 and SOCl 1003 [1.0].

Lectures three hours a week.

SOCl 1002 [0.5 credit]

#### Introduction to Sociology II

Sociological inquiry into current issues in Canadian society. Topics may include gender, racial and class inequality, health, education, crime, environment, urbanization and globalization.

Precludes additional credit for SOCl 1000 and SOCl 1003 [1.0].

Prerequisite: SOCl 1001.

Lectures three hours a week.

SOCl 1003 [1.0 credit]

#### Introduction to Sociological Perspectives

Introduction to the comparative study of social groups, classes and institutions. The main emphasis is on industrialized societies with special attention given to Canadian societies.

Precludes additional credit for SOCl 1000, SOCl 1001 and SOCl 1002.

Lectures three hours a week

SOCl 2001 [0.5 credit]

#### Introduction to Qualitative Research Methods

Introduction to the theory and practice of qualitative sociological research. Topics may include: the logic of the research process; qualitative research and research design; data collection and analysis; ethics; historical development of qualitative methods; key historical and contemporary research projects using qualitative methods

Precludes credit for SOCl 2003.

Prerequisites: SOCl 1001 and SOCl 1002, or SOCl 1003 [1.0]

Lectures and workshop three hours a week.

SOCl 2002 [0.5 credit]

#### Introduction to Quantitative Research Methods

Students will learn about issues of research design, univariate and bivariate analysis, the Chi-square test of significance and measures of association, as well as the relationship between samples and populations. Course instruction will consist of classroom lectures and may incorporate computer labs.

Precludes credit for SOCl 2003.

Prerequisites: SOCl 1001 and SOCl 1002, or SOCl 1003 [1.0]

Lecture and workshop three hours a week.

SOCl 2005 [1.0 credit]

#### Sociological Theory

Theoretical approaches to the study of sociology within their historical, social and intellectual contexts. Particular attention to original texts by Marx, Weber, and Durkheim, among others.

Precludes additional credit for SOAN 2005.

Prerequisites: SOCl 1001 and SOCl 1002, or SOCl 1003 [1.0].

Lectures and workshop three hours a week.

SOCl 2010 [0.5 credit]

#### Power and Stratification

Theoretical and empirical examination of social class, with an emphasis upon Canada. Topics relating to class might include education, health care, politics, and labour force participation.

Precludes additional credit for SOCl 3405 and SOCl 3407.

Prerequisites: SOCl 1001 and SOCl 1002, or SOCl 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures three hours a week.

SOCl 2020 [0.5 credit]

#### Race and Ethnicity

Introduction to some of the recent theoretical literature and research on the issues of race, racism and ethnicity. Concepts, controversies and definitions dealing with race and ethnicity from the Canadian context and internationally.

Also listed as ANTH 2020.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCl, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

SOCl 2030 [0.5 credit]

#### Work, Industry and Occupations

An analysis of work practices and settings in societies. Topics of interest include the development of industrial and postindustrial societies; the experience of work, the structuring of work in organizations and in the society; conflict, resistance and labour relations, and the impact of new technologies.

Prerequisites: SOCl 1001 and SOCl 1002, or SOCl 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and workshop three hours a week.

SOCl 2035 [0.5 credit]

#### Science and Technology Studies

A survey of the changing nature of knowledge, information and the social shaping of science and technologies and their impact on perception, notions of truth, forms of interaction and modes of relations at scales from the local to the global.

Also listed as ANTH 2035.

Prerequisites: ANTH 1001 or ANTH 1002 or ANTH 1003 [1.0], or 1.0 credit at the 1000-level in SOCl, ENGL, GEOG, HIST, HUMR, INDG, PSCI, RELI or WGST.

Lectures and workshop three hours a week.

SOCl 2043 [0.5 credit]

#### Sociology of the Family

Examination of contemporary marriage and family life with emphasis on Canadian society. Current perspectives on how family is conceptualized and changing trends in the social institution of family are highlighted.

Precludes credit for SOAN 2401.

Prerequisites: SOCl 1001 and SOCl 1002, or SOCl 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and workshop three hours a week.

SOCl 2045 [0.5 credit]

#### Women in Society

Enquiry into the historical and contemporary roots of sex-role determination. A comparative analysis of the position of women in various social formations is attempted in conjunction with an examination of various theoretical perspectives concerning women's societal role. Emphasis is on the Canadian context.

Precludes credit for SOCl 2407.

Prerequisites: SOCl 1001 and SOCl 1002, or SOCl 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and workshop three hours a week.

SOCI 2150 [0.5 credit]

**Social Psychology**

Relationship between the individual and the social system. Emphasis on integrating individual and social approaches. Topics include attitudes, cognition, motivations, group processes such as socialization, symbolic interaction, coercion, conformity, leadership, cohesion.

Precludes additional credit for PSYC 2100.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and workshop three hours a week.

SOCI 2200 [0.5 credit]

**Canadian Society**

Theoretical and empirical examination of Canadian social structure. Substantive topics might include demographics, inequalities, the state and social movements.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and workshop three hours a week.

SOCI 2445 [0.5 credit]

**Sociology of Deviance**

The construction of deviant behaviour and the consequences of such construction for both deviant and conforming persons. Emphasis upon deviance as a normal and necessary result of the socio-cultural processes resulting from, and affecting the activities of a viable society.

Precludes additional credit for SOCI 2505.

Prerequisites: grade of C- or higher in SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or in ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and workshop three hours a week.

SOCI 2450 [0.5 credit]

**Criminology**

The study of the criminal justice system response to crime and deviance. Institutional arrangements are examined as are the policies and programs by which society reacts to crime.

Precludes additional credit for SOCI 2701.

Prerequisites: grade of C- or higher in SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or in ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and workshop three hours a week.

SOCI 2702 [0.5 credit]

**Power and Everyday Life**

A thematic investigation of the intersection of relations of power and culture in everyday life. Topics may include leisure, consumption, identity, fashion, sexuality, tourism, health, skills, pollution and work.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures three hours a week.

SOCI 2810 [0.5 credit]

**Selected Topics in Sociology**

Selected topics in sociology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lecture three hours a week.

SOCI 2820 [0.5 credit]

**Selected Topics in Sociology**

Selected topics in sociology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lecture three hours a week.

SOCI 2910 [0.5 credit]

**Course-Related Tutorials in Sociology**

Consult the Department for information.

SOCI 2920 [0.5 credit]

**Course-Related Tutorials in Sociology**

Consult the Department for information.

SOCI 3003 [1.0 credit]

**Quantitative Methods: Research Design and Data Analysis**

Introduction to research methodology and use of multivariate statistics in sociology. Descriptive statistics, foundations of statistical inference, overview of selected hypothesis tests, bivariate correlations and regression, introduction to multiple regression. Analysis of sociological data using SPSS.

Prerequisites: SOCI 2003 [1.0] or SOCI 2001 and SOCI 2002 and third-year standing.

Lectures and lab three hours a week.

SOCI 3004 [0.5 credit]

**Qualitative Research: Approaches & Strategies**

Introduction to qualitative research design, data collection, and data analysis. Topics may include: sampling, data collection methods, archival research, computer assisted qualitative data analysis (e.g. NVivo, Atlas, Ti), research values and ethics, epistemological issues in research. reflexivity; writing up qualitative research.

Prerequisites: SOCI 2001 and third-year standing.

SOCI 3005 [1.0 credit]

**Studies in Sociological Theory**

Developments in theoretical sociology since the mid-twentieth century such as systems theory, structuralism and post-structuralism, ethnomethodology, feminism and modern Marxism.

Precludes additional credit for SOCI 4006.

Prerequisites: SOCI 2005 and third-year standing.

Lectures and discussion three hours a week.

SOCI 3010 [0.5 credit]

**Studies in Power and Stratification**

Theoretical and empirical examination of the bases of structured inequality. Topics might include, in cross-national perspective, social class, gender, race and ethnicity, and age.

Prerequisites: SOCI 2010 and third-year standing.

Lectures and discussion three hours a week.

SOCI 3020 [0.5 credit]

**Studies in Race and Ethnicity**

Race, racism and ethnicity in Canada and internationally. Critical perspectives on race and ethnicity, which intersect with other social relations. Racism, Eurocentrism, Orientalism, nationalism, colonialism, international migration, citizenship, and diasporic cultures. Also listed as ANTH 3020.

Prerequisites: SOCI 2020 or ANTH 2020.

Lectures three hours a week.

SOCI 3027 [0.5 credit]

**Globalization and Human Rights**

Examination of the various dimensions and meanings of globalization and its relationship with human rights, with emphasis on the implications of the emerging global economy for economic, social, political and cultural rights.

Also listed as ANTH 3027 and PSCI 3802.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lectures three hours a week.

SOCI 3030 [0.5 credit]

**Studies in Work, Industry and Occupations: Authority and Expertise**

The nature and place of expert knowledge in societies. The development of the practices and organization of the professions and their relation to social stratification, the state, patriarchy and gender; the systematic development of knowledge in societies.

Precludes credit for SOCI 2508.

Prerequisites: third-year standing.

Lectures three hours a week.

SOCI 3033 [0.5 credit]

**Science, Technology and the Environment**

Introduction to the socio-cultural study of science, technology and the environment including the cultural character of contemporary technology, the generation and cultural construction of knowledge through science, and the implications of science and technology for cultural livelihood and ecological sustainability.

Also listed as ANTH 3033.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0] or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and discussion three hours a week.

SOCI 3035 [0.5 credit]

**Studies in Information Technologies**

The social contexts, networks and local embeddedness of knowledge and information in comparative context. The social and cultural contexts of information. Topics may include the relation of knowledge and information, information and complex organization, the political economy of information, and information production and consumption.

Also listed as ANTH 3035.

Prerequisites: SOCI 2035 or ANTH 2035 and third-year standing.

Lecture three hours a week.

SOCI 3037 [0.5 credit]

**Studies in Information Systems and Social Power**

Knowledge/power relations in historical and comparative perspective, with attention to information devices, techniques, and practices.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3038 [0.5 credit]

**Studies in Urban Sociology**

Issues related to people and the urban environment, including the historical process of urbanization, rural-urban transition, the diffusion of urban values and life styles, contemporary urban problems such as urban renewal, pollution and the pressures of the urban environment on social institutions.

Precludes additional credit for SOCI 2504.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3040 [0.5 credit]

**Studies in the Sociology of Gender**

Sociological and feminist perspectives; applied understandings of gender, gender relations; women's and men's lives in contemporary Canadian society and in historical and cross-cultural terms. Multiple intersections between gender, race, ethnicity, class and sexuality.

Prerequisites: SOCI 2043 or SOCI 2045 and third-year standing.

Lecture three hours a week.

SOCI 3044 [0.5 credit]

**Sociology of Sex and Sexuality**

Key concepts of sex, sexuality, gender, eroticism and pleasure. The history of sex and sexuality with reference to heterosexuality. The regulation of sexual relations and practices. Why are sex and morals linked? Sex and marriage: monogamy and serial monogamy. Sex, love and intimacy. The sexual revolution and the possibility of sexual equality.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0] or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0].

Lectures and discussion three hours a week.

SOCI 3045 [0.5 credit]

**Studies in Children and Childhood**

A socio-historical and cross-cultural exploration of constructions, deconstructions, and the experience of childhood in Canada and internationally. Compulsory schooling, child labour, protection and regulation in law, the commodification and equalization of childhood, children's social movements, and the emergence of children's rights discourses.

Also listed as ANTH 3045.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3050 [0.5 credit]

**Studies in the Sociology of Health**

Current theory and research on health, disease and social responses to health issues. Topics include population differences incidence and prevalence of morbidity and mortality, access to care and government health policy. Focus upon cultural definitions of health and their consequences for health promotion practices.

Precludes additional credit for SOCI 3705.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3055 [0.5 credit]

**Studies in Addictions**

Survey of alcohol and other drug use in cross-cultural and sub-group perspectives. Relationships between culture, social structure and patterns of use of psychoactive substances. Topics may include: substance use and the life cycle; gender and psychoactive substances; problem and non-problem use.

Precludes additional credit for SOCI 3001.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3056 [0.5 credit]

**Women and Health**

Women's health issues and how they relate to social, political and economic factors. The intersection of gender, ethnicity, class, sexual orientation and able-bodiedness with women's health.

Prerequisites: SOCI 1001 and SOCI 1002 or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002 or ANTH 1003 [1.0], and third-year standing

Seminar 3 hours per week

SOCI 3100 [0.5 credit]

**Situation, Sense and Sociation**

Analysis of the influence of one of the senses (space, movement, touch, scent, taste, vision, hearing) on sociation. Multiple sections may be offered in a term.

Prerequisite: SOCI 2150.

Lecture three hours a week.

SOCI 3210 [0.5 credit]

**Selected Topics in Sociology**

Selected topics in sociology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3220 [0.5 credit]

**Selected Topics in Sociology**

Selected topics in sociology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3300 [0.5 credit]

**Studies in the Sociology of Education**

Critical analysis of selected work in educational sociology. Topics may include sociological theories of education, school ethnography, contemporary educational policy and practice. Note: Topic will vary in keeping with the interests of students and instructor.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3400 [0.5 credit]

**Studies in Criminal Justice Policy**

An examination of criminal justice policy in Canada with an emphasis on conflicting ideologies and the dynamics of policy-making decisions. Consideration is given to the relationship between criminal justice policy and other aspects of social change.

Precludes additional credit for SOCI 3703.

Prerequisites: SOCI 2445 and SOCI 2450 and third-year standing.

Lecture three hours a week.

SOCI 3410 [0.5 credit]

**Studies in Criminal Justice**

Developments in criminal justice are examined in the context of broader social issues. Particular emphasis will be placed on contemporary developments in criminal justice institutions, programs and practices.

Precludes additional credit for SOCI 3808.

Prerequisites: SOCI 2445 and SOCI 2450 and third-year standing.

Lecture three hours a week.

SOCI 3420 [0.5 credit]

**Studies in Gender and Criminal Justice**

An overview of current issues related to women as both perpetrators and victims of crime and the Canadian criminal justice system's response to them. Topics may include woman abuse, sexual assault, and federally sentenced women.

Precludes additional credit for SOCI 3201.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and SOCI 2450 and third-year standing.

Lecture three hours a week.

SOCI 3430 [0.5 credit]

**Studies in Collective Action and Social Movements**

Survey of the effects of collective action on social change. Topics may include social movements, protest and activism, crowds, fads, rumour or gossip.

Precludes additional credit for SOCI 3408.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing. SOCI 2150 is recommended but not required.

Lecture three hours a week.

SOCI 3450 [0.5 credit]

**Studies in Law Enforcement**

A comparative examination of contemporary law enforcement. Topics may include public versus private policing, centralized versus decentralized policing, and transnational policing.

Precludes additional credit for SOCI 3507.

Prerequisites: SOCI 2450 and third-year standing.

Lecture three hours a week.

SOCI 3480 [0.5 credit]

**Studies in the Sociology of Law**

Development of law in relation to modernity and capitalism through the theories of Marx, Durkheim, Weber and Foucault.

Also listed as LAWS 3106.

Precludes additional credit for SOCI 3801.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3570 [0.5 credit]

**Studies in Art, Culture and Society**

Thematic investigation of genres, forms and styles of art, culture and society. Topics may include current debates on social structure and artistic creativity; ideology, cultural memory and politics, patronage and art; cross-cultural representations, taste, social mobility and art; modernism and the avant-garde.

Also listed as ANTH 3570.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], or an introductory course in Art History, and third-year standing.

Lecture three hours a week.

SOCI 3710 [0.5 credit]

**Introduction to Cultural Studies**

Research and theory in the interdisciplinary area of Cultural Studies. Contemporary cultural change in the advanced industrialized societies and its impact on everyday life.

Precludes additional credit for ANTH 3710 and SOAN 3805.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.

Lecture three hours a week.

SOCI 3730 [0.5 credit]

**Studies in Society and Shelter**

Buildings and shelter as human, social products. Topics may include the perception of the environment and its impact on social processes; the making and use of buildings as a social process; shelter as a social institution and its relation to other social institutions. Also listed as ARCH 4203.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.  
Lecture three hours a week.

SOCI 3780 [0.5 credit]

**Studies in Power and Everyday Life**

Continuing inquiry into the relations between power and various facets of everyday life. Topics may include consumption, leisure, identity, fashion, food, tourism, health and popular culture.

Precludes additional credit for ANTH 3780.  
Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and third-year standing.  
Lecture three hours a week.

SOCI 3805 [0.5 credit]

**Studies in Population**

Introduction to historical and recent debates on population growth. Examination of changes in marriage, fertility, mortality and migration from an international perspective. Causes and consequences of demographic change.

Precludes additional credit for SOCI 3501.  
Prerequisite: SOCI 2003.  
Lecture three hours a week.

SOCI 3810 [0.5 credit]

**Studies in Social Policy**

A critical examination of selected areas of social policy. Topics might include health care, education, and aboriginal policies.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], and third-year standing.  
Lecture three hours a week.

SOCI 3901 [0.5 credit]

**Work Term 1**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours Sociology program.

SOCI 3902 [0.5 credit]

**Work Term 2**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours Sociology program.

SOCI 3903 [0.5 credit]

**Work Term 3**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours Sociology program.

SOCI 3904 [0.5 credit]

**Work Term 4**

Prerequisite: registration in the Co-operative Education program option in the B.A. Honours Sociology program.

SOCI 3910 [0.5 credit]

**Course-Related Tutorials in Sociology**

Consult the Department for information, as departmental permission is required.

SOCI 3920 [0.5 credit]

**Course-Related Tutorials in Sociology**

Consult the Department for information, as departmental permission is required.

SOCI 4002 [0.5 credit]

**Advanced Studies in Sociological Theory**

Close study of the works of an author, tendency, or school of thought in theoretical sociology. Topic will vary in keeping with interests of the students and instructor.  
Prerequisites: SOCI 3005 and fourth-year standing.  
Seminar three hours a week.

SOCI 4003 [0.5 credit]

**Advanced Studies in Qualitative Research**

In-depth study into selected issues in qualitative research design, implementation and data analysis. Topics covered may include participant observation, ethnomethodology, ethnography, grounded theory, discourse analysis, narrative analysis, textual analysis, and document analysis. Intersections between epistemologies and methodologies.

Precludes additional credit for ANTH 4003.  
Prerequisites: SOCI 2003 and fourth-year standing.  
Seminar three hours a week.

SOCI 4008 [0.5 credit]

**Contemporary Issues in Sociology**

Reflexive work on sociology as a discipline or on the capacity of sociology to engage with matters of contention in the contemporary world. Topic will vary in keeping with interests of students and instructor.  
Prerequisites: SOCI 3005 and fourth-year standing.  
Seminar three hours a week.

SOCI 4009 [0.5 credit]

**Advanced Studies in Quantitative Research**

Study of specific quantitative methodological issues. Focus may be on one or two of the following topics: quantitative research design, sampling techniques, survey research methods and various statistical research methods including OLS and logistic regression.

Precludes additional credit for SOCI 4840.  
Prerequisites: SOCI 3003 and fourth-year standing.  
Seminar and lab three hours a week.

SOCI 4010 [0.5 credit]

**Advanced Studies in Power and Stratification**

A research-oriented seminar examining structured social inequalities.

Prerequisite: fourth-year standing.  
Seminar three hours a week.

SOCI 4020 [0.5 credit]

**Advanced Studies in Race and Ethnicity**

Selected topics in race and ethnicity in an international context. Specific topics will vary according to instructors' research interests.

Also listed as ANTH 4020.  
Prerequisite: fourth-year standing.  
Seminar three hours a week.

SOCI 4030 [0.5 credit]

**Advanced Studies in Work, Industry and Occupations**

A research-oriented seminar that may focus on one or more of the following topics: Work, Organization and Technology; Developments in the Labour Process; Work, Organization and Gender; Organizational Theory; Work and Leisure; Labour Movements; and Work, Organizations and Culture.

Prerequisite: fourth-year standing.  
Seminar three hours a week

SOCI 4035 [0.5 credit]

**Advanced Studies in Information Technologies**

A critical social perspective on knowledge and information traditions, forms, theories and techniques using comparative case studies of specific rituals, technologies and other assemblages which code and decode information.

Also listed as ANTH 4035.  
Prerequisite: fourth-year standing.  
Seminar three hours a week.

SOCI 4036 [0.5 credit]

**Advanced Studies in Science, Technology and Innovation**

Studies in the generation, validation and maintenance of scientific knowledge claims. Topics may include issues in the practices of science, scientific expertise, the ownership of scientific knowledge, the comparison of science and indigenous knowledge, and knowledge claims that lie outside of Western science.

Also listed as ANTH 4036.

Precludes additional credit for SOCI 4401.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4038 [0.5 credit]

**Advanced Studies in Urban Cultures**

A research-oriented seminar on social and cultural aspects of urban life, drawing on the local region. Topics may include social space, planning, mobility, diasporic cultures, the metropolis and civil society, the global city and virtual forms of the urban.

Precludes additional credit for SOAN 4506.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4039 [0.5 credit]

**Women in Contemporary Middle East Societies**

The socio-economic, political and cultural realities of Middle Eastern women with focus on their lived experiences, voices and stories. Different countries will be chosen as case studies each year.

Prerequisites: SOCI 1001 and SOCI 1002, or SOCI 1003 [1.0], or ANTH 1001 and ANTH 1002, or ANTH 1003 [1.0], and fourth-year standing.

Seminar three hours a week.

SOCI 4040 [0.5 credit]

**Advanced Studies in the Sociology of Gender**

Gender and gender relations; intersections between gender, race, ethnicity, class and sexuality. Topics may include gender divisions of labour, employment, domestic life, violence, sexualities, men and masculinities, cross-cultural issues, body image, media, sport, education and religion.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4043 [0.5 credit]

**Advanced Studies in the Sociology of the Family**

A research-oriented seminar focusing on social policy and family form. Topics may include: immigrant families, divorce, reconstructed families, lone parenting, family poverty, the elderly, motherhood, fatherhood, family roles, and childcare practices

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4055 [0.5 credit]

**Advanced Studies in Addictions**

Methodologies of research on alcohol and other drugs; construction of meanings of addiction and of problems associated with the use of psychoactive substances, examination of policies in national and international perspective, and modes and ideologies of treatment.

Precludes additional credit for SOCI 4005.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4100 [0.5 credit]

**Advanced Studies in Situation, Sense and Sociation**

The class designs and implements a common fieldwork project of its choosing. Students submit their own analysis of the results.

Prerequisites: SOCI 3100 and fourth-year standing.

Seminar three hours a week.

SOCI 4410 [0.5 credit]

**Advanced Studies in Criminology**

Crime, criminal justice, social processes relating to the implementation of criminal justice policy, or other aspects of criminality and deviance.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4420 [0.5 credit]

**Advanced Studies in Gender and Criminal Justice**

Critical overview of sociological perspectives on women within the criminal justice system. Conceptual, theoretical, methodological and policy issues.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4430 [0.5 credit]

**Advanced Studies in Youth Culture and Juvenile Justice**

Establishment and development of the youth justice system in Canada; analysis of juvenile justice policy in relation to crime patterns and youth culture; emphasis on the federal Young Offenders Act and its consequences for the juvenile justice system.

Precludes additional credit for SOCI 4704.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4480 [0.5 credit]

**Advanced Studies in the Sociology of Law**

Contemporary debates about the role of law in society focusing on the potential and limits of law as a vehicle of social transformation.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4650 [0.5 credit]

**Advanced Studies in Power and Everyday Life**

Examination of a selected topic in Power and Everyday Life. Topics to be announced in advance each year.

Precludes additional credit for ANTH 4650 and SOAN 4707 (no longer offered).

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4701 [0.5 credit]

**Special Topic in Criminal Justice and Social Policy**

Examination of a selected topic in criminal justice and social policy. Topics to be announced.

Also listed as LAWS 4701 and SOWK 4701.

Prerequisite: fourth-year standing.

Hours to be arranged.

SOCI 4702 [0.5 credit]

**Special Topic in Criminal Justice and Social Policy**

Examination of a selected topic in criminal justice and social policy. Topics to be announced.

Also listed as LAWS 4702 and SOWK 4702.

Prerequisite: fourth-year standing.

Hours to be arranged.

SOCI 4703 [0.5 credit]

**Special Topic in Criminal Justice and Social Policy**

Examination of a selected topic in criminal justice and social policy. Topics to be announced.

Also listed as LAWS 4703 and SOWK 4703.

Prerequisite: fourth-year standing.

Hours to be arranged.

SOCI 4710 [0.5 credit]

**Directed Research in Power and Everyday Life**

A directed research project to be selected in consultation with a member of faculty. Research projects will focus on aspects of the intersection of power and everyday life.

Precludes additional credit for ANTH 4710 and SOAN 4904 (no longer offered).

Prerequisite: fourth-year standing. Contact hours to be negotiated with the research supervisor.

SOCI 4720 [0.5 credit]

**Research Placement in Power and Everyday Life**

A supervised research placement directly related to the activities of an organized research unit at Carleton University or other approved organization.

Precludes additional credit for ANTH 4720 and SOAN 4906 (no longer offered).

Prerequisite: fourth-year standing.

Contact hours to be negotiated with the research supervisor.

SOCI 4730 [0.5 credit]

**Colonialism and Post-Colonialism**

Comparative ethnographic and historical approaches to colonialism including topics such as the formation of colonial regimes, colonial governmentality, servile labour systems, missionization, anti-colonial resistance, cultural hybridization and post-colonial memory. Exploration of debates over the relation between colonialism and the production of social scientific knowledge.

Also listed as ANTH 4730.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4740 [0.5 credit]

**Advanced Studies in Subjectivity**

The experience of selfhood and identity in social and cultural context. Regimes of the body, practices of self-formation, consumption, pleasure, sexuality and social domination. Topic will vary in keeping with interests of students and instructor.

Precludes additional credit for ANTH 4740.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4750 [0.5 credit]

**Advanced Studies in Globalization and Citizenship**

Selected topics on the confluence of processes of globalization, development and citizenship; examination of debates about the meaning and impact of globalization on patterns of inequality and citizenship both internationally and within Canada, and about strategies for progressive development.

Also listed as ANTH 4750.

Prerequisites: fourth-year standing.

Seminar three hours a week.

SOCI 4760 [0.5 credit]

**Advanced Studies in Time and Space**

The organization and experience of time and/or space in social and cultural context. Techniques of time discipline, politics of social memory, rhythms of everyday life, etc. Social distance, interchanges, the collapse of space, positioning etc. Topic will vary in keeping with interests of students and instructor.

Precludes additional credit for ANTH 4760.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4770 [0.5 credit]

**Advanced Studies in Governmentality**

Starting from Foucault's concept of 'governmentality', the course explores the discourses, rationalities, and practices of governing; the way in which 'governing others' is linked to 'self-governance.'

Precludes additional credit for ANTH 4770.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4810 [0.5 credit]

**Advanced Studies in Social Policy**

An examination of sociological research and social intervention.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4820 [0.5 credit]

**Field Placement: Research and Analysis**

Students participate in a supervised research placement with a government agency, community organization or faculty member. A written summary of the student's research activities is graded.

Prerequisites: SOCI 3003 and fourth-year standing and permission of the Department.

SOCI 4830 [0.5 credit]

**Advanced Studies in Applied Social Research**

Practical application of social research insights and technique to topics of interest in public policy and consultancy arenas. Topics include research design, data collection, ethics, data ownership, policy implications, proposal writing, research resource location, secondary data analysis, development of research strategies, and effective report writing.

Prerequisite: fourth-year standing.

Seminar three hours a week.

SOCI 4850 [0.5 credit]

**Contemporary Problems in Sociology**

Selected problems in sociology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisite: fourth-year Honours standing.

Seminar three hours a week.

SOCI 4860 [0.5 credit]

**Contemporary Problems in Sociology**

Selected problems in sociology not ordinarily treated in the regular course program. The choice of topics varies from year to year. Students should check with the Department regarding the topic offered.

Prerequisite: fourth-year Honours standing.

Seminar three hours a week.

SOCI 4910 [0.5 credit]

**Tutorial in Sociology**

Consult the Department for information.

SOCI 4920 [0.5 credit]

**Tutorial in Sociology**

Consult the Department for information.

SOCI 4930 [1.0 credit]

**Directed Research**

Directed studies to investigate a particular topic.

Prerequisites: fourth-year Honours standing in Sociology and permission of the department. Enrolment is limited to Honours students with a CGPA in Sociology of 9.00 or higher and a proposal approved by the Honours Committee.



## Spanish (SPAN)

### School of Linguistics and Language Studies Faculty of Arts and Social Sciences

#### Placement for Language Students

Note: A placement test is required for students who have previous training and/or experience, but who have not taken a course in this language at Carleton. For details, please consult [carleton.ca/slals/modern-languages/](http://carleton.ca/slals/modern-languages/) and follow the placement test instructions before registering.

SPAN 1010 [0.5 credit]

#### First-Year Spanish I

For students with no knowledge of Spanish. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for SPAN 1105 or SPAN 1110. Four hours a week.

SPAN 1020 [0.5 credit]

#### First-Year Spanish II

Continuation of first-year Spanish. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for SPAN 1105 and SPAN 1110. Prerequisite: grade of C or higher in SPAN 1010, or permission of the School. Four hours a week.

SPAN 1110 [1.0 credit]

#### Intensive First-Year Spanish

For students with no knowledge of Spanish. Oral skills, reading and writing. Compulsory attendance. Precludes additional credit for SPAN 1010, SPAN 1020, and SPAN 1105. Eight hours a week (one term).

SPAN 2010 [0.5 credit]

#### Second-Year Spanish I

Further study of Spanish to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for SPAN 2105 and SPAN 2110. Prerequisite: grade of C or higher in SPAN 1020, SPAN 1110, or SPAN 1105, or permission of the School. Four hours a week.

SPAN 2020 [0.5 credit]

#### Second-Year Spanish II

Continuation of second-year Spanish. Further study of Spanish to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for SPAN 2105 and SPAN 2110. Prerequisite: grade of C or higher in SPAN 2010, or permission of the School. Four hours a week.

SPAN 2110 [1.0 credit]

#### Intensive Second-Year Spanish

Further study of Spanish to reach a more advanced level of proficiency in a range of situations. Equal emphasis on oral and written language. Compulsory attendance. Precludes additional credit for SPAN 2010, SPAN 2020 and SPAN 2105. Prerequisite: grade of C or higher in SPAN 1020, SPAN 1110, or SPAN 1105, or permission of the School. Eight hours a week (one term).

SPAN 2605 [1.0 credit]

#### Literacy Skills in Spanish

For native speakers of Spanish with minimal reading and writing abilities. Intensive practice in Spanish composition; reading skills. Seminars three hours a week.

SPAN 3010 [0.5 credit]

#### Third-Year Spanish I

Continuation of the study of Spanish to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance. Precludes additional credit for SPAN 3105 or SPAN 3110. Prerequisite: grade of C or higher in SPAN 2020, SPAN 2110, SPAN 2105, or permission of the School. Three hours a week.

SPAN 3020 [0.5 credit]

#### Third-Year Spanish II

Continuation of third-year Spanish. Progress toward a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance. Precludes additional credit for SPAN 3105 or SPAN 3110. Prerequisite: grade of C or higher in SPAN 3010, or permission of the School. Three hours a week.

SPAN 3110 [1.0 credit]

#### Intensive Third-Year Spanish

Continuation of the study of Spanish to reach a more advanced level, including the ability to handle authentic materials and primary texts required for academic studies. Compulsory attendance. Precludes additional credit for SPAN 3010, SPAN 3020, and SPAN 3105. Prerequisite: grade of C or higher in SPAN 2020, SPAN 2110, SPAN 2105, or permission of the School. Six hours a week (one term).

SPAN 4010 [0.5 credit]

#### Fourth-Year Spanish I

Advanced spoken and written Spanish with intensive practice in aural comprehension and speaking in a range of situations and contexts, in reading and in composition in a range of modes and genres. Metalinguistic study. Compulsory attendance. Precludes additional credit for SPAN 3605 or SPAN 4110. Prerequisite: grade of C or higher in SPAN 3020, SPAN 3110, SPAN 3105, or permission of the School. Three hours a week.

SPAN 4020 [0.5 credit]

#### Fourth-Year Spanish II

Continuation of fourth-year Spanish. Advanced spoken and written Spanish with intensive practice in aural comprehension and speaking in a range of situations and contexts, in reading and in composition in a range of modes and genres. Metalinguistic study. Compulsory attendance. Precludes additional credit for SPAN 3605 or SPAN 4110. Prerequisite: grade of C or higher in SPAN 4010, or permission of the School. Three hours a week.

## Courses - Spanish (SPAN)

SPAN 4110 [1.0 credit]

### **Intensive Fourth-Year Spanish**

Advanced spoken and written Spanish with intensive practice in aural comprehension and speaking in a range of situations and contexts, in reading and in composition in a range of modes and genres. Metalinguistic study. Compulsory attendance.

Precludes additional credit for SPAN 3605, SPAN 4010 or SPAN 4020.

Prerequisite: grade of C or higher in SPAN 3020, SPAN 3110, SPAN 3105, or permission of the School.

Six hours a week (one term).

SPAN 4115 [0.5 credit]

### **Spanish for Specific Purposes**

Development of language use for specific purposes in contexts such as the academic, business and technical domains. Can be repeated for credit when topic varies. Precludes additional credit for SPAN 4105 (no longer offered).

Prerequisite: grade of C or higher in SPAN 3605 or SPAN 4020 or SPAN 4110.

Three hours a week.

SPAN 4900 [1.0 credit]

### **Independent Study**

Research in a topic in Spanish language, literature or linguistics under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing in the Minor in Spanish, grade of C or higher in SPAN 3605 or SPAN 4020 or SPAN 4110 or equivalent, or permission of the School.

SPAN 4901 [0.5 credit]

### **Independent Study**

Research in a topic in Spanish language, literature or linguistics under the supervision of a member of the School.

Prerequisites: third- or fourth-year standing in the Minor in Spanish, grade of C or higher in SPAN 3605 or SPAN 4020 or SPAN 4110 or equivalent, or permission of the School.

## Statistics (STAT)

### School of Mathematics and Statistics Faculty of Science

**Note:** see regulations concerning Deferred Final Examinations in the Academic Regulations section of this Calendar.

STAT 2507 [0.5 credit]

#### Introduction to Statistical Modeling I

A data-driven introduction to statistics. Basic descriptive statistics, introduction to probability theory, random variables, various discrete and continuous distributions, contingency tables and goodness-of-fit, sampling distributions, distribution of sample mean, Central Limit Theorem, application to interval estimation and hypothesis testing. A statistical software package will be used.

Precludes additional credit for BIT 2000, BIT 2100, ECON 2200, ECON 2201, GEOG 2006, STAT 2606, STAT 3502.

STAT 2507 may not be counted for credit in any program, if taken after successful completion of STAT 2559.

Prerequisite: an Ontario Grade 12 university-preparation Mathematics (after Summer 2002) or an OAC in Mathematics or equivalent, or permission of the School of Mathematics and Statistics.

Lectures three hours a week, laboratory one hour a week.

STAT 2509 [0.5 credit]

#### Introduction to Statistical Modeling II

A data-driven approach to statistical modeling. Basics of experimental design, analysis of variance, simple linear regression and correlation, nonparametric procedures. A statistical software package will be used.

Precludes additional credit for STAT 2607, ECON 2202. Prerequisites: i) STAT 2507 and ii) Grade 12 Mathematics (Geometry and Discrete Mathematics), or an OAC in Algebra and Geometry, or MATH 0107; or equivalents; or permission of the School.

Lectures three hours a week, laboratory one hour a week.

STAT 2559 [0.5 credit]

#### Basics of Statistical Modeling (Honours)

Estimation and hypothesis testing for one and two samples, analysis of categorical data, basics of experimental design, analysis of variance, simple linear regression and correlation. Nonparametric procedures. A statistical software package will be used.

Prerequisite: STAT 2655 or permission of the School.

Lectures three hours a week, tutorial/laboratory one hour a week.

STAT 2605 [0.5 credit]

#### Probability Models

Basic probability; discrete random variables with focus on binomial and Poisson random variables; continuous random variables, transformation theorem, simulating continuous random variables; exponential random variable, normal random variable, sums of random variables, central limit theorem. Elements of Markov chains, and introduction to Poisson processes.

Restricted to students in Bachelor of Computer Science, Bachelor of Mathematics in Computer Mathematics, and Bachelor of Engineering in Communications Engineering.

Precludes additional credit for STAT 2655 and STAT 3502.

Prerequisites: MATH 1007 or MATH 1004 or MATH 1002, and MATH 1104 or MATH 1107 (or MATH 1102).

Lectures three hours a week, tutorial one hour a week.

STAT 2606 [0.5 credit]

#### Business Statistics I

Introduction to statistical computing; probability concepts; descriptive statistics; estimation and testing of hypotheses. Emphasis on the development of an ability to interpret results of statistical analyses with applications from business.

Restricted to students in the School of Business.

Precludes additional credit for BIT 2000, BIT 2100, ECON 2200, ECON 2201, GEOG 2006, STAT 2507, STAT 3502.

Prerequisites: either: item (iii); or both of items i) and ii): i) MATH 1009 with a grade of C- or better; and ii) an OAC in Algebra and Geometry, or MATH 0107; (iii) BUSI 1703 with a grade of C- or better, or BUSI 1704 and BUSI 1705 with an average grade of C- or better; or equivalents.

Lectures three hours a week and one hour laboratory.

STAT 2607 [0.5 credit]

#### Business Statistics II

Topics include: experimental design, multiple regression and correlation analysis, covariance analysis, and introductory time series. Use of computer packages.

Restricted to students in the School of Business.

Precludes additional credit for STAT 2509, ECON 2202.

Prerequisite: STAT 2606.

Lectures three hours a week and one hour laboratory.

STAT 2655 [0.5 credit]

#### Introduction to Probability with Applications (Honours)

Axioms of probability, basic combinatorial analysis, conditional probability and independence, discrete and continuous random variables, joint and conditional distributions, expectation, central limit theorem, sampling distributions, simulation and applications to descriptive statistics. A statistical software package will be used.

Precludes additional credit for STAT 2605.

Prerequisites: one of MATH 1002 or MATH 2007 or MATH 1005 with a grade of C+ or better; and one of MATH 1102 or MATH 1107 or MATH 1104 with a grade of C+ or better.

Lectures three hours a week, tutorial one hour a week.

STAT 3502 [0.5 credit]

#### Probability and Statistics

Axioms of probability; conditional probability and independence; random variables; distributions: binomial, Poisson, hypergeometric, normal, gamma; central limit theorem; sampling distributions; point estimation: maximum likelihood, and method of moments; confidence intervals; testing of hypotheses: one and two populations; engineering applications: acceptance sampling, control charts, reliability.

This course may not be used to meet the 3000-level course requirements in any General or Honours program in Mathematics and Statistics.

Precludes additional credit for STAT 2507, STAT 2605, STAT 2606, ECON 2200, ECON 2201.

Prerequisite: MATH 2004 and enrolment in the Faculty of Engineering or B.Sc. programs of the Department of Physics [except Double Honours Mathematics and Physics].

Lectures three hours a week and one hour laboratory.

STAT 3503 [0.5 credit]

**Regression Analysis**

Review of simple and multiple regression with matrices, Gauss-Markov theorem, polynomial regression, indicator variables, residual analysis, weighted least squares, variable selection techniques, nonlinear regression, correlation analysis and autocorrelation. Computer packages are used for statistical analyses.

Precludes additional credit for STAT 3553. PSYC 3000 is precluded for additional credit for students registered in a Mathematics program.

Prerequisites: i) STAT 2509 or STAT 2607, or ECON 2200, or ECON 2202, or equivalent; and ii) MATH 1102 or MATH 1107 or MATH 1109 or equivalent; or permission of the School.

Lectures three hours a week and one hour laboratory.

STAT 3504 [0.5 credit]

**Analysis of Variance and Experimental Design**

Single and multifactor analysis of variance, orthogonal contrasts and multiple comparisons, analysis of covariance; nested, crossed and repeated measures designs; completely randomized, randomized block, Latin squares, factorial experiments, related topics. Computer packages are used for statistical analyses.

Precludes additional credit for STAT 4504. PSYC 3000 is precluded for additional credit for students registered in a Mathematics program.

Prerequisite: STAT 3503 or permission of the School.

Lectures three hours a week and one hour laboratory.

STAT 3506 [0.5 credit]

**Stochastic Processes and Applications (Honours)**

Conditional probability and conditional expectation; Stochastic modeling; discrete time Markov chains including classification of states, stationary and limiting distributions; exponential distribution and the Poisson processes; queueing models; applications to computer systems, operations research and social sciences.

Prerequisites: STAT 2655; or a CGPA of 6.00 or better over the three courses MATH 2007, MATH 2107 (or MATH 1102), and STAT 2605; or permission of the School.

Lectures three hours a week, tutorial one hour a week.

STAT 3507 [0.5 credit]

**Sampling Methodology**

The sample survey as a vehicle for information collection in government, business, scientific and social agencies. Topics include: planning a survey, questionnaire design, simple random, stratified, systematic and cluster sampling designs, estimation methods, problem of non-response, related topics.

Prerequisite: one of STAT 2507, or STAT 2509, STAT 2606, STAT 2607, ECON 2200, ECON 2201 or ECON 2202 or equivalent; or permission of the School.

Lectures three hours a week and one hour laboratory.

STAT 3508 [0.5 credit]

**Elements of Probability Theory**

Discrete and continuous distributions, moment-generating functions, marginal and conditional distributions, transformation theory, limiting distributions.

Precludes additional credit for STAT 3558 and STAT 3608. Prerequisites: i) MATH 2008 (or MATH 2004 or MATH 2009); and ii) one of STAT 2507, STAT 2606, ECON 2200, or ECON 2201 or permission of the School. Lectures three hours a week, tutorial one hour a week.

STAT 3509 [0.5 credit]

**Mathematical Statistics**

Point and interval estimation, sufficient statistics, hypothesis testing, chi-square tests with enumeration data.

Precludes additional credit for STAT 3559.

Prerequisite: STAT 3508 or permission of the School.

Lectures three hours a week, tutorial one hour a week.

STAT 3553 [0.5 credit]

**Regression Modeling (Honours)**

Linear regression – theory, methods and application(s). Normal distribution theory. Hypothesis tests and confidence intervals. Model selection. Model diagnostics. Introduction to weighted least squares and generalized linear models.

Precludes additional credit for STAT 3503. PSYC 3000 is precluded for additional credit for students registered in a Mathematics program.

Prerequisites: i) STAT 2559 or STAT 2509; and ii) MATH 1102 or MATH 2107; or permission of the School.

Lectures three hours a week, laboratory one hour a week.

STAT 3555 [0.5 credit]

**Stochastic Modeling and Simulation (Honours)**

Topics chosen from: 1) Random number generators, testing. 2) Generating independent random variables with a given distribution, examples, rejection sampling. 3) Stochastic models: Poisson processes, queueing systems, multivariate distributions, Gaussian processes, Gibbs sampler, Markov Chain Monte Carlo. 4) Variance reduction techniques. 5) Analysis of output.

Prerequisites: (i) either (a) STAT 2655, or (b) a grade of B or higher in STAT 2605, or (c) permission of the School; (ii) knowledge of a computer language.

Lectures three hours a week, tutorial/laboratory one hour a week.

STAT 3558 [0.5 credit]

**Elements of Probability Theory (Honours)**

Random variables and moment-generating functions, concepts of conditioning and correlation; laws of large numbers, central limit theorem; multivariate normal distribution; distributions of functions of random variables, sampling distributions, order statistics.

Precludes additional credit for STAT 3508 and STAT 3608.

Prerequisites: i) STAT 2655 (or STAT 2605); and ii) MATH 2000 (or a grade of C+ or better in MATH 2008); or permission of the School.

Lectures three hours a week, tutorial one hour a week.

STAT 3559 [0.5 credit]

**Mathematical Statistics (Honours)**

Empirical distribution functions, Monte Carlo methods, elements of decision theory, point estimation, interval estimation, tests of hypotheses, robustness, nonparametric methods.

Precludes additional credit for STAT 3509.

Prerequisite: STAT 3558 or permission of the School.

Lectures three hours a week, tutorial one hour a week.

STAT 3608 [0.5 credit]

**Probability in Communications and Electrical Engineering**

Probability models and basic concepts; independence and conditional probabilities; discrete, continuous and multiple random variables; distribution and density functions; expectations and moments; sums of random variables; elementary statistics; introduction to random processes; applications to areas such as communication systems and networks.

Restricted to students in the Faculty of Engineering.

Precludes additional credit for STAT 3508 and STAT 3558.

Prerequisite: MATH 2004, or equivalent.

Lectures three hours a week, tutorial one hour a week.

STAT 4500 [0.5 credit]

**Parametric Estimation (Honours)**

Preliminaries on probability theory; exact and asymptotic sampling distributions; unbiasedness, consistency, efficiency, sufficiency and completeness; properties of maximum likelihood estimators; least squares estimation of location and scale parameters based on order statistics and sample quantiles; Best Asymptotically Normal (BAN) estimators. Also offered at the graduate level, with additional or different requirements, as STAT 5600, for which additional credit is precluded.

Prerequisite: STAT 3559 or permission of the School.  
Lectures three hours a week.

STAT 4501 [0.5 credit]

**Probability Theory (Honours)**

Introduction to probability, characteristic functions, probability distributions, limit theorems.

Prerequisites: STAT 3506 and STAT 3558 or permission of the School.

Lectures three hours a week.

STAT 4502 [0.5 credit]

**Survey Sampling (Honours)**

Basic concepts in sampling from finite populations; simple random sampling; stratified sampling; choice of sampling unit; cluster and systematic sampling; introduction to multistage sampling; ratio estimation; sampling with unequal probabilities and with replacement; replicated sampling; related topics.

Prerequisites: i) STAT 2559 or STAT 2509; and ii) either STAT 3559, or a grade of C+ or better in STAT 3509; or permission of the School.

Lectures three hours a week.

STAT 4503 [0.5 credit]

**Applied Multivariate Analysis (Honours)**

Selected topics in regression and correlation non-linear models. Multivariate statistical methods, principal components, factor analysis, multivariate analysis of variance, discriminant analysis, canonical correlation, analysis of categorical data. Also offered at the graduate level, with additional or different requirements, as STAT 5509, for which additional credit is precluded.

Prerequisites: STAT 3553 or (STAT 3509 and STAT 3503) or permission of the School.

Lectures three hours a week.

STAT 4504 [0.5 credit]

**Statistical Design and Analysis of Experiments (Honours)**

An extension of the designs discussed in STAT 2559 to include analysis of the completely randomized design, designs with more than one blocking variable, incomplete block designs, fractional factorial designs, multiple comparisons; and response surface methods.

Precludes additional credit for STAT 3504 and ECON 4706. PSYC 3000 is precluded for additional credit for students registered in a Mathematics program.

Prerequisite: STAT 3553 or STAT 3503; or permission of the School of Mathematics and Statistics.

Lectures three hours a week, laboratory one hour a week.

STAT 4506 [0.5 credit]

**Nonparametric Methods (Honours)**

Order statistics; projections; U-statistics; L-estimators; rank, sign, and permutation test statistics; relative efficiency of tests; nonparametric tests of goodness-of-fit, homogeneity, symmetry, and independence and their efficiency; nonparametric density estimation.

Also offered at the graduate level, with additional or different requirements, as STAT 5516, for which additional credit is precluded.

Prerequisite: STAT 3559 or permission of the School.  
Lectures three hours a week.

STAT 4507 [0.5 credit]

**Statistical Inference (Honours)**

Sufficient statistics, simple and composite hypotheses, most powerful and similar region test, distribution-free tests, confidence intervals, goodness-of-fit and likelihood ratio tests, large sample theory, Bayesian and likelihood methods, sequential tests. Also offered at the graduate level, with additional or different requirements, as STAT 5501, for which additional credit is precluded.

Prerequisite: STAT 4500 or permission of the School.

Lectures three hours a week.

STAT 4508 [0.5 credit]

**Stochastic Models (Honours)**

Review of discrete Markov chains and Poisson processes; continuous time Markov chains; pure jump Markov processes, and birth and death processes including the Q-matrix approach; the Kolmogorov equations; renewal theory; introduction to Brownian motion; queueing theory. Also offered at the graduate level, with additional or different requirements, as STAT 5701, for which additional credit is precluded.

Prerequisite: STAT 3506 or permission of the School.

Lectures three hours a week.

STAT 4509 [0.5 credit]

**Advanced Mathematical Modeling (Honours)**

Real-life situations in the physical, social, and life sciences are often modeled using mathematical tools. This course will examine various models and techniques used in their analysis, e.g., matrix procedures in connection with population models. Students will use a computer package to obtain numerical results. Also offered at the graduate level, with additional or different requirements, as STAT 5601, for which additional credit is precluded.

Prerequisites: i) MATH 2454 and STAT 2655 (or MATH 2404 and STAT 2605) and ii) STAT 3506; or permission of the School.

Lectures three hours a week.

STAT 4601 [0.5 credit]

**Data Mining I (Honours)**

Data visualization; knowledge discovery in datasets; unsupervised learning: clustering algorithms; dimension reduction; supervised learning: pattern recognition, smoothing techniques, classification. Computer software will be used.

Prerequisite: STAT 3553 or STAT 3503 or MATH 3806, or permission of the School.

Lectures three hours a week, laboratory one hour a week.

STAT 4603 [0.5 credit]

**Time Series and Forecasting (Honours)**

Time series regression. Nonstationary and stationary time series models. Nonseasonal and seasonal time series models. ARIMA (Box-Jenkins) models. Smoothing methods. Parameter estimation, model identification, diagnostic checking. Forecasting techniques.

A statistical software package will be used.

Prerequisite: STAT 3553 or STAT 3503, or permission of the School.

Lectures three hours a week, laboratory one hour a week.

STAT 4604 [0.5 credit]

**Statistical Computing (Honours)**

Statistical computing techniques, pseudo-random number generation, tests for randomness, numerical algorithms in statistics; optimization techniques; environments for data analysis, efficient programming techniques; statistics with mainstream software.

Prerequisite: STAT 3553 or STAT 3503 or permission of the School.

Lectures three hours a week, laboratory one hour a week.

STAT 4605 [0.5 credit]

**Statistical Methods in Biostatistics (Honours)**

Review of distributions, moments, sampling distributions, and large sample approximations; parametric inferences; Bayesian methods; nonparametric methods. Illustrations are based on real data sets from biomedical experiments or investigations.

Prerequisites: i) STAT 3508 or STAT 3558, and ii) STAT 3509 or STAT 3559, or permission of the School.

Lectures three hours a week, laboratory one hour a week.

STAT 4606 [0.5 credit]

**Practices in Biostatistics (Honours)**

Correlation and regression analysis, multiple sample analysis; analysis of covariance; analysis of frequency data; multiple logistic regression; longitudinal study; Kaplan-Meier estimator; proportional hazard model. Use of statistical computer packages will be emphasized.

Prerequisite: STAT 4605 or the permission of the School.

Lectures three hours a week, laboratory one hour a week.

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## Sustainable and Renewable Energy Engineering (SREE)

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### Faculty of Engineering and Design

SREE 1000 [0.0 credit]

**Introduction to Sustainable Energy**

The concept of energy sustainability. Energy-economy system. Global energy trends, the next 100 years. Energy reserves and resources. Primary and secondary clean energy. Energy use, efficiency and renewables. Energy and the environment/climate change. Sustainable energy choices and policies.

Prerequisite: registration in Sustainable and Renewable Energy Engineering.

Lectures one hour per week.

SREE 3001 [0.5 credit]

**Sustainable and Renewable Energy Sources**

Primary energy sources and the pathways to use. Renewables: photovoltaic, solar-thermal, hydropower, geothermal, tidal. Fossil fuels and nuclear. Terrestrial, thermodynamic and electrical limitations.

Prerequisite: ENVE 2001 and MAAE 2300 and (ELEC 3605 or ELEC 2501 or fourth-year status in Environmental Engineering).

Lectures three hours per week, laboratories/problem analysis one hour per week.

SREE 3002 [0.5 credit]

**Energy Distribution and Efficient Utilization**

Electricity, hydrocarbons and hydrogen. Renewables, biofuels and biogas technologies. Distribution, smart grids, and storage systems. Systems integrating centralized and distributed energy conversion systems. Utilization for mobility, light, heating/cooling, industrial-thermal/mechanical, electrolysis.

Prerequisite: SREE 3001 and (ELEC 2501 or ELEC 3605).

Lectures three hours per week, laboratories/problem analysis one hour per week.

SREE 3003 [0.5 credit]

**Sustainable Energy Systems Design**

Residential, commercial and institutional use of energy, efficiency of end use systems. Solar power; technology, generation and economics. Passive solar heating/cooling. Fuel cell thermodynamics, kinetics and solid oxide fuel cells. Wind, ocean, geothermal, biofuels and biogas. Integrated systems combining thermal and mechanical needs. Life-cycle analysis of alternatives.

Prerequisite: SREE 3001 and (ELEC 2501 or ELEC 3605).

Lectures three hours per week, laboratories/problem analysis three hours per week.

SREE 4001 [0.5 credit]

**Efficient Energy Conversion**

Steam generators, solid, liquid, gaseous and biofuels and cycles. Geothermal, solar powerplants. Energy storage. Environmental aspects of power generation. Industrial use and auto-generation of energy. Energy intensity and efficiency of industrial processes and products. Comparative analysis of raw material, energy, or product transport. Life-cycle analysis of alternatives.

Prerequisite: SREE 3002 and SREE 3003.

Lectures three hours per week, laboratories/problem analysis three hours per week

SREE 4002 [0.5 credit]

**The Energy Economy, Reliability and Risk**

Interrelationship between energy and economic policy and regulations. Reliability of energy supply systems. Risk analysis and its application to the generation, distribution and environmental impacts of energy. Risks analysis and management associated with natural and human and regulatory influences. Environmental and public health risk analysis.

Prerequisite: fourth-year status in Engineering.

Lectures three hours per week.

SREE 4907 [1.0 credit]

**Energy Engineering Project**

Student teams develop professional-level experience by applying, honing, integrating and extending previously acquired knowledge in a major design project. Lectures are devoted to discussing project-related issues and student presentations. A project proposal, interim report, oral presentations, and a comprehensive final report are required.

Prerequisites: fourth-year status in Sustainable and Renewable Energy Engineering and ECOR 4995 (may be taken concurrently). Certain projects may have additional prerequisites or corequisites.

Lecture one hour a week, laboratory seven hours a week.

## Systems and Computer Engineering (SYSC)

Department of Systems and Computer Engineering  
Faculty of Engineering

**Note:** the Departments of Systems and Computer Engineering and Electronics offer courses in: Biomedical and Electrical Engineering, Communications Engineering, Computer Systems Engineering, Electrical Engineering, Software Engineering and Engineering Physics.

SYSC 1005 [0.5 credit]

### Introduction to Software Development

A first course in software development as an engineering discipline, using a modern programming language, Language syntax. Algorithm design. Tracing and visualizing program execution. Testing and debugging. Program style, documentation, reliability. Lab projects are drawn from a variety of application domains, for example, digital image manipulation; computer games; and robotics.

Precludes additional credit for ECOR 1606 and SYSC 1101.

Lectures two hours a week, tutorial one hour a week, laboratory three hours a week.

SYSC 2001 [0.5 credit]

### Computer Systems Foundations

Computer architecture and organization: CPU, cache, memory, input/output, bus structures, interrupts; computer arithmetic: integer and floating point; CPU: instruction sets, addressing modes, instruction encoding. Input/output: programmed, interrupt-driven, block-oriented. Examples from several modern processor families.

Prerequisite: ECOR 1606 or SYSC 1102 or SYSC 2006 (SYSC 2006 may be taken concurrently).

Lectures three hours a week, laboratory two hours a week.

SYSC 2002 [0.5 credit]

### Data Structures and Algorithms

In-depth experience in the design and construction of computer programs involving data structures and different programming paradigms. Data structures, formal specification, abstract data types, graphs, recursion, finite state machines and object-oriented programming.

Precludes additional credit for SYSC 2100 and SYSC 3002.

Prerequisite: ECOR 1606.

Lectures three hours a week, laboratory two hours a week.

SYSC 2003 [0.5 credit]

### Introductory Real-Time Systems

Principles of event-driven systems. Review of computer organization. Assemblers and linkers. Development of embedded applications. Programming external interfaces, programmable timer. Input/output methods: polling, interrupts. Real-time issues: concurrency, mutual exclusion, buffering. Introduction to concurrent processes.

Precludes additional credit for SYSC 3003 and SYSC 3006.

Prerequisite: SYSC 2001 and (SYSC 2002 or SYSC 2006). Lectures three hours a week, laboratory two hours a week.

SYSC 2004 [0.5 credit]

### Object-Oriented Software Development

Designing and implementing small-scale programs as communities of collaborating objects, using a dynamically-typed or statically-typed programming language. Fundamental concepts: classes, objects, encapsulation, information hiding, inheritance, polymorphism. Iterative, incremental development and test-driven development.

Precludes additional credit for SYSC 1101.

Prerequisite: SYSC 2002 or SYSC 2006 (SYSC 2006 can be taken concurrently).

Lectures three hours a week, laboratory two hours a week.

SYSC 2006 [0.5 credit]

### Foundations of Imperative Programming

Modular programming with a procedural language. Compilation and linking, libraries. Memory management and object lifetimes: static allocation, automatic allocation in stack frames, dynamic allocation from the heap. Introduction to data structures: dynamic arrays, linked lists. Collections: lists, stacks, queues. Introduction to recursion.

Precludes additional credit for SYSC 1102 and SYSC 2002.

Prerequisite: ECOR 1606 or SYSC 1005.

Lectures three hours a week, laboratory two hours a week.

SYSC 2100 [0.5 credit]

### Algorithms and Data Structures

Thorough coverage of fundamental abstract collections: stacks, queues, lists, priority queues, dictionaries, sets, graphs. Data structures: review of arrays and linked lists; trees, heaps, hash tables. Specification, design, implementation of collections, complexity analysis of operations. Sorting algorithms.

Precludes additional credit for SYSC 2002.

Prerequisites: SYSC 1102 or SYSC 2006.

Lectures three hours a week, laboratory two hours a week.

SYSC 2101 [0.5 credit]

### Software Development Project

Development of expertise in designing, implementing, and testing industrial-quality, reusable code through individual and team projects. Applying and extending previously acquired knowledge of patterns, frameworks, UML, iterative and incremental development, Java and C++ to medium- and large-scale systems.

Prerequisite: SYSC 2100 or SYSC 2004.

Lectures two hours a week, laboratory three hours a week.

SYSC 3001 [0.5 credit]

### Operating Systems & Databases

Operating systems and databases treated from a common perspective. Management of CPU, processes, memory, files, and data. Implications of concurrency. Concurrent programming, including interprocess communication in distributed systems. Data models and query languages.

Precludes additional credit for SYSC 4001.

Prerequisites: (SYSC 2002 or SYSC 2100), and SYSC 2003.

Lectures three hours a week, laboratory/problem analysis two hours a week.



SYSC 3006 [0.5 credit]

**Computer Organization**

Computer organization: processor, memory, input/output, system bus. Number systems: binary, decimal, hexadecimal. Assembly language programming: representation of data, instruction encoding, execution. Devices: keyboard, programmable timer, parallel interface. Input/output methods: polling, hardware/software interrupts.

Precludes additional credit for SYSC 2001 and SYSC 2003. May not be taken for credit by students in Computer Systems Engineering, Communications Engineering, or Software Engineering.

Prerequisites: (SYSC 2002 or SYSC 2006) and ELEC 2607. Lectures three hours a week, laboratory two hours a week.

SYSC 3010 [0.5 credit]

**Computer Systems Development Project**

Development of expertise in designing, implementing and testing maintainable, reusable software through team projects. Applying modern programming languages, design patterns, frameworks, UML and modern development processes (refactoring, iterative and incremental development, version control techniques) to medium-scale projects; for example, embedded or mobile applications.

Precludes additional credit for SYSC 2101 and SYSC 3110. Prerequisites: SYSC 2004 and SYSC 2100, and third-year status in Computer Systems Engineering.

Lectures two hours a week, laboratory three hours a week.

SYSC 3020 [0.5 credit]

**Introduction to Software Engineering**

Introduction to software engineering principles, software development life-cycles. Modelling in software engineering. Current techniques, notations, methods, processes and tools used in software engineering. UML modelling. Introduction to software quality, software verification and validation, software testing.

Precludes additional credit for SYSC 3120 and SYSC 4120.

Prerequisites: SYSC 2004 and SYSC 2006. Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 3100 [0.5 credit]

**Systems Analysis and Design**

Creating requirements specifications prior to designing and implementing complex software systems. Software development lifecycles, role of requirements analysis; functional decomposition, dataflow modeling; database modeling, entity-relationship diagrams; finite state machines; object-oriented analysis; use cases, use case maps; project management; introduction to software design.

Precludes additional credit for BUSI 3402.

Prerequisite: SYSC 2004 or SYSC 2100. Lectures three hours a week, laboratory/problem analysis two hours a week.

SYSC 3101 [0.5 credit]

**Programming Languages**

Principles underlying different kinds of programming languages (procedural, functional, logic programming) and their semantics. Overview of machinery needed for language support (compilers, interpreters and run-time systems).

Prerequisite: SYSC 2004 or SYSC 2100. Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 3110 [0.5 credit]

**Software Development Project**

Development of expertise in designing, implementing and testing maintainable, reusable software through team projects. Applying modern programming languages, design patterns, frameworks, UML and modern development processes (detection of olfactible source code defects, refactoring, iterative and incremental development, version control techniques) to medium-scale projects.

Precludes additional credit for SYSC 2101 and SYSC 3010.

Prerequisites: SYSC 2004 and SYSC 2100, and third-year status in Software Engineering.

Lectures two hours a week, laboratory three hours a week.

SYSC 3120 [0.5 credit]

**Software Requirements Engineering**

Current techniques, notations, methods, processes and tools used in Requirements Engineering. Requirements elicitation, negotiation, modelling requirements, management, validation. Skills needed for Requirements Engineering and the many disciplines on which it draws. Requirements analysis: domain modelling, modelling object interactions; UML modelling. Introduction to software development processes.

Precludes additional credit for SYSC 3020.

Prerequisites: SYSC 2004 and SYSC 2100 and third-year status in Software Engineering.

Lectures three hours a week, laboratory two hours a week.

SYSC 3200 [0.5 credit]

**Industrial Engineering**

Techniques of operations research for decision-making in complex engineering systems. Linear programming, network models, PERT, integer programming, dynamic programming, queuing systems and inventory models. Problem solving is emphasized.

Precludes additional credit for BUSI 2300, ECON 4004, or MATH 3801.

Prerequisites: MATH 1004 and MATH 1104 and (ECOR 1606 or SYSC 1100).

Lectures three hours a week, laboratory/problem analysis 1.5 hours alternate weeks.

SYSC 3303 [0.5 credit]

**Real-Time Concurrent Systems**

Principles and practice of a systems engineering approach to the development of software for real-time, concurrent, distributed systems. Designing to achieve concurrency, performance, and robustness, using visual notations. Converting designs into programs. Introduction to hard real-time systems. Team project.

Prerequisites: for students in the Faculty of Engineering and Design, SYSC 2003 and (SYSC 2004 or SYSC 2100); for students in Computer Science, COMP 2003 and (COMP 2002 or COMP 2402).

Lectures three hours a week, laboratory two hours a week.

SYSC 3500 [0.5 credit]

**Signals and Systems**

Signals: energy and power signals, discrete-time and continuous. Linear systems and convolution. Fourier Transform; complex Fourier series; signal spectral properties and bandwidth. Laplace transform and transient analysis. Transfer functions, block diagrams. Baseband and passband signals, with applications to communications systems.

Precludes additional credit for SYSC 3600 and SYSC 2500.

Prerequisite: MATH 2004.

Lectures three hours a week, problem analysis three hours alternate weeks.

Courses - Systems and Computer Engineering (SYSC)

SYSC 3501 [0.5 credit]

**Communication Theory**

Review of signals, linear systems and Fourier theory; signal bandwidth and spectra; digital waveform coding; introduction to analog and digital modulation systems; synchronization; characterization and effects of noise; link budgets; communications media and circuits; applications to current communications systems.

Precludes additional credit for SYSC 3503.

Prerequisites: MATH 3705 and SYSC 3600 and STAT 3502 (STAT 3502 may be taken concurrently).

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 3503 [0.5 credit]

**Communication Theory II**

Amplitude Modulation. Frequency Modulation. Performance of AM and FM in noise. Communication channels, channel models, noise sources, noise models. Digital modulation: ASK, FSK, PSK. Optimal reception, probability of error on the AWGN channel.

Precludes additional credit for SYSC 3501 or SYSC 4600.

Prerequisite: (SYSC 2500 or SYSC 3500) and STAT 2605.

Lectures three hours a week, laboratory, three hours alternate weeks.

SYSC 3600 [0.5 credit]

**Systems and Simulation**

Properties of linear systems. Linear dynamic models of engineering systems. Applications of the Laplace transform. Transfer functions. Block diagrams. Frequency and time response. System simulation with digital computers.

Precludes additional credit for SYSC 2500 or SYSC 3500.

Prerequisites: MATH 1005, and (ECOR 1101 or PHYS 1001).

Lectures three hours a week, laboratory three hours a week.

SYSC 3601 [0.5 credit]

**Microprocessor Systems**

Microprocessor-based system design for different microprocessor families. Microprocessors: internal organization, instruction sets, address generation, pin-outs, bus cycles, signalling waveforms. Interfacing memory and I/O devices. Interrupt structures, direct memory access. Floating point coprocessors. System bus standards. Introduction to DSPs.

Precludes additional credit for ELEC 4601.

Prerequisites: ELEC 2607, and SYSC 2003 or permission of the department.

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4001 [0.5 credit]

**Operating Systems**

Introduction to operating system principles. Processes and threads. CPU scheduling. Managing concurrency: mutual exclusion and synchronization, deadlock and starvation. Managing memory and input/output. Concurrent programming, including interprocess communication in distributed systems.

Precludes additional credit for SYSC 3001.

Prerequisites: (SYSC 2002 or SYSC 2100) and (SYSC 2003 or SYSC 3006).

Lectures three hours a week, laboratory /problem analysis two hours a week.

SYSC 4005 [0.5 credit]

**Discrete Simulation/Modeling**

Simulation as a problem solving tool. Random variable generation, general discrete simulation procedure: event table and statistical gathering. Analyses of simulation data: point and interval estimation. Confidence intervals. Overview of modeling, simulation, and problem solving using SIMSCRIPT, MODSIM, and other languages.

Also offered at the graduate level, with additional or different requirements, as SYSC 5001, for which additional credit is precluded.

Prerequisite: (STAT 2605 or STAT 3502) and fourth-year status in Engineering, or permission of the Department.

Lectures three hours a week, laboratory one hour a week.

SYSC 4101 [0.5 credit]

**Software Validation**

Techniques for the systematic testing of software systems. Software validation and verification, software debugging, quality assurance, measurement and prediction of software reliability. Emphasis on the treatment of these topics in the context of real-time and distributed systems.

Prerequisites: SYSC 3100 and SYSC 4800 (SYSC 4800 can be taken concurrently).

Lectures three hours a week, laboratory/problem analysis three hours alternate weeks.

SYSC 4102 [0.5 credit]

**Performance Engineering**

Techniques based on measurements and models, for predicting and evaluating the performance of computer systems. Instrumentation. Simple queueing models and approximations. Techniques for modifying software designs to improve performance.

Also offered at the graduate level, with additional or different requirements, as SYSC 5101, for which additional credit is precluded.

Prerequisites: STAT 3502, and (SYSC 3001 or SYSC 4001).

Lectures three hours a week, laboratory/problem analysis three hours alternate weeks.

SYSC 4105 [0.5 credit]

**Engineering Management**

Introduction to engineering management: management of new products, management of manufacturing processes, management of the linkages between new products and manufacturing processes. Current theories, concepts and techniques are stressed, using a combination of readings, cases and guest speakers.

Prerequisite: fourth-year status in Engineering.

Lectures three hours a week.

SYSC 4106 [0.5 credit]

**Software Product Management**

Stages of the life cycle of software products and their implications for architecture definition, requirements specification, variety, target market segmentation, adoption, roll-out plans, documentation, maintenance, skills, building prototypes, testing, feature prioritization, quality and tools infrastructures.

Prerequisite: SYSC 3100 or SYSC 3020 or SYSC 3120 (SYSC 3020 and SYSC 3120 can be taken concurrently) or COMP 3004..

Lectures three hours a week, laboratory/problem analysis two hours a week.

SYSC 4107 [0.5 credit]

**Software Business**

Establishing and growing businesses anchored on software design and development. Models for software business; partnerships with suppliers and customers; distribution; raising money; intellectual property protection; evolving core products and sources of competitive advantage; alignment among the business model, infrastructures, and software development.

Prerequisite: fourth-year status in Engineering or Computer Science.

Lectures three hours a week.

SYSC 4120 [0.5 credit]

**Modelling Software Design**

Importance of modelling software design. Software design in software engineering. Current techniques, notations, methods, processes and tools used in software design. Software system design, object design, design patterns; UML modelling. Quality assurance of designs. Modelling state-based behaviour.

Precludes additional credit for SYSC 3020.

Prerequisite: SYSC 3120.

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4201 [0.5 credit]

**Ethics, Research Methods and Standards for Biomedical Engineering**

Ethical theories, ethical decision-making, codes; human and animal experimentation, consent, practices of ethical review boards; research methods and regulations for design, manufacture, certification of medical devices; data collection, management, analysis, including security, confidentiality, privacy; bioethical dilemmas, impact of technology and research (social, political, financial).

Prerequisite: fourth-year status in Biomedical and Electrical Engineering or Biomedical and Mechanical Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

SYSC 4202 [0.5 credit]

**Clinical Engineering**

Overview of the Canadian health care system; brief examples of other countries; clinical engineering and the management of technologies in industrialized and in developing countries; safety, reliability, quality assurance; introduction to biomedical sensor technologies; applications of telemedicine; impact of technology on health care.

Prerequisites: fourth-year standing in Biomedical and Electrical or Biomedical and Mechanical Engineering, or fourth-year standing in Engineering and permission of the Department.

Lectures three hours a week, problem analysis three hours alternate weeks.

SYSC 4203 [0.5 credit]

**Bioinstrumentation and Signals**

Bioinstrumentation and biological signals; instrumentation systems, noise, and electrical safety; bioelectric signals; biomagnetic signals; measurement of flow and pressure; data acquisition; signal processing; biomedical imaging technologies; amplifier design for biosensors; major physiological systems and associated measurements.

Prerequisites: (SYSC 3600 or SYSC 3500) and (ELEC 2507 or ELEC 3605) and fourth-year status in Biomedical and Electrical Engineering or fourth-year status in Biomedical and Mechanical Engineering.

Lectures three hours a week, laboratory/problem analysis three hours alternate weeks.

SYSC 4205 [0.5 credit]

**Image Processing for Medical Applications**

Two-dimensional signals, filters, and Fourier transforms. Image acquisition, sampling, quantization and representation. Image perception. Digital and film cameras. Medical imaging technologies. Image processing operations: histogram, convolution, morphological, segmentation, registration. Image compression and formats.

Prerequisites: MATH 3705 and fourth-year status in Engineering.

Lectures three hours a week, laboratory/problem analysis three hours alternate weeks.

SYSC 4405 [0.5 credit]

**Digital Signal Processing**

Discrete time signal and system representation: time domain, z-transform, frequency domain. Sampling theorem. Digital filters: design, response, implementation, computer-aided design. Spectral analysis: the discrete Fourier transform and the FFT. Applications of digital signal processing.

Prerequisite: SYSC 2500 or SYSC 3500 or SYSC 3600.

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4502 [0.5 credit]

**Communications Software**

Layered communication software models and Internet protocols. FSM, EFSM, and MSC. APIs and socket programming. Routing algorithms and data structures. Packet scheduling algorithms and real-time operating systems. Layer integration and implementation issues. Precludes additional credit for SYSC 3502.

Prerequisites: SYSC 4602 and (SYSC 2004 or SYSC 2100), and fourth year status in Electrical Engineering, Computer Systems Engineering, or Software Engineering, or third year status in Communications Engineering.

Lectures three hours a week, problem analysis three hours alternate weeks.

SYSC 4504 [0.5 credit]

**Distributed Network Processing**

Software aspects of distributed networks. Client-server systems. Internet and the WWW. LAN's and WAN's, routing protocols. Transportable software, Java applets. Use of modern software tools in communication network monitoring and analysis. Network management.

Prerequisite: (SYSC 2004 or SYSC 2100) and (SYSC 3502 or SYSC 4502 or SYSC 4602) (SYSC 4602 may be taken concurrently).

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4505 [0.5 credit]

**Automatic Control Systems I**

Review of Laplace transform techniques. Effects of feedback: frequency response, pole-zero positions. Compensation: root locus, Bode plots. State variables: formulation, solution of linear systems, examples of simple second-order non-linear systems. Discrete time systems: z-transforms. Signal reconstruction.

Precludes additional credit for MAAE 4500.

Prerequisites: MATH 2004 and (SYSC 2500 or SYSC 3500 or SYSC 3600).

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4507 [0.5 credit]

**Computer Systems Architecture**

History of computers: evolution of concepts, influence of technology, techniques to increase performance. Detailed analysis and design of ALUs, control units, memory systems. Multiprocessor systems, pipeline and array processing. Scalable, superscalar, RISC, CISC, fault tolerant, and digital signal processing architectures.

Prerequisite: ELEC 2607 and (SYSC 2001 or SYSC 3006).

Lectures three hours a week, laboratory/problem analysis one hour a week.

SYSC 4600 [0.5 credit]

**Digital Communications**

Review of probability, random variables, signal representation. Baseband data transmission: Nyquist criterion, equalization, optimal receiver, error probability. Digital modulation, performance. Synchronization. Introduction to information theory. Error detection and correction. Spread spectrum. Applications to current digital wired and wireless communications systems.

Precludes additional credit for SYSC 3503 and SYSC 4604.

Prerequisites: SYSC 3501 and STAT 3502.

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4602 [0.5 credit]

**Computer Communications**

Layered protocol architectures, OSI. Physical media, physical layer interfaces, data transmission. Data-link protocols, multiplexing, polling. LANs, IEEE 802 standards, performance. Switched Ethernets, FDDI, bridges. Wide area networks, packet-switching networks, X.25. Frame relay, internetworking, DoD protocols, TCP, UDP. ATM LANs, adaptation layers, traffic issues.

Prerequisite: STAT 2605 or STAT 3502 (may be taken concurrently), and fourth-year status in Biomedical and Electrical, Electrical, Computer Systems, Software, or Sustainable and Renewable Energy Engineering, or third-year status in Communications Engineering.

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4604 [0.5 credit]

**Digital Communication Theory**

Introduction to information theory, source coding and data compression, Error control coding, Trellis coded modulation, advanced topics of current interest: spread spectrum; digital wireless communications.

Precludes additional credit for SYSC 4600.

Prerequisite: SYSC 3503.

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4607 [0.5 credit]

**Wireless Communications**

Wireless radio channel characterization, diversity, equalization; cellular architecture, multiple access principles, spread spectrum systems, radio resource management; examples from modern wireless systems, networks, and standards, including cellular networks, WLANs, ad hoc networks, and satellite systems.

Prerequisite: SYSC 3501 or SYSC 3503.

Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4700 [0.5 credit]

**Telecommunications Engineering**

Telecommunications as a national and international infrastructure. Systems view of network architecture: transmission, access, switching, multiplexing, signalling, and teletraffic. Network planning, management, security and control. Role of government, regulation and competition. Current telecommunications network evolution.

Prerequisites: fourth-year status in Electrical, Computer Systems or Communications Engineering, and (SYSC 3501 or SYSC 3503).

Lectures three hours a week, laboratory/problem analysis three hours alternate weeks.

SYSC 4701 [0.5 credit]

**Communications Systems Lab**

Project-oriented level experience in the design of communication systems to meet user requirements. Lectures on queuing theory and teletraffic analysis; system specification and design: requirements analysis, solution alternatives, evaluation of alternative technologies, design, costing, implementation, test.

Prerequisite: fourth-year status in Communications Engineering.

Lectures two hours a week, laboratory four hours a week.

SYSC 4800 [0.5 credit]

**Software Engineering**

Review of software lifecycles and requirements analysis. Software design, with emphasis on methods for real-time systems. Testing, verification and validation, quality assurance and control. Project planning and management. Maintenance and configuration management. Software reuse during design and maintenance.

Prerequisites: SYSC 3001 and SYSC 3100 and SYSC 3303 (SYSC 3001 and SYSC 3303 may be taken concurrently). Lectures three hours a week, laboratory three hours alternate weeks.

SYSC 4805 [0.5 credit]

**Computer Systems Design Lab**

Developing professional-level expertise in selected, important areas of the field by applying, honing, integrating, and extending previously acquired knowledge in team projects in the laboratory. Lecture periods are devoted to new knowledge required for the selected areas, to project-related issues, and to student presentations.

Prerequisites: SYSC 3303 and (SYSC 3020 or SYSC 4800) and fourth-year status in Computer Systems Engineering (students are encouraged to enrol in both SYSC 4800 AND 4805 in the same academic year).

Lectures two hours a week, laboratory four hours a week.

SYSC 4806 [0.5 credit]

**Software Engineering Lab**

Applying the full spectrum of engineering and programming knowledge acquired in the program through team projects in the laboratory. Practice in doing presentations and reviews. Lectures will discuss software engineering issues as they relate to the projects, from a mature point of view.

Prerequisite: SYSC 4800 or SYSC 4120 and fourth-year status in Software Engineering.

Lectures two hours a week, laboratory four hours a week.

SYSC 4906 [0.5 credit]

**Special Topics**

At the discretion of the Department, a course dealing with selected advanced topics of interest to students in Biomedical and Electrical, Communications, Computer Systems, Electrical, Software Engineering, and Engineering Physics may be offered.

Prerequisite: permission of the Department.

SYSC 4907 [1.0 credit]

**Engineering Project**

Student teams develop professional-level experience by applying previously acquired knowledge to a major design project. Lectures discuss project-related issues and student presentations. A project proposal, interim report, oral presentations, and a comprehensive final report are required.

Prerequisites: fourth-year status in Engineering and ECOR 4995 (may be taken concurrently). Certain projects may have additional prerequisites.

Lecture one hour a week, laboratory seven hours a week.

SYSC 4917 [1.0 credit]

**Biomedical Engineering Project**

Student teams develop professional-level experience by applying previously acquired knowledge to a major design project in biomedical engineering. Lectures discuss project-related issues and student presentations. A project proposal, interim report, oral presentations, and a comprehensive final report are required.

Prerequisites: fourth-year standing in Biomedical and Electrical Engineering and ECOR 4995 (may be taken concurrently). Certain projects may have additional prerequisites.

Lecture one hour a week, laboratory seven hours a week.

SYSC 4927 [1.0 credit]

**Software Engineering Project**

Student teams gain professional-level experience by applying and extending previously acquired knowledge in a major design project in software engineering. Lectures discuss project-related issues and student presentations. A project proposal, interim report, oral presentations, and a comprehensive final report are required.

Prerequisites: fourth-year status in Software Engineering and ECOR 4995 (may be taken concurrently). Certain projects may have additional prerequisites.

Lecture one hour a week, laboratory seven hours a week.

SYSC 4937 [1.0 credit]

**Communications Engineering Project**

Student teams gain professional-level experience by applying and extending previously acquired knowledge in a major design project in communications engineering. Lectures discuss project-related issues and student presentations. A project proposal, interim report, oral presentations, and a comprehensive final report are required.

Prerequisites: fourth-year status in Communications Engineering and ECOR 4995 (may be taken concurrently). Certain projects may have additional prerequisites.

Lecture one hour a week, laboratory seven hours a week.

## Technology, Society, Environment Studies (TSES)

**Technology, Society, Environment Studies Committee**  
**Faculties of Arts and Social Sciences, Engineering and Design, Public Affairs, Science**

TSES 2006 [0.5 credit]

### **Ecology and Culture**

Cultural adaptations to the environment are set within globalization processes. New ecologies – symbolic, historical and political – arise out of the hubris of classical models. The advocacy role of applied ecological anthropology and the consequences of Western cultures' adaptive capacities will be examined. (Also listed as ANTH 2815.)

Prerequisite: ANTH 1001 and ANTH 1002 or SOCI 1001 and SOCI 1002 and second-year standing, or permission of the Department of Sociology and Anthropology. Lectures three hours a week.

TSES 2305 [1.0 credit]

### **Ancient Science and Technology**

Development of science and technology in the ancient world and their practical application. The craftsman and artisan in society; the attitude of intellectuals to science and manual labour. Effects of the institution of slavery. Suitable for students with no previous knowledge of Greece or Rome. (Also listed as CLCV 2305.)

Prerequisite: second-year standing or equivalent. Lectures two hours a week.

TSES 3001 [0.5 credit]

### **Technology-Society Interactions**

Ethical issues in introducing technology; historical review of technology and human development; effects on society of medical and communications technologies; automation and its effects on society, especially work; impact of technology on international affairs, especially through multinational enterprises. Guest lectures. Precludes additional credit for TSES 3000 and TSES 3500.

Prerequisite: at least second-year standing. Lectures and workshops three hours per week.

TSES 3002 [0.5 credit]

### **Energy and Sustainability**

History of energy use by humans; utilization of renewable energy sources; energy and agriculture; energy and mineral resources; options for electricity generation; nuclear energy; risks of accidents in large systems, e.g. nuclear plants, hydroelectric dams. Guest lectures.

Precludes additional credit for TSES 3000 and TSES 3500.

Prerequisites: at least second-year standing. Lectures and workshops three hours per week.

TSES 3500 [0.5 credit]

### **Interactions in Industrial Society**

Ethical issues involving technology; effects on society of automation, medical and communications technologies; technology and international affairs; energy use by humans; renewable energy sources; energy in agriculture and mineral extraction; electricity generation; nuclear energy; accidents in large systems, e.g. nuclear plants and hydroelectric dams. Guest lecturers. Lectures in common with TSES 3001 and TSES 3002.

Precludes additional credit for TSES 3001, TSES 3002 and TSES 3000.

Prerequisites: at least second-year standing. Lectures three hours per week for both terms.

TSES 4001 [0.5 credit]

### **Technology and Society: Risk**

Examines the complex practice of evaluating technology's impact on society and the environment; risk analysis; cost-benefit analysis; technology regulation; retrospective project assessment; necessary aspects of assessment and assessment examples. Guest lecturers. Prerequisite: third-year standing or equivalent.

Lectures and workshops three hours a week.

TSES 4002 [0.5 credit]

### **Technology and Society: Forecasting**

Methods used for forecasting technological and social change; technological and social change portrayed in literature; science fiction factors involved in such change. Guest lecturers.

Prerequisite: third-year standing or equivalent. Lectures and workshops three hours a week.

TSES 4003 [0.5 credit]

### **Technology and Society: Innovation**

Technological and social innovation, especially in Canada: historical examples; the relation of innovation to economic development; analysis of the steps involved; effect on employment; impediments and incentives. Guest lecturers.

Prerequisite: third-year standing or equivalent. Lectures and seminars three hours a week.

TSES 4005 [0.5 credit]

### **Information Technology and Society**

Investigation of the human and social impacts of electronic information and communication on our working, educational, and personal lives from various disciplinary perspectives; problem issues and competing values in the creation, manipulation, dissemination, and control of information are identified; resolution initiatives encouraged. Guest lecturers.

Prerequisite: third-year standing or equivalent. Lectures and seminars three hours a week.

TSES 4006 [0.5 credit]

### **Technology and Society: Work**

Explores the relationship between technology, employment and the individual; work organizations; employment restructuring; rural/urban split; the impact of information technologies; demographic impacts and globalization; Canadian issues and public policy explored. Guest lecturers.

Prerequisite: third-year standing or equivalent. Lectures and workshops three hours a week.

TSES 4007 [0.5 credit]

### **Product Life Cycle Analysis**

Life cycle analysis of products and processes, from resource extraction through design and use to waste management or recycling; social and environmental implications of product design and use; how we value material objects and the environment; consumerism; evolution of design. Guest lectures.

Prerequisite: third-year standing or equivalent. Lectures and workshops three hours a week.

TSES 4008 [0.5 credit]

### **Environmentally Harmonious Lifestyles**

Brief history of humans as part of the ecosystem; religious and ethical views; current degree of disturbance of the ecosystem by industrial society; innovations in products and services furthering the sustainability of the ecosystem, with emphasis on the Canadian context. Guest lecturers and a major group project.

Prerequisites: third-year standing or equivalent and permission of the Chair of TSE. Lectures and seminars three hours a week.

TSES 4009 [0.5 credit]

**Special Topics**

Reading course for students who wish to investigate a particular topic relevant to TSES.

Prerequisites: third-year standing or equivalent and permission of the Chair of TSE.

TSES 4010 [0.5 credit]

**Special Topics**

Specific topics of current interest. Topics may vary from year to year.

Prerequisite: third-year standing or equivalent.

Lectures three hours a week.

TSES 4011 [0.5 credit]

**Technology and Society: Development**

Created in collaboration with Engineers Without Borders Carleton, the course explores appropriate ways of meeting technological needs of communities. Uses Canadian and African case studies to examine how capacity building has a greater impact than simple delivery of technological goods.

TSES 4012 [0.5 credit]

**Science and Fiction: Creating Tomorrow**

Scenarios are used to speculate about the planned future. Science fiction and speculative fiction project ideas about imagined futures. Using readings from scenarios, speculative fiction and science fiction the course explores the mutual shaping of fiction, science and technology.

## Women's and Gender Studies (WGST)

### Pauline Jewett Institute of Women's and Gender Studies Faculty of Arts and Social Sciences

WGST 1808 [1.0 credit]

#### Introduction to Women's and Gender Studies

Overview of the major issues in women's and gender studies. Topics include the social construction of femininity and masculinity, violence, sexuality, representations of women, the treatment of women in the workplace and in education, women and the arts, and women's health.

Lectures and discussion three hours a week.

WGST 2800 [0.5 credit]

#### Critical Intersections of Gender, Race and Class

Critical examination of the ways in which gender as a relation of power and social identity interrelates with social inequalities such as colonialism, racism, poverty and heterosexism. Social experiences of diverse women and men. The content is both Canadian and transnational.

Prerequisite: one of WGST 1808, HUMR 1001, FYSM 1402 or FYSM 1403 or permission of the Institute of Women's and Gender Studies.

Lectures and discussion three hours a week.

WGST 2801 [0.5 credit]

#### Activism, Feminism, and Social Justice

A comparative, interdisciplinary examination of feminist activism in the modern era. A range of perspectives and materials are used to examine the objectives, scope, and impact of feminists' efforts to effect social and political change in different historical, cultural, and national settings.

Prerequisite: second-year standing.

Lectures and discussion three hours a week.

WGST 2802 [0.5 credit]

#### Selected Topics in Women's and Gender Studies

An interdisciplinary analysis of one or more topics in women's and gender studies.

Prerequisite: second-year standing.

Lectures and discussion three hours a week.

WGST 2803 [0.5 credit]

#### Gender, Sexuality and the Body

The 'body' as represented in historical, sociological, cultural and theoretical discourses. Interdisciplinary readings and materials. Topics may include: shifting ideas of the body throughout history to the present, comparative perspectives on the regulation, disciplining, shaping of the body and meanings of embodiment.

Prerequisite: second-year standing.

Lectures and discussion three hours a week.

WGST 2804 [0.5 credit]

#### Selected Topics in Women's and Gender Studies

An interdisciplinary analysis of one or more topics in women's and gender studies.

Prerequisite: second-year standing.

Lectures and discussion three hours a week.

WGST 3003 [0.5 credit]

#### Selected Topics in Women's and Gender Studies

An interdisciplinary analysis of one or more topics in women's and gender studies.

Prerequisite: third-year standing and 1.0 credit in WGST.

Seminar three hours a week.

WGST 3004 [0.5 credit]

#### Gender and Literature

Study of autobiographical writing, novels, short stories, and poetry by women writing in the 1970s, 1980s, and 1990s in a variety of cultural settings. Cross-cultural point of view informed by poststructuralist feminist criticism. All texts available in English translation.

Precludes additional credit for WOMN 3002 [1.0] (no longer offered).

Prerequisite: third-year standing and 1.0 credit in WGST or permission of the Institute of Women's and Gender Studies.

Seminar three hours a week.

WGST 3005 [0.5 credit]

#### Selected Topics in Women's and Gender Studies

An interdisciplinary analysis of one or more topics in gender and women's studies.

Prerequisite: third-year standing and 1.0 credit in WGST.

Seminar three hours a week.

WGST 3809 [0.5 credit]

#### Feminist Thought I

Interdisciplinary approach to introducing students to emerging feminist literatures in the humanities and in the social, natural and applied sciences. Themes, issues and conflicts in feminist theory, including debates around the concept of 'woman', the politics of difference, feminist knowledge, power, the body, and performances of gender.

Precludes additional credit for WOMN 3808 [1.0] (no longer offered).

Prerequisite: Major or Minor in Women's and Gender Studies and third-year standing.

Seminar three hours a week.

WGST 3810 [0.5 credit]

#### Feminist Research in our Contemporary World

Examination of feminist methodologies and critiques of prevailing approaches to the construction of knowledge. Feminist epistemology, subjectivity, and ethics in feminist research are central themes.

Precludes additional credit for WOMN 3808 [1.0] (no longer offered).

Prerequisite: WGST 3809, Major or Minor in Women's and Gender Studies and third-year standing, or permission of the Institute of Women's and Gender Studies.

Seminar three hours a week.

WGST 4900 [0.5 credit]

#### Independent Study

Reading or research course supervised by a faculty member. Written proposal approved by the supervisor must be submitted before last day of course changes. Normally, only 0.5 credit of independent study may be counted in the program.

Prerequisites: fourth-year standing in a Women's and Gender Studies program or permission of the Institute of Women's and Gender Studies.

WGST 4901 [0.5 credit]

#### Selected Topics in Women's and Gender Studies

Prerequisite: fourth-year standing and 1.0 credit in WGST or permission of the Institute of Women's and Gender Studies.

Seminar three hours a week.

WGST 4902 [0.5 credit]

#### Selected Topics in Women's and Gender Studies

Prerequisite: fourth-year standing and 1.0 credit in WGST or permission of the Institute of Women's and Gender Studies.

Seminar three hours a week.



WGST 4903 [0.5 credit]

**Women's and Gender Studies Practicum**

Experience in research through a combination of classroom seminars and a field placement. Each project will be negotiated individually as a contract between the student, instructor and institutional partner.

Prerequisite: fourth-year standing in B.A. Hons. Women's and Gender Studies program.

WGST 4904 [1.0 credit]

**Women's and Gender Studies Practicum**

Experience in research through a combination of classroom seminars and field placement. Each project will be negotiated individually as a contract between the student, instructor and institutional partner. This full-credit course is offered intensively in one term.

Precludes additional credit for WGST 4903.

Prerequisite: fourth-year standing in B.A. Hons. Women's and Gender Studies program and permission of the Institute.

WGST 4905 [1.0 credit]

**Honours Research Project in Women's and Gender Studies**

Students will undertake a major research project on some aspect of women's and gender studies under the supervision of a faculty member.

Prerequisite: a major CGPA of at least 11.00, plus WGST 3809 and WGST 3810 and fourth-year standing in B.A. Hons. Women's and Gender Studies program, or permission of the Institute of Women's and Gender Studies.

WGST 4906 [0.5 credit]

**Feminist Thought II**

The intellectual and social origins of feminist thought. The contributions of, and tensions between, various feminist theoretical frameworks.

Prerequisite: WGST 3809 or permission of the Institute of Women's and Gender Studies.

Seminar three hours a week.

WGST 4909 [0.5 credit]

**Selected Topics in Women's and Gender Studies**

Prerequisite: fourth-year standing and 1.0 credit in Women's and Gender Studies or permission of the Institute of Women's and Gender Studies.

Seminar three hours a week.

WGST 4910 [0.5 credit]

**Selected Topics in Women's and Gender Studies**

Prerequisite: fourth-year standing and 1.0 credit in Women's and Gender Studies or permission of the Institute of Women's and Gender Studies.

Seminar three hours a week.